Summary of CTCN Regional Forum

for National Designated Entities (NDEs)

from Asia and the Pacific

and the Regional Technical Expert Meeting (TEM),

in parallel with the Korea Climate Technology 2018

Seoul, Republic of Korea (16th – 20th July 2018)

Introduction

The Climate Technology Centre and Network (CTCN) is the implementation arm of the Climate Change Convention (UNFCCC) Technology Mechanism. The CTCN promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. More specifically, the CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries. As a part of its mandate and as one of its activities, the CTCN, the Ministry of Science and ICT of the Republic of Korea and the Green Technology Center (GTC) jointly organized **the CTCN Regional Forum for NDEs from Asia and the Pacific** on 16th to 20th of July 2018 in Seoul, Republic of Korea.

In addition to the Regional Forum for NDEs, the **Technical Expert Meeting (TEM**), as a one-day session on July 19, was organized as part of the Technical Examination Process (TEP). The regional TEM focused on the links between climate change adaptation and mitigation through the nexus approach using the water-energy-food nexus as a learning-by-doing example. In parallel, the participants had the opportunity to attend the **Korea Climate Technology 2018**, hosted by the Ministry of Science and ICT (July 18) and one-day **climate technology field visit** (July 20), organized by the Ministry of Science and ICT and the GTC.

The main objectives of the forum were to:

- Clarify the importance of climate technologies within the Paris Agreement;
- Promote South-South and North-South learning concerning priority climate technologies in the region;
- Strengthen collaboration and enhance linkages between CTCN stakeholders and counterparts within other mechanisms under the Convention;
- Create networking opportunities through showcasing innovative climate technologies that respond to country priorities and support implementation of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs); and
- Provide inputs to TEP and Talanoa Dialogue through the regional TEM.

During this Regional Forum, more than 80 participants including NDEs from 19 Asian-Pacific countries, NDA, selected Consortium Partners, Network Members, UNFCCC Secretariat, Green Climate Fund(GCF), and other climate experts shared their experiences and best practices from (or/and with) the CTCN.

All presentations and pictures are available on the CTCN website : https://www.ctc-n.org/calendar/fora/ctcn-regional-forum-national-designated-entities-ndes-asia-and-pacific

For more information about the CTCN, please visit www.ctc-n.org

Pictures from the Forum

Key points from discussions

Day 1: 16 July 2018 (Monday) / Maple Hall (4F), the Plaza Hotel Seoul

▶10:00 – 10:30 **Setting the Stage: Regional Priorities**
Chair: Mr. Woo Sung Lee (STEPI)
Presentations:
● Analysis of technology priorities from planning documents **(Ms. Inhye Bak, GTC)**

- Overview of the Asia-Pacific Region

The Asia-Pacific region is home to more than a half of the global population. While the region is known for its history of remarkable development, the development has not been equally distributed. At the same time, the region is a major contributor to climate change and greenhouse gas (GHG) emissions. Subsequently, the region is the largest recipient and spender of climate related finance.

- Major Challenges Expected

Temperature increase has been observed in many countries in Asia-Pacific. Another challenge is water scarcity, which is expected to be a source of concern not only in the cities but also in rural areas. Meanwhile, climate change can affect food production, leading to food security issues in some areas.

On the other hand, sea level rise can diminish access to fresh water for people living in low-lying coastal areas, especially in the Pacific islands. There are also concerns about food supply and infrastructure damage in coastal regions.

Such negative impacts can lead to severe problems, which are expected to hit those suffering from poverty hard.

- Mapping of Prioritized Sector (TNA) – Adaptation, Mitigation.

(Adaptation) There are similarities between the technology demand in Asia-Pacific and the technology demand in the world. Specifically, based on an analysis of completed TNAs, there are four top priorities in adaptation technology for Asia including (i) agriculture and livestock, (ii) water management, (iii) ocean, marine, coast area, and (iv) climate change monitoring and forecasting.

(Mitigation) In the TNA documents available in Asia-Pacific, energy demand and renewable energy are mainly discussed. In terms of energy demand, public transportation, traffic management, vehicle technologies are involved. In addition, the wider use of efficient lighting (expansion of use of CFL and LED) is considered. In terms of renewable energy, solar power, hydropower, wind power are included.

- Technology Demands from INDCs/NDCs

In adaptation, climate change monitoring and forecasting ranked first among technology demand

in the Asia-Pacific region. In mitigation, renewable energy ranked first among technology demand in the Asia-Pacific region.

In adaptation, climate change monitoring and forecasting ranked high because the region is very vulnerable to natural disasters and climate change; therefore, climate change monitoring and forecasting have a significant role. In terms of agriculture, there are demands for technologies for a diversification of agriculture supply and improvement of farming industry for agriculture and livestock.

In mitigation, there are four major aspects that are prevalent in most of the regions INDCs/NDCs including renewable energy, transportation, energy efficiency and waste management.

● Priorities from the GCF Structured Dialogue for Asia **(Mr. Jung-Hwan Kim, GCF)**

-   Snapshot from GCF Structured Dialogue for Asia: Da Nang, Vietnam (17-20 April 2018)
The GCF Structured Dialogue for Asia in Da Nang was recently held, and future dialogues have been scheduled.

There were 26 Asian countries in Da Nang discussing the needs and priorities for each country. Their participation led to 28 new projects including 11 mitigation projects, 16 adaptation projects and one cross-cutting project.

One interesting aspect in Da Nang was that only public sector financing was involved. In fact, GCF is promoting public sector involvement in this regard. Another interesting aspect was that each country showed preference for different funding models. Some countries wanted to rely on direct-access entities, while others preferred international accredited entities. In short, as there are different technological needs, different approaches for financing are preferred.

-   Outcomes from GCF Structured Dialogue for Asia
In order to make a country programme successful, there are several key issues to remember.
First, it is necessary to realize strategic alignment and prioritization of climate change with national priorities. Second, national stakeholders should engage to provide a strong foundation. Third, a strong rationale for climate action and activities is required; in other words, it has to be based on evidence. Fourth, it is necessary to have an understanding of financial instrument to be accessed. Fifth, not only environmental but also social risks should be managed carefully.

-   GCF 8 Strategic Impact Areas: *Opportunities to collaborate with CTCN*
With regards to mitigation, emissions can be reduced from energy generation and access, transport, forests and land use, buildings, cities, industries, and appliances.
Considering adaptation, resilience can be increased in terms of health, food and water security, livelihoods of people and communities, ecosystems and ecosystem services, and infrastructure and built environment.

There are common areas of importance in the two lists. For further collaboration with GCF and

CTCN, one can go deeper into the agenda.

▶ 11:00 – 13:00 **Session 1: CTCN and the Paris Agreement**
Chair: Mr. Suil Kang (TEC)
Presentations:

● Overview of the Technology Mechanisms **(Ms. Wanna Tanunchaiwatana, UNFCCC Secretariat)**

- History and Evolution

There are major milestones on technology from past UNFCC meetings. For instance, in 2001, five elements in technology transfer framework and EGTT were identified as (i) technology needs assessment, (ii) technology information, (iii) enabling environments, (iv) capacity building, (v) mechanisms for technology transfer.

In addition, at COP 13, four additional themes emerged, which are (i) innovative financing, (ii) international cooperation, (iii) endogenous technology development, (iv) collaborative R&D. These outcomes were followed by UNFCCC technology mechanism, which was launched in 2010 to enhance technology development and transfer.

In this regard, Technology Executive Committee (TEC) analyzes issue and identifies policies with 20 expert members, and implements technology transfer framework.

- Paris Agreement and Sustainable Development

The objectives under the Paris Agreement are to limit temperature rise to well below 2°C and as close as 1.5°C as possible, to increase ability to adapt to impacts and built resilience, and to make global finance flows consistent to pathway to low greenhouse gas emissions and climate resilient development. At the same time, the agreement involves a combination of regularly updated NDCs, scaled up cooperation and support, and regular stocktaking of progress towards the objective. The agreement rapidly entered into force, highlighting the importance of fighting climate change.

- Impact to Date

In planning, many countries receive support from the UNFCCC to identify their technology needs. After identifying the technology needs, the required support may be provided to implement technology-related activities.

When it comes to the CTCN, TNAs, and other activities, under the technical assistance service area have resulted in almost 150 requests received from 80 countries. While the achievement is remarkable, there needs to be a way to support more countries as well.

- Technology Provisions in the Paris Agreement

In the Paris agreement, the technology framework provides guidance to the Technology Mechanism as it supports the implementation of the agreement. Responding to developing countries is crucial; the importance explains why CTCN has a solid constituency of partners and

consortiums in regions.

Looking at NDCs of developing countries, 70% include support for technologies. Surprisingly, TNA process are only specified in 18% leaving scope to make the ratio higher.

- Conclusions

The Paris Agreement is based on national action with support provided to developing countries. Meanwhile, TNAs and NDCs of developing countries highlight priorities and opportunities for national action and give insights into key areas that need support.

In this regard, one of the important areas to emphasize is climate finance for technologies. It is necessary to provide support in order to ensure that climate policy and regulation redirects financial flows to green investment activities and projects. At the same time, there are other key areas such as capacity development.

● UN Climate Convention Decisions on Technology **(Mr. Jukka Uosukainen, CTCN)**

- CTCN at COP 23

From COP 23, key outcomes of interest to CTCN were observed as following.

(i) Talanoa Dialogue/pre-2020 involving supporting Paris work programme, a year-long facilitative discussion chaired by COP presidencies, actions towards long-term goal, technical examination process, and technology expert meetings.

(ii) Independent review of CTCN involving renewal of hosting agreements, recommendations, and response.

(iii) Technology framework involving submissions and key themes.

(iv) Strengthened collaboration with TEC, GCF, GEF, and other stakeholders since it is necessary to work with technological partners.

- Summary from 11th advisory board meeting

CTCN presented a forward-looking Vision 2025 and Programme of Work. Some of the important areas are monitoring and evaluation of activities and associated impacts. In this regard, the CTCN is strengthening its focus on collecting and disseminating concrete data indicating reduction of emissions or the number of beneficiaries.

- Key Transformational Technologies from CTCN Work

Some of the technologies are carried out, but not all technologies are implemented in all countries. Each country is in a unique situation, and different technologies should be implemented to address each problem.

- Other Key Strategic Priorities

The 2019-2022 Programme of Work focuses on the transformational impact, regional request, maximizing use of resources, and technology framework support. In this regard, providing a quick response is critical. In this regard, reorganization of CTCN involves regional basis and single point of entry. Lastly, there are implications of NDEs as well.

● Introduction to CTCN product lines **(Ms. Jaime Webbe, CTCN)**

- CTCN Service Areas and Core Sectors

CTCN works both in mitigation and adaptation. In mitigation and adaptation, there are three service areas of CTCN. The three service areas are (i) technical assistance, (ii) knowledge sharing and capacity building, and (iii) collaboration and networking. These services can be provided for core sectors such as agriculture, energy supply, water, etc.

- Top Five Sectors

The top five sectors that countries seek CTCN technology help from are energy efficiency, renewable energy, agriculture and forestry, water, and waste management. CTCN's work includes providing decision-making tools and information, identifying technology and priorities, giving recommendations for law, policy, and regulations, etc.

- Capacity Building – Vision to Concept

Vision to Concept model is provided by CTCN, and consists of the following three phases.
(i)   Phase 1: Capacity needs identification
This phase includes collaboration with NDEs and NDAs to map out documents to identify areas of high needs.
(ii)   Phase 2: Five-day training course
A large share of efforts goes to this phase, which finds out technology priorities and provides expertise in developing GCF proposals.
(iii)   Phase 3: Mentoring
In this phase, experts provide ongoing feedback for months. It aims to build capacity in participant countries for implementation.

- Capacity Building – Incubator

The incubator programme was established with the objective of supporting LDCs and SIDs to implement NDCs through development of technology roadmaps.
In this programme, NDCs are examined to identify for mitigation and adaptation priorities.
Different stakeholders are gathered to take technology actions and develop technology roadmaps. Since countries have specific national situations, any challenge or issue is identified in the process. At the same time, sources of funding are identified. In this regard, as discussed earlier, GCF focuses on climate relevant topics.

- Networking

The CTCN now manages a Network of over 450 climate technology stakeholders, many of which are based in the Republic of Korea (52).
In addition to bidding on technical assistance opportunities, Network members have the opportunity to participate in a number of network activities such as webinars and   G-STIC, which focuses on multilateral policymaking. CTCN leads workstream on climate technologies in this regard.

- Technical Assistance

Technical Assistance accounts for a large share of the work carried out by CTCN. Over the first 40 completed Technical Assistance projects, CTCN has conducted 130 workshops, and 650 million dollars are expected to be raised in technology investment. Moreover, 4.5 megatonnes of GHG emissions have been avoided. Importantly, the livelihoods of 80 million people have received positive impact. Technical Assistance under the CTCN is implemented by Network Members or Consortium Partners under the close direction of CTCN focal points, the National Designated Entities.

- Regional Priorities

Within Asia-Pacific, CTCN has a comparative advantage in facilitating access to financing for climate technologies through the design of bankable climate technology projects and support for the removal of barriers for investment.

The second area of advantage is in supporting trans-boundary decision-ready data collection and use.

The third area is in identifying, adapting and piloting appropriate technologies for energy and agriculture sectors. In this regard, Asia-Pacific is a high-performing technology provider especially in energy and agriculture.

Moreover, Asia is also where many mega cities are located, and this is the fourth area of advantage, which is supporting smart cities and green growth in urban areas.

Finally, the fifth area is in creating an environment for technology adoption. Since nascent technologies are emerging in Asia, stronger support from CTCN should follow.

▶ 14:00 – 15:30 **Session 2: CTCN and the Paris Agreement (cont.)**
Chair: Ms. Jaime Webbe (CTCN)

Presentations:

● Inter-linkages between the processes – mitigation **(Mr. Mareer Mohamed Husny, TEC)**

- What is the Technology Executive Committee (TEC)?

TEC is the "policy" component of the Technology Mechanism, and was established in 2010. TEC carries out analysis and provides policy recommendations to enhance climate technology development and transfer. TEC works with key partners including CTCN, AC, GCF, PCCB, etc.

- Work of the TEC

The organization involves three workstreams. First, it analyzes technology issues and provides policy recommendations. Second, it facilitates promotion of technology cooperation and partnership to scale up implementation of actions. Third, it works in collaboration of CTCN to promote coherence and synergy within the Technology Mechanism.

There are six thematic areas, including adaptation technologies, climate technology financing, emerging and cross-cutting issues, innovation and RD&D, mitigation technologies, and technology needs assessment.

- TEC and CTCN

Together, TEC and the CTCN:

- participate in meetings, events, and activities.
- co-organize events such as thematic dialogue on climate technology incubators and accelerators, regional TEM, and UNFCCC Technology Mechanism side event at COP.
- submit joint annual report to the COP, communicate with CTCN knowledge management system, and on social media as well.
- hold collaborative activities such as regional technical expert meetings. Recently, in Singapore, the two focused on specific mitigation issues.
- engage in technology research, development, and demonstration together. For instance, TEC participated in the CTCN scoping workshop as well.
- continue working together on TNAs.
- work together to strengthen the link between the Technology Mechanism and the Financial Mechanism.

- Conclusion

TEC and CTCN have continued collaboration to enhance coherence and synergy in the work of the Technology Mechanism through various ways. The collaboration enables to complement each other's role as implementation and policy arms and maximize the impact of the Technology Mechanism.

● Inter-linkages between the processes – adaptation **(Mr. Ali Shareef, Adaptation Committee)**

- Adaptation

Adaptation is driven by Article 7 of the Paris Agreement, and it is a global challenge faced by all. Article 7 of the Paris Agreement touches on enhancing adaptive capacity, strengthening resilience and reducing vulnerability. Adaptation is linked to urgent and immediate needs of developing countries, and also with contribution to the Sustainable Development Goals.

- Adaptation Committee (AC) and CTCN

AC provides technical support and guidance to the parties to the UNFCCC on adaptation action and means of implementation. In addition, AC works closely with the other national, regional and international organizations, centres and networks. The AC and the CTCN have been working closely together through joint activities, participating in each other's meetings and workshops. Moreover, an AC member serves on the CTCN's advisory board.

- Collaboration Efforts

Last year, AC prepared an overview of the landscape of existing platforms providing technical support to developing countries on adaptation.

As part of the Technical Examination Process on Adaptation (TEP-A), CTCN has been active in

working with AC on organizing a session on *Enabling Adaptation Planning through technology.* Under the theme of adaptation planning for vulnerable communities, groups and ecosystems, the session looked at how vulnerable communities and groups are being exposed to climate risks and extreme weather events and how adaptation technologies, including ecosystem-based adaptation approaches, could offer ways to reduce such risks and also ensure adequate access to basic goods and services.

● **Breakout Groups:**

The Big Question:
The mechanisms are in place to support climate technologies but what do we need to fully realize their potential?

The Chair instructed participants to form five groups and gave 45 minutes to engage in group activities**.** The five groups engaged in activities to share success stories, challenges, lessons learned, and draw three recommendations and more importantly, focus on three to four keywords to generate a word cloud.

Top 3 recommendations on enhanced collaboration
Top 3 recommendations on enhanced implementation
*The results are to be shared after the Session 3

▶ 16:00 – 17:30 **Session 3: Collaboration between the CTCN and the GCF**
Chair: Ms. Wanna Tanunchaiwatana (UNFCCC Secretariat)
Presentations:
● GCF regional portfolio and priorities **(Mr. Jung-Hwan Kim, GCF)**

- CTCN/GCF Collaboration: Exchange of Letters Signed at COP 23
The basic framework for CTCN and GCF collaboration has been already established formally at COP meeting. There are different modalities in CTCN and GCF, and the three pillars of cooperation are collaboration on technical assistance, a flexible and demand-driven coordination mechanism, and country-level collaboration between CTCN NDEs and GCF NDAs.

- Revised GCF Readiness Guidebook: Inclusion of Technology Outcomes
The Readiness guidelines have been updated. Readiness proposals involve effective coordination mechanism between NDA and NDE for the UNFCCC TEC, appropriate climate technology solutions, and market preparation and business planning.
In the end, GCF strives to achieve a remarkable result and believes that it is necessary to bring a transformative change.

- GCF Regional Portfolio and Priorities on Climate Technology
The current snapshot of GCF in climate technology indicates that nine readiness requests have been submitted by NDAs and focal points with CTCN as a delivery partner. Among the nine requests, six readiness proposals have been approved, and five out of six proposals are under

implementation. In the Asia-Pacific region, there are four countries (Thailand, Palestine, Myanmar, and Tonga) involved.

- Portfolio Composition

In terms of funding modality, data suggests that GCF is not the only one provider of funding. According to the data, co-financing scheme has a larger share. There are a variety of financial instruments including loan, grant, equity investment, and guarantee.

In the Asia-Pacific region, 28 projects are underway with the value of over $1.1 billion.

- Readiness: Four Areas of Support

Simply put, Readiness program is a type of grant program for NDAs. The main purpose is to provide capacity building opportunities for NDAs. Through the process, NDAs can be equipped with internal capacity for full project development. Having internal capacity is crucial because without such capacity, external consultants are hired and once they leave, it would be difficult to continue on with the progress.

At the same time, strategic frameworks are necessary for alignment. Another important factor is provision of support for direct access entities; GCF wants direct access entities to have stronger foundation.

- Investment Framework

Investment criteria include impact potential, paradigm shift potential, sustainable development potential, needs of recipient, country ownership, and efficiency and effectiveness.

The review process includes (i) generation of funding proposals, (ii) concept development (voluntary), (iii) submission of funding proposal, (iv) second level due diligence, (v) board decision, and (vi) legal arrangements.

● CTCN Technical Assistance related to the GCF Readiness and Preparatory Support **(Mr. Ofa Sefana, NDE Kingdom of Tonga)**

- Outcome of the Pacific SIDS Leaders' Summit 2009

In Tonga, renewable energy and energy efficiency have a highly significant role. At the summit in 2009, the country's leaders emphasized the significance of pursuing a renewably energy and energy efficiency future. Moreover, they noted that a policy mix along with fossil fuel development might serve as the best option due to a couple of reasons.

- Tonga's RE & EE Strategic Target 2020 and Beyond

In Tonga's ENERGY ROADMAP 2010-2020, the government set a target of 50% of electricity generation from renewable sources by 2020. The government has endorsed this roadmap to enable a sustainable future. Moreover, there is another goal to achieve 70% of electricity generation from renewable source by 2030 through INDC. The goal also involves improvement of energy efficiency in residential, commercial, transport, and agriculture sectors.

- CTCN's Intervention in Tonga and Tonga Energy Efficiency Master Plan (TEEMP)

With CTCN, Tonga is developing its TEEMP. Proposed activities including data collection,

benchmarking, baseline study, etc. Also, it was proposed to identify the energy efficient option with lowest cost and to develop a master plan that includes clear and quantifiable energy efficiency and greenhouse gas targets. Transportation policy options are to be added in the future as well. There are different ministries and agencies implement measures aimed at the same goal. As of now, there is dependence on renewable energy such as solar and wind; there is need to seek other options as well.

- Progress

The TEEMP draft has reached 99% completion after nine months of hard work. The next step is adoption of TEEMP and taking it to the next level; then it can be followed by integrating it with the existing policies. At the national level, the RE (Renewable Energy) and EE (Energy Efficiency) goals are pursued as part of UN SDGs.

The approach is comprehensive, and renewable options are now in place. Tonga is ready to go and continue the progress.

● Vision to Concept Capacity Building Module **(Mr. Imran Khan, NDE Islamic Republic of Pakistan)**

- Pakistan's Profile

While Pakistan's contribution to climate change is less than 1%, the country is highly vulnerable to the negative impacts. In fact, the country is categorized as one of most vulnerable countries to climate change. Its NDC target is subject to provision of finance, technology, and capacity building. The National Climate Change Policy of Pakistan emphasizes promotion and development of cleaner technologies to implement the adaptation and mitigation measures.

- Collaboration with CTCN

Pakistan is already engaging in international collaboration with CTCN and GCF. CTCN carried out a TNA in Pakistan on the request of the Ministry of Climate Change. The goal was to produce Technology Action Plans (TAP) that can be implemented, to reduce greenhouse gas emissions and increase resilience against climate change vulnerabilities, to provide a framework to transfer and diffuse cleaner technologies, etc.

- Objectives of TNA Project

In TNA I, the objective is to identify and prioritize technologies that can contribute to achieving mitigation goals. In pursing this goal, national sustainable development goals and priorities have to be met at the same time.

In TNA II, the objective is to identify and analyze barriers that might undermine efforts to acquire, deploy, and distribute technologies.

In TNA III, the objective is to develop Technology Action Plans (TAP) which discuss activities and enabling frameworks that overcome barriers and facilitate transfer of technologies.

- Institutional Structure of TNA

The TNA brings together a National Steering Committee, National TNA Project Coordinator, National TNA Committee and other institutions. Moreover, there are various institutions involved

such as federal and provincial ministries in charge of climate change, environment, renewable energy, science and technology, water, food and agriculture, etc.

- Sectors and Technologies Prioritized

(Adaptation) Primarily water and agriculture sectors were the focus of action under the TNA. In the water sector, rainwater harvesting, storm water management, and groundwater recharge are the areas of high priorities. Meanwhile, in agriculture sector, efficiency of irrigation system, climate monitoring and forecasting, and drought-tolerant crops are some of the highly prioritized areas.

(Mitigation) In mitigation, the TNA prioritized energy, forestry, and transport sectors. In energy sector, photovoltaic energy at household and institutional levels and small-scale hydro power plants are some of the priorities. In forestry, a sustainable forest management plan has an important role. In transport, rapid transport of bus and computerized vehicle tune-up are categorized as areas of priority.

- Possible Benefits and Follow-up of TNA

TNA can provide potential benefits including support for NDC and long-term goals of sustainable development. Furthermore, new opportunities for eco-friendly technologies can be generated.

Discussions:
Following the presentations, participants made the following observations:
GCF and CTCN are in close collaboration. The two may need to engage in more discussions about the needs.
At the same time, for Technical Assistance, there might be need to check GCF Readiness.
Vision to Concept is available for countries as well to provide support.
GCF Board might have to clarify the meaning of conditionality or incrementality to countries.
For Tonga, it is great for the country to consider its energy future.
TNA is an entry point; many countries need to learn about technologies and set up teams. Those with knowledge can provide help to those without. No one should be left behind.
At the same time, regular workshops can serve as learning opportunities.

● **Remarks from the Chair of Session 2 (CTCN):**
In the word cloud from today's activities, a number of keywords have emerged:
AWARENESS, KNOWLEDGE SHARING, NETWORKING, LOCAL PARTNERSHIP, UP-SCALING, REPLICATION, DIALOGUE, COORDINATION, DE-RISKING, etc.
Most recommendations focused on the role of CTCN to bring stakeholders together, support for NDEs to reach out to the governments, capacity building, etc.
In addition, it was mentioned that technologies are for local partners, and need to be client oriented.
Lastly, financing repeatedly came up as an important final point.

Day 2: 17 July 2018 (Tuesday) / Maple Hall (4F), the Plaza Hotel Seoul

▶ 09:00 – 10:30 **Session 5: Working together**
Chair: Mr. Do Trong Hoan (ICRAF)
Presentations:
● Collaboration for planning – Technology Needs Assessment **(Mr. Subash Dhar, UDP)**

- What are the TNA projects?

While TNA is a familiar concept to many participants, it may still be necessary to touch on the topic. TNAs refer to a set of activities that identify and analyze mitigation and adaptation technology priorities of developing countries.

Countries strive to align TNA projects with national development objectives, thereby exploring synergy with other national processes and implementing NDCs.

- Capacity Building

Largely, there are three steps in this linear process. The first step is identification and prioritization of sectors and technologies. The second step is identification and analysis of barriers, and identification of an enabling framework. The last step is development of technology action plan that serves as a roadmap.

In this regard, there are global workshops, national capacity building workshops, and regional centres of excellence such as AIT and USP.

- Step 1: Identification and Prioritization of Technologies

In the first step, the objective is to choose technologies to analyze and include in the Technology Action Plan. Many methodologies are used, including provision of information from technology database. In the end, a TNA report is produced.

- Step 2: Barrier Analysis and Enabling Framework

In the second step, the objective is to analyze market conditions for selected technologies, to identify barriers, and to seek solutions. In particular, this step involves training. In the end, barriers and solutions are identified and prioritized. They are usually categorized into being institutional, legal, technical, etc.

- Step 3: Technology Action Plan and Project Ideas

In the last step, the objective is to prioritize solutions to create an enabling environment for the development and adoption of climate change technologies. Moreover, this step serves to identify who will implement the solutions. TAP Guidance and training are some of methodologies used in this process.

- TNA and NDC

According to data, it was found that more than 70% of countries having a TNA referred their TNA in their NDC. Some countries such as Mali, Thailand, and Dominican Republic in TNA Phase I Countries group see TNA as measures needed for NDC.

For TNA Phase II Countries, it is slightly different because there is a disparity between priorities in TNA and NDC. The disparity stems from the design of TNA, timing, and lack of coordination.

- Conclusion

The TNAs support national strategies, policies, programmes, projects, and provide inputs to NDCs. The TNA reports are available online as well.

● Collaboration for Readiness – working with NDAs **(Mr. Syamphone Sengchandala, NDE Lao People's Democratic Republic)**

- Issues in Laos

In Laos, rapid urbanization is underway and the country is highly vulnerable to climate change. The impacts of climate change affect agriculture and fisheries, aquaculture, hydro power development, and many other aspects. Six cities are identified as vulnerable cities in the project. The project aims to build resilience in cities with ecosystem-based solutions.

- CTCN in Laos

The CTCN technical assistance involved the identification of options for ecosystem based adaptation approaches to urban flodd management in six cities. The Fast Technical Assistance (FTA) is CTCN response to requests of Laos to deepen the engineering and economic analysis of proposed options; FTA has duration up to two months.

- Lessons from Collaboration

In Laos, CTCN team and regional focal point can be very responsive and helpful. It remains true that collaboration and coordination may still face some challenges, which is a topic to be discussed in other sessions as well.

CTCN provides a clear plan to Laos, and CTCN Fast Technical Assistancek was found to be very helpful for urgent need. Moreover, CTCN provides very useful support in capacity building as well; capacity building has a significant role in Laos.

- Areas of Improvement

Despite successes, there is room for improvement. For instance, in terms of timeline, consultants' reports took longer than expectation. In terms of quality, there is need for additional support to monitor and assess the quality of deliverables. Furthermore, GCF involvement is necessary from the beginning of the technical discussions.

● Collaboration for implementation – NDEs working across countries **(Ms. Jeongin Jang, NDE Republic of Korea)**

- Korean NDE's Platform for Climate Technology Cooperation

The ministry of Science and ICT focuses on accelerating innovation across society through promoting R&D activities, securing source technologies and growth engines, and converging science and technology with ICT.

In 2015, the Ministry of Science and ICT was designated as Korea National Designated Entity (NDE) for fostering the development and transfer of technologies and interacting with CTCN. Korean NDE set up the Korea CTCN Committee, and three CTCN TA pro-bono contributions were

provided. As a result, 51 organizations are now members and all engaging in CTCN activities.

Moreover, Korean NDE currently offers support on cooperation development in the following three channels.
(i) Networking with climate technology stakeholders
(ii) Strengthening the capability
(iii) Providing technical support

- Korean NDE's Climate Technology Cooperation Case

To facilitate climate technology transfer through CTCN platform, Korean NDE launched Mitigation & Adaptation subcommittees in 2018 under the Korea CTCN Committee. The role of Korea CTCN Committee is to facilitate a network for climate technology stakeholders, users, and providers. The Korea CTCN Committee also allows for the sharing of information, case studies, and lessons learned as well as training.

For instance, workshops are held to build stronger network through CTCN activities. Korean NDE provides diverse network activities for sharing climate technology information and strengthening capacity. A number of matchmaking events are joined by both public and private sectors. Korea is also providing technical support by working with other countries in carbon capture, smart farms, etc.

Based on CTCN TA activities, Korean NDE has been providing demonstration programmes to develop and characterize prototypes and is capable of providing performance measurements in operational environments.
Based on bilateral cooperation including feasibility studies and technology demonstrations, Korean NDE supports to design and develop green projects with partner countries' NDE or NDA.

- Korean NDE's Vision and Way Forward

Under the Paris Agreement, a key tool that can promote, facilitate, and finance the transfer of climate technologies to partner countries has emerged. As a window for climate tech cooperation, Korean NDE is serving as a leader in green climate technology policy, and as a bridge of global climate tech cooperation.
Furthermore, the Korean NDE maintains a strong commitment to reduce carbon emission, enhance climate adaptation, and minimize adverse impacts from climate change through the transfer of climate technologies to partner countries. Based on the results of Technical Assistance, the Korean NDE strives to help address climate change issues and help partner countries achieve their NDCs through pro-bono support and capacity building.

▶ 11:00 – 12:45 **Session 6: Learning from Each Other – CTCN World Cafe**
Chair: Ms. Jaime Webbe (CTCN)
Presentations:
● Technical Assistance **(Mr. Rohullah Amin, NDE Islamic Republic of Afghanistan)**

- Afghanistan's Experience

Located in South Asia, Afghanistan has 54% of population below poverty. At the same time, Afghanistan has been identified among the countries with vulnerability to climate change impacts.

- Recent Steps in Afghanistan

To discuss the issue of climate change at a higher level, the National Climate Change Committee was established. Furthermore, through Action on Climate Today (ACT), Afghanistan, Pakistan, Nepal, and India are working together to implement strategies and identify initial plans.

- CTCN Technical Assistance

TNA was newly approved in Afghanistan. The objective of the TNA project is to determine climate technology priorities, to build national capacity, and to facilitate analysis and prioritization of climate technology.

Technology needs in Afghanistan were identified, and were submitted in 2014. The submission aimed to strengthen capacity for identifying climate technology priorities for Afghanistan. The Technical Assistance was also designed to raise the awareness to integrate climate technologies into policy planning process. It is cross-cutting, involving both adaptation and mitigation sectors.

Prioritized technologies include: in agriculture, crop diversification and livestock disease prevention; in water, rainwater harvesting, flood hazard mapping, and flood warning system; and in energy, photovoltaic energy, solar thermal energy, biomass, and geothermal energy are some of the priorities.

CTCN supported developing a roadmap to make climate technology a priority in key sectors, provides climate technology options, develops concepts for technology projects, and provides other assistance. Some of the main stakeholders and beneficiaries include various ministries, private companies and technology providers.

- Challenges and Recommendations

In Asia-Pacific, it is necessary to share knowledge and experience in climate technology cooperation. Furthermore, NDEs and NDAs should share climate innovation technologies for medium- to large-scale projects.

● Capacity Building **(Mr. Mukand S. Babel, AIT)**

- AIT's Experience with CTCN

As discussed on the first day, the objective of the capacity building activities within the CTCN is to strengthen the capacity of developing countries to identify technology options, make technology choices, and operate, maintain, and adapt technologies.

AIT is one of the consortium partners of CTCN. AIT has been working on incubator programs in Bangladesh and Timor-Leste, and training programmes in Bhutan, Thailand, Pakistan, and Nepal. There are also engagements that are not part of capacity building. Some of the examples include technical support, data promotion, policy framework development, feasibility study, and

implementation support.

- AIT and CTCN Capacity Building: Examples

(i) AIT and CTCN capacity building example in Bangladesh

The objective was to help the country develop requests for projects on technology transfer and development.

(ii) AIT and CTCN capacity building example in Thailand

The programme assisted technology development for climate resilience and efficient use of resources in agriculture sector.

(iii) AIT and CTCN capacity building example in Bhutan

The programme helped risk assessment and management in Bhutan to deal with floods, since floods are a serious problem in the country.

(iv) AIT and CTCN capacity building example in Pakistan

There were five modules from how to understand GCF operations to how to develop next step to finalize the draft GCF concept note.

- Reflections on Capacity Building

It was highlighted that participants are highly motivated to deal with capacity building. As discussed on the first day, it is important to translate the activities into practices.

Some of the common technical capacity needs were energy efficiency, water management, climate smart agriculture, and M&E for climate interventions

● Networking **(Mr. Kyung Nam Shin, GTC)**

- Korea's Commitment under the New Climate Regime

The Korean government submitted NDC with a GHG reduction target to reduce greenhouse gas (GHG) emissions. While it is certainly a challenging task, Korea has a strong will to address climate change and is ready to provide support to partner countries in different stages.

- GTC's Role

GTC is working and consulting with 25 leading technology providers in Korea. Therefore, it is possible to meet demands with best technologies. GTC supports major four areas: identifying technology needs, designing projects, conducting feasibility study (F/S), and linking with financial resources.

- GTC's Frame for Networking

GTC is working with a number of partners in and out of Korea, in areas of governance, technology, and finance.

There are bilateral channel, multilateral channel, and domestic channel in networks. A bilateral channel can include NDEs and government agencies. A multilateral channel can involve organizations such as CTCN, GCF, multilateral development banks, and other international organizations. A domestic channel can involve technology providers in private sector and national funding institutions. GTC has an important role in initiating discussions between

technology providers and partner developing countries.

GTC establishes a network by undergoing three phases. The first phase is building the network. The second phase is activating the network. The third phase is expanding the network. In the last phase, the network can become more viable and sustainable.

- GTC's Cooperation Cases based on Activated Network Types

In Kenya, a public-private partnership model was implemented through a CTCN Technical Assistance for which GTC won the competitive bidding process for the implementation of low-cost green technologies in water sector. In Bangladesh, a CTCN TA bid was won for saline water purification and housing technology for coastal regions.

Beyond CTCN work, in Mongolia, funding from the Asian Development Bank is provided for construction of green buildings. In Indonesia, an eco-friendly Samosir Island project was undertaken. Moreover, GTC works with a government agency in Vietnam on carbon mineralization project. GTC also works in a government agency in Indonesia for a wave power technology demonstration project; a technology proven in Korea is applied in Indonesia.

- Lessons Learned

Some of the lessons learned are:
(i) The existing network should be activated because one cannot achieve everything alone. Therefore, partners must go together.
(ii) A strong internal network is necessary. Therefore, a platform for network members in a country is indispensable.
(iii) Each project must be linked to finance; without finance, there cannot be a project.
(iv) Since an NDE network is significant as a platform of focal points, an occasion like this forum serves as an important venue to further climate technology objectives in the Region.

● Mentoring Session
Instead of having a traditional Question & Answer Session, each presenter became a mentor to answer any question about experience, application, pros and cons, etc. NDEs and participants were also asked to share experience and solution.
NDEs without technical assistance joined a session with Mr. Amin,
NDEs with technical assistance joined a session with Mr. Babel,
And the rest joined a session with Mr. Shin. Each group had a 15-minute session.

▶ 13:45 – 15:15 **Session 7: New and Emerging Opportunities**
Chair: Ms. Jaime Webbe (CTCN)
Presentations:
● Pro-bono support **(Mr. Kenichi Kitamura, NDE Japan; Mr. Suil Kang, TEC & NDE Republic of Korea)**

(Mr. Kenichi Kitamura, NDE Japan)
-    TA Project Outline in Thailand
The objective was to introduce benchmarking as an indicator of present level of performance and energy saving potential for improvement.

There were following six activities in this project:
(i)   Designing specific questionnaires for different industry segments
(ii)   Field survey and off-site survey on energy consumption data
(iii)   Benchmarking of energy consumption pattern
(iv)   Development of "Energy Reporting Guidelines"
(v)   Preparation of "Energy Efficiency Manual"
(vi)   Assessment of financing options

Through these activities, the project aimed to enable PDCA (Plan, Do, Check, and Act) cycle for energy performance improvement.

-    TA Project Outline in South Africa
The objective was to examine technical and financial feasibility, to determine GHG emission reduction potential, to assess cost efficiency of hybrid system, and to design a business plan for project implementation.

Following four activities were part of this project:
(i)   Chemical components analysis of exhaust gas from cement kilns and byproducts
(ii)   Development of collection scheme of alkali-rich industrial waste
(iii)   Financial assessment and market survey about byproducts from cement production
(iv)   Identifying a business plan

Through these activities, the project's goal was carbon dioxide reduction and resource efficiency.

-    Stakeholder of TA Projects
There are several stakeholders in TA projects, including Japan's NDE (Ministry of Economy, Trade and Industry), network members, experts from Japan, and stakeholders in partner countries as well.

-    Lessons Learned
While the network members and experts in Japan benefitted from networking with local stakeholders, some issues need further consideration. For instance, alignment with existing initiatives may help receive support.

(Mr. Suil Kang, TEC & NDE Republic of Korea)
-    Korea NDE: History and Activities
Korea has an active role in global climate technology cooperation; in fact, being a small country serves as an advantage. Before the NDE designation, there were only seven network members, but there are now 52 network members in Korea.

- Three Pro-bono TAs

CTCN serves as a matchmaker by sharing TA opportunities with network members and NDEs. Many Korean SMEs want to do business in foreign countries, and grant support can be provided as well. Meanwhile, there are two sources of concern, which are the potential of scale-up and replication.

- 1) Ethiopia

In Ethiopia, the Republic of Korea is supporting Addis Ababa Light Rail Transit (LRT). As Ethiopia experiences strong economic growth and rapid population increase, there is also pressure on transport systems. Some of the emerging issues include urbanization, emissions, and need for suitable financing instruments. To support Ethiopia to identify a proper financing instrument to address the urban infrastructure issue and realize the Transit Oriented Development (TOD), a number of activities are undertaken.

- 2) Sri Lanka

The city of Kurunegala in Sri Lanka is particularly vulnerable to climate change. Graphic data suggest that the city is vulnerable to drought, flood, cyclone, and multi-hazards.

The objective of the pro-bono TA is to formulate a climate smart city framework. To this end, various actions will be taken including development of a framework, climate risk assessment, and development of an action plan to transform Municipal Council Kurunegala (KMC) into a climate smart city.

- 3) Republic of Serbia

In Serbia, energy efficiency and decarbonizing the heating and cooling sectors are some of the priorities. In particular, Belgrade had the largest district heating (DH) system in Serbia, and is dependent on imported natural gas.

By identifying renewable and waste heat sources and developing training module, energy costs and GHG emissions from the DH system can be reduced in Serbia

Presentation:
● RD&D **(Mr. Jung-Hwan Kim, GCF)**

- GCF Support Areas

GCF is strengthening collaboration with CTCN at the policy level and at the implementation level as well. GCF is reviewing incoming Readiness proposals, and some are under implementation.

There are activities on strengthening collaboration in the Technology Mechanism and the Financial Mechanism. However, there remains a need for much more collaboration between CTCN NDE and GCF NDA.

- Mandate from Decision B.14/02

In the board meeting, there is mandate to report back to the board about how GCF can provide support in developing countries.

At the same time, GCF looks into general trends in the RD&D of climate technologies. In addition,

GCF also looked into case studies.
There are a number of different financing instruments such as grant, loan, guarantee, etc.

- A Set of Proposed Options and Modalities

Based on the analysis, GCF identified two possible areas of options within GCF business model. The first option is a general and macro-level technology innovation system. The other option is a more targeted climate technology RD&D support.

In general, GCF learned several lessons from the study. First, we need to promote more macro-level innovative ecosystem beyond RD&D financing. Second, we need to understand specific conditions and needs. Third, we need to identify various ways to channel the fund to RD&D. Fourth, we need to build on existing initiatives and trends as well because some countries are already ahead in the process.

Other factors to consider in developing the Request for Proposals for incubators and accelerators include: the need to think beyond providing financial assistance and consider other factors as well; financial resources from private sector are an important factor for technological deployment; and the need to think of a new model of climate change technology incubation and acceleration.

▶ 15:45 – 16:45 **Session 8: Seoul Climate Initiative**

● Discussion

Moderater: Mr. Byung-Seon JEONG
   (Assistant Minister, the Ministry of Science and ICT of the Republic of Korea**)**

- The NDE of the Republic of Korea proposed to announce Seoul Climate Initiative at the CTCN regional forum for the NDEs from Asia and the Pacific, and the first draft of Seoul Climate Initiative was shared to the participating NDEs in advance of the forum.
- The objective of the Seoul Climate Initiative is to show willingness of the participants to find ways for enhancing collective climate actions through innovative climate technology cooperation in the region.
- During the session, the participants of each country had a discussion to exchange their opinion on the Seoul Climate Initiative led by the moderator. The final version of Seoul Climate Initiative were came up with reflecting comments from the participants

● Ceremony for announcing the Seoul Climate Initiative
- The ceremony was held to announce the adoption of Seoul Climate Initiative on Enhancing Climate Technology Cooperation of NDEs in Asia and the Pacific by the performance of jigsaw puzzle assembling together.

●Photos of Seoul Climate Initiative

Seoul Climate Initiative
on Enhancing Climate Technology Cooperation
of NDEs in Asia and the Pacific
CTCN Regional Forum for National Designated Entities (NDEs)
from Asia and the Pacific
16th – 20th July 2018, Seoul, Republic of Korea

We, the participants of the 2018 CTCN regional forum from Asia-Pacific region, gathered in Seoul, Republic of Korea, from 16th to 20th of July at the "Climate Technology Center and Network Regional Forum for the National Designated Entities(NDEs) in Asia and the Pacific" to find ways for enhancing collective climate actions through innovative climate technology cooperation,

In pursuit of the principles of the United Nations Framework Convention on Climate Change and the Paris Agreement,

Representing the Asia and the Pacific region, home to more than half of the world's population, with the highest overall potential for reducing greenhouse gas emissions,

Recognizing the specific needs and national circumstances of the countries in the region, with an emphasis on those of small island developing states, low lying countries, and landlocked countries, in addressing the adverse impacts of climate change,

Noting the importance of the Technology Mechanism and its two bodies, the Technology Executive Committee and the Climate Technology Centre & Network, as they are an effective channel with which to enhance climate mitigation and adaptation actions in the region,

Acknowledging the importance of the NDE's role as the national focal point of the Technology Mechanism,

We, therefore, decide to make efforts to:

1. Share knowledge and experiences in climate technology cooperation.

2. Raise awareness and understanding of various stakeholders within the country on climate technology cooperation implemented through CTCN.

3. Make use of the results of technology needs assessment of respective countries.

4. Take actions to strengthen partnerships and collaboration between or among NDEs with support from CTC and its network members.

5. Support the continued collaboration between the Technology Mechanism and the Financial Mechanism, particularly, the CTCN and the GCF, as it is the key to unlock the access to technology and to facilitate cooperative action on technology development and transfer.

6. Accelerate and encourage the innovation of climate technologies, particularly promote research, development and demonstration in the early stages of technology cycle.

7. Consider gender and the balance between adaptation and mitigation in pursuing climate technology cooperation between and among NDEs.

The participants of the 2018 CTCN regional forum from Asia-Pacific region,

Regional TEM
Day 3: 19 July 2018 (Thursday) / Maple Hall (4F), the Plaza Hotel Seoul

Setting the Stage: Overview of the Regional TEM

Chair: Mr. Mareer Mohamed Husny (TEC)

● Introduction to the TEM and COP decisions **(Mr. Kazem Kashefi, TEC)**

- Overview on the Technical Examination Process (TEP)

The objective of TEP is to discover high-potential mitigation and adaptation policies, practices and technologies with significant sustainable development co-benefits. The TEP consists of regular in-session thematic technical expert meetings (TEMs) and focused follow up work. All discussion from the TEMs are presented in the summary for policy makers.

- Technical Expert Meetings (TEMs)

The TEM facilitate the identification of policy options, practices and technologies with high mitigation and adaptation potential. The meetings consists of experts from national and subnational governments, private sector, financial institutions, leading international organizations and other stakeholders to promote the implementation and increase in support for climate action.

- Role of the Technology Mechanism in TEP

The role of the Technology Mechanism in TEP is to promote parties in scaling up the implementation of policies, practices and actions identified during this process. In addition, they requested to provide regular updates during the TEMs on the progress.

- Outcomes of the assessment of the TEP at COP 23

COP 23 invited stakeholders to organize regional TEMs, building on existing regional Climate action events, as appropriate with a view to investigate specific finance, Technology and capacity-building resources necessary to scale up actions in regional contexts, including through regional mitigation and adaptation initiatives.

● Overview of the nexus approach **(Ms. Jaime Webbe, CTCN)**

- Introducing the nexus approach

The Nexus approach is a new way of decision-making which is focused on equitable treatment of objectives, high levels of stakeholder participation and balanced outcomes. The Nexus approach recognized the interrelatedness and interdependencies of complex systems across space and time.

In order to effectively implement the nexus approach, there are significant needs in terms of: data (include current and projected future needs); institutional frameworks for collaboration; stakeholder engagement; understanding of the drivers of change; and mapping of interdependencies and inputs &outputs.

- The process of Nexus Approach has five steps:

The objective of Step 1 identify the cross-sectoral interactions, Step 2 establishes 'Nexus Targets' between sectors. Step 3 describes how proposed approaches are interdependent, reinforcing, and/or constraining. Step 4 is the scenario planning stage which describe a set of multiple, equally plausible future developments in an inherently uncertain world. Step 5 is response development which include investments, policies/regulations, and capacity development. All steps are highly

participatory processes, aimed towards a shared vision for action based on multiple inputs which broadens complexity, supportive of evidence-based decision making, to allow for the successful management of transitions.

● CTCN Technical Assistance and the Water-Energy-Food Nexus **(Dr. Ho-Sik Chon, CTCN)**

- The Risks

By 2050 the world's population will reach 9.1 billion, 34 percent higher than today, which results in much more demand of water (additional 55% needed), energy (additional 80%), and food (additional 60%) in 2050.As a result of the above, there is an emerging potential risk from three different sectors (Water, Food, and Energy) when they interact with each other as followings:

(i) Water–related risks to energy security due to reduced access to water and increased energy demand.
(ii) Energy-related risks to water security due to contamination of water resources, limited energy to extract water.
(iii) Water-related risks to food security due to climate change increasing the demand for irrigation   and the impact of water quality on food production and consumption
(iv) Food –related risks to water security due to the impact of agricultural activities on water resources
(v) Energy –related risks to food security due to risks of energy production on food availability, potential trade-offs between bioenergy production and food crops
(vi) Food-related risks to energy security due to quality and affordability of energy supply

- Interactions of Water-Energy-Food Sectors – SDG

Progress toward the SDGs is directly related to the sustainable use of resources such as food, water, and energy. The Water-Energy-Food Nexus could offer a useful platform for quantifying and assessing interactions between these goals during their implementation.

- CTCN service areas and core sectors

The study examined 47 completed Technical Assistance projects.

Of these, no TA request considered the NEXUS although a few TA requests have taken into account interaction between sectors,

- (Case 1) Transformative water harvesting plan for Namibia

By 2030, the Namibian government envisages a situation where freshwater resources are free of pollution and are used to ensure social well-being, support economic development and maintain natural inhabitants. The Water Resources Management Act (2004) focuses on efficiency in improved water technology, particularly improvement in irrigation technology. The objective of TA are to review and consolidate water-related development plans and climate change adaptation projects. Activities include a stakeholder workshop for technology prioritization, the identification of opportunities for financial investment and evaluation of the highest ranked technology solutions. The TA has expected output as followings:

(i) Report (complete policy context for Namibian water sector adaptation technologies)
(ii) Improved management of water security through the use and arrangement of appropriate technologies
(iii) Prioritized water sector climate technologies tailored to Namibia's specific context (with

consideration of irrigation)
(iv) Significant economic, social and environmental benefits

● Agricultural water resources management system and technology for food product in Korea
  (Mr. Park, Taeseon, Korea Rural Community Corporation)

- Overview of Korea Rural Community Corporation (KRCC)
KRC is a public enterprise under Ministry of Agriculture, Food and Rural Affairs for technical consulting services (planning, project management) in the field of agricultural infrastructure development project.

- Introduction of the Representative Water–Food Projects in Korea
(i) Case 1) Integrated Agricultural Development in Yeong-san River Basin: This project has effects on expansion of national land area (Phase II: 5,500ha, Phase III: 12,500ha), mitigation of natural disaster damages by deploying the Integrated Water Management System, and modernized on the agricultural infrastructure.
(ii) Case 2) Sae-Man-Guem Tideland Reclamation Project: This project develops the land site to serve as an economic hub of Northeast Asia and to secure a competitive edge (Total project cost: KRW 22 trillion, land development cost: KRW 11 trillion).
(iii) Case 3) Smart Water Management System Development in Khuzestan: This project developed the Karkheh River Basin Management System and Weather Forecast System.

- Coping with Climate Change
The KRCC contribute to the growth of the nation's agricultural productivity by using agricultural infrastructure in the field of irrigation, environment, systems, flood control, including reservoirs, pumping and drainage stations, and providing good agricultural water. The KRCC also cares for lives and properties from natural disasters, such as droughts and floods, as a result of climate change, by repairing weak facilities and modernizing irrigation plants.

- Future Plan, Waste-Energy-Food Nexus
Due to increase aging facilities under severe conditions, resources security is strongly needed. In the near future, KRCC will implement a smart water system which based on the Integrated Water Resource Management System. It could optimize the efficiency of water use by using intelligent sensor and water analysis technology.

Conclusions

Participants recognized the Nexus Approach as a useful means of implementation for the Paris Climate Agreement. Additional capacity building was requested, especially with regards to identifying when and at what level the Nexus Approach could be best applied. Some concerns about the high level of data and information required were raised however participants noted that the CTCN is a useful mechanism through which such information systems could be built.

A list of participant

Category	Sub-Category	Country	Name	Organization	Position
Country Representatives	NDE	Kingdom of Bhutan	Ms. Choki Wangmo	National Environment Commission Secretariat	Asst. Environment Officer
Country Representatives	NDE	Kingdom of Cambodia	Ms. Baroda Neth	Department of Climate Change, Ministry of Environment	Deputy Director
Country Representatives	NDE	Republic of Indonesia	Ms. Ardina Purbo	Directorate General of Climate Change, Ministry of Environment and Forestry	Deputy Director

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Country Representatives	NDE	Kingdom of Cambodia	Ms. Baroda Neth	Department of Climate Change, Ministry of Environment	Deputy Director
Country Representatives	NDE	Lao People's Democratic Republic	Mr. Syamphone Sengchandala	Department of Climate Change, Ministry of Natural Resources and Environment	Deputy Director General
Country Representatives	NDE	Republic of Maldives	Mr. Zammath Khaleel	Climate Change Department, Ministry of Environment and Energy	Assistant Director
Country Representatives	NDE	Republic of Nauru	Mr. Reagan Moses	Ministry of Commerce, Industry and Environment	Director for Climate Change
Country Representatives	NDE	Federal Democratic Republic of Nepal	Mr. Ram Hari Pantha	Ministry of Population and Environment	Head of Climate Change Section
Country Representatives	NDE	Islamic Republic of Pakistan	Mr. Imran Khan	Ministry of Climate Change	Assistant Director
Country Representatives	NDE	Republic of the Philippines	Atty. Efren MG Bascos	Climate Change Commission	Chief of the Legal Services Division
Country Representatives	NDE	Independent State of Samoa	Mr. Bernie Tauaanae	Ministry for Natural Resources and Environment	Assistant Chief Executive Officer
Country Representatives	NDE	Solomon Islands	Mr. Douglas Yee	Ministry of Environment, Climate Change, Disaster Management and Meteorology	Director Climate Change
Country Representatives	NDE	Democratic Socialist Republic of Sri Lanka	Mr. Anura Dissanayake	Ministry of Mahaweli Development & Environment	Secretary
Country Representatives	NDE	Democratic Republic of Timor-Leste	Mr. Luis Dos Santos Belo	National Directorate for Climate Change, Ministry of Commerce, Industry and Environment	Head of Ozone Depleting Substances Control Department
Country Representatives	NDE	Kingdom of Tonga	Mr. Ofa Sefana	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications	Energy Planning Specilist
Country Representatives	NDE	Socialist Republic of Viet Nam	Mr. Pham Van Tan	Department of Meteorology, Hydrology and Climate Change, Ministry of Natural Resources and Environment	Deputy Director General
Country Representatives	NDE	Islamic Republic of Afghanistan	Mr. Rohullah Amin	Climate Change and Adaptation Division, National Environmental Protection Agency of Afghanistan	Manager of Adaptation to Climate Change
Country Representatives	NDE	Japan	Mr. Takahiro Murayama	Global Environment Centre Foundation	Manager
Country Representatives	NDE	Japan	Mr. Kenichi Kitamura	Ministry of Economy, Trade and Industry	Climate Change Expert Officer
Country Representatives	NDE	Cook Islands	Ms. Celine Dyer	Climate Change Cook Islands, Office of the Prime Minister	Climate Change Coordinator
Country Representatives	NDE	Kingdom of Thailand	Ms.Oranuch Ratana	National Science Technology and Innovation Policy Office,	Policy Developer

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				Ministry of Science and Technology	
Country Representatives	NDE	Republic of Korea	Mr. Jin-gyu Lee	Ministry of Science and ICT	Vice Minister
Country Representatives	NDE	Republic of Korea	Mr. Byung-Seon Jeong	Ministry of Science and ICT	Assistant Minister
Country Representatives	NDE	Republic of Korea	Mr. Jeong Won Kim	Ministry of Science and ICT	Director-General
Country Representatives	NDE	Republic of Korea	Mr. Min Pyo Kim	Ministry of Science and ICT	Director
Country Representatives	NDE	Republic of Korea	Ms. Jeongin Jang	Ministry of Science and ICT	Deputy Director
Country Representatives	NDA	Kingdom of Bhutan	Ms. Dechen Zam	Gross National Happiness Commission	Program Coordinator
Regional and International Organizations	Network Member	Republic of Korea	Mr. In-Hwan Oh	Green Technology Center (GTC)	President
Regional and International Organizations	Network Member	Republic of Korea	Mr. Jongsoo Jurng	Green Technology Center (GTC)	Director General
Regional and International Organizations	Network Member	Republic of Korea	Mr. Kyung Nam Shin	Green Technology Center (GTC)	Director
Regional and International Organizations	Network Member	Republic of Korea	Mr. Chang Sun Jang	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Ms. Inhye Bak	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Ms. Rywon Yang	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Yong Il Kim	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Jae Min Kim	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Ms. Mina Sung	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Dong Un Park	Green Technology Center (GTC)	Senior Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Steven Kyum Kim	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Asif Raza	Green Technology Center (GTC)	Ph.D. Student
Regional and International Organizations	Network Member	Republic of Korea	Ms. Soeun Kim	Green Technology Center (GTC)	Researcher
Regional and International Organizations	Network Member	People's Republic of China	Ms. Hua Fan	Shanghai Environment and Energy Exchange	Director
Regional and International Organizations	Network Member	French Republic	Mr. Le Ban	CARBONIUM	Director of Asia Pacific

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Regional and International Organizations	Network Member	Republic of Kenya	Mr. Murefu Barasa	EED Advisory Limited	Managing Partner
Regional and International Organizations	Network Member	United States of America	Mr. Amit Bando	Winrock International Institute for Agricultural Development	Senior Director
Regional and International Organizations	Network Member	Australia	Ms. Usha Iyer-Raniga	Royal Melbourne Institute of Technology	Associate Professor
Regional and International Organizations	Network Member	Republic of Korea	Mr. Tae Seon Park	Korea Rural Community Corporation (KRC)	Director-General
Regional and International Organizations	Network Member	Republic of Korea	Mr. Kyung Hun Jeong	Korea Rural Community Corporation (KRC)	Director
Regional and International Organizations	Network Member	Republic of Korea	Mr. Gyesoo Jung	Korea Environment Corporation (K-eco)	Manager
Regional and International Organizations	Network Member	Republic of Korea	Ms. Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Research Specialist
Regional and International Organizations	Network Member	Republic of Korea	Mr. Jungho Cho	Korea Astronomy & Space Science Inst.	Principal Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Kenneth Walter Widmer	Gwangju Institute of Science and Technology (GIST)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Ms. Jinsun Lim	Korea Environment Institute (KEI)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Hwanil Park	Science and Technology Policy Institute (STEPI)	Research Fellow
Regional and International Organizations	Network Member	Republic of Korea	Mr. Woo Sung Lee	Science and Technology Policy Institute (STEPI)	Research Fellow
Regional and International Organizations	Network Member	Republic of Korea	Ms. Elly Lee	Science and Technology Policy Institute (STEPI)	Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. Sangwon Moon	APEC Climate Center	Head
Regional and International Organizations	Network Member	Republic of Korea	Mr. Sunkwon Yoon	APEC Climate Center	Team Leader
Regional and International Organizations	Network Member	Republic of Korea	Ms. JiWhan Ahn	Korea Institute of Geoscience and Mineral Resources	Head
Regional and International Organizations	Network Member	Republic of Korea	Mr. Juyoung(Julian) Song	Korea Technology Finance Corportation	
Regional and International Organizations	Network Member	Republic of Korea	Mr. Jungho Cho	Korea Atomic Energy Research Institute	Principal Researcher
Regional and International Organizations	Network Member	Republic of Korea	Mr. In Soo Park	Korea Productivity Center Quality Assurance	CEO
Regional and International Organizations	Network Member	Republic of Korea	Mr. Changjoo Kim	Mine Reclamation Corp.	Manager

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Regional and International Organizations	Panel	Republic of Korea	Mr. Kijong Cho	Korea University	Professor
Regional and International Organizations	Consortium Partner		Mr. Mukand S. Babel	Asian Institute of Technology (AIT)	Professor
Regional and International Organizations	Consortium Partner		Mr. Girish Sethi	The Energy and Resources Institute (TERI)	Senior Director
Regional and International Organizations	Consortium Partner		Mr. Do Trong Hoan	World Agroforestry Centre (ICRAF)	Researcher
Regional and International Organizations	Consortium Partner		Mr. Subash Dhar	UNEP-DTU Partnership (UDP)	Senior Economist
Regional and International Organizations	Observer	State of Israel	Mr. Shay Feiler	Embassy of Israel in Republic of Korea	Counsellor; Head of Economic and Trade Mission
Regional and International Organizations	Observer	Democratic Socialist Republic of Sri Lanka	Mr. Dharmakirti Christorpher Mahinda Tilakasiri	Blue Green Economy Financing Facility	
Regional and International Organizations	Observer		Ms. Nyambe Brenda	Zambia Youth Council	Administrative officer
Regional and International Organizations	Observer	Republic of Indonesia	Dr. Roni Maryana	LIPI(Indonesia Institute of Science)	Researcher
Private Sector	Network Member	Republic of Zimbabwe	Mr. Ronny Mbaisa	Zimbabwe Sunshine Group	Director
Private Sector	Network Member	Republic of Korea	Mr. Seonghun Yoo	SUNJIN Engineering & Architecture Co.,Ltd.	Director
Private Sector	Network Member	Republic of Korea	Mr. Sukzun Youn	Sea and River Technology	General manager
Private Sector	Network Member	Republic of Korea	Ms. Kyeong Yeon Kim	Eco & Partners	Senior Consultant
United Nations	TEC	Republic of Korea	Mr. Suil Kang	Technology Executive Committee (TEC)	
United Nations	TEC	Iran	Mr. Kazem Kashefi	Technology Executive Committee (TEC)	
United Nations	TEC	Republic of Maldives	Mr. Mareer Mohamed Husny	Technology Executive Committee (TEC)	
United Nations	UNFCCC		Ms. Wanna Tanunchaiwatana	UNFCCC Secretariat	Manager
United Nations	CTCN		Mr. Jukka Uosukainen	Climate Technology Centre & Network (CTCN)	Director
United Nations	CTCN		Ms. Jaime Webbe	Climate Technology Centre & Network (CTCN)	Regional Manager for Asia and the Pacific
United Nations	CTCN		Mr. Ho-Sik Chon	Climate Technology Centre & Network (CTCN)	Secondee
United Nations	GCF		Ms. Diane McFadzien	Green Climate Fund (GCF)	Country Dialogue Specialist and Coordinator for Asia-Pacific
United Nations	GCF		Mr. Jung Hwan Kim	Green Climate Fund (GCF)	Regional Advisor

Category	Sub-Category	Country	Name	Organization	Position
Country Representatives	NDE	Kingdom of Bhutan	Ms. Choki Wangmo	National Environment Commission Secretariat	Asst. Environment Officer
Country Representatives	NDE	Kingdom of Cambodia	Ms. Baroda Neth	Department of Climate Change, Ministry of Environment	Deputy Director
United Nations	Adaptation Committee	Republic of Maldives	Mr. Ali Shareef	Adaptation Committee (AC)	