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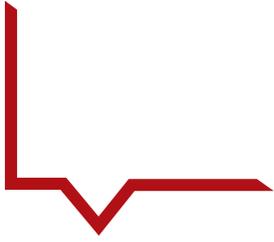
# Afghanistan

## Innovations for Climate Adaptation and Resilience

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**Current Status and Needs Assessment  
2021**  
(Updated Version-June 2021)





# Table of Contents

**EXECUTIVE SUMMARY ..... 2**

**1. BACKGROUND ..... 3**

**2. CLIMATE RISK PROFILE OF AFGHANISTAN ..... 4**

    2.1: AFGHANISTAN VULNERABILITY TO CLIMATE INDUCED DISASTERS ..... 4

    2.2: NATIONAL ADAPTATION POLICIES AND STRATEGIES OF AFGHANISTAN..... 4

    2.3: PRIORITY ADAPTATION ACTIONS OF AFGHANISTAN..... 6

    2.4: CLIMATE CHANGE PROJECTION AND IMPACTS ON KEY SECTORS ..... 6

**3. ONGOING CLIMATE RESILIENCE INITIATIVES IN AFGHANISTAN ..... 9**

**4. NEED ASSESSMENT FOR INNOVATIONS IN AFGHANISTAN ..... 10**

    4.1: PROBLEM STATEMENT ..... 10

    4.2: CLIMATE INNOVATION NEEDS ASSESSMENT ..... 11

**5. STAKEHOLDER CONSULTATION ON CLIMATE INNOVATION..... 11**

    5.2: SUMMARY OF THE DISCUSSION ..... 12

    5.3: OUTCOME OF THE NATIONAL CONSULTATION ..... 13

**6. KEY RECOMMENDATIONS ..... 14**

**ANNEXES ..... 17**

    ANNEX-1: KEY STAKEHOLDERS CONSULTED ..... 17

## Executive Summary

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This report broadly seeks to introduce Climate Innovation Challenge (CIC) consultation in Afghanistan and related innovation opportunities under CIC for South Asia being administered by ADPC through the Program for Asia Resilience to Climate Change, a trust fund administered by the World Bank funded by United Kingdom's FCDO. In this sequence, it essentially provides an overview of Climate Risk Profile of Afghanistan in general and its vulnerability to climate induced disasters in particular that builds an underlying rationale for the launching of CIC in the region.

Without serious adaptation and disaster risk reduction, climate change will send the country's already fragile economy and security spiraling. Recognizing the crucial role played by Government agencies in climate response, it also highlights the National Adaptation Policies and Strategies of the Government of Afghanistan as well as the ongoing various climate initiatives designed to deal with the impact of climate change supported by external funding agencies. Afghanistan's numerous areas and sectors has a strong potential in hosting innovation and bringing locally led technological solutions to manage and control the climate induced risks and vulnerabilities. Besides, and more importantly, as part of the CIC process for South Asia, it extensively sketches out the results of National Consultation on CIC aimed at assessing the needs for cutting-edge technology solutions to build resilience of communities who are at the forefront of bearing the brunt of climate change impacts in the country. Thanks to the key participation from Senior Government officials especially from ANDMA & NEPA, representatives from UN Agencies, CSOs and key sector specialists, the consultation was able to achieve its objective by way of bolstering the overarching idea related to CIC that can best support innovators in demonstrating tech solutions that are potentially scalable and transferable. Some of the suggested key thematic areas for possible innovation challenge in Afghanistan were deliberated in consultation that sought buy-in from the concerned Ministries/Departments and concurrently suggestions from the participating organizations were also elicited. In this succession, this document outlines the CIC consultation categorically encompassing the discussion summary, meeting outcomes and closing remarks.

# 1. Background

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Climate change is a major driver of disaster losses and failed development. Climate related disasters, including extreme weather events, have dominated the global disaster landscape in the 21st Century, which is shaping new approaches to science and practice in disaster risk reduction, resilience building and climate change adaptation.

The Climate Adaptation and Resilience (CARE) for South Asia project implemented by the Asian Disaster Preparedness Center (ADPC) and supported by the World Bank empowers decision-makers with tools, products, and services to act locally on climate-sensitive issues such as disaster related public policy and planning, agriculture, water, and transport. The Climate Innovation Challenge (CIC) for South Asia and the Tech-Emerge Resilience India Challenge are two important initiatives being administered by ADPC through the Program for Asia Resilience to Climate Change, a trust fund administered by the World Bank funded by the United Kingdom's the Foreign, Commonwealth & Development Office (FCDO).

The CIC for South Asia aims to identify innovations to reduce climate risk and build climate resilience of communities vulnerable to such risks and extremes through award of grants to innovators and scale-up pilots across different sectors, and tiers (national, sub-national and local/community) for greater impact/optimal results. Selected innovators will receive support and grant funding from a pool of 2 million USD to pilot their innovations regionally and/or in the selected countries.

Any innovation and the factors that contribute to it depend on its applicability aimed at spurring priority economic sectors and or targeted areas for which the technology is needed. The technological innovation in addressing climate adaptation and resilience must address societal problems. There has been growing interest in recent years on ways to foster such innovation, in particular, the role that governments can and should play in that process. The Climate Innovation Challenge is a global call for innovators who can bring forward technological solutions that aims to enhance climate resilience, local market and institutional capacity building and create a higher degree of awareness and knowledge among the different types of stakeholders on the use of technology. Scaling up and scaling out pilot initiatives in addressing climate adaptation and resilience is important with appropriate technology and policy planning and implementation.

## 2. Climate Risk Profile of Afghanistan

Afghanistan is a landlocked country at the juncture of the Central, West, and South Asian regions. Afghanistan's land surface includes considerable mountain cover, the Hindu Kush, with peaks as high as 7,000 meters. At lower altitudes are large expanses of arid steppe and a significant desert region found in the southwestern plateau. Though lacking in vegetation, these drier areas of the country nonetheless support biodiverse ecosystems and unique landscapes.

Afghanistan's communities are ethnically and culturally diverse, and generally less urbanized. As a result of long running conflict and political turmoil, Afghanistan's population is among the world's most deprived, with a national poverty rate exceeding 50% in 2017, and the population also faces very significant issues with undernourishment. Afghanistan has high unemployment and relies heavily on the agricultural sector, which constituted around 44% of employment in 2017, yet only 23% of gross domestic product (GDP). The country's vulnerability is recognized by Afghanistan's Nationally Determined Contribution (NDC) submitted in 2016. Afghanistan's Second National Communication to the UNFCCC (NC2) highlights the country's commitment to increase its adaptation capabilities for the key sectors of agriculture, human health, energy and infrastructure as well as increase the population's overall awareness about climate change. This includes rapid onset and long-term changes in key climate parameters, as well as impacts of these changes on communities, livelihoods and economies, many of which are already underway.

Due to a combination of political, geographic, and social factors, Afghanistan is one of the most vulnerable nations to CC impacts in the world, ranked 176th out of 181 countries in 2019 ND-GAIN Index.<sup>8</sup> The ND-GAIN Index ranks 181 countries using a score which calculates a country's vulnerability to CC and other global challenges as well as their readiness to improve resilience.

### 2.1: Afghanistan vulnerability to climate induced disasters

Afghanistan faces some of the highest levels of natural hazard risk in the world. This is reflected in its ranking as the 5<sup>th</sup> most at-risk country in the INFORM 2019 Index. Risk is driven by hazard and exposure, and notably communities face significant impacts from flood (and associated threats from land and mudslide), and drought. Risk is further amplified by very high levels of social vulnerability and a large deficit in coping capacity. Afghanistan regularly experiences high maximum temperatures. The national average monthly maximum is around 20° C, with the maximum averaging around 33° C in the month of July. Two primary types of droughts affect Afghanistan, meteorological (usually associated with a precipitation deficit) and hydrological (usually associated with a deficit in surface and subsurface water flow, potentially originating in the region's wider river basins). These issues may also combine with land and crop management practices to result in agricultural drought. Flood risk is widespread in Afghanistan, despite the generally arid, low-precipitation, environment. Although data are severely limited, there is sufficient evidence to say that flooding causes at least 100 deaths per year (likely a considerable underestimate), and that Afghanistan is a regionally significant disaster hotspot. Afghanistan's mountainous regions are also exposed to the risk of glacial lake outburst floods (GLOFs), which occur when the natural 'moraine' dam holding back glacier melt water breaches.

### 2.2: National Adaptation Policies and Strategies of Afghanistan

The country’s vulnerability is recognized by Afghanistan’s Nationally Determined Contribution (NDC) submitted in 2016. Afghanistan’s Second National Communication to the UNFCCC (NC2) highlights the country’s commitment to increase its adaptation capabilities for the key sectors of agriculture, human health, energy and infrastructure as well as increase the population’s overall awareness about climate change. This includes rapid onset and long-term changes in key climate parameters, as well as impacts of these changes on communities, livelihoods and economies, many of which are already underway.

Afghanistan’s National Development Strategy (ANDS) identifies the environment as “a cross-cutting issue that underpins entire social and economic development framework for the country.” Afghanistan has developed its INDC with the conviction that countering effects of climate change requires a commitment from all countries as regards mitigation and adaptation.

The Afghanistan National Peace and Development Framework (ANPDF) is the Government’s five-year (2021–2025)<sup>3</sup> strategic framework for reaching stability and self-reliance recognizes climate change as a serious threat to Afghanistan that needs to be addressed, particularly in the areas of agriculture production, increased risk of natural hazards arising from changing temperature and precipitation patterns, and renewable energy development to reduce GHG emissions. Moreover, ANPDF recommends increasing regional collaboration to mitigate impacts of climate change and increase climate change adaptation across the trans-Himalayan region. Through preparation of NAPA, Initial National Communication (INC), Second National Communication (SNC), and NDC, Afghanistan has identified constraints, gaps, and financial, technical and capacity needs to be addressed to enhance the national communication system and fulfill other commitments made to UNFCCC. Afghanistan, being amongst the world’s least developed and most vulnerable countries to climate change, remains determined to address climate change by utilizing its limited resources and expects the necessary technical and financial support from developed country parties in strengthening national capacities to respond to the climate change issue. Notwithstanding the serious climate challenges, Afghanistan remains one of the world’s lowest emission countries and have the potential to develop economically while remaining low emission if, under the Paris Climate Change Agreement, the required finance, capacity building, technology and legal assistance are made available to assist Afghanistan to implement Highly Effective Adaptation and Development Strategies (HEADS) and Low Emission Development Strategies (LEDS).

The Government of the Islamic Republic of Afghanistan ratified the UNFCCC in 2002 and submitted its Initial National Communication (INC) and Second National Communication (SNC) in 2012 and 2018, respectively. Afghanistan is finalizing its National Adaptation Plan (NAP) as well as the National Climate Change Strategy Action Plan (ACCSAP). Through these plans and the Nationally Determined Contribution (NDC) processes, the country’s overall vision is to enhance the adaptive capacity and resilience of Afghanistan’s agriculture, environment, and population to climate change, while developing and implementing Low Emission Development Strategies (LEDS).

Management of climate change in Afghanistan entails both mitigation actions to reduce greenhouse gas emission as well as adaptation actions to reduce the impacts of climate change on lives and livelihoods. Based on historical trends and future projections of temperature and precipitation levels, the sectors with the highest adaptation needs are water, agriculture, forests and rangelands, energy, ecosystem, biodiversity and health.

## 2.3: Priority Adaptation Actions of Afghanistan

According to NDC, its vision for addressing climate change through adaptation “aims to protect the country and its population by enhancing adaptive capacity and resilience, effectively respond to the vulnerabilities of critical sectors, and efficiently mainstream climate change considerations into national development policies, strategies, and plans”. This necessitated the development of a national climate change adaptation strategy that includes community-level vulnerabilities to build up adaptive capacity, with an emphasis on the following medium- and long- priority actions:

- (i) Reducing vulnerability of the country and its population through enhancement of adaptive capacity and resilience, and deployment of disaster risk reduction approaches.
- (ii) Integrating climate change consideration into the national planning processes.
- (iii) Promoting economic development and sustainable rural livelihoods through sustainable management of environmental resources and increase access to modern forms of efficient and sustainable energy services.
- (iv) Improvement of technical capacity in governmental institutions.
- (v) Adaptive and integrated land and water management.
- (vi) Improving access by rural communities and farmers to water to support food security, reduce poverty and improve agricultural productions.
- (vii) Raising awareness for people on climate change impacts and adaptation measures.

## 2.4: Climate Change projection and impacts on key sectors

**Projections and impact of climate change in Afghanistan:** Climate change is a serious and present threat to Afghanistan’s natural resources<sup>1</sup> and the life of the people, animals, and biodiversity in general.

Since 1950, Afghanistan’s mean annual temperature has increased significantly (by 1.8° C). The analyses of the changes in precipitation levels show that the spring precipitation has decreased by up to a third while winter precipitation has slightly increased. The decrease in spring (March–May) precipitation is particularly relevant for agriculture and crop yield as our spring crops are

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<sup>1</sup> <https://www.unep.org/resources/report/afghanistans-second-national-communication-snc-under-unfccc-2015-2016>

mostly rain-fed. Afghanistan is an agrarian country and although the contribution of agriculture to GDP is only around 26 percent, this sector remains an important source of employment and livelihood for poor and vulnerable people – an absolute majority of the population – around 80 percent – relies directly or indirectly on agriculture and available natural resources for their livelihoods. However, the global climate change and the highly fragile ecosystem of Afghanistan – frequent natural hazards, depleting underground water resources and reducing agricultural productivity – pose extraordinary challenges to sustainable livelihoods of the rural communities who have no or minimum adaptation resources and capabilities.

Climate shocks and climate ‘headwinds’ could worsen poverty, weaken governance and contribute to instability<sup>2</sup>. The high risk is that cumulative social impacts of climate change – affecting people’s livelihoods, where Afghans are able to live and increasing the impact of natural disasters – slow the country’s development and further strain on government’s ability to provide services. In essence, climate change brings greater uncertainty and more extreme weather into an already difficult security and political context. In March 2019, the Red Cross reported that more than one in four Afghans faced acute food insecurity as a result of devastating floods that followed a three-year drought (IFRC, 2019). This type of situation may worsen in the future. The increasingly frequent droughts and floods anticipated under all climate change scenarios, along with accelerated desertification and reduced water flows in country’s glacier-fed rivers, would threaten rural livelihoods, undermine national economy and weaken the country’s ability to feed itself.

Afghanistan’s annual renewable surface water resources are estimated at 57 billion m<sup>3</sup> distributed across five river basins<sup>3</sup>. This equates to an overall surface water availability of 2,775 m<sup>3</sup> per capita per year, considerably higher than the standard figure of 1,700 m<sup>3</sup> per capita per year that is considered sufficient to satisfy average population demands for domestic, food production, industrial, energy, and environmental needs. Although the country has sufficient water to meet its needs, these resources are not evenly distributed or equally accessible at all times of the year. There are important countrywide variations within and across river and sub-river basins, which do not always correspond with the location of irrigable land and population settlements.

Current projections show that precipitation levels will remain relatively stable up to 2100, but the overall increase in temperature across the country will lead to an increase in evaporation and evapotranspiration that will not be compensated by a sufficient increase in precipitation, thereby negatively impacting the water cycle and availability of water resources. Moreover, temperature increases will cause increased glacial melting in the Hindukush region, and a corresponding decline in groundwater recharge rates. These changes will likely occur in conjunction with a steady increase in population and demand for water. Warmer temperatures will also change seasonal precipitation patterns, likely causing earlier snow melt and causing more precipitation to fall as rain rather than snow. This will increase the risk of flooding during the spring and drought during the summer. These risks are further compounded by the heavy degradation of forests and rangelands, reducing vegetation cover that formerly helped stabilize watersheds and attenuate runoff, while also limiting desertification and soil erosion.

There is a high dependence on agriculture for livelihood and subsistence in Afghanistan, with the sector employing almost half the working population. Natural hazards represent a regular threat to local production and communities in the agricultural sector. As reported in Afghanistan’s

<sup>2</sup> <https://ceobs.org/climate-security-expert-network-climate-fragility-risk-brief-afghanistan/>

<sup>3</sup> [https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/9486351\\_Afghanistan-NC2-1-SNC%20Report\\_Final\\_20180801%20.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/9486351_Afghanistan-NC2-1-SNC%20Report_Final_20180801%20.pdf)

NC1, the nation was persistently affected by drought throughout the period 1997–2007, which was an influential factor in a 50% reduction in livestock numbers. Staple crops such as wheat are also highly susceptible to water shortages, with yields reducing by up to 50% during droughts in 2017–2018. Climate change will influence food production via direct and indirect effects on crop growth. Direct effects include alterations to carbon dioxide availability, precipitation and temperatures. Indirect effects include through impacts on water resource availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and decline in arable areas due to land degradation and desertification. On an international level, these impacts are expected to damage key crop yields, even on lower emissions pathways. Tebaldi and Lobell (2018) estimate 5% and 6% declines in global wheat and maize yields, respectively, even if the Paris Agreement is met and warming is limited to 1.5° C. Shifts in the optimal and viable spatial ranges of certain crops are also very likely, though the extent and speed of those shifts remains dependent on the emissions pathway.

Rehabilitating Afghanistan’s core transportation infrastructure, while creating quick employment, has been a major national priority that featured prominently in the strategy to consolidate countrywide peace and security. Because of its labour-intensive nature, the rehabilitation of rural roads was considered crucial to generate immediate employment opportunities while improving rural access to basic services and markets. The Ministry of Transportation (MoT) is an important stakeholder in the mainstreaming of climate change into Afghanistan’s infrastructure development plans, particularly as roads, bridges, railroads, airports, and other transportation infrastructure face considerable risks from the floods and extreme weather events that are expected to increase in frequency and severity with a changing climate.

In order to satisfy domestic energy needs, Afghanistan relies heavily on electricity imports from neighbouring countries which account for more than three quarters of the country’s total electricity usage. Although Afghanistan’s Energy Sector Strategy heavily emphasizes the potential of domestic hydropower development in order to meet the country’s energy needs and promote economic growth, the uncertain impacts of climate change on the availability of water resources and increased risk of natural disasters, such as floods, raises questions about the safety and sustainability of hydropower dams. Renewable energy offers Afghanistan the greatest hope for meeting domestic energy needs and reducing dependence on energy imports. In addition to hydropower, Afghanistan has strong potential for solar, wind, geothermal, and biomass/biogas energy production. Initial exploration of these renewable energy sources has begun in Afghanistan, but much more effort and resources are required to ramp up large-scale energy production. Afghanistan’s first request for technical assistance from the Climate Technology Centre and Network (CTCN) includes a focus on climate-smart technologies and renewable energy, in order to provide improved guidance and support for future energy development.

### 3. Ongoing Climate Resilience Initiatives in Afghanistan

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**Green Climate Fund: Rural Energy Market Transformation Initiative – Strengthening Resilience of Livelihoods through Sustainable Energy Access.** The mitigation project amounting to USD 21.4 million was designed to kick-start a renewable energy market in rural Afghanistan. It lays the necessary groundwork for the development of a mini-grid energy sector.

**ADB: Enhancing Knowledge as Public Goods for Project Innovation, Demonstration, and Replication:** The knowledge and support technical assistance (TA) would enhance knowledge sharing, contribute to increased capacity of policymakers and project managers, and promote innovation in development projects among ADB's developing member countries.

**ADB: Project Readiness Support for Environment, Natural Resources and Agriculture Sector in Central and West Asia.** The regional knowledge and support TA would help improve readiness of projects during processing and initial implementation stages for projects under the agriculture, natural resources and rural development (ANR) sector in developing member countries.

**ADB: Proposed– Climate–Resilient Livestock Value Chain Enhancement Sector Project.** The proposed project would have two outputs: (i) regulatory and institutional capacity in the livestock subsector strengthened, and (ii) livestock farm and agribusiness enterprise facilities established and/or upgraded. These outputs would result in the following outcome: production, productivity, and marketing of livestock products increased.

**UNDP:** The project 'Adapting Afghan Communities to Climate–Induced Disaster Risks' would improve the preparedness and resilience of select Afghan communities to climate–induced disaster risks. The five–year project (2017–2022) would improve decisions and implementation of climate–induced disaster risk measures, deploy and effectively utilize community–based early warning systems, support climate–resilient livelihood strategies in targeted community, and strengthen institutional capacities to integrate climate risks and opportunities into national and provincial plans, budgets and policies.

## 4. Need Assessment for Innovations in Afghanistan

### 4.1: Problem Statement

Following decades of war and pervasive poverty, Afghanistan's people today face new challenges from the impacts of a changing climate. Afghanistan is among the median countries in the world when it comes to GHG emissions. It is however among the most vulnerable countries to the effects of climate change, particularly in relation to vulnerability to droughts, floods, landslides/avalanches. To an extent, this is due to its level of exposure but it is also the consequence of a very high sensitivity of its population to the stimulus of climate shocks. The sensitivity is multidimensional and is based on socio-economic, cultural and political factors. Women are among the most severely affected as climate change often affects a number of daily tasks that are culturally associated with women's responsibility such as household water supply or collecting resources for heating and cooking, etc. Afghanistan's environmental diversity and rich cultural history can be seen in the everyday realities of the people whose lives are intertwined with the wellbeing of Afghanistan's environment.

The nature of water crisis brought on by climate change including hydrological cycle changes and its consequences on the water resources will occur in conjunction with a steady increase in population and demand for water, with changes in the quality and quantity available for distribution. The Technology Needs Assessment conducted by NEPA highlights the crisis in the water sector as follows:

- (i) Approximately 16.8 million Afghans drink unsafe water.
- (ii) An estimated 23 million people have inadequate access to improved toilets and waste disposal facilities.
- (iii) Increasing population growth rates mean more competition for less water per capita.
- (iv) Drought and flooding are still causing early deaths, injury, the destruction of property, food shortages and lost earnings.
- (v) The danger of national and international disputes over water resources is growing.
- (vi) Environmental degradation is exacerbating water scarcity

In the agriculture sector which is closely related to food security in Afghanistan some 80 percent of Afghans depend on rain-fed agriculture and cattle-grazing for their incomes, both of which are threatened by temperature increases and erratic rainfall. Climate change will continue to negatively affect the socio-economic development, creating multiple impacts for the sector. Challenges in the sector are multiple with increased soil evaporation, reduced river flow, and less frequent rain during peak cultivation seasons impacting agricultural productivity and crop choice availability. Annual crop failure levels due to water shortages and the existing irrigation system is operating at a low efficiency rate of about 25 per cent, which indicates that there is considerable scope for reducing wastage of water.

There has been also a global absence of interest in the topic related to climate innovation technologies in the adaptation process in Afghanistan. It calls for drawing national and international attention as it is beyond capability of solitary official unit. What is also missing is a strong involvement of the civil society and private sector facilitating debates and discussions on the broad strategy for climate innovations that Afghanistan should adopt when it comes to climate change adaptation.

## 4.2: Climate Innovation Needs Assessment

Afghanistan emphasizes that climate change has bearings on the productivity and efficiency of climate-sensitive sectors such as agriculture and water. The reports underline that effective climate action must be supported by an integrated and crosscutting policy approach that integrates climate change into national development planning.

Climate innovation needs is one of the most important critical steps towards identifying and assessing climate change adaptation challenges within the UNFCCC technology mechanism on technology development and transfer. For a climate-vulnerable country such as Afghanistan, it has an added significance for aligning its adaptation needs and opportunities with goals and objectives of its sustainable development programs. Afghanistan emphasizes that climate change has bearings on the productivity and efficiency of climate-sensitive sectors such as agriculture and water.

Using MCDA tool and inputs from expert sectoral working group adaptation, top four technologies for Water sector and six technologies for Agriculture sector were identified, assessed and then prioritized by following several key steps that included:

- (i) Identification of technology options for water and agriculture sectors.

For water sector, the technologies identified were;

- 1) Sprinkler irrigation, 2) Drip irrigation, 3) Early warning system for water supply management through snowpack monitoring technology, 4) Ground water mapping and modeling technology, 5) Integrated water resource management, 6) Micro irrigation system for efficient water use and management technology) Small dams and micro catchment technology, 8) Rain water collection from ground surface technology, 9) Water saving technology (Reducing water leakage in water management facilities), 10) Water user association technology, 11) Wells for domestic water supply, and 12) Water legislation improvement.

For Agriculture sector, the following technologies were identified:

- 1) Ecological pest management technology, 2) Responsive Agricultural extension technology, 3) Wind break technology, 4) Crop growing under Plastic mulches technology, 5) Agro-forestry technology, 6) Conservative Agriculture technology, 7) Crop diversification and new varieties technology, 8) Introduction of plant varieties resistant to climate change technology, 9) Land use planning technology, 10) pasture improvement technology, 11) Seed and grain storage technology, along with, 12) Green-house crops (Cucumber, Tomato, Capsicum) technology.

## 5. Stakeholder Consultation on Climate Innovation

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Objective of the Consultation

- To foster partnerships with government and private organizations for knowledge and resource sharing
- Explore possibility of co-development of products and tools with the end-users.
- Identify projects that demonstrate regional applicability and scalability

- Discuss the Innovations and technologies that can be transferred among SAR countries.
- Familiarize the audience with ADPC and CARE for South Asia project.

## 5.2: Summary of the Discussion

The consultation began with welcome note and acknowledgment by NEPA official to APDC for rendering their efforts in CARE for South Asia project supporting innovation challenges in Afghanistan and most importantly to the World Bank for their funding support.

In line with the core agenda of the consultation, the NEPA official contextualized the increasing impacts of climate change in Afghanistan as one of the countries among least developed nations playing hosts to the climate induced disasters like drought, flooding, avalanche and extreme weather events at frequent level.

In addition, NEPA official laid stress on the impact of climate change in Afghanistan affecting key sectors such as water, agriculture, natural resources, environment and human health. He further added that although Afghanistan has developed national, sectoral plans, policies and strategies for adapting to climate change, the focus should be grounded on implementing these policies to achieve stronger adaptive capacity to climate change. In this backdrop, a discussion with line Ministries and Agencies will be initiated concerning their needs to enhance resilience for adapting to the adverse impacts of climate change.

In 2020, NEPA conducted TNA for both adaptation and mitigation and they have listed out priority technologies in a close coordination with line Ministries and Agencies.

In agreement with the collaborative efforts and knowledge sharing, The representative from NEPA underscored the idea of regional adaptation that can be achieved by way of accelerating partnerships for climate change technology transfer and climate innovations. Such collaborative efforts among relevant sectors for instance civil society, private sectors, international partners, academia, universities, local communities and with key multiple line departments of government becomes imperative.

The Government of Afghanistan is also working with AFA and UNDP for additional NDC contribution. In this regard the preparation of a leading document for all climate change related issues is underway. The representative from NEPA apprised that for the first time they have developed a 100–page national inventory report for Afghanistan which will be launched very soon by NEPA. The Government of Afghanistan is also working with the purpose of accessing further projects for both mitigation and adaptation under Green Climate Fund.

The representative from NEPA sought support from ADPC on working in tandem with ANDMA and NEPA if it is technically feasible. Once an agreement has been reached, a joint project proposal may be formulated for further funding opportunity with GCF. The GCF is one of the key priorities for the Government and also for His Excellency, the President of Afghanistan for tackling climate related issues. In his remarks the ADPC team asserted that ADPC would be willing to initiate major discussion with regard to accessing the GCF funding.

Subsequent to expressing thanks on behalf of ADPC to all the participating organizations especially the NEPA and ANDMA, in his introductory presentation, the ADPC team briefed the consultative group on the sub–component of the under the CARE for South Asia Project amounting to US \$3,000,000 for funding two different types of grants for innovative and disruptive technology solutions for resilience building. ADPC is anticipating to provide grant \$150,000 per innovators.

Emphasizing the significance of forging partnership as one of the key pillars of CIC, the ADPC team asserted that ADPC and the World Bank together aims to facilitate partnership building efforts with the key players namely government, private sector or individuals innovating within Afghanistan.

The ADPC team briefed about the underlying principles of innovations that are interwoven, such that the innovations are grounded in the needs in question. It would provide funding to test the pilot by way of using the expertise of NEPA and the coordination of ANDMA that would facilitate the grant awardee institutions and entities to better understand the innovation needs of the country and thereby bolstering it.

While decoding the funding mechanism, the ADPC team dwelt at length about the ‘Scalability’ term and its correct interpretation in the CARE project thereby demonstrating that if a pilot can be applied in one small village it should potentially scale up in a large number of districts or the entire country. ADPC also welcomed participants to share their suggestions that can be added to the proposed list of themes already outlined in the CIC.

As per the devised methodology the overall approach has been made in a way that would ensure sustainability of the pilot approaches by scaling up through the process of finding a local partnership on a demand-driven innovation product.

The ADPC team stated that the potential applicants may discuss with the concerned Ministries /Departments with whom they intend to apply. It was reiterated that these grants will be given to demonstrate regional applicability and scalability– meaning that if some innovation works in mountainous regions in Afghanistan, it should also work for certain areas in other South Asian mountainous countries.

Elucidating the selection process of awarding the grant, the ADPC team underlined CIC’s seven thematic areas and requested the participants to provide their guidance and suggestions for Afghanistan. Among the thematic areas, ADPC selected Transport and Power from the resilient infrastructure, NBS and Risk Financing solutions in addition to climate information and analytics, climate-smart agriculture, Integrated Water Resources Management, and community-level early warning.

Before concluding the discussion, and setting forth the question-and-answer session, the ADPC team outlined that this pilot innovation challenge will phase out in July 2022. Given that ADPC intends to provide substantial time to the selected innovators for piloting, as a result they would like to invite call for proposals as soon as possible.

### **5.3: Outcome of the National Consultation**

A total of 31 stakeholders participated in the national consultation for CIC representing the public sector, non-governmental organizations, international organizations and the private sector. An orientation by ADPC emphasizing value addition through partnerships, scalability, and replicability as well as the CIC process brought about an understanding of the processes of CIC and the potential areas of technology innovation in climate change.

The role of local media that can potentially disseminate information about the call for CIC proposal at a larger level may be considered, thereby reaching out to such local innovators who are remotely based. In this regard, the ADPC team will discuss it further for ensuring such requirement.

One of the key objectives of the consultation was to solicit suggestions from participating organizations in the seven thematic areas. The public officials present at the discussions confirmed that the CIC sector wise innovation areas will be discussed with relevant Afghanistan's Ministries and the outcomes would be communicated to ADPC.

NEPA would consolidate all the suggested ideas of ADPC and the new ideas emanated in the consultation for feeding into conceptualizing a full proposal. The representative from NEPA assured that the ministers who would present in the meeting will receive each a copy of the proposal. They would be welcomed to add, remove or propose new ideas. He further added that all these proposal copies will be disseminated to their networks in the private sector, civil society, government and also with their international partners.

The relevant CIC guidelines would be shared with the participating organizations following the consultation meeting. Besides, ADPC would also share the documents in the local language for the convenience of innovators to apply.

It was felt that it is crucial to identify innovators locally who have already created disruptive technologies and providing them the funding with the purpose of scaling up. ADPC was asked to clarify if data can be collected and disseminated among the research centers and officials in government.

In case some innovators are unable to develop promising proposals, they may request ADPC's support to facilitate through other appropriate channel that is feasible in Afghanistan.

ADPC will share the innovative technology measures of Water Resource Management, Agriculture and the Energy sector undertaken in Bhutan. It would determine a list available from all countries if anyone wants to apply for grants in those areas.

Towards the end of the consultation, both NEPA and ANDMA gave their assurance to provide administrative support in the smooth implementation of CIC.

## 6. Key Recommendations

In a country like Afghanistan, technological innovations to deal with and limit negative impacts of climate change on the people and sectors of the economy against expected impacts and hazards but also contribute to productivity and economic growth, and the overall welfare of the populations. The technological innovations being envisaged for Afghanistan should be applicable in other neighboring countries of South Asia through locally led technological solutions to minimize and control the risks against climate induced vulnerabilities.

The Climate Innovation Challenge for Afghanistan would potentially bridge the gap for investments in innovation in those sectors that are most vulnerable to climate change, namely the water resources, agriculture and energy, planning and transport. However, considering the enormity of the investment needs, it lays a strong emphasis to forge partnerships and collaboration across the South Asia region to (i) understand existing technologies that may be replicated and applicable in another SAR country without needing to reinvent the wheel; and (ii) co-develop and share technological innovations that require higher investments considering the economies of scale. As envisaged, with the purpose to steer this collaborative initiative, ADPC's role as a facilitator is crucial in this collective and collaborative climate innovation initiatives.

Today, civil society organizations in Afghanistan support a wide range of activities to nurture the

country’s continued reconstruction and development. For definitional purposes, the involvement of civil society is essential for addressing climate change impacts, particularly in terms of community organization and representation of people’s needs and interests. Public participation in climate change governance is vital to ensuring that a diversity of voices is taken into account by the Government in order to influence policy and planning, as well as provide oversight for their transparent and accountable implementation. With concerns about climate change and its direct impact on communities growing, CSOs’ role is instrumental in bridging the gap between policy-makers and suffering communities.

In Afghanistan, about 35 – 40 organizations are working on different issues related to climate change and environmental protection. Climate Action Network South Asia (CANSA) Afghanistan provides an opportunity to identify them and bring them under one umbrella. With the successful establishment of the National Steering Committee of CANSA in Afghanistan, Afghan civil society members have been linked with a wide network of climate change actors in South Asia. They have been capacitated by CANSA to collaborate on joint research studies, implementation projects, and regional knowledge-sharing programmes in South Asia and shared fundraising opportunities. This growing national network has also created prospects for bringing together Afghan civil society actors under a common platform.

In this context and considering that ADPC places much emphasis on investing in community resilience, the grant challenge initiative is a good opportunity to build innovations in community resilience by engaging civil society organizations and grassroots communities and placing the emphasis of the grant challenge in continuing the opportunities for CSOs to engage with communities as well as working on technological innovations is both timely and appropriate. Such key potential CSOs working under the CANSA platform need further handholding by ADPC in terms of capacity building for making grant application.

Despite the strength of CSOs, academic institutions and communities in delivering effective community services, they lack such technical capacities in grant writing but subsequently can emerge as strong contender to diverse funding opportunities available. With the purpose of filling these crucial gaps, it essentially calls for providing technical guidance to the civil society organizations by ADPC and its country partners in simplifying innovative concepts and ideas and translating them into actionable proposals and programs with the least bottlenecks in the application and reporting processes and protocols.

Considering the nature of grant ceiling, there is an unmet need for agencies and entities to collaborate, co-develop and generate innovations through startups and disruptive technologies engaging the youth, CSOs, academic institutions and communities to gain a comparative advantage of the CIC grants.

Based on the consultations and assessment of innovation needs, the stakeholders identified the following possible innovations focusing on partnerships, applicability and scalability of innovations and technologies.

Sl.	List of Themes
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1.	Emergency Communications for EWS in the remote areas of Northern Afghanistan
2.	Risk financing solutions
3.	Climate smart energy and technology need assessment
4.	Funding support for monitoring and evaluation systems and developing concept notes
5.	Support for adaptation and building community resilience
6.	Inclusion of the emergency response sector
7.	Partnership with academia and education sector for developing policies
8.	Engaging private firms who are driving clean and renewably energy initiatives
9.	Media engagement for reaching out to grassroots community for innovation proposals

## Annexes

### Annex-1: Key Stakeholders Consulted

Sl.	Name	Designation/ Organization
1	NajiaKharoti	MRRD
2	Aziz Hashimpur	IOM
3	M HaseebNooryan	ANDMA
4	HasibullahShaikhani	-
5	Ahmad Sameer	-
6	Ali Nazari	AKAHA
7	SafdarZaheer	AKAHA
8	Abdullah Rahmani	AEEA
9	MoneerKoshani	MOF
10	S. Ab. Bereb	SMDM
11	YousufHussainpour	ITU
12	NoorallahPaikar	NEPA
13	Dr Hayat Shams	MAIL
14	RafeeBadakish	ANDMA
15	Shirin Agha Samim	ADPC
16	AbulHudir	ANDMA
17	Pralhad	Oxfam
18	Mohammad Qaim	SMOM
19	Abdullah Haidari Akef	SMOM
20	E. Sediqi	NEPA
21	Mohammad Q Haidari	ANDMA
22	Rohullah Amin	NEPA
23	Monsifullah Anwari	WFP
24	HasibullahTahiry	NEPA
25	Ahmad Shoaib Jahesh	-
26	M. MonibNoori	UNEP
27	Mina Nabizada	EAPO
28	Omar Mohammadi	ANDMA
29	Dr Omar Gul Kuku	MOPH
30	Iqbal Sufizada	AKAH
31	Ghulam Tariq	AKAK

### Annexure I

#### Questions & Answers Session of Climate Innovation Challenge Consultation

- The question-and-answer session started with a query from the participating

organizations related providing \$150,000 under CIC for each proposal and if four grants would be given to Afghanistan. The ADPC team clarified that the amount allocated for each proposal is accurate in consonance with the CARE project agreement with the World Bank but the grants to be given to each innovator technically depends on the merit of the innovation proposals.

- Query related to the proposals being invited should comprise only of soft components such as research papers etc. in the seven areas of CIC or it should include hard components in the proposal especially in the areas of Integrated Water Resources Management, Transport and Infrastructure. An additional question also sought to know if individuals, civil society, government and those from private sector are eligible to apply for this grant and the announcement time for call.
- The ADPC team responded to the query by outlining that ADPC is not seeking innovation that is fully concentrated on study or a research paper etc. He further stated that essentially the innovation should be demonstrative in nature and may not be completely applicable right now but an innovation can be piloted and tested locally. In response to the second query, he clarified that the government, private sector, company and civil society organization can easily apply. Moreover, any individual who is legitimately working in the country can apply as well provided they warrant local partnerships.
- He further affirmed that between 15 April to 25 April, 2021 ADPC would invite call for proposals, however the date may vary slightly. Subsequent to the announcement of the call for proposals, ADPC would provide a minimum of 30 days to the innovators to submit proposals and can access online consultation with the concerned Ministries. Once the proposals are submitted, then it would undergo for an extensive evaluation.
- Ms. Najia Kharoti, representative from Ministry of Rural Rehabilitation and Development (MRRD) suggested that the seven key considerations for the CIC should be emailed to the organization. Besides, she also said that the technical department will contact ADPC or their focal point representative in Afghanistan about Integrated Water Resources Management (IWRM). Additionally, She further inquired if the Ministry needs to share the budget and also sought to clarify their role in applying to the grant.
- The ADPC team responded to the query by stating that it's not necessary for the government to submit additional funds. These are small grants and ADPC seeks to its utilization for this innovation. He also outlined that he will share the latest documents in the local language so that locally interested innovators can apply by easily interpreting it. Besides, the guidelines would be shared with Ministries very soon.
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Mr. Abdullah deliberated about the significance of Energy sector's impact on climate change and suggested to add climate smart energy to the key proposed themes of CIC. Since most of the smart innovations come from the communities and local innovators, it can sustain interventions and be

applicable for climate adaptations. Taking the cue, the ADPC team said that it will be incorporated into the final document. Drawing out the similarities with other South Asian countries, the ADPC team shared that Bhutan has considerably reduced the chemical contamination in water resources by promoting chemical and insecticide free agriculture and climate smart energy such as solar power, wind power and micro-power and biotechnology interventions in agriculture. The idea behind sharing this information by the ADPC team was intended towards the list available from all countries if they want to apply in those areas.

Mr. Rohullah Amin, Director for Climate Change, NEPA, shared his view that technology needs assessment was carried out in collaboration with UN Environment Programme (UNEP) and Technical Industry of Denmark. As per the objectives of the project, they have already identified the climate technologies in the four sectors and enabled the framework for these technologies. They are now in the process of formulating an action plan and concept note of these technologies. It almost covers all the seven thematic areas as per the CIC presentation. They would be interested to apply to this grant with their prior background.

It was largely felt and enquired in the meeting that the increasing needs of Afghanistan in terms of enhancing resilience of communities and formulating the SOP prepared by ANDMA. Among other areas of focus includes community level EWS, community level planning etc.

The ADPC team responded that the CIC grants are small and therefore would not be possible to include all their suggestions despite all these consolidated suggestions carries huge potentials. He further requested his colleagues Mr. Asif and Ms .Natasha from ADPC to initiate further discussion with NEPA in terms of identifying these areas and also ADPC can keep a record of these promising suggestions. It was also felt that there are other possible areas through which the organization can support these ideas that were presented in the consultation and can be discussed later with Mr. Shirin and NEPA officials.

Mr. Sayed from ANDMA enquired about the formulation and structure of the proposal through which applicants can apply for grants and the duration of the project. ANDMA suggested of adding the educational sector as well for more progression in this area.

On the topic of data sharing challenges in Afghanistan, Mr. Abdullah asked if data can be collected or disseminated among the research centers or government institutions. In response to his query the ADPC team responded that it can be made.



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