CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical AssistanceResponse Plan – Terms of Reference

Country	**Armenia**
Request ID#	**2016000049**
Title	*Guidance and Support for Promotion of Technologies for Climate Change Mitigation and Adaptation*
NDE	*Mikael Abovyan, Head of Board, Technology Transfer Association, Abovyan@netsys.am4-8 Avan-Arinj, Yerevan, 0022, Republic of Armenia*
Proponent	Technology Transfer Association, UJP

Summary of the CTCN technical assistance

Armenia submitted its Intended Nationally Determined Contribution in September 2015 in which the creation of ArmCTCN is included as a climate technology platform.

The CTCN is supporting the creation and sustainability of this platform by defining the Strategic positioning of ArmCTCN, providing lessons learned from UNIDO Cleaner Production Centres and Network of Investment and Technology Promotion Offices, in order to:

- support a technology roadmap for prioritised technologies;
- identify financial structure and sustainability of the ArmCTCN and
- provide support to the internationalisation of local technologies, industries and companies..

The intended impact from the creation of the ArmCTCN will include GHG emission reductions, knowledge transfer, enhancement of national capacities on climate technologies and accelerated climate resilience.

Agreement:

(If possible, please use electronic signatures in Microsoft Word file format)

National Designated Entity to the UNFCCC Technology Mechanism for which the Climate Technology Centre and Network is the operative arm

Name: Mikael Abovyan
Title: Technology Transfer Association,
Head of the Board
Date: June 19, 2017
Signature:

UNFCCC Climate Technology Centre and Network (CTCN)

Name: JukkaUosukainen
Title: CTCN Director
Date: 22 June 2017
Signature:

1. Background and context

The Republic of Armenia is currently conducting its Technology Needs Assessment (Global Environment Facility (GEF) TNA Phase II). It has previously conducted a TNA in 2003. The priority sectors and technologies for adaptation and mitigation have been identified, and the team is analysing barriers to their implementation. Technology Action Plans for priority technologies are expected to be finalized by May 2017.

To go above and beyond the TNA, and to supportlocal development and transfer of climate technologies, it has been proposed to create a platform which would contribute with knowledge diffusion and creation of legitimacy regarding climate change related technologies.

Armenia's National Designated Entity (NDE) for Development and Transfer of Technologies pursuant to decision 2/CP.17, annex VII of UNFCCC is the Technology Transfer Association (TTA). TTA is an NGO which works on establishing links between Armenian technology owners and organizations looking for innovative solutions, assessing new technologies and conducting due diligence of technologies. It works with scientific organisations in a variety of sectors and itdoes not focus exclusively on climate change technologies.

Armenia submitted its Intended Nationally Determined Contribution (INDC) in September 2015, in which technology transfer is highlighted as an important consideration to support the pledge. The establishment of climate technology knowledge platform (working title "ArmCTCN")is listed as a mechanism to ensure an "open and transparent system of technology introduction and transfer". A proposal to establish a "centre for climate technologies" was also included in Armenia's TNA in 2003.

The Technology Needs Assessment project started in Armenia in March 2015 and will end in mid-2017. The responsible organisation in Armenia is the Ministry of Nature Projection (Environmental Projects Implementation Unit). The main outputs of the project are:

- A TNA report assessing the prioritised technologies for mitigation and adaptation in selected sectors,including the process followed and the rationale.For climate change adaptation, the most prioritised sectors are agriculture and water. For climate change mitigation, most prioritised is the energy sector.
- A Barrier Analysis & Enabling Framework report on removing barriers to deployment of prioritised technologies and creating an enabling framework to facilitate the deployment and diffusion of prioritised technologies.
- A Technology Action Plan (TAP) report for mitigation and adaptation including project ideas for the implementation of the TAP.

The CTCN Request for technical assistance (no. 2016000049) seeks to take the next step in the process and carry out a technology roadmap based on an initial timeline of ten years that can pave the way to:

- Establish a new platform (ArmCTCN) that can promote climate technologies and can act as a bridge to internationalise local technologies drawing from the worldwide experience accumulated by UNIDO Cleaner Production Centres (CPCs) and Investment and Technology

Promotion Offices (ITPOs);

- Selection of 2-3 key technologies for the ArmCTCN to focus on, based on TNA results prioritising the agriculture, water and energy sectors;
- Outline required set of actions that are needed at governmental level in order to kick-start the activities of the ArmCTCN:
    - Incentives and measure needed to engage the private sector into the climate technology business;
    - Financing scheme needed for the long term existence of the ArmCTCN.
    - Incentives and measure needed to engage the private sector, civil society organisationsand local communities into the climate technology business.

After conducting local consultations with national counterparts and in-country stakeholders, it is suggested to implement the project with the participation and technical assistance of UNIDO given its global experience addressing climate change technologies, accumulated technical expertise, UNIDO's strategic positioning in the global energy and climate change forums, coordination of global and regional programs on low carbon technologies and networks. UNIDO will facilitate TTA in providing technical assessments, including:

- technical expertise and recommendations related to specific technology needs;
- identification of technologies and technology barriers;
- transfer and deployment of technologiesand
- Industrial and private sector and civil society organisations engagement.

2. Problem statement

The Government of the Republic of Armenia seeks to create a favourable environment for technology development, national/international outreach and transfer.

TTA currently works on making assessments on scientific value, workability of proposed technologies, benchmarking with existing technologies and due diligence in a variety of sectors. The members of the Association are Armenian organizations, which have developed advanced technologies in chemistry, materials science, molecular biology, biotechnology, machinery, electronics, construction materials &technologies, etc. As such, it already acts as a network of local technology producers. However, the technologies produced by national Research &Developmentthat the TTA has worked with to date are not specifically targeting climate change technologies, and TTA does not have expertise to carry out assessments of technology in terms of its impacts on climate and environment. Moreover, the TTA has limited external network for promoting technologies created by its members domestically and internationally, as well as limited capacity to identify potential technology demands (nationally and abroad), outreach to stakeholders, preparation of convincing funding proposals, legal issues and forming alliances/pools.

Reflecting on the above challenges, CTCN technical assistancewill support a technology transfer platform under the TTA, identification and development of roadmap for most prioritised climate technologies and identification of suitable financial schemes to ensure on-going operations of the technology transfer platform.

3. Logical Framework for the CTCN Technical Assistance:

(Guidance: Please note that multiple activities lead to one Output, and multiple Outputs lead to one Outcome. There can be several Outputs, but onlyone Outcome description capturing the CTCN technical assistance. Deliverables are the products or services to be delivered to the NDE/Proponent/CTCN based on the Activities and the Outputs.)

Logical framework	Months					
	1	2	3	4	5	6
Mandatory CTCN deliverables: • A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organizations and detailed budget to implement the Response Plan. The detailed work plan and budget must be based directly on this Response Plan • A monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators used to monitor and evaluate the timeliness and appropriateness of the implementation. The monitoring and evaluation plan must enable the implementer to complete the CTCN Closure and Data collection report at the end of the assignment • CTCN Closure and Data collection report (template and guidance will be provided).						
Output 1:Strategic positioning of ArmCTCN						
Activity 1.1: Inception and fact-finding mission of a UNIDO senior expert with CPC and/or ITPO experience to meet with relevant stakeholders and assess local competencies/expertise to develop ArmCTCN structure and specifications. The expert mission of approximately one week shall be prepared in advance in collaboration with NDE, TTA and UNFCCC National Focal Point in order to engage the main players and stakeholders who can be involved or benefit from the ArmCTCN activities, mandate, role,etc. Gender elements and gender mainstreaming must be included as part of the strategic positioning of ArmCTCN.						
Deliverable 1. Inception and mission report presenting national capacities and demand for ArmCTCN and its specifications.	D					
Output 2: Lessons learned from UNIDO CPCs/ITPOs and national consultation for the creation of ArmCTCN						
Activity 2.1: Experience gathered from CPCs and ITPOs will be matched with conditions and national demands for creating the ArmCTCN as assessed during the on-site mission (Output 1). Based on experiences from the CPCs/ITPOs and findings from Armenia, the implementer will produce a set of guidelines and recommendations						

for setting up ArmCTCN in consultation with local stakeholders. Draft findings will be presented and discussed with stakeholders during a meeting at the end of the second month, where the following topics will be addressed: • Overall mission and mandate; • Affiliation: definitions of roles of local institutions; • Statute: relevantdocumentationabout funding, legal issues, databases, etc.; • Requirements for membership (staff, network, consortium, stakeholders, partnerships, etc.); • Outline of ArmCTCN operational processes (including technology transfer, capacity building, training, dissemination, knowledge management, other).						
Deliverable 2: Report containing a set of strategic and operational recommendations for the creation of ArmCTCN using experiences from the UNIDO CPCs/ITPOs and key findings from stakeholders' consultations.		D				
Output 3: Technology roadmap for prioritised climate technologies						
Activity 3.1: Identification of 2-3 key climate technologies which the ArmCTCN will focus on. Findings and recommendations from the TNA and TAP on climate sectors and technologies will be taken into consideration and key criteria for further technology prioritization will be developed in the context of ArmCTCN. Criteria for enhancing gender benefits and co-benefits must be included in the assessment and identification of relevant technologies.						
Activity 3.2: A technology roadmap will be carried out based on the prioritised climate technologies. The objective of the roadmap is to define the Government's, TTA's and ArmCTCN's further engagement and support for technology transfer covering both export and import, required enabling conditions, technology dissemination and implementation in Armenia. The roadmap will have an initial timespan of 10 years and must include key milestones/deliverablesduring this period. Gender and co-benefits must be included in the technology roadmap. Activities 3.1 and 3.2 will include an Expert mission to Armenia(two days) for further in-country assessment to hold a stakeholder consultation meeting to present and discuss the prioritised technologies and roadmap (at the end of month 4).						

Deliverable 3. Technology roadmap report (Identification of prioritised climate technologies and roadmap)					D	
Output 4: Define the financial structure and sustainability of the ArmCTCN						
Activity 4.1: This activity will receive inputs from all previous activitiesunder the operational and technical point of view so to determine the financial scheme of the ArmCTCN. It aims at producinga set of actions to be undertaken by the Government of Armenia and TTA to facilitate the constitution of ArmCTCN, its long-term financial sustainability and operations. The evaluationwill be based on the key features of the ArmCTCN as defined in Outputs 1 – 3. Relevant funding structures for the ArmCTCN and available funding mechanisms (national and international) will be identified. Engagement with the private sector will be a key element within the funding structure. Finally, ArmCTCN's role for the internationalisation of Armenian technologies and Organisations will be defined. A final meeting to present the proposed constitution and financial structure of the ArmCTCNinvolving national and local authorities will be organised.						
Deliverable 4. Financial report of ArmCTCN and final meeting						D

4. Resources required and itemized budget:

Please provide an indicative overview of the resources required and itemized budget required to implement the CTCN technical assistance, including for M&E-related activities, using the table below. Once the Response Plan is completed, a Response Implementation partner(s) will be selected by the Climate Technology Centre(CTC). A detailed activity-based budget for the CTCN assistance will be finalized by the CTCN and selected Implementer.

Activities and Outputs	**Input: Human Resources** *(Title, role, estimated number of days)*	**Input: Travel** *(Purpose, national vs. international, number of days)*	**Inputs: Meetings/events** *(Meeting title, number of participants, number of days)*	**Input: Equipment/Material** *(Item, purpose, buy/rent, quantity)*	**Estimated cost** *Please accumulate the costing at Activity and Output level and provide an estimated costing range for the total Response Plan*	
					Minimum	**Maximum**
Mandatory CTCN deliverables	Coordinator				800	1,000
Activity	UNIDO senior expert	Expert mission to			4,000	5,000

1.1.Strategic positioning of ArmCTCN.	with experience on institutional development from the CPCs/ITPOs in the region.	Armenia.				
Output 1 total					**4,000**	**5,000**
Activity 2.1. Lessons learned from UNIDO CPCs/ITPOs	Coordinator		1 stakeholder meeting		4,000	5,000
Output 2 total					**4,000**	**5,000**
Activity 3.1.Technology roadmap	Coordinator, UNIDO senior expert	Mission to Armenia	1 stakeholder meeting		24,600	29,500
Inclusion of gender mainstreaming as part of the technology roadmap	Coordinator				400	500
Output 3 total					**25,000**	**30,000**
Activity 4.1. Financial structure and sustainability of the ArmCTCN	Coordinator UNIDO senior expert	Mission to Armenia	1 stakeholder meeting		9,000	10,000
Output 4 total					**9,000**	**10,000**
In-kind support from UNIDO Country Office in Armenia covering all Outputs	UNIDO Representative for overall coordination and support	Various in-country logistic support	Meeting venue	Project office facility, etc.	In-kind	In-kind

Estimated range of costing for the entire Response Plan	**42,800**	**50,000**

5. Profile and experience of experts

Based on the required Human Resources identified in section 4 (Resources required and itemized budget) please provide a description of the required profile of all involved experts for the implementation of the CTCN Response Plan.

Experts required	Brief description of required profile
Please use the same titles for all experts as applied in section 4.	*Please provide a short description of expertise and experience needed (education, sectors of expertise, years of experience, country experience, language requirements, etc.).*
UNIDO Country Office Representative	UNIDO representative in Armenia (in-kind support only)
Coordinator	At least aMaster's degree in a relevant discipline, e.g. economics, climate studies, political science, or similar; Broad knowledge of the climate change sector andpreferably climate change technologies; Minimum 5-years relevant experience; Understanding and/or experience working with Western Asian/Commonwealth of Independent States(CIS) countries.
UNIDO CPC/ITPO expert	At least a Master's degree in a relevant discipline, e.g. climate studies, political science or engineering; Expertise areas: facilitation techniques; preferably also technology transfer, climate change technologies Minimum 15-years relevant experience; Understanding and/or experience working with Western Asian/CIS countries. Comprehensive experience from supporting CPCs and/or ITPOs in the region.

6. Intended contribution to impact over time

With a strategic positioning of the ArmCTCN and by utilizing experiences from the UNIDO CPCs/ITPOs in the region, the ArmCTCN is expected to be an instrumental platform for climate technologies in Armenia. Furthermore, by formulating a technology roadmap for 2-3 of the most important technologies and identifying financial structure, the ArmCTCN will have a clear profile and business case for supporting technology transfer and underlying climate actions in Armenia.

Assuming that the ArmCTCN will support transfer and implementation of three key climate technologies within a ten-year timeframe, the intended impact will include GHG emission reductions, knowledge transfer, enhancement of national capacities on climate technologies and accelerated climate resilience.

Furthermore, once the ArmCTCN is established and fully operational as sustainableplatform, it will have the ability to increase the technology focus thereby achieving additional impact at scale.

7. Relevance to NDCs and other national priorities

Armenia's INDC (September 2015) directly describes technology transfer and establishment of ArmCTCN as important mechanisms to support its goal.This technical assistance will directycontribute to the creation of ArmCTCN and Armenia's implementation of NDC targets.

With regards to the TNA process, Armenia's TAPsare expected to be finalized by mid-2017, and it is very important that TAP results are utilized for the technology prioritization and roadmap. The TAPs are focused around specific sectors and technologies, and include project ideas on how the technologies can be implemented.

8. Linkages to relevant parallel on-going activities:

The TNA and TAP project is currently on-going. Its planned completion date is mid-2017. The first reports (one for mitigation and one for adaptation) have already been produced in Armenia, describing the process conducted in the country & involvement of stakeholders. The technologies prioritised in this process are:

Climate change mitigation

Energy sector:

- Cogeneration, Small Scale Combined Heat and Power production.
- Improving energy efficiency in multi apartment buildings.
- Mandatory realization of the Industrial Energy Audit.
- Reactive capacity (power) compensation in the Republic of Armenia electric energy system.
- Correspondence of natural gas tariff structure to the methodology approved by decision of Public
- Services Regulatory Commission (PSRC).

Industry sector:

- Production of synthetic rubbers from butadiene instead using natural gas (Chemical industry).
- Production and usage of photo luminescent materials with long-term lightening.
- New type of Entirely Plastic solar water heater.

Land use sector:

- Degraded Grassland radical improvement.
- Sustainable Forest management.
- New technology of cultivation of Perennial plants.

Waste management sector:

- Utilization of methane form Yerevan city landfill for electricity and heat production.

- Existing Lusakert biogas plant operation and reissuance organizational technology.
- Complex processing of Artik tufa mining waste and agricultural lands to prevent their furtherdegradation.

Source: TheRepublic of Armenia. Technology Needs Assessment For Climate Change Mitigation: Report I)

Climate change adaptation

Water sector:

- Creation of circulatory water system for fisheries
- Installation of compact treatment plants and application of natural and hybrid treatment systems
- Spreading and expansion of drip irrigation system

Agriculture sector:

- Windbreaks as climate changeadaptation tool
- Local melioration and low-volume dripirrigation for newly planted orchards
- Diversification of agriculture

Source: TheRepublic of Armenia. Technology Needs Assessment Report: Adaptation Technology Prioritization.

The TNA team is currently working on elaborating a barrier analysis and subsequently technology action plans for these technologies.This technical assistance will build upon the results of the TNA process where possible, and as agreed with the proponent.

In the land-use sector, a GIZ project "Integrated biodiversity management" aims to improve the management of biodiversity and ecosystem services through the use of solid data.

In the energy sector the World Bank project Scaling up Renewable Energy Program (SREP) seeksto catalyse private investment in renewable energy technologies.

In the water sector the Asian Development Bank's Water Supply and Sanitation Sector Project is currently in Phase II; its purpose is the upgrade and rehabilitation of water supply networks in 17 towns and 92 villages.

9. Anticipated follow up activities after this technical assistance is completed:

With the development of the four expected Outputs as part of this technical assistance and with ownership from TTA, the ArmCTCN is expected to be self-operational and sustainable after the completion of the technical assistance.

Similar, building upon the climate actions of Armenia's NDC where the creation of ArmCTCN is explicitly described, it must be anticipated that the Government of Armenia will contribute to ArmCTCN's mandate and position to support climate change technologies and engage in partnerships to ensure ArmCTCN's future operations.

With these vital building blocks in place, the ArmCTCN is expected to act as a platform and driver for future climate change technology transfer, dissemination and implementation.

10. Gender and co-benefits:

Imbedded in design of the activities:	A gender mainstreaming analysis is mandatory to include for all technical assistances. A gender expert will be assigned to carry out an assessment and evaluation regarding gender mainstreaming during the implementation of the technical assistance.

	The gender mainstreaming analysis will be included as part of the strategic positioning of the ArmCTCN (Output 1) and technology roadmap (Output 3). Please see dedicated budget lines for gender activities in section 4.
Gender and co-benefits intended as result of the activities:	• Women will be involved and shape the decision-making for ArmCTCN strategic positioning and technology roadmap. • Women participating in all stakeholder consultations. • Criteria for gaining gender and co-benefits will be included as a criteria when identifying prioritised technologies for the technology roadmap.

11. Main in-country stakeholdersin implementation of the technical assistance activities:

Using the table below, please list and describe the role of in-country stakeholders, participants and beneficiaries who will be involved in or directly consulted duringimplementation of the assistance.

In country stakeholder	Role in implementation of the technical assistance
Technology Transfer Association (Armenia)	Providing information, provision of key staff for the core working group, selecting key people/participants in the trainings, contributing to the drafts with information/reviews, support in logistics and coordination
UNFCCC Focal Point	Providing information, participation in the core working group, selecting key people/participants in the trainings, contributing to the drafts with information/reviews
Ministry of Nature Protection	Provision of key staff for the core working group
Ministry of Energyand Natural Resources	Provision of key staff for the core working group
National Polytechnic University of Armenia	Depending on sector selected for pilot study, providing relevant expertise, working group members
Armenian National Agrarian University	Depending on sector selected for pilot study, providing relevant expertise, working group members
American University of Armenia	Depending on sector selected for pilot study, providing relevant expertise, working group members

12. SDG Contributions:

Instructions: Please complete the grey section below for a maximum of three SDGs that will be advanced through this TA. A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/.

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy	

	in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	Creation of aArmCTCN with a clear mandate to promote climate change technologies will advance their uptake, hereby contributing to combating climate change and its impacts.
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	
	13.2 - Integrate climate change measures into national policies, strategies and planning	
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	This TA will improve human and institutional capacity in Armenia to identify prioritised technologies and to initiate incentivising actions to promote climate technology transfer.
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

13. Classification of technical assistance:

Please indicate primary type of technical assistance. Optional: If desired, indicate secondary type of technical assistance.

Please tick off the relevant boxes below	*Primary*	*Secondary*
☐ 1. Technology identification and prioritisation	☐	X
☐ 2. Research and development of new climate technologies	☐	☐
☐ 3A. Feasibility studies for specific known climate technology options	☐	☐
☐ 3B. Piloting of known technologies in local conditions	☐	☐
☐ 4A. Law, policy and regulatory reform recommendations	☐	☐
☐ 4B. Sector specific roadmap or strategy design	☒	☐

☐ 5. Finance facilitation and market creation	☐	☒

Please note that all CTCN technical assistance contributes to strengthening the capacity of in country actors.

14. Monitoring and Evaluation process

Upon contracting of the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. The monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation.The CTCN Technology Manager responsible for thetechnical assistance will monitor the timeliness and appropriateness of the Response Plan implementation.Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance; and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.