



Climate Innovation Challenge (CIC)

Innovations for Climate Adaptation and Resilience

APPLICATION GUIDELINE

Summary

FINANCIAL, ADMINISTRATIVE AND OPERATIONAL INFORMATION

FINANCIAL INFORMATION

Indicative CIC Grant Allocation: USD 2,000,000 of which an indicative amount of USD 150,000 for one single application.

ADMINISTRATIVE INFORMATION

Duration of Project Implementation:

The duration for the pilot implementation of the selected grant may be up to 12 months, including time allotted for documentation and reporting.

Application and Proposal Submission Mode:

REGISTER at <https://climate-innovation-challenge.adpc.net/> and submit an online application following the instructions.

OR

DOWNLOAD an application form at <https://www.adpc.net/cic> and submit it to innovationgrants@adpc.net following the instructions. Each Submission will be acknowledged by a return email.

Documents related to CIC can be downloaded at <https://www.adpc.net/cic>. For any other information, e-mail at innovationgrants@adpc.net

Potential partners:

Local partnership is preferred. Discussion(s) and Letter of Support from the end user (Ministries/Department/Authority) is needed.

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1. Background

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.

Over the years, science has become more accessible, acknowledging that it also needs to deal with uncertainties. Policymakers are becoming more aware of scientific developments as more and more public policy issues call for science-based solutions. Therefore, interactions between policymakers and science are increasingly seen to be complex and nonlinear, as opposed to early conceptions.

The Climate Adaptation and Resilience (CARE) for South Asia Project aims to contribute to an enabling environment for climate resilient policies and investments in select sectors and countries in South Asia. This is expected to be achieved through improved access to and use of regional climate information and analytics as well as the development and enhancement of climate-smart guidelines, policies, and plans at South Asia regional level. The CARE for South Asia project has two distinct but complementary technical components: 1) promoting evidence-based climate-smart decision-making; and 2) enhancing policies, standards and capacities for climate-resilient development. Component-1 is implemented by the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) whereas Asian Disaster Preparedness Center (ADPC) is taking the lead on component-2. More details can be accessed at: <https://pages.qwilr.com/CARE-for-South-Asia-frSpz40YT2ee>

The Climate Innovation Challenge (CIC) financed by the Foreign, Commonwealth and Development Office (FCDO) of the Government of UK (earlier called as DFID) through the World Bank's PARCC Trust Fund, will support innovation challenges across SAR countries that will crowd source innovative and disruptive technology solutions for resilience through grant awards, matchmaking and pilot-testing. The CIC will promote innovation in SAR through award of grants to eligible and qualifying innovators. The CIC will therefore aim to facilitate innovative solutions for their application and scale-up across different sectors, and tiers (national, sub-national and local/community) for greater impact. The country needs assessment reports shall identify potential areas for innovative solutions.

2. Key Considerations

Innovation in climate mitigation and adaptation are vital enablers for the transition to an equitable low carbon future as well as in increasing resilience to climate risks and extremities. Globally, the number of patented innovations in technologies for climate mitigation has increased steadily over the last two decades but the similar growth is not visible for climate adaptation and resilience. This stagnation of research and development for adaptation stands in sharp contrast to the trend for climate change mitigation technologies, whose share in total innovation (including non-climate-related) more than doubled during the same period. It is worth mentioning that there exists a market failure in developing and scaling innovative solutions to address climate resilience and adaptation needs of the SAR Countries primarily because of (a) awareness gap, (b) lack of capacity to pilot test newer technological solutions and (c) lack of funding. It is important to address these market failures by enhancing its resilience through supporting innovation and technological solutions for developing climate resilience and adaptation across various sectors. The objective of the CIC is therefore to support innovators and developers of disruptive technological solutions by providing grants in developing climate resilience and adaptation in SAR countries.

The broad contours covering key themes, principles and expected outcomes under the CIC are tabulated below:

Table 1: Key Themes, Principles & Expected Outcomes

Key Themes, Principles and Expected Outcomes under the CIC	
Themes	<ol style="list-style-type: none"> 1. Climate Information and analytics 2. Community -level-early warning system 3. Climate-smart Agriculture 4. Integrated Water Resources Management 5. Resilient Infrastructure (Transport and Power) 6. Nature based solutions for adaptation 7. Risk Financing Solutions
Principles:	<p>The innovative solutions shall be affordable, scalable/replicable and sustainable but also appropriate to the low resource and cultural particularities of SAR countries.</p> <p>The challenge will be managed with several overarching principles that will ensure sustainability of the approaches piloted. These include the following:</p>

	<ul style="list-style-type: none"> • The importance of local partnerships and demand led products • The co-development of products and tools with the end users • Projects that demonstrate regional applicability and scalability • Innovations and technologies that can be transferred among the SAR countries
Outcomes/Outputs	<ul style="list-style-type: none"> • Series of innovative, technology-based solutions developed to enhance climate resilience. • Local markets and institutional capacity enhanced and adapted to build scalable and sustainable adaptation capacities and climate resilience. • Enhanced awareness and knowledge sharing around the use of technologies for resilience and bringing in long term behavioral change. • The solutions once piloted successfully should be in positions to be scaled up as well as replicated in similar environment.

The innovative solutions must explicitly fall under one or more of the following areas derived from the national priorities and challenges of SAR countries:

- a. **Technology-driven support to key sectors:** Under the CARE for South Asia project, effort is being put together to enhance the resilience of three key sectors to climate change – Agriculture; Transport/Road infrastructure; Integrated water resources management. Proposals would be encouraged to address some of the major aspects through technology-driven interventions in each of the identified sector. For example, innovations in water accounting by understanding trends in water supply, demands, accessibility and use in a specific domain, in the water sector; innovations towards realizing the standards of infrastructure like roads and bridges in the transport sector; and innovations for improving and tracking food security, reducing greenhouse gases through climate smart-agriculture, etc. These are just a few indicative examples.
- b. **Data for climate adaptation and resilience:** Currently available climate and disaster risk data is generally found scattered at national and local levels in the region whereas new data is also being generated across multiple sectors and at different levels. The challenge is how to make the existing as well as the future data and data portals more useful for supporting climate-smart and risk-informed decisions in the arena of policy, planning and investment in key sectors at regional, national and local levels. This is largely about organizing, processing, packaging, and using the data not only for long-term climate-informed policy and planning (adaption and mitigation) purposes but also for short-term emergency preparedness including making the early warning systems more effective and efficient. Easy access and democratizing of climate data can go a very long way in empowering people to address the concerns of climate shocks and vulnerabilities and develop better adaptive capacities. A primary accessibility issue with the exiting climate data in sectors such as agriculture, water and infrastructure are the availability of data designed to meet user requirements. Therefore, existing and future climate data needs to be not only reliable but designed to meet the specific needs of each of the sectors in

requiring the data.

- c. **Transboundary and regional cooperation:** The CARE for South Asia project aims to facilitate cooperation between SAR countries at the regional or sub-regional scale to reduce transboundary impacts of climate change and pool resources to meet common challenges. Innovations and technology solutions are invited to support this objective so that there is an improved understanding of the increased weather and climate variability leading to more succinct climate adaptation and resilience actions for regional and transboundary cooperation in South Asia. One of the topics under this theme is the strengthening of the transboundary early warning system for climate change-induced hazards and disasters.
- d. **Mainstreaming gender equality concerns:** Numerous national and regional plans and strategies are currently put in place for promoting climate adaptation and resilience, but they still lack a strong element of mainstreaming gender equality concerns and aspects. Similarly, monitoring the actual level of gender equality integration in development interventions aiming at climate resilience is challenging. Solutions or tested and smart ideas are invited to address this thematic area.
- e. **Public finance and Nationally Determined Contributions (NDCs):** SAR countries are in the process of implementing their respective NDCs through adaptation and mitigation actions using both public and other funding resources. The challenge which needs to be addressed is the complexity of the process to determine, prioritize and track public financing for implementing the NDCs. Similarly, disaster risk financing and insurance needs to be strengthened and streamlined through options that offer contextualized solutions for different countries in the region.
- f. **Advocacy and awareness for resilience:** Contributing to an enabling environment through policy and community advocacy and awareness-raising is central to the CARE for South Asia project. Over the years, several organizations have experimented a range of approaches for this purpose but it still needs considerable attention to firm up the advocacy and awareness-raising mechanisms by introducing tools and techniques that offer more room for effectively engaging with elected representatives, bureaucrats, and the general public both in urban and rural areas for climate adaptation and resilience in SAR countries with a national and regional scope.

2.1: Relevance of Innovations

Relevance to the current priorities of SAR countries, including, but not limited to the following:

- Support to narrow the data gap through innovation for climate-informed planning and investments.
- Innovation for enhanced transboundary and regional cooperation in South Asia for climate adaptation and resilience.
- Innovations supporting the priority actions identified in the country's Nationally

Determined Contributions (NDCs) or National Plans on Climate Adaptation.

- Innovative solutions catering to Public Finance Management for Climate Adaptation and Resilience.
- Innovations towards realizing the standards of infrastructure like roads and bridges.
- Support integrated water resources management in the region through innovations in water accounting by understanding trends in water supply, demands, accessibility and use in a specific domain.
- Further augment the implementation of adaptation policies leading to moderating the climate shocks, for example, supporting to increase the lead time for Early Warning Systems in the region.

3. Problem Statement and Needs Identification

3.1 Climate information and analytics

The problem

Climate change data, projections and impact are largely based on an analysis of historical weather data in the countries that are participating in the CIC. Without a systematic mapping or trend analysis of climate change and how it will impact ecosystem degradation, reduction in water and food availability, and changes in livelihood, countries are unable to prioritize adaptation processes and monitor their effectiveness.

Countries are seeking solutions that would combine weather related data to generate understandable and usable information for policy interventions in specific sectors at a local level: Food Security, Nutrition, Forests and Watersheds, livelihoods and resilient infrastructure needs. Both macro and micro level information collection, sharing, analysis and forecasting are needed to build an evidence-based system for intervention.

Specific areas of concern include the need for:

- Real/near-real time climate data collection and monitoring systems.
- Monitoring and management of hydrometeorological events at a local level.
- The development of climate models to assess future risk, forecast impact in vulnerable sectors, and monitor change.
- Means by which local communities can understand, contribute to and benefit from data related to impacts on food security, extreme weather events, changes in groundwater and precipitation.
- Means by which communities and authorities can assess the impact of current patterns of use of natural resources, assess impact of current practices related to food and resource security and adapt and build resilience measures.

3.2 Community level early warning systems

The problem

In the case of disseminating weather events, especially at a large-scale early warning (EWS), it is typically provided by a national technical forecasting agency and subsequently disseminated to the community. Early warnings on climate change impact which includes slow onset changes and shifts in climate such as precipitation and temperature patterns, as well as degradation in ecosystem and resource quality, is neither understood, collected or shared with communities. Intrinsic to this problem is the need to monitor, collect and share information locally by communities and to provide the decision-making and scientific knowledge to respond to early warnings.

How do we educate, share information and collaborate with local communities on locally based early warning on climate change?

Specific problem areas include:

- Translating climate science to useable information for communities.
- Translation of information from local administration to communities.
- Decision Support Systems for local authorities.

Detection and forecasting at a local level

- An EWS system that incorporates multiple hazards, including those that are a result of or an impact of climate change.
- Access to data and predictive analytics to enable action by local level decision makers and the public.

Analysis and Warning at a local level

- Last mile connectivity, communication, dissemination and local actions in low resource settings.
- Citizen science and crowd sourcing for climate induced hazard early warning system.
- Community based early warning systems without using mobile technology.
- Community based ecosystem habitat restoration (coastal, mountain, drought-prone areas).

3.3 Climate smart agriculture

The problem

Of all the economic sectors, agriculture is the most climate sensitive sector and climate related hazards have significantly affected agricultural production. Many vulnerable and poor people are dependent on agriculture that are highly susceptible to temperature increases, variability in precipitation patterns, and the increase in extreme weather events.

Conversely agriculture, forestry and aquaculture practices have also had a significant impact on natural resource degradation, unsustainable land use and have contributed to increased salinity, pollution, erosion and a loss of biodiversity

Countries are seeking solutions to make agroforestry, agriculture and aquaculture more resilient to the deleterious effects of climate change while trying to promote adaptations that enhance food and nutrition security while protecting the environment.

Specific areas of need include:

- A. The inability to monitor increased risk, hazard and impact of climate change on agriculture in the short and longer term, especially in local areas.
- Assessing food security, water security, and climate risk and impacts on crop yields.
 - Monitoring and managing climate impacts at a farm or watershed level.
- B. What innovative strategies and technologies exist for climate change mitigation resilience and adaptation for agriculture, agroforestry, fisheries:
- Introduction of heat-tolerant, flood-tolerant crop to address water stress in plants.
 - Improved crop varieties and management, sustainable land management and soil nutrient management.
 - Agroforestry to diversify farms and enhance resilience.
 - Optimization of water usage in agriculture sector.
 - Leveraging indigenous knowledge, integrating with technology (real time early warning) to adopt community level smart agriculture practices.
 - Innovations to reuse crop residue to reduce stubble burning.
 - Innovations on the reduction GHG emission from crops.
 - Affordable solar irrigation non-chemical agricultural practices for farmers and provides alternate sources of income for those who find it difficult to make their livelihoods sustainable.

Adaptation and mitigation strategies

- C. Precision agriculture and its applicability in South Asia
- Biotechnology interventions (Genetic profiling of indigenous crop varieties; Development of drought resistant and pest resistant varieties of crops; Climate resistant productive livestock breeding).
 - Farming technology interventions (Agroforestry; Sloping Agriculture Land Technology (SALT); Integrated pest management; Greenhouse farming)
 - Seed quality monitoring system.
 - Infrastructure interventions (Storage techniques for grains and seeds).

3.4 Integrated water resource management

The problem

Climate change has multiple impacts on water resource management in countries participating in the CIC. It effects the availability of water for agricultural and urban use with significant impacts, it results in an increasing frequency of flood events, it causes rising sea levels necessitating aquatic ecosystem protection. In the mountains it results in degrading the level of snow impacting the availability of water. In most countries it leads to both an increased flood risk and an increasing prevalence of drought. Basic systems for watershed protection, water management, flood management will be required to make countries and communities more resilient.

In addition, the increased demand for water for agriculture, manufacturing and to support populations make a system of integrated water resource management an essential component of building resilience to climate change.

Specific areas of need and gaps highlighted in the needs-assessment process include:

- A. The need for an improved data systems for Water management and use:
 - There are no existing systems to incorporate Climate Information within Water Resource Management at national and/ or local levels.
 - Where water resources, including precipitation, groundwater and runoff are shared between different countries there are no systems available to do this.
 - At a local level, both in urban and rural areas there are no systems to estimate water use, to account and manage the use of water. This makes systems of allocation at watershed scale / river basin scale impossible.
 - While evapotranspiration as a result of increased temperatures is an acknowledged outcome of climate change the impact on agriculture (crop yields, water stress) and human use cannot be measured and therefore managed.
 - Systems for simple monitoring of water levels and quality are not readily available.

- B. The need to find solutions to enhance water retention, storage, usage, efficiencies and distribution.
 - Existing systems for Surface rainwater harvesting, Ground water recharge, Urban stormwater management, Rainwater harvesting structures (Rooftop) are not widely adopted. However, there is a gap in the market of accessible, affordable and appropriate solutions at household, cluster, watershed, village, town and city levels.

- C. Technologies for efficient water management exist in agriculture, but their adoption is poor. Products and services which include attention to raising awareness, cost-effectiveness, and distribution are not available at scale.
- High efficiency irrigation systems for irrigated and rain-fed areas.
 - Drought tolerant crop varieties.
 - Smart irrigation systems for arid region.
 - Sensor based water quality monitoring.
 - Efficient irrigation methods.
 - Impoundments to store and distribute water in lean seasons.
 - Water use efficiency methods- improved water distribution systems; water efficient fixtures.
 - Technologies for the Artificial recharge of groundwater.
- D. People and water management – there is a gap in innovative approaches and technologies to incentivize and enhance People’s participation in water management.
- Solutions enhancing integration of social and economic components of the Integrated Water Resource Management (IWRM).
 - Reduction of chemical contamination by promotion of chemical and insecticide free agriculture practices.

3.5 Resilient infrastructure

The problem

As extreme weather events increase as a result of climate change, the impact on infrastructure is enormous. Large floods destroy roads and bridges as well as electricity, communications, and transport systems. The need to build infrastructure such as sea walls, bunds against storm surges, the rise in sea levels is only one aspect of the problem.

Equally the need is to build infrastructure that is more resilient and can withstand the increasing frequency of these events. For example, in the immediate aftermath of a climate event, emergency operations are often hampered by a lack of resilient infrastructure. Communications systems do not work and it might take a long time for electricity and other essential services to be made operable again.

Examples of this in the countries assessed as part of the CIC included:

Climate change related coastal erosions from sea level rise, storm surges, sea swells and storm generated waves, increasing frequency and intensity of climate induced natural disasters such as floods, windstorms, landslides, and GLOF.

Needs / Gaps identified

A. Monitoring of resilience of infrastructure.

- There are very few systems for remote & smart monitoring of transport infrastructure health.
- No basic assessments of climate impact on logistic systems have been conducted.

B. Innovative technologies for climate and disaster resilient Infrastructure

- Infrastructure built in the past has not been designed to cope with the risk posed by the increased frequency of extreme events. The challenge is how to retrofit and maintain transport, power and communication infrastructure to withstand this.
- The engineering standards, design and specifications of materials to be used in private homes and public infrastructure are not climate resistant. The use of current building codes and standards lead to continuing hazard.
- There is a lack of awareness, training and standards and practical guidelines for climate-resilient roofing, irrigation systems, bridges (site, elevation, abutment & reinforcement), perforated surface for surface water management in built environments.
- There is no active promotion of Climate- and Disaster-Resilient Infrastructure Design Practices either in the public or private domains.
- While there are new climate resistant infrastructure building processes and technologies entering the market, there is very little awareness of these technologies, and no platform or other means for raising awareness and promoting usage and sale.

3.6 Nature Based Solutions

The Problem

The entire region experiences one of the highest numbers of weather and climate related disasters suffering huge economic losses as well as loss of human lives annually. Increased riverine, coastal, and urban flooding lead to widespread damages to critical infrastructure, livelihoods and settlements in the region. From sea level rise, storm surges, and typhoons in the coastal regions to glacial lake outburst floods and landslides are annual risks to infrastructure damages that the region faces collectively. Coastal and marine ecosystems are under increasing stress from climate change as sea level rise continues with inundation and saltwater intrusion affecting freshwater swamps, marshes, and coral reefs. Climate induced landslides in already

fragile geological features are causing massive losses to infrastructures such as roads and bridges in the mountainous countries of the SAR.

There is a demand and a definitive need for strengthening science and technology innovation and cooperation in the areas of nature-based solutions; innovation in climate and disaster resilient infrastructures and nature-based solutions (NbS) to protect and restore critical infrastructures and ecosystems, assessments and monitoring systems.

Needs/Gaps Identified

- A. Protection, restoration and sustainable management of ecosystems.
 - There is limited technological solutions to monitor natural capital such as soil, water, crop pests & disease surveillance that has a direct impact on the productivity of these ecosystems.
 - The entire region annually faces loss of agricultural ecosystems to drought and other extreme precipitation events such as floods and landslides.
 - There is very limited innovative solutions to green infrastructure and urban planning to mitigate the effects of climate change on air and water quality and its management.
 - There is a need to enhance livelihoods of communities and build economic resilience through nature-based adaptation solutions.

3.7 Risk Financing Solutions

The Problem

As climate change impact on multiple sectors at a regional as well as country and community levels increase, economic losses have undermined development outcomes annually. The need for new and innovative climate risk financing measures, models, approaches and instruments are more pronounced than ever before. However, limited access to and awareness on climate risk financing in the SAR countries have impeded the region from adopting cost efficient and affordable mechanisms.

Needs/Gaps Identified

- A. Technologies, approaches and strategies for reducing externalities, risk financing and promoting adopting of green infrastructure and practices.
 - There is limited investments in innovative solutions for risk financing mechanisms in agriculture and infrastructure sectors (such as insurance derivations and insurance solutions, area specific anticipation and risk financing).
 - There is a lack or very limited investment scaling up financing for climate adaptation in all sectors including agriculture.

- There is a need for supporting risk financing and risk-informed early action (forecast-based financing, green financing and accounting).

B. Potential partnerships for risk financing.

- The role of private sector investments in risk financing is non-existent or limited in the SAR region.
- There is a need to leverage corporate social responsibility into risk financing.

Table 2: Summary of Needs by Thematic Area

Sl. No.	Themes	Specific Needs
1	Climate Information and analytics	<ul style="list-style-type: none"> - Real/near-real time climate data collection and monitoring systems - Monitoring and management of hydrometeorological events at a local level - The development of climate models to assess future risk, forecast impact in vulnerable sectors, and monitor change. - Means by which local communities can understand, contribute to and benefit from data related to impacts on food security, extreme weather events, changes in groundwater and precipitation - Means by which communities and authorities can assess the impact of current patterns of use of natural resources, assess impact of current practices related to food and resource security and adapt and build resilience measures.
2	Community Level early Warning Systems	<ul style="list-style-type: none"> - Translating climate science to useable information for communities - Translation of information from local administration to communities - Decision Support Systems for local authorities <p>Detection and forecasting at a local level</p> <ul style="list-style-type: none"> - An EWS system that incorporates multiple hazards, including those that are a result of, or impact climate change. - Access to data and predictive analytics to enable action by local level decision makers and the public <p>Analysis and Warning at a local level</p> <ul style="list-style-type: none"> - Last mile connectivity, communication, dissemination and local actions in low resource settings - Citizen science and crowd sourcing for climate induced hazard early warning system

		<ul style="list-style-type: none"> - Community based early warning systems without using mobile technology - Community based ecosystem habitat restoration (coastal, mountain, drought-prone areas).
3	Climate Smart Agriculture	<p>A. Monitoring increased risk, hazard and impact of climate change on agriculture in the short and longer term, especially in local areas.</p> <ul style="list-style-type: none"> - Assessing Food security, water security, and climate risk and impacts on crop yields - Monitoring and managing climate impacts at a farm or water shed level <p>B. Innovative strategies and technologies for climate change mitigation resilience and adaptation for agriculture, agroforestry, fisheries:</p> <ul style="list-style-type: none"> - Heat-tolerant, flood-tolerant crop be introduced to address water stress in plants. - Improved crop varieties and management, sustainable land management and soil nutrient management. - Agroforestry to diversify farms and enhance resilience - Optimization of water usage in agriculture sector - Leveraging indigenous knowledge, integrating with technology (real time early warning) to adopt community level smart agriculture practices - Innovations to reuse crop residue to reduce stubble burning - Innovations on the reduction GHG emission from crops - Affordable solar irrigation non-chemical agricultural practices for farmers and provides alternate sources of income for those who find it difficult to make their livelihoods sustainable. <p>C. Precision agriculture and its applicability:</p> <ul style="list-style-type: none"> - Biotechnology interventions (Genetic profiling of indigenous crop varieties; Development of drought resistant and pest resistant varieties of crops; Climate resistant productive livestock breeding) - Farming technology interventions (Agroforestry; Sloping Agriculture Land Technology (SALT); Integrated pest management; Greenhouse farming) - Seed quality monitoring system - Infrastructure interventions (Storage techniques for grains and seeds)
4	Integrated Water	<p>A. Improved data systems for water management and use:</p> <ul style="list-style-type: none"> - Systems to incorporate Climate Information within Water Resource Management at national and/ or local levels

	Resource Management	<ul style="list-style-type: none"> - Systems to estimate water use, to account and manage the use of water in local rural and urban levels - Measuring and managing the impact on agriculture (crop yields, water stress) and human use - Systems for simple monitoring of water levels and quality are not readily available <p>B. Enhance water retention, storage, usage, efficiencies and distribution:</p> <ul style="list-style-type: none"> - Market of accessible, affordable and appropriate solutions at the household, cluster, watershed, village, town and city levels. - Adopt existing systems for surface rainwater harvesting, ground water recharge, urban stormwater management, rainwater harvesting structures (Rooftop); <p>C. Enhance adoption of technologies for efficient water management in agriculture including awareness, cost effectiveness, and distribution.</p> <ul style="list-style-type: none"> - High efficiency irrigation systems for irrigated and rain-fed areas - Drought tolerant crop varieties - Smart irrigation systems for arid region - Sensor based water quality monitoring - Efficient irrigation methods - Impoundments to store and distribute water in lean seasons - Water use efficiency methods- improved water distribution systems; water efficient fixtures - Technologies for the Artificial recharge of groundwater <p>D. Gaps in innovation approaches and technologies to incentivize and enhance people’s participation in water management:</p> <ul style="list-style-type: none"> - Need for solutions enhancing integration of social and economic components of the IWRM - Reduction of chemical contamination by promotion of chemical and insecticide free agriculture practices
5	Resilient Infrastructure	<p>A. Monitoring of resilience of infrastructure:</p> <ul style="list-style-type: none"> - Enhance systems for remote & smart monitoring of transport infrastructure health. - Conduct assessments of climate impact on logistic systems have been conducted <p>B. Innovative technologies for climate and disaster resilient Infrastructure:</p> <ul style="list-style-type: none"> - Adopt innovative retrofitting and maintenance measures for transport, power and communication infrastructure to withstand disaster risks.

		<ul style="list-style-type: none"> - Adopt climate resilient engineering standards, design and specifications of materials to be used in private homes and public infrastructure are not climate resistant in building codes and standards. - Need for awareness, training and standards and practical guidelines for climate-resilient roofing, irrigation systems, bridges (site, elevation, abutment & reinforcement), perforated surface for surface water management in built environments - Promote policies and protocols on climate- and disaster-resilient infrastructure design practices in both the public or private domains. - Enhance the platform for and awareness on new climate resistant infrastructure building processes and technologies to promote use and scale.
6	Nature-based Solutions	<p>Protection, restoration and sustainable management of ecosystems</p> <ul style="list-style-type: none"> - There is limited technological solutions to monitor natural capital such as soil, water, crop pests & disease surveillance that has a direct impact on the productivity of these ecosystems. - The entire region annually faces loss of agricultural ecosystems to drought and other extreme precipitation events such as floods and landslides. - There is very limited innovative solutions to green infrastructure and urban planning to mitigate the effects of climate change on air and water quality and its management. - There is a need to enhance livelihoods of communities and build economic resilience through nature-based adaptation solutions.
7	Risk Financing Solutions	<p>A. Technologies, approaches and strategies for reducing externalities, risk financing and promoting adopting of green infrastructure and practices.</p> <ul style="list-style-type: none"> - There is limited investments in innovative solutions for risk financing mechanisms in agriculture and infrastructure sectors (such as insurance derivations and insurance solutions, area specific anticipation and risk financing)

		<ul style="list-style-type: none"> - There is a lack or very limited investment scaling up financing for climate adaptation in all sectors including agriculture. - There is a need for supporting risk financing and risk-informed early action ((forecast-based financing, green financing and accounting).
		<p>B. Partnerships are possible for risk financing.</p> <ul style="list-style-type: none"> - The role of private sector investments in risk financing is non-existent or limited in the SAR region. - There is a need to leverage corporate social responsibility into risk financing. -

4. Guideline for Grant Funding

Eligibility

The overall eligibility criteria for companies and organizations to avail sub-grants under the CIC include the following:

- ADPC will accept applications from companies and organizations (including non-profit, non-governmental and think-tanks) operating lawfully in any country or territory with experience in deploying climate resilient technology solutions in low-income or developing countries.
- Innovators are encouraged to provide experience of deploying such a technology or solution in any SAR country.
- ADPC also accepts applications from consortia. For this purpose, ADPC defines consortium applications as those submitted by formal consortia only, i.e., where 2 or more organizations come together to create a new, formally constituted organization, with its own organizational accounts.
- Privately-owned companies including those with experience in providing innovative climate resilient technology solutions in the South Asia region.
- The solutions are preferably a Minimum Viable Product/prototype (MVP) that may have been deployed with test results and status.
- The companies or organizations to have demonstrated managerial capacity to implement the proposed solutions.
- The proposed solutions to have potential of scalability and replicability under local conditions in the South Asia region.

Disclaimer: The mere fulfillment of the criteria does not guarantee award of sub-grants to the innovators. ADPC reserves the right to award the grant to most appropriate and technically responsive proposals under the CIC through a comprehensive process of proposal evaluation and grant award.

Funding for Pilot Projects

- Winning innovators can avail a grant funding up to US\$150,000 per application along with the detailed project cost estimate and means of financing;
- Grants for each selected solution will be released in a phased manner upon successful completion of milestones. All milestones for the grants will be specified at the time of the award;
- Winning innovators will be required to provide their audited financial statement of the last fiscal year purely for the purpose to demonstrate the financial capacity under the project activities;
- For non-profit organizations, the financial viability will be assessed by review of the organization's statement of financial positions including balance sheet and income & expenditure account.

Responsibilities of Grantees

(If you have been selected)

- Carry out the activities of the project and conform to the specified objectives, outputs, milestones, and targets as detailed in the Sub-Grant Agreement;
- Submit regular Milestone Completion Reports and Statement of Accounts to ADPC as per the milestones and participate in the meetings organized by ADPC to review the progress, as and when called for before the disbursement of a tranche of Grant;
- Obtain all of the necessary requisite approvals, clearance certificates, permissions, and licenses from the government/local authorities for conducting its operations in connection with the project;
- Utilize the amounts sanctioned by ADPC for the purpose of project activities as specified in the Sub-Grant Agreement and shall not entrust the implementation of the project to any other agency (except as noted in the agreement) or divert the proceeds of the Grant funds. Re-appropriation of funds from one budget head to another shall not take place without the specific written approval of ADPC.

Detail responsibilities of the Grantees will further be covered in the Sub-Grant Agreement with the selected innovators.

Key Considerations for Short-listing

There are multiple technical and operational considerations that will form the basis for short-listing and finalizing proposals/innovations, and releasing grants under the CIC:

I. Technical considerations

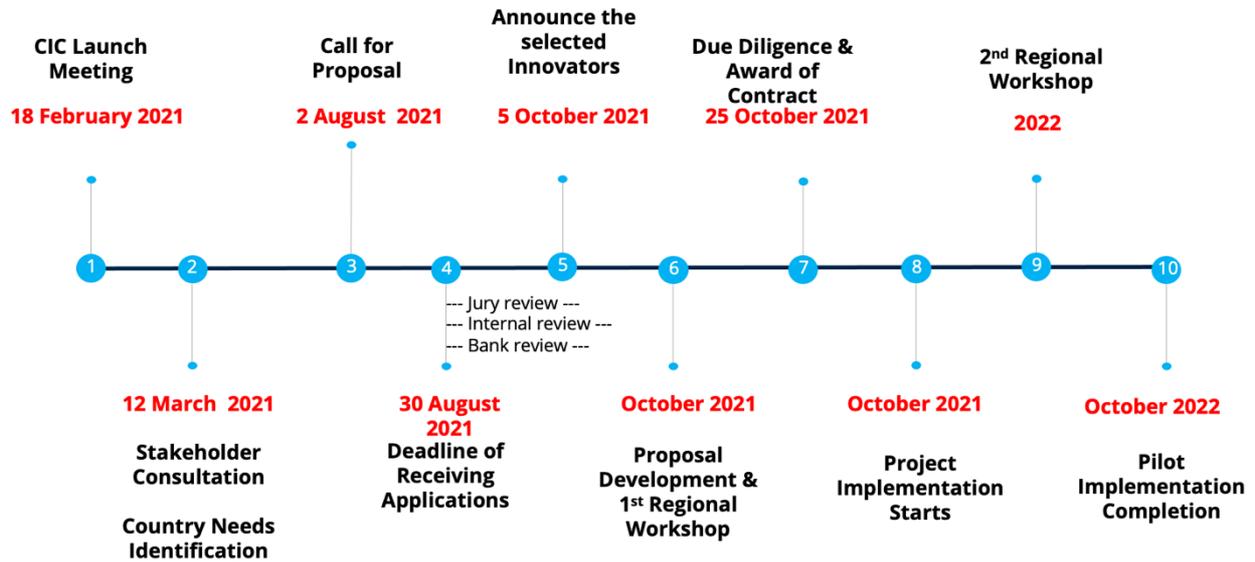
The innovators can submit a wide range of proposals covering innovative solutions to build climate resilience and adaptive capacities. Some of the key technical considerations may include the following:

- *Need-based*: The proposed solution is need-based and accompanied by an expression of interest from a specific government entity for implementation or upscaling in a specific geographical location.
- *Human-centered*: The proposed solution is guided by a human-centered design and includes all expected stakeholders.
- *Customization*: The proposed solution offers the possibility for local customization in addition to the use of local skills and materials.
- *Low repair and maintenance cost*: Maintenance and repair facilities are locally available for the proposed solution.
- *Implementable*: The proposed solution comes with an assumption of low-resource and low-skill environment.
- *Sustainability*: The proposed solution reflects a sustainable business model for all aspects of the technology.
- *Aspirational*: The proposed solution has a potential for a 'game-changing' impact.
- *Affordable*: Cost-effective and affordable solutions are encouraged for submissions.

II. Operational Considerations

The applications must be clear and explicit to justify donor funding through transparency in the application and selection process. Applications should be assessed regarding the extent to which the CIC support makes a difference to the chances of the project achieving commercial sustainability and development impact.

Important Timelines



Selection Process

The selection will be conducted with due diligence and evidenced in an objective, consistent, transparent and timely manner. The process involves the following main steps:

- **Coordination with Short-listed Innovators:** A series of discussions, follow-ups and meetings will be conducted with the short-listed innovators to be able to finalize the design, implementation, and administration of the innovative projects submitted to ADPC.
- **Establishment of a Selection Committee:** Please refer to Section 5 - “Proposal Evaluation, Jury Selection and Evaluation Criteria” for the details of the selection committee/jury.

5. Terms and Conditions

OPEN CALL DESCRIPTION: The Open Call submission period begins on **2nd August** which ends at **11:59 PM Bangkok time on 30th August 2021** ("Open Call Period").

By participating in the Open Call, each innovator unconditionally accepts and agrees to comply with and abide by the Terms & Conditions and the decisions of ADPC as the Implementing Agency, which shall be final and binding in all respects. ADPC reserves the right to make changes at any time to these Terms & Conditions and to any additional terms and policies referenced herein. Any such changes will become effective upon notice via online posting or other means of wide dissemination.

ELIGIBILITY: The Climate Innovation Challenge Open Call is open to any firm or organization operating lawfully in any country or territory with experience in deploying solutions in low-income or developing countries.

REPRESENTATIONS AND WARRANTIES/INDEMNIFICATION: By participating in the Open Call, each innovator represents, warrants, and covenants as follows: (a) innovator is the sole author, creator, and owner of the Submission; (b) the Submission is not the subject of any actual or threatened litigation or claim; (c) the Submission does not and will not violate or infringe upon the intellectual property rights, privacy rights, publicity rights, or other legal rights of any third party; (d) the Submission does not and will not contain any harmful computer code (sometimes referred to as "malware," "viruses" or "worms"); and (e) all information provided in the entry is true and correct in all respects.

If the Submission includes any third party works (such as third party content or open source code), innovator must be able to provide, upon ADPC's request, all appropriate licenses, ownership assignments and releases for such third party works. ADPC reserves the right to disqualify any Submission that ADPC, in its sole discretion, deems not to comply with these Terms & Conditions.

By participating in the Open Call, each innovator hereby irrevocably grants to ADPC a limited, non-exclusive, royalty free, worldwide, license and right to use the Submission to the extent necessary to administer the Initiative, and to ADPC to publicly perform and publicly display the Submission, including, without limitation, for marketing, advertising and promotional purposes relating to the Initiative.

PUBLICITY RELEASE: By participating in the Open Call, in addition to any other grants granted herein or which may be granted in any other agreement entered into between ADPC, on the one hand, and any innovator in the Open Call, on the other hand, each successful innovator hereby irrevocably (a) grants to ADPC and its contractors and representatives the right to use such

innovator's name in any and all media for any purpose, including, without limitation, marketing, advertising and promotional purposes relating to the CIC Program and (b) releases ADPC and its contractors and representatives from any liability with respect thereto. By submitting an application, participating innovator agree to comply with ADPC's disclosure policies.

FINALIST SELECTION: The evaluation criteria set forth in the description of the Open Call will be applied and the finalists will be selected at the sole discretion of ADPC. By participating in the Open Call, each innovator entering the Open Call acknowledges and agrees to be bound by and not challenge the final decisions of ADPC.

NOTICE TO FINALISTS: Attempts to notify potential finalists will be made using the contact information provided on the finalist's Application Form. ADPC is not responsible for e-mail or other communication problems of any kind. If, despite reasonable efforts, a potential finalist does not respond within five (5) working days of the first notification attempt (or a shorter time if deemed necessary by ADPC), or if any potential finalist is found to be ineligible, or if he or she has not complied with these Terms & Conditions they will be disqualified and ADPC, in its sole discretion, will determine whether to select an alternate finalist.

TERMINATION: In the event ADPC, in its sole discretion, deems that an insufficient number of eligible entries are received, or that ADPC is prevented from continuing with the Open Call and/or Program overall, as contemplated herein by any event beyond its control, including, without limitation, fire, flood, natural or man-made epidemic, earthquake, explosion, labor dispute or strike, act of God or public enemy, satellite or equipment failure, riot or civil disturbance, terrorist threat or activity, war (declared or undeclared) or any federal state or local government law, order, or regulation, public health crisis, order of any court or jurisdiction, or other cause not reasonably within ADPC's control ("Force Majeure"), ADPC shall have the right to modify, suspend, or terminate the Open Call and/or the Initiative.

CIC Grants: Selected innovators may be invited to enter into grant agreement with ADPC as per the procurement manual of the WB CARE project.

ADDITIONAL CONDITIONS: Funding and support, if any, will be subject to ADPC's legal conditions. Innovators may also be subject to applicable laws and additional or modified terms, conditions and requirements, including (without limitation) the execution and return of certain other agreements, such as a declaration of eligibility, a liability release, a publicity release and/or third party consents (e.g., to disclose investor names).

DATES/DEADLINES: ADPC reserves the right, in addition to those other rights reserved herein, to modify any dates or deadlines set forth in these Terms & Conditions or otherwise governing the Open Call and Initiative overall.

GENERAL LIABILITY RELEASE/FORCE MAJEURE: Each innovator agrees that ADPC shall not be responsible or liable for any losses, damages, expenses, liabilities, or injuries of any kind (including death) claimed to have resulted from participation in the Open Call

SETTLEMENT OF DISPUTE

Any dispute, controversy or claim arising out of or relating to the Contract issued by ADPC, or the breach, termination or invalidity thereof, shall be settled by negotiation between the parties.

If the dispute, controversy or claim cannot be settled amicably by direct negotiation between the parties within three (3) months from the date on which either party has served written notice to the other party of the dispute, it shall, at the request of either party, be submitted to one conciliator. The conciliation will be carried out in accordance with the Conciliation Rules of the United Nations Commission on International Trade Law (UNCITRAL Conciliation Rules), as at present in force.

Any dispute, controversy or claim that is unresolved after conciliation shall, at the request of either party, be settled by arbitration not later than three (3) months after the termination date of conciliation proceedings as per UNCITRAL Conciliation Rules. The arbitration will be carried out in accordance with the UNCITRAL Arbitration Rules as at present in force. The number of arbitrators shall be one and the language of the arbitral proceedings shall be English, unless otherwise agreed by the parties in writing. The arbitral tribunal shall have no authority to award punitive damages.

The arbitral award is final and all parties shall be bound by the arbitration award rendered in accordance with such arbitration, as the final adjudication of any such dispute, controversy or claim.

The Contract as well as the arbitration agreement above shall be governed by internationally accepted general principles of law and by the terms of the Contract, to the exclusion of any single national system of law that would defer the Sub-award to the laws of any given jurisdiction. Internationally accepted general principles of law shall be deemed to include the UNIDROIT Principles of International Commercial Contracts. Dispute resolution shall be pursued confidentially by both Parties. This clause survives the expiration or termination of the Contract.

Nothing in this Contract affects the privileges and immunities enjoyed by ADPC as an autonomous international organization described in its Charter and related legal documents. All settlement of disputes, shall be governed within the provision of laws in the Kingdom of Thailand that is ADPC's host country.

