



Concept Paper

Project Number: 45436-001
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Tajikistan: Building Capacity for Climate Resilience

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10. Department/Division: CWRD/CWER	
<p>11. Key Development Issues to be addressed:</p> <p>1. Tajikistan is one of the most vulnerable countries to the adverse effects of climate change in Central Asia^{1,2}. Recognizing the country's high vulnerability to climate change, Tajikistan was chosen as one of the nine participating countries to the Pilot Program for Climate Resilience (PPCR). The Expert Group³ established under the PPCR to select developing countries from around the world ranked Tajikistan very high for its vulnerability to climate-induced disasters based on indicators that were strongly related to mortality and economic losses inferred from climate-related disasters. The capacity of institutions, communities and individuals to adapt to climate change was rated very low, based on the Human Development Index⁴ and other indicators strongly related to water and food security.</p> <p>2. A recent study carried out by ADB and the Government of Tajikistan under the Technical Assistance TA7599⁵ in the context of the PPCR shows that climate variability and extreme events are already a danger for Tajikistan. Higher temperatures and decreased snowfall experienced over the last few decades have affected droughts, avalanches, landslides, rockfalls and violent winds routinely destroy land, crops and infrastructure and, in the worst cases, lives. Future climate change will lead to further losses. Projected rise in temperature of up to 2° C by 2050 will result in glacial melt and early snow-melt leading to changes in the seasonality of runoff with consequent impacts on availability and stable supplies of water for agriculture, hydropower, and other uses including human consumption. Rise in temperature and changes in precipitation will increase the frequency of droughts, catastrophic flooding due to glacial lake outbursts, destabilizations of mountain slopes and more landslides and result in a progressive increase in economic losses and risk to the population, and reduce the ability of communities to move out of poverty. These adverse effects will be compounded by a projected 67% population growth⁶ over the 21st century and will exacerbate underlying socio-economic and environmental constraints (land degradation, crumbling infrastructure, increasing feminization of poverty, low debt sustainability and limited institutional capacity) that already threaten the sustainability of Tajikistan's economic, social and human development.</p> <p>3. Recent assessments⁷ and consultations⁸ carried out under the PPCR shows that gaps in the understanding of climate risks combined with the limited capacity of individuals and institutions for adaptation prevent</p>	

¹ DARA 2010. *Climate Vulnerability Monitor*.

² World Bank, 2009. *Adapting to Climate Change in Europe and Central Asia*.

³ Climate Investment Funds, 2009. *The Selection of Countries to Participate in the Pilot Program for Climate Resilience (PPCR)*. Report of the Expert Group to the Subcommittee of the PPCR.

⁴ United Nations Development Program (UNDP), 2007. *Human Development Report 2007/08. Fighting climate change: Human solidarity in a divided world*. Palgrave Macmillan, New York.

⁵ ADB, 2011. *Climate Resilience for Natural Resources Investments*. Manila, TA7599.

⁶ UN, Department of Economic and Social Affairs, Population Division, 2011. *World Population Prospects DMOBASE*.

⁷ ADB, 2011: *Climate Resilience for Natural Resources Investments*, Manila, TA-7599; ADB, 2012: *Tajikistan's Technical Capacity for Climate Science and Impact Assessment*. Consultants Report. D. Conway, R. Jones, N. Silver and V. Aizen. Manila (funded jointly under TA7599 and TA7274); and UNDP 2012: *Capacity for Climate Resilience in Tajikistan: Stocktaking and Institutional Assessment*.

⁸ The consultations engaged over 200 stakeholders from government ministries (Ministry of Agriculture, Ministry of Economic Development, Ministry of Energy, Ministry of Finance, Ministry of Health, Ministry of Transport, Ministry of Water Resources and Land Reclamation, Committee for Environmental Protection, Committee of Emergency Situations, Committee of Women and Family Affairs), government agencies (State Hydrometeorological Services, Academy of Sciences), international organizations (AKDN, FAO, UNDP, UNICEF, WFP), donors (DFID, GIZ, EC, Swiss Cooperation, SIDA), civil society (Act Central Asia, ACTED, Christian Aid, OXFAM and a number of local NGOs) and communities living in the Pyanj and the Vashkh River Basins.

Tajikistan from effectively anticipate and manage climate change. The following constraints were identified in the assessments and the consultations:

- a. *Data and information on current climate variability, future climate change and its impacts on communities, infrastructure and ecosystems are inadequate to inform decision making.* Inadequate equipment for data collection, limited resources to acquire and maintain equipment, inadequacy of technical staff capacity and salaries to retain trained staff hinder the ability of responsible agencies to generate, store and analyze climate data to produce information for decision makers. In addition, climate data are not readily disseminated to stakeholders. Whilst current initiatives⁹ are addressing the need to improve the infrastructure for data collection, the use of data for weather forecast and climate modeling is extremely limited. The quality of information on climate change is not sufficient to meet the need of decision makers at the national, sub-national, and local level. Access to climate information is inadequate to support the design of measures aimed at reducing the adverse effects of climate change on priority sectors such as water resource management, energy, rural development, transport, and health. Women's access to information about climate change risks and options for adapting to climate change is poor, and information is often provided in ways which are not appropriate for them. Data and information that already exist is not used for scientific research aimed at understanding weather and climate patterns. Education and training on how to use available data to local experts who are already involved in hydrological and meteorological measurements is not sufficient to provide a sustained skill pool for weather forecasting and modeling.
- b. *Climate change risks are not integrated in development plans.* Development projects in key sectors (water, agriculture, physical infrastructure) do not consider climate change risks¹⁰ and there are no modalities to facilitate such transformational change in development planning. There exists moderate knowledge on climate change risk management¹¹ practice in key government agencies, but very little exists in some ministries and departments, and at the district and local levels. Most public officials are unfamiliar with tools, such as climate proofing, screening, economic analysis of climate adaptation options and cost-benefit analysis required to prioritize and allocate budget to adaptation measures. Public awareness of climate change is increasing but it remains low in local government agencies, particularly amongst women¹². Both government and nongovernment organizations (NGOs) lack adequate skill pool to support the implementation of structural measures, i.e. physical construction to reduce or avoid possible impacts of hazards such as droughts and floods, and non structural measures such as building codes, land use planning laws, research, information resource and public awareness programs. As a result, development projects cannot be formulated with the necessary considerations for design and engineering features that are responsive to climate changes risks in the country. Overlapping mandates among different agencies, inadequate coordination, meager fund flows and weak resource allocation mechanisms are major impediments to effective climate change risks management. There are no clear strategies or plans with clear targets and sources of funding to deal with climate change risks. Existing policies and plans such as the National Development Strategy, the Poverty Reduction Strategy and the National Climate Change Plan do not bar action, but neither strategy clearly links climate change to key climate sensitive production sectors and poverty alleviation goals, nor does it identify adaptation measures and targets. Monitoring and evaluation of current climate change policies and projects are absent.

⁹ Under the PPCR, the World Bank is supporting the government in implementing the project 'Improvement of Weather, Climate and Hydrological Service Delivery' through the Central Asia Hydrometeorology Modernization Program (CAHMP).

¹⁰ The gap analysis of line ministries' capacity to manage climate change carried out under TA7599 found that only 12% of respondents took climate change into account in planning although 71% of operations were exposed to climate impacts. In relation to the need for additional resources, 59% of respondents identified a need for more equipment, 53% for improved technical skills and 41% for better training.

¹¹ 'Climate risk management (CRM) combines systematic use of climate information and technology that reduces vulnerability, and policy that transfers risk' from J. Hansen at al. *ICRISAT 35th Anniversary Symposium, "Climate-Proofing Innovation for Poverty Reduction and Food Security"*, November 2007.

¹² World Bank, 2010. *Tajikistan: Key Priorities for Climate Adaptation*. L. Barbone, A. Reva and Salman Zaidi. Policy Research Working Paper 5487.

4. Effectiveness of institutions and agencies in addressing the impacts of climate variability and change across sectors is constrained on account of their inadequate awareness, information gaps, and limited capacity for information generation, analysis, and knowledge management. These constraints are manifested in the absence of the processes necessary for capturing and sharing information that meet the needs of planners and decision makers. Successfully building climate resilience in Tajikistan will require strengthening the competence of key institutions in anticipating and managing climate change, as well as engaging with the large number of poor and marginalized people who are adversely affected by climate change but lack the knowledge and the means to adapt effectively. The role of women is particularly important in view of the absence of many males who have migrated abroad for work, while children and the elderly also have key roles to play. Capacity-building and outreach campaigns must be designed to reach these groups, understand their perspectives and priorities, and offer information and support in ways and at times which are appropriate and which fit with their other tasks and obligations. Increasing the capacity of decision-makers to listen to the concerns of vulnerable groups, respond to those concerns, and give them a voice in project implementation, is also a priority. The proposed TA aims to address these needs.

12. TA Description:

5. This TA will enhance planning capacity for climate change adaptation at national and local levels, and within vulnerable sectors and vulnerable population groups. In line with ADB's commitment described in the Strategic Program for Climate Resilience¹³, ADB will support the government of Tajikistan to implement two components, i.e. 'Climate Modeling and Science Program' and 'Building Capacity for Climate Resilience':

- a. *Climate Science and Modeling Program* aims at enhancing Tajikistan's capacity to conduct climate science and glaciology research, develop climate change models and interpret the outputs from those models to provide policymakers and sector specialists with the data they need to plan for climate change. This component includes the development of a management information system for climate data, training of local experts to ensure the sustainability of this work beyond the duration of the Pilot Program for Climate Resilience, and the introduction of climate science and glaciology modules in higher education institutions.
- b. *Building Capacity for Climate Resilience* aims at building stronger climate risk management practices in Tajik institutions in key economic sectors and awareness of climate change amongst a variety of stakeholders, including government, civil society, the media and highly vulnerable groups such as women and children. This component also includes the strengthening of the existing PPCR Secretariat¹⁴ and coordination mechanisms to ensure effective implementation of PPCR and other climate change activities and maximize their development impact.

a. Link to Country Partnership Strategy/Regional Cooperation Strategy:

6. The Tajikistan Country Partnership Strategy (CPS, 2010-2014) includes climate change adaptation as a cross-cutting issue. The Country Operations Business Plan (2012 – 2014) includes this proposed TA.

b. Impact

7. The impact of this TA is that Tajikistan is more resilient to climate variability and climate change. The number of households affected from drought, floods and landslides and the economic losses from drought, floods and landslides are both reduced by 20% from the 2011 baseline.

c. Outcome

8. The outcome is that national policies and infrastructure development programs incorporate safeguards to

¹³ The Strategic Program for Climate Resilience (SPCR) describes the investment projects and capacity building activities that will be conducted under the PPCR. It was approved for funding by the PPCR Sub-committee in November 2010.

¹⁴ The PPCR Secretariat was established in March 2010 with bridging finance from TA7274. The Secretariat is responsible for the overall coordination of the PPCR activities and communications with stakeholders.

address the effects of climate change.

d. Outputs

9. The outputs of the TA are as follows:

10. *Output 1 – Climate change information is available to multiple users.* This output will address the need for timely and reliable information on weather and climate that can be easily accessed by decision makers at the national and sub national level. This output will enhance Tajikistan's technical and human capacity to anticipate climate variability and change, apply high resolution modeling techniques, interpret the outputs from those models and provide policymakers with the data they need to plan for climate change. The existing weather forecasting capacity in Hydromet will be strengthened to produce more reliable weather forecast information services, in coordination with ongoing activities under the World Bank¹⁵. A climate modeling facility will be established procuring necessary hardware and software to generate climate change information. A management information system will be established to store and share existing and newly generated data, including disaster risks. Training on how to generate and use climate data and information will be provided to local experts who are already involved in measurements of hydrological and meteorological data. Additional technical skills will be created through enhanced higher education curricula comprising climate science and glaciology modules. Educational modules and training on climate change will be delivered using as much as possible existing training facilities.

11. *Output 2: Climate change risks are integrated into Tajikistan's development planning and implementation of development projects.* Engineering guidelines and manuals often propose designs based on irrelevant historical climate patterns. For example, they may consider annual average rainfall, but not variability and peak events and certainly not climate projections. Line Ministries in Tajikistan have an increasing understanding that changes in climate patterns are having a negative impact on their sectors, but little is known on how to manage climate change risks. The TA will develop tools to climate-proof¹⁶ investment projects and guidelines to incorporate climate change risk management in operational guidelines and policies. Government departments will be supported in reviewing and updating planning and engineering guidelines and manuals for inclusion of climate risk management. The new climate data made available by the proposed TA (Output 1) and the related training programs will enable government agencies to update engineering guidelines and manuals and avoid unnecessary costs from damages and losses incurred from climate change impacts. A National Adaptation Strategy will be developed to identify and rank climate adaptation priorities and detail potential investment projects that may be financed by donors. This output will support also the development and testing of local adaptation plans of action in 10 vulnerable districts through a Small Grant Facility, using participatory approaches and engaging particularly vulnerable groups such as women. The immediate goals of the local adaptation plans are to safeguard livelihoods from the adverse effects of climate change by raising awareness on immediate adaptation actions and influencing local public expenditures on natural resource, environmental management, disaster risk management and adaptation initiatives. The TA will focus on priority sectors, including, water resources, flood protection, energy, transport, water supply and sanitation, and health. The Committee for Environmental Protection (COEP) and the PPCR Secretariat will facilitate rolling out lessons learned and knowledge into an overall risk management system. A climate risk management system will be developed to ensure that development projects are screened for climate change risks and that climate change risk management is systematically incorporated into technical guidelines and sector policy. By TA completion, line ministries and government agencies will be able to use tools to screen development projects for climate change risks and device appropriate adaptation measures and policies.

12. *Output 3. Knowledge management systems for climate change are developed and applied.* The aim of this output is to establish systems for storing and sharing knowledge on the impacts of climate change in key sectors and potential adaptation measures at the national and sub-national level. By TA completion, government and non-government stakeholders will have a deeper knowledge of climate change risks and

¹⁵ World Bank: Improvement of Weather, Climate, and Hydrological Service Delivery under the Central Asia Hydrometeorology Modernization Program (CAHMP)

¹⁶ Climate-proofed infrastructure results from engineering designs that incorporate the increase in temperature, droughts, floods and other climate hazards projected in the next 20-30 years.

adaptation options in Tajikistan. In particular, the Executing Agencies will be able to communicate climate change risks more clearly. The general public, including remote communities, will be able to use the knowledge to make decisions about their coping strategies. Women and other disadvantaged groups will have better access to information about adaptation options, and about what support is available to assist them in implementing those changes. The PPCR Secretariat will be able to manage and disseminate knowledge to address needs of different stakeholders.

13. *Output 4 – Outputs from the Pilot Program for Climate Resilience are managed for results.* This output aims to monitor the progress of the six PPCR Phase 2 activities¹⁷ under a single reporting framework in order to optimize shared learning among lead agencies and harmonize the activities, monitoring, and reporting of all resilience initiatives in the country. A Climate Change Results Framework (CCRF) will be prepared including baseline data and target indicators, including gender sensitive indicators, to be used in measuring the effectiveness of the government's programs to increase the people of Tajikistan's resilience to climate change impacts. The CCRF will be aligned with PPCR results framework and will build on the country's experience in results management. The development of the CCRF should involve all implementing agencies of the PPCR and other climate resilience programs, as well as civil society and development partners.

14. *Output 5 – Develop the current PPCR Secretariat into a 'National Implementing Entity' to implement climate change projects.* This output aims to ensure that Tajikistan can use the knowledge and the competences acquired in Outputs 1 to 4 to leverage additional financial support. The PPCR Secretariat will be gradually developed into an entity that meets international standards and can implement climate change projects. The PPCR Secretariat will receive ongoing training on core functions including procurement procedures, sound financial management and the use of international fiduciary standards, progress reporting, public communications, results management and practices to deal with mismanagement. The TA will support the PPCR Secretariat's process in seeking accreditation by the Adaptation Fund Board and Accreditation Panel of the Kyoto Protocol, which will enable the Government to access directly the Adaptation Fund, the Green Climate Fund and other financial arrangements that may emerge from a post-2012 international agreement on climate change. To achieve accreditation, the TA will support necessary assessments and development of recommendations related to institutional arrangements and capacity. The TA will formulate an exit strategy to ensure that: (i) the PPCR Secretariat develop into an appropriate organizational structure with trained permanent experts that can be eventually institutionalized by the government, and (ii) PPCR funding and potential additional support from donors are used as leverage to secure the support of the government in institutionalizing the Secretariat.

13. Assumptions and risks

15. The main assumptions are that the Government remains committed to mainstream climate change risk management into national development planning and that cooperation amongst different government agencies is progressively strengthened. From an institutional point of view, the main risk is the low retention of trained experts in government, due to the very low state salaries. From a technical perspective, the main risk results from the uncertainties associated with climate change projections, and the limited availability and access to raw data required for producing robust climate information. From an implementation point of view, the scale of the CDTA, large number of involved agencies and stakeholders and the country capacity constraints all suggest that significant challenges may be posed for efficient coordination and implementation. These risks will be reduced through a rigorous monitoring and evaluation system, which includes annual reviews as well as a midterm review after two years from commencement. On the basis of the findings of the review, outputs, activities, budget and implementation arrangements may be revised.

14. Implementation Arrangements

a. Proposed executing/implementing agency (EA/IA)

¹⁷ The PPCR Phase 2 activities comprise the 2 capacity building activities described in this TA, i.e. Climate and Science Modeling Program and Building Capacity for Climate Resilience, as well as 4 investments projects: 'Building Climate Resilience in the Pyanj River Basin' administered by ADB; 'Enhancing the Climate Resilience of the Energy Sector' administered by EBRD; 'Improvement of Weather, Climate and Hydrological Service Delivery' and 'Agriculture and Sustainable Land Management' administered by the World Bank.

16. The proposed Executing Agencies are the Committee of Environmental Protection (COEP) and its State Hydrometeorological Services (Hydromet). The COEP will be responsible for the overall oversight of the proposed TA, and Outputs 2 to 5. The Hydromet will be responsible for Output 1 (Climate change information is available to multiple users). Both the COEP and the Hydromet will be working in close collaboration with the PPCR Focal Point (Head of the Ecological Department of the Executive Office of the Deputy Prime Minister) and the PPCR Secretariat.

17. The Chair of the COEP will act as National Project Director and will designate two National Project Managers at Director level, one from the COEP for Outputs 2 to 5 and one from the Hydromet for Output 1.

b. Institutional/organizational/procurement/financial management assessments on the EA/IA previously conducted

Yes

No

c. ADB inputs

18. The CDTA will be implemented over a period of 4 years from the fielding of consultants, which is anticipated in June 2012. ADB will recruit a team of consultants to provide 70 international and 524 national person-months of consulting services. The consulting services will be provided by a consulting firm(s) specializing in climate change modeling, climate impact and vulnerability assessment, climate risk management, capacity building, institutional strengthening, project management and financial management to be engaged in accordance with Guidelines on the Use of Consultants (2010, as amended from time to time). Since the TA requires relatively new area of expertise and presents high level of complexity, careful selection with priority on quality is required and a quality based selection method (QBS) will be used for engaging the consulting firm(s). Disbursements under the TA will be made in accordance with the Technical Assistance Disbursement Handbook (May 2010, as amended from time to time).

d. Complementary inputs to be provided by Government and/or other agencies

19. Complementary technical input will be provided by the PPCR Secretariat. The PPCR Secretariat was established in March 2010 to provide overall coordination and effective communication of PPCR activities in Tajikistan. The PPCR Secretariat was established with bridging finance from TA7274¹⁸ to fast start its operations in 2010, with subsequent financial support from this proposed TA in alignment with the SPCR. The PPCR Secretariat is responsible for the overall coordination of the PPCR activities, communications with stakeholders and monitoring of PPCR outputs. The PPCR Secretariat is also responsible to facilitate the work of the PPCR Coordination Mechanism (see paragraph 23).

20. The PPCR Secretariat will be responsible for Output 3 (Knowledge management systems for climate change are developed), Output 4 (Outputs from the Pilot Program for Climate Resilience are managed for results) and Output 5 (Develop the current PPCR Secretariat into a 'National Implementing Entity'). The Head of the PPCR Secretariat will also work closely with the government and ADB to manage, guide and monitor the TA's outputs.

21. Currently the PPCR Secretariat is composed of three consultants, i.e. a Chief Technical Advisor, a Communications Manager and a Senior Office Administrator, engaged by ADB as individual consultants under TA7274 until commencement of the proposed TA. The consultants currently engaged by ADB will continue to operate in their capacity over the duration of the proposed TA, subject to their satisfactory performance. It is envisaged that the PPCR Secretariat will grow to up to 10 consultants to include a water resource specialist, an agriculture and land management specialist, an energy and transport specialist, as IT specialist, a monitoring and evaluation specialist and two administrative officers (see Appendix 2 for terms of reference). New consultants of the PPCR Secretariat will be recruited by the consulting firm(s) on TA commencement in consultation with the PPCR Focal Point, the Executing Agency, the Head of the

¹⁸ The PPCR Secretariat's first year of operations was funded by RETA7274 Enabling Climate Change Interventions in Central and West Asia.

PPCR Secretariat and the ADB.

22. The PPCR Secretariat reports to the PPCR Focal Point and to ADB. Eventually, the PPCR Secretariat will be absorbed and institutionalized by a government agency.
23. Building on the PPCR Secretariat's first year of operations and in an effort to further build its capacity, certain procurement functions (web portal development, training program, knowledge product development, etc.) will be led by the PPCR Secretariat with prior approval of ADB.
24. The PPCR Coordination Mechanism was approved by the government in September 2011 to ensure better coordination of the activities under the PPCR. The PPCR Coordination Mechanism includes an Inter-ministerial Committee with representatives from key line ministries and chaired by the Deputy Prime Minister, a Steering Group with representatives from government, multilateral development banks and non-governmental organizations, and a Technical Group with technical experts from government and the PPCR project teams
25. Other government agencies directly involved in the Technical Assistance are: Ministry of Education and Academy of Sciences for Output 1; Ministries of Agriculture, Economic Development, Energy, Finance, Health, Transport, Water Resources and Land Melioration, and Committees of Environmental Protection, Emergency Situation and Family Affairs and Women for Output 2.

15. Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

26. The proposed TA was informed by extensive consultations with government and other beneficiaries carried out in the context of the PPCR. The consultations engaged over 200 stakeholders from government ministries, government agencies, international organizations, donors, civil society and communities living in the Pyanj and the Vashkh River Basins. These consultations have contributed to identify institutional gaps and constraints for effective adaptation to climate change.

16. Cost Estimates

27. The total cost of the TA is estimated at \$6 million equivalent to be provided by the Strategic Climate Fund and administered by ADB. The total amount allocated to ADB's administrative charges for administering the TA is \$700,000 to be provided by the Strategic Climate Fund. Equipments that will be purchased under the TA include computers, printers and other IT equipments, as well as office furniture. These will be handed over to the government of Tajikistan upon TA completion.

Source ^a	Amount (\$)
ADB Financing	
Government Financing	
Other Financing	
○ Other financing: Strategic Climate Fund ¹⁹	\$6,000,000
○ parallel cofinancing:	
Total Cost: \$6,000,000	

^a Source: ADB estimates.

17. JSF Amount Requested \$0.00

- a. Elements that justify JSF financing:
N/A

- b. Coordination with local Japanese Embassy or any other embassy when external funding is involved
Name of the staff of the local Japanese Embassy/external partner embassy whom you have briefed:

¹⁹ Under the Pilot Program for Climate Resilience (PPCR).

N/A

Date of the discussion: N/A

Results of the discussion: N/A

18. Monitoring and Evaluation

28. A Climate Change Results Framework (CCRF) will be prepared under Output 5, including baseline data and target indicators to be used in measuring the effectiveness of the government's programs to increase the people of Tajikistan's resilience to climate change impacts. The CCRF will be aligned with PPCR results framework. The development of the CCRF will involve all implementing agencies involved in the PPCR and other climate resilience programs, as well as civil society and development partners. The PPCR Results Framework and the country's experience in results management should guide the development of the CCRF. A management information system will be established to implement the monitoring and coordination of all progress indicators identified in the CCRF.
29. Development partners engaged in other PPCR activities may choose to engage independent monitoring and evaluations specialists to review the progress and effectiveness of the SPCR. The Executing Agency and the PPCR Secretariat will provide timely responses to requests for information and facilitate any review missions by the specialists.
30. Lessons learned will be shared at the country level through an annual review program to assess progress towards climate resilience. At the international level, good practice and lessons learned will be shared with other countries, multilateral development banks and donors at the Pilot Program Country Meetings organized yearly by the Climate Investment Funds and other climate change events.
31. A review of the TA will be carried out annually by the government and ADB to gauge progress towards the accomplishment of the outcome and assess the quality the outputs. A major independent review of the TA will take place towards the end of Year 2. Based on the findings of the review, the duration, outputs, activities, implementation arrangements and budget of the TA may be revised.

19. Estimated period of TA implementation:

- a. Approval of TA: February 2012
- b. Physical completion of TA: July 2016
- c. Closing of TA: November 2016

PRELIMINARY DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Tajikistan is more resilient to climate variability and climate change	<i>By 2022:</i> Number of people affected from drought, floods and landslides reduced by 20% (328,000/year – 1991 to 2011 average ¹) Losses from drought, floods and landslides reduced by 25% (86 million/year – 1991 to 2011 average ¹)	Statistics of the Committee for Emergency Situations EM-DAT International Disaster Database ¹	Assumptions Government remains committed to mainstream climate change risk management into national development planning
Outcome National infrastructure development programs and policies incorporate safeguards to address the effects of climate change	By 2016, 25% of approved projects in irrigation, flood protection, transport, water supply & sanitation, and energy are climate-proofed (2011 baseline = 0)	Results Management Specialist's assessment report (end of Years 1, 2, 3 and 4)	Assumptions Climate change management practices are adopted by national and local government offices Risks Insufficient budget allocation for climate change programs, policies and projects
Outputs 1. Climate change information is available to multiple users 2. Climate change risks are integrated into Tajikistan's development planning and implementation of development projects	Climate modeling facility established and fully operational by Year 1 Climate change projections (dynamical downscaling) completed by Year 2 Climate impact assessments on priority sectors completed by Year 2 (water resources, energy and agriculture) and Year 3 (transport and social development) New academic curriculum for climate change science integrated in the syllabi of 1 University by Year 1 (baseline = 0) 50 officials from national and local government trained on climate change risk management, of which 30% women (2011 baseline= 0) National Strategy on Climate Change Adaptation adopted by Government by 2013 Local Adaptation Plan developed in 30 districts by 2014	Results Management Specialist's assessment report (end of Years 1) Results Management Specialist's assessment report (end of Years 2) Results Management Specialist's assessment report (end of Years 2 and 3) Results Management Specialist's assessment report (end of Years 1) Results Management Specialist's assessment report (by end Year 3) Results Management Specialist's assessment report (end of Years 2) 3 rd National Communication to the UNFCCC	Assumptions Strong cooperation and coordination between Committee of Environmental Protection, Hydromet and Ministry of Education Data availability is sufficient for climate modeling Risks Low retention capacity of trained staff

¹ <http://www.emdat.be/about>

<p>3. Knowledge management systems for climate change are developed and applied</p> <p>4. Develop the current PPCR Secretariat into a National Implementing Agency accredited by the Fund Board</p> <p>5. Outputs from the PPCR are managed for results</p>	<p>Guidance manual produced for government and NGO on how to consult with poor and marginalized groups (including women)</p> <p>Climate change portal operational by Year 1</p> <p>30% of the population, of which at least 50% are women, are well informed on climate change by Year 3 (2010 baseline=9%²)</p> <p>Climate change information services available to 20 vulnerable districts by Year 2 (2011 baseline=0)</p> <p>The number of PPCR Secretariat consultants grown by 50% by end of Year 1 and 100% by end of Year 2 (2010 baseline)</p> <p>Financial management and administrative system established by Year 1</p> <p>Accreditation applied for by Year 3</p> <p>Permanent climate change government institution established by Year 4</p> <p>Climate Change Results Framework endorsed by PPCR Focal Point by Year 1</p> <p>Annual Review Report produced (Year 1 to Year 4)</p> <p>Independent Evaluation Report available by Years 2 and 4</p>	<p>Guidance Manual</p> <p>PPCR Secretariat Progress Reports</p> <p>National surveys (Year 1 and Year 3)</p> <p>Results Management Specialist's assessment report</p> <p>PPCR Secretariat Progress Report</p> <p>PPCR Secretariat Progress Report</p> <p>Adaptation Fund Board Recommendations</p> <p>Government reporting</p> <p>Results Management Specialist's assessment report</p> <p>Results Management Specialist's assessment report</p> <p>Independent Evaluation Reports</p>						
<p>Activities with Milestones</p> <p>1. Climate change risks are integrated into Tajikistan's development projects</p> <p>1.1 Design a Climate Change Modeling Facility in the State Organization for Hydrometeorology (Hydromet) of the Republic of Tajikistan (Year 1)</p> <p>1.2 Train personnel of the Climate Change Modeling Facility (Year 1)</p> <p>1.3 Establish a Climate Change Modeling Facility, including procurement of hardware and software (Year 1)</p> <p>1.4 Develop dynamical downscaling of climate change projections (Year 2)</p> <p>1.5 Develop climate change impact assessments for priority sectors (Year 2 to 3)</p> <p>1.6 Establish and maintain a climate data management system in Hydromet (Year 1 to 4)</p> <p>1.7 Develop climate science modules, including glaciology, for higher education curricula (Year 1)</p>		<p>Inputs</p> <p>\$6 million from the Strategic Climate Fund under the Pilot Program for Climate Resilience, administered by ADB</p> <p>COST ESTIMATES (\$'000)</p> <table border="1" data-bbox="1138 1675 1511 1810"> <thead> <tr> <th>Item</th> <th>Tot. Cost</th> </tr> </thead> <tbody> <tr> <td>1. Consultants</td> <td></td> </tr> <tr> <td>Int. consultants</td> <td>1,820</td> </tr> </tbody> </table>	Item	Tot. Cost	1. Consultants		Int. consultants	1,820
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Int. consultants	1,820							

² Based on World Bank, 2010. *Tajikistan, Key Priorities for Climate Change Adaptation*. Policy Research Working Paper WPZ5487

<p>2. Climate change risks are integrated into Tajikistan's development planning and implementation of development projects.</p> <p>2.1 Review national programs and sector policies (Year 1)</p> <p>2.2 Develop climate change risk screening tools for priority sectors (Year 1)</p> <p>2.3 Produce and disseminate guidance manual on how to consult effectively with poor and marginalized groups (including women), (Year 1)</p> <p>2.3 Develop an overarching climate risk management system for development projects including sector guidelines and operational manuals (Year 1)</p> <p>2.4 Design training programs for national and local government officials (Year 1)</p> <p>2.5 Implement long term training programs (Years 1 to 2)</p> <p>2.6 Support the development of the Tajikistan's National Climate Change Adaptation Plan, with ranked climate resilient investment projects (Year 2)</p> <p>2.7 Support the development of Local Adaptation Plans of Action (LAPAs) and pilots in 10 vulnerable districts through a Small grant Facility (Year 3)</p> <p>2.8 Provide technical support to government and line ministries (Year 1 to 4)</p> <p>3. Knowledge management systems are developed and applied</p> <p>3.1 Conduct annual national survey on climate change awareness (Year 1)</p> <p>3.2 Conduct a public awareness raising campaign on climate change (Year 2)</p> <p>3.3 Develop and maintain a web-based knowledge management system (Year 1 – Year 1 to 4)</p> <p>3.4 Establish and manage a network of climate information outposts (Year 2)</p> <p>3.5 Produce at least 3 knowledge products on climate change in Tajikistan (Year 1 to 3)</p> <p>3.6 Produce a publication on the accomplishments of PPCR in Tajikistan (Year 4)</p> <p>3.7 Hold annual dissemination events in local outposts (Years 1 to 4)</p> <p>3.8 Hold at least 2 national events, i.e. a mid-term review meeting and a final PPCR Phase 2 conference (Years 2 and 4)</p> <p>4. Outputs from the PPCR are managed for results</p> <p>4.1 Assess current M&E capacity in terms of baselines, targets, technology) and HR capacity (Year 1)</p> <p>4.2 Assess baselines and identify indicators for the 6 PPCR Phase 2 activities (Year 1)</p> <p>4.3 Develop a PPCR Reporting System (Year 1)</p> <p>4.4 Monitor project implementation and request regular project performance updates in line with agreed procedures from relevant government agencies and MDBs (Year 1 to 4)</p> <p>4.5 Conduct annual review of the 6 PPCR Phase 2 components (Year 1, 2 3 and 4)</p> <p>4.6 Produce an annual report on PPCR performance for public dissemination (Year 1, 2 3 and 4)</p> <p>4.7 Produce a final report on PPCR achievements and lessons learned (Year 4)</p> <p>4.8 Facilitate independent monitoring and evaluations (Year 2 and 4)</p> <p>4.9 Provide technical support to government and the PPCR Secretariat (Year 1 to 4)</p> <p>5. PPCR Secretariat evolves into a 'National Implementing Entity'</p> <p>5.1 Formulate a 4 year work plan (Year 1)</p> <p>5.2 Act as the secretariat of the PPCR Coordination Mechanism (Year 1 to 4)</p> <p>5.3 Coordinate and manage Output 3 (Year 1 to 4)</p> <p>5.4 Coordinate and manage Output 4 (Year 1 to 4)</p> <p>5.5 Develop organizational and administrative capacity (Year 1)</p> <p>5.6 Develop procurement, accountability and financial management (Year 1)</p> <p>5.7 Develop document management and filing systems (Year 1)</p> <p>5.8 Formulate exit strategy for a permanent climate change institution within government (Year 2)</p> <p>5.9 Establish a permanent climate change institution within government (Year 3)</p> <p>5.10 Apply for Adaptation Fund accreditation (Year 4)</p>	<p>(70pm)</p> <p>Nat. consultants 1,570</p> <p>(524pm)</p> <p>Intern. and local travel 300</p> <p>Reports and comms 125</p> <p>2. Equipment for 708</p> <p>Climate Change Facility and others</p> <p>3. Training, seminars, 310</p> <p>and workshops</p> <p>4. Small Grant Fund 400</p> <p>5. Surveys 61</p> <p>6. Misc. costs 100</p> <p>7. Representative for 6</p> <p>contract negotiations</p> <p>8. Contingencies 600</p> <hr/> <p>Total 6,000</p>
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OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Introduction

1. A team of consultants, comprising 7 international (70 person months) and 14 national experts (524 person months) on climate change and related disciplines will be engaged through a consulting firm/firms. Required expertise include: (i) climate change modeling; (ii) climate risk management; (iii) economics; (iv) institutional analysis and capacity building; (v) information technology and knowledge management; and (vi) public participation, gender and social development, workshop organization, and training.

B. Terms of Reference of International Specialists

1. Climate Change Specialist/Team Leader (international, 18 person-months)

2. The Team Leader will have advanced degrees in natural resources management, engineering or other relevant disciplines with preferred 15 years experience in climate change adaptation and climate risk management in developing countries. Experience of working in Tajikistan and/or Central Asia is highly desirable. The Team Leader will be responsible for overall implementation of the Technical Assistance, including supervision of team members, reporting, financial management and delivery of all outputs. English is essential, Russian highly desirable. Specifically, the Specialist will:

- (i) Review national strategies, action plans and policies, economic and financial policy frameworks, development plans, and existing information on climate change vulnerabilities and impacts and possible adaptation options for addressing such impacts in the short, medium and long term;
- (ii) Review current institutional arrangements, responsibilities, roles and coordination mechanisms for climate change in the Government of Tajikistan, and identify key focal points in all relevant line ministries, government agencies and non-governmental organizations;
- (iii) Analyze current system of climate change information and knowledge management, sources and availability of climate change relevant information and data, current status of research and studies relevant to development and dissemination of knowledge products; and identify information and knowledge gaps that constrain adoption of climate resilient development planning and compromise appropriate and timely delivery of solutions to address climate change impacts;
- (iv) Identify climate change institutions at the national, regional and global levels, and analyze other development partners' existing programs, strategies and projects that present opportunities to mainstream climate change adaptation. Based on the analysis, explore opportunities in establishing information sharing links and collaborative partnerships with selected institutions based on their comparative advantage and unique qualifications and supported by appropriate agreements with Committee of Environmental Protection (COEP);
- (v) Provide technical support to the TA team and oversee the development of training materials, especially bringing in international cases and good practice;
- (vi) Coordinate the development of a weather forecast and climate change modeling facility within the Hydromet (Output 1);
- (vii) Coordinate the development of climate change risk management tools and a climate risk management systems within the GOTAJ (Output 2);
- (viii) Support the PPCR Secretariat in the development of a knowledge management system (Output 3);
- (ix) Support the PPCR Secretariat in the development of a PPCR Monitoring and Evaluation System (Output 4);
- (x) Responsibly manage the contracts for the PPCR Secretariat staff;
- (xi) Coordinate the relations with the clients (the GOTAJ and ADB); and
- (xii) Manage the overall implementation of the Technical Assistance, including supervision of team members, reporting, financial management and delivery of all outputs.

2. Climate Modeling and Impact Assessment Specialist (international, 12 person-months)

3. The climate modeling specialist will have extensive knowledge and experience in climate change modeling and its applications in developing countries. Minimum 10 years work experience with Ph.D. in climate change modeling is required. English is essential, Russian highly desirable.

4. The successful candidate will:

- (i) Coordinate the establishment of a weather forecast and Climate Modeling Facility in the State Organization for Meteorology (Hydromet);
- (ii) Coordinate and provide technical support to the training of staff of the Climate Modeling Facility
- (iii) Provide technical support and guidance to the Hydromet;
- (iv) Provide technical support and guidance to the Hydromet in the dynamical downscaling of global circulation model to produce national climate change scenarios, detailing changes in temperature, precipitation, extreme events and other key climatic factors by 2020, 2050, 2080 and 2100;
- (v) Provide technical support and guidance to the Hydromet to develop multi sector climate impact assessments for priority sectors, including water resources, energy, transport, agriculture and social development, using state of the art climate impact models, considering both slow-onset and rapid changes;
- (vi) Provide technical support for the preparation of summary for policy makers on national climate change scenarios and impact assessments;
- (vii) Present results at national and international events; and
- (viii) Perform other tasks relevant to this TA as may be assigned by the team leader and the lead consultant.

3. Knowledge Management Specialist (international, 9 person-months)

5. The successful candidate will:

- (i) Develop an appropriate climate change network and the institutional architecture, including a central node housed in the State Organization for Hydro-meteorology for climate data and in the PPCR Secretariat for climate change information, and satellite nodes in key national and sub national institutions. The knowledge management network within the overall institutional architecture will be responsible for collection, generation and analysis of climate change knowledge products, and their dissemination to potential beneficiaries to enhance their awareness, provide guidance, and influence mainstreaming climate change in development planning. It will encompass clear and well defined functions, operational and administrative responsibilities, and appropriate knowledge management protocols, as part of its design. The overall institutional architecture will encompass and reflect a clear vision, mission, organization, and implementation mechanisms for effective climate change program coordination, administration and management;
- (ii) Develop cost estimates and a time frame for implementation of the overall institutional infrastructure for the knowledge management including an exit strategy that will elaborate how the Hydromet and the PPCR Secretariat will update and maintain the website upon completion of consultants' work including resource requirements;
- (iii) Lead the drafting of guidance for government and NGO staff on how to consult effectively with poor and marginalised groups (including women), address their concerns, and empower them to play a role in building national resilience
- (iv) Present the proposed knowledge management network and institutional architecture to various government and nongovernment stakeholders including development partners. Finalize the proposal based on stakeholder feedback for consideration, endorsement and adoption by the government;
- (v) In consultation with other members of the team, provide guidance in organizing workshops, seminars and focus group discussions with key stakeholders to enhance their understanding of IKM network, the institutional architecture and its operations;
- (vi) Contribute to disseminating knowledge at the community level, and
- (vii) Provide guidance to other consultants in ensuring development of high quality reports and knowledge management products.

4. Economist (international, 7 person-months)

6. The Economist will have extensive knowledge and expertise in climate change economics, risk analysis and scenario development, as well as on the valuation of costs and benefits analysis and economic assessment of climate change adaptation measures. The Economist will have preferably 10 years work experience with Ph.D. in economics. English essential, Russian highly desirable.

7. The successful candidate will:

- (i) Assemble and review existing in-country approaches, tools and practices for economic assessment of policy and investment options, and identify gaps;
- (ii) Coordinate the development of economic tools that can be used by decision makers and planners in line ministries to assess different climate change adaptation options;
- (iii) Coordinate the integration of quantitative and qualitative economic assessment of adaptation options in the climate risk management system that will be developed under Output 2;
- (iv) Provide technical support to estimate the cost and benefits of the different climate change options drawing on the results of the climate change impacts assessment developed under Output 1;
- (v) Develop key economic indicators to show the economic consequences of different packages of adaptation policies and development projects;
- (vi) Support training on economic assessment tools;
- (vii) Prepare a guidance report on economic assessment tools for adaptation, and present it at national and international events; and
- (viii) Perform other tasks relevant to this TA as may be assigned by the team leader and the lead consultant.

5. Monitoring and Evaluation Specialist (international, 8 person-months)

8. The Monitoring and Evaluation Specialist will have preferably 10 years experience in monitoring and evaluation and will be familiar with climate resilience and adaptation indicators. The Specialist will support and provide guidance to the PPCR Secretariat for the delivery of Output and be familiar with the results framework of the Pilot Program for Climate Resilience (PPCR). The Specialist will:

- (i) Identify performance targets and indicators, including gender disaggregated indicators, for 6 PPCR Phase 2 activities, in consultation with the PPCR Secretariat and the PPCR project teams;
- (ii) Provide technical support to the PPCR Secretariat for the developing of a common PPCR reporting system;
- (iii) Design a monitoring and evaluation system in alignment with the PPCR Results Framework;
- (iv) Support the PPCR Focal Point and the PPCR Secretariat in carrying out annual evaluation of PPCR project performance;
- (v) Provide technical support for and contribute to the preparation of Annual Performance Review Reports for public dissemination;
- (vi) Provide technical support for the preparation of a final report on PPCR achievements and lessons learned; and
- (vii) Provide technical support for and facilitate independent monitoring and evaluations.

6. Infrastructure Specialist (international, 8 person months)

8. The Infrastructure Specialist will have preferably 10 years experience in the development of engineering guidelines in the energy, transport and water sectors and a background in developing solutions in the context of climate change. Exposure to climate change risk management is required. The experts will:

- (i) Review and catalogue existing sector guidelines, standards and manuals;
- (ii) Provide technical support to the government agency senior engineers appointed to the project for identifying information needs, and coordinate the revisions of current guidelines and standards;
- (iii) Draw from existing international experience to highlight best practices;
- (iv) Identify technologies for priority sectors;
- (v) Provide training, including on the job training, to line ministries engineers and planners;

- (vi) Support the establishment of an overarching climate risk management system for development projects including sector guidelines and operational manuals; and
- (vii) Produce climate proofing sector guidance for energy, transport and water infrastructure.

7. Financial Management and Procurement Specialist (international, 8 person months)

9. The Financial Management and Procurement Specialist will have preferably 10 years working experience on financial management and be familiar with ADB's financial and disbursement procedures. Experience of working in Tajikistan and/or Central Asia is highly desirable. The Specialist will provide technical support and guidance to the PPCR Secretariat to increase its financial management, procurement and administrative capacity and ensure its accreditation as National Implementing Agency from the Adaptation Fund. The Specialist will:

- (i) Undertake a financial management assessment of the Executing Agency and the PPCR Secretariat to identify strengths and weaknesses;
- (ii) Identify training needs of PPCR Secretariat staff;
- (iii) Agree with the Head of the PPCR Secretariat on a phased workplan with clear steps to take and milestones to ensure that financial management, procurement and administrative capacity of the PPCR Secretariat is augmented to the standards required for accreditation by the Adaptation Fund as National Implementing Agency implement the proposed project;
- (iv) Be responsible for the delivery of the workplan; and
- (v) Provide technical support and guidance to the PPCR Secretariat before, during and after applying for accreditation.

C. National Consultants

8. Monitoring and Evaluation Specialist (national, 48 person months)

10. The Monitoring and Evaluation Specialist will have preferably 8 years experience in monitoring and evaluation. Familiarity with climate change resilience and adaptation indicators is highly desirable. The Specialist will be responsible for the implementation of Output 4, in coordination with the Head of PPCR Secretariat, the Executing Agency and the PPCR project teams, and under the guidance of the international specialist for monitoring and evaluation. Good working knowledge of English is essential. The Specialist will be engaged full-time as PPCR Secretariat staff and will report directly to the Head of the PPCR Secretariat. The Specialist will:

- (i) Become familiar with the results framework of the Pilot Program for Climate Resilience (PPCR);
- (ii) Review literature on climate change adaptation indicators and experiences of formulating results framework for climate adaptation in Tajikistan and other developing countries;
- (iii) Support the international monitoring and evaluation specialist in identifying performance targets and indicators, including gender disaggregated indicators, for 6 PPCR Phase 2 activities, in consultation with the PPCR Secretariat and the PPCR project teams;
- (iv) Developing of a common PPCR reporting system;
- (v) Design a monitoring and evaluation system in alignment with the PPCR Results Framework;
- (vi) Ensure the GOTAJ's endorsement of the PPCR Results Framework;
- (vii) Carry out annual evaluation of PPCR project performance;
- (viii) Prepare Annual Performance Review Reports for public dissemination;
- (ix) Prepare a final report on PPCR achievements and lessons learned;
- (x) Prepare an exit strategy that will ensure that the Monitoring and Evaluation Framework continue to be used beyond the duration of the PPCR to assess the effectiveness of climate change development projects and activities in Tajikistan;
- (xi) Facilitate independent monitoring and evaluations; and
- (xii) Perform other tasks relevant to this TA as may be assigned by the Head of the PPCR Secretariat.

9. Agriculture and Land Management Specialist (national, 48 person months)

11. The Agriculture and Land Management Specialist will have preferably 5 years experience in agriculture and sustainable land management projects in Tajikistan. Familiarity with climate change adaptation is highly desirable.

Good working knowledge of English is essential. The Specialist will be engaged on a full-time basis as PPCR Secretariat staff and will report directly to the Head of the PPCR Secretariat. The Specialist will:

- (i) Become fluent with policies, regulations, strategies and projects on agriculture and land management in Tajikistan;
- (ii) Become fluent with the impacts of climate change on agricultural productivity, crop production, farming practices and adaptation technologies that can reduce the adverse effects of climate change
- (iii) Maintain a database of all relevant ongoing activities;
- (iv) Map key stakeholders involved in agriculture and land management in Tajikistan;
- (v) Support the implementation of the PPCR activities on sustainable land management, in particular the PPCR Phase 2 investment project administered by the World Bank;
- (vi) Support the integration of climate risk management in agriculture policies and projects (Output 2);
- (vii) Support the development of a National Adaptation Plan (Output 2);
- (viii) Support the development of Local Adaptation Plans in 10 vulnerable districts (Output 2);
- (ix) Ensure that information on climate change and agriculture are routinely uploaded and updated in the knowledge management system that will be developed under Output 3;
- (x) Contribute to the identification of indicators and the development of a Monitoring and Evaluation Framework for the PPCR activities on agriculture and land management (Output 4);
- (xi) Act as the first point of contact for information on and coordination of agriculture and land management for PPCR stakeholders;
- (xii) Ensure continued communications between relevant PPCR stakeholders and the Ministry of Agriculture;
- (xiii) Support the operations of the PPCR Coordination Mechanisms on issues concerning agriculture, land management and climate change;
- (xiv) Provide technical support to the development of the Third National Communications to the United Nation Framework Convention on Climate Change as required by Head of the PPCR Secretariat; and
- (xv) Perform other tasks relevant to this TA as may be assigned by the Head of the PPCR Secretariat.

10. Water Resources Specialist (national, 48 person months)

12. The Water Resources Specialist will have preferably 5 years experience in water resources projects in Tajikistan. Familiarity with climate change adaptation is highly desirable. Good working knowledge of English is essential. The Specialist will be engaged on a full-time basis as PPCR Secretariat staff and will report directly to the Head of the PPCR Secretariat. The Specialist will:

- (i) Become fluent with policies, regulations, strategies and projects on water resources in Tajikistan;
- (ii) Become fluent with the impacts of climate change on water resources availability, quality and quantity, water management practices, irrigation, drainage and storage under different climate scenarios;
- (iii) Become fluent with adaptation technologies that can reduce the adverse effects of climate change, learning from best practices in Tajikistan and elsewhere, with particular focus on climate change adaptation measures in mountainous countries;
- (iv) Maintain a database of all relevant ongoing activities;
- (v) Map key stakeholders involved in water resources in Tajikistan;
- (vi) Support the implementation of the PPCR activities on water resources, in particular the PPCR Phase 2 investment project administered by the Asian Development Bank;
- (vii) Support the integration of climate risk management in water resources policies and projects (Output 2);
- (viii) Support the development of a National Adaptation Plan (Output 2);
- (ix) Support the development of Local Adaptation Plans in 10 vulnerable districts (Output 2);
- (x) Provide overall support, particularly at the district level, for enforcement and for sound decision-making based on basin-wide considerations to the impacts of climate change;
- (xi) Ensure that information on climate change and water resources are routinely uploaded and updated in the knowledge management system that will be developed under Output 3;
- (xii) Contribute to the identification of indicators and the development of a Monitoring and Evaluation Framework for the PPCR activities on water resources (Output 4);

- (xiii) Act as the first point of contact for information on and coordination of water resources issues for PPCR stakeholders;
- (xiv) Ensure continued communications between relevant PPCR stakeholders and the Ministry of Water Resources and Land Melioration;
- (xv) Support the operations of the PPCR Coordination Mechanisms on issues concerning water resources and climate change;
- (xvi) Provide technical support to the development of the Third National Communications to the United Nation Framework Convention on Climate Change as required by Head of the PPCR Secretariat ;
- (xvii) Support the production of knowledge products on climate resilience in Tajikistan; and
- (xviii) Perform other tasks relevant to this TA as may be assigned by the Head of the PPCR Secretariat.

11. Energy and Transport Specialist (national, 48 person months)

13. The Energy and Transport Specialist will have preferably 5 years experience in energy and transport projects in Tajikistan. Familiarity with climate change adaptation is highly desirable. Good working knowledge of English is essential. The Specialist will be engaged on a full-time basis as PPCR Secretariat staff and will report directly to the Head of the PPCR Secretariat. The Specialist will:

- (i) Become fluent with policies, regulations, strategies and projects on energy and transport in Tajikistan;
- (ii) Become fluent with the impacts of climate change on energy and transport sectors under different climate scenarios;
- (iii) Become fluent with adaptation technologies that can reduce the adverse effects of climate change, learning from best practices in Tajikistan and elsewhere, with particular focus on climate change adaptation measures in mountainous countries;
- (iv) Maintain a database of all relevant ongoing activities;
- (v) Map key stakeholders involved in energy and transport initiatives in Tajikistan;
- (vi) Support the implementation of the PPCR activities on energy, in particular the PPCR Phase 2 investment project administered by the European Bank for Reconstruction and Development;
- (vii) Support the integration of climate risk management in energy and transport sector policies and projects (Output 2);
- (viii) Support the development of a National Adaptation Plan (Output 2);
- (ix) Support the development of Local Adaptation Plans in 10 vulnerable districts (Output 2);
- (x) Ensure that information on climate change impacts on energy and transport sectors are routinely uploaded and updated in the knowledge management system that will be developed under Output 3;
- (xi) Contribute to the identification of indicators and the development of a Monitoring and Evaluation Framework for the PPCR activities on energy (Output 4);
- (xii) Act as the first point of contact for information on and coordination of energy and transport issues for PPCR stakeholders;
- (xiii) Ensure continued communications between relevant PPCR stakeholders and the Ministry of Energy and the Ministry of Transport;
- (xiv) Support the operations of the PPCR Coordination Mechanisms on issues concerning energy and climate change;
- (xv) Provide technical support to the development of the Third National Communications to the United Nation Framework Convention on Climate Change as required by Head of the PPCR Secretariat;
- (xvi) Contribute to the production of knowledge products on climate change in Tajikistan for national and international audiences; and
- (xvii) Perform other tasks relevant to this TA as may be assigned by the Head of the PPCR Secretariat.

12. Climate Modeling Specialists (2 nationals, 96 person months)

14. The Climate Modeling Specialists will have preferably 5 years experience in meteorology, weather forecast, hydrology and climate modeling in Tajikistan. Good working knowledge of English is essential. The Specialist will be engaged on a full-time basis by the consulting firm and will be based in the Climate Modeling Facility of the State Organization for Hydrometeorology (Hydromet) that will be established under Output 1 of this Technical

Assistance (TA). The Climate Modeling Specialists will report to the International Climate Modeling Specialist. The national Specialists will:

- (i) Agree on a workplan with clear milestones with the Team Leader and the Director of Hydromet;
- (ii) Review existing sub-regional and country-level climate change modeling studies, including work carried out by governments, international institutions, academic institutions, and non-government organizations;
- (iii) Attend training on climate change modeling techniques in the first year of engagement under this TA and subsequently as required and advised by the international Climate Modeling Specialist;
- (iv) Contribute to the design of a Climate Modeling Facility in the Hydromet, with particular focus on data requirements and management (Output 1);
- (v) Support the establishment of the Climate Modeling Facility in the Hydromet;
- (vi) Support the development of dynamical downscaling of climate change projections;
- (vii) Support the development of climate impact assessments in priority sectors, including water resources, land management, energy, transport and health;
- (viii) Coordinate access and management of relevant data required for the operations of the Climate Modeling Facility in close collaboration with the international Climate Modeling Specialist, the Director of the Hydromet and the PPCR project team working on the improvement of weather and climate services under the World Bank;
- (ix) Establish and maintain a management information system for weather forecast and climate data and information in Hydromet;
- (x) Support the exchange of data and information between the Hydromet and the knowledge management system managed by the PPCR Secretariat;
- (xi) Provide technical support to the development of the Third National Communications to the United Nation Framework Convention on Climate Change as required by the Director of Hydromet and the UNDP;
- (xii) Support the development of climate science modules for higher education curricula;
- (xiii) Contribute to the production of knowledge products on climate change in Tajikistan for national and international audiences; and
- (xiv) Perform other tasks relevant to this TA as may be assigned by the Team Leader.

13. Education Specialist (national, 13 person months)

15. The Education Specialist will have preferably 8 years experience in designing and implementing education projects in Tajikistan. Familiarity with climate change is highly desirable. Working knowledge of English is essential. The Specialist will be engaged on an intermittent basis by the consulting firm and will be based in the Climate Modeling Facility of the State Organization for Hydrometeorology (Hydromet) that will be established under Output 1 of this Technical Assistance (TA). The Specialist will:

- (i) Review syllabi and curricula of higher education institutions in Dushanbe, Khurog, Khulob and other cities in Tajikistan;
- (ii) Identify one or two higher education institutions at the undergraduate and postgraduate level that offer the greater potential for the introduction of climate science modules;
- (iii) Work in close collaboration with the Ministry of Education, the Team Leader, the Climate Modeling Specialists and the Glaciologist to design climate science and glaciologist modules;
- (iv) Prepare a detailed work plan for the roll-out of the climate science modules and secure the Ministry of Education's endorsement;
- (v) Implement the workplan;
- (vi) Identify appropriate indicators to monitor progress and effectiveness of the PPCR interventions in the education system;
- (vii) Contribute to the production of knowledge products on climate change in Tajikistan for national and international audiences; and
- (viii) Perform other tasks relevant to this TA as may be assigned by the Team Leader.

14. Glaciologist (national, 6 person month)

16. The Glaciologist will have preferably 8 years experience in working as a glaciologist in Tajikistan. Good knowledge of the glaciers in Tajikistan and participation in surveys and expeditions are essential. The Specialist will be engaged on an intermittent basis by the consulting firm and will be based in the Climate Modeling Facility of the State Organization for Hydrometeorology (Hydromet) that will be established under Output 1 of this Technical Assistance (TA). The Specialist will:

- (i) Review studies on the impacts of climate change on Central Asia glaciers;
- (ii) Contribute to the production of knowledge products on climate change in Tajikistan for national and international audiences; and
- (iii) Perform other tasks relevant to this TA as may be assigned by the Team Leader.

15. Public Participation and Social Development Specialist (national, 13 person months)

17. The Public Participation and Social Development Specialist will have advanced degree in social sciences or relevant field and preferably 5 years experience in facilitating public participation and gender and social dimensions of development relevant to climate change. The Specialist will be engaged on an intermittent basis by the consulting firm In this context. The Specialist will:

- (i) Review and document available information and secondary data for assessment of social dimensions relevant to climate change in Tajikistan and identify information gaps for analytical studies with specific reference to gender and development;
- (ii) Identify relevant government and nongovernment stakeholders at the national and sub-national level and assess their current capacities to address potential impacts of climate change on vulnerable groups: women, children, elderly and ethnic minorities;
- (iii) Develop a participatory stakeholder analysis for the TA and a communication strategy;
- (iv) Implement the communication strategy;
- (v) Ensure that capacity-building and outreach campaigns are designed to reach disadvantaged groups including women, understand their perspectives and priorities, and offer information and support in ways and at times which are appropriate and which fit with their other tasks and obligations;
- (vi) Organize stakeholder workshops and group discussions to better understand the needs of vulnerable groups as the means to identify interventions to enhance their access to information and knowledge products;
- (vii) Provide technical support to the Team Leader and the Information Technology and Knowledge Management Specialist for the design of the knowledge management system to ensure its gender sensitivity and relevance to the most vulnerable groups;
- (viii) Assess constraints to the participation of vulnerable groups in the PPCR activities and other climate change adaptation programs;
- (ix) Identify knowledge products that will enhance the understanding of vulnerable groups, improve their participation in adaptation initiatives and increase their ability to cope;
- (x) Ensure that the knowledge management system systematically addresses information needs on gender-specific impacts of climate change especially those that have a direct bearing on the life and well being of vulnerable groups;
- (xi) Identify gender and social development indicators for inclusion in the Monitoring and Evaluation Framework that will be developed under Output 4;
- (xii) Regularly seek key stakeholders' feedback for improvement of PPCR activities with regards to social development and gender issues. Consultations will include group discussions, workshops and meetings as appropriate with key stakeholders, including the private sector and development partners;
- (xiii) In consultation with the Team Leader, organize and hold workshops, seminars and group discussions at regular intervals with the aim of dissemination of information and knowledge products on the social dimension of climate change in Tajikistan;
- (xiv) Conduct surveys on the perception of improved access to information on climate change and increased resilience in PPCR project areas;

- (xv) Contribute to the production of knowledge products on climate change in Tajikistan for national and international audiences; and
- (xvi) Perform other tasks relevant to this TA as may be assigned by the Team Leader.

16. IT and Knowledge Management Specialist (national, 48 person months)

18. The IT and Knowledge Management Specialist will have advanced degree in information technology and knowledge management, with preferably 5 years experience in developing knowledge management systems applications including development of multi-level website for data storage and retrieval. Familiarity with climate change adaptation is highly desirable. Good working knowledge of English is essential. The Specialist will be engaged on a full-time basis as PPCR Secretariat staff and will report directly to the Head of the PPCR Secretariat. The Specialist will:

- (i) Review current systems for the documentation and classification of available climate change adaptation data and determination of data gaps, and approaches to database management currently in place in the State Organizations for Hydrometeorology (Hydromet) and other government agencies;
- (ii) Review knowledge management practices in Tajikistan and around the world, including knowledge managements systems under the UNDP (for example adaptation learning) , the Asia Pacific Adaptation Network (APAN) and Climate Investment Funds (cifnet) learning from best international practices;
- (iii) In close collaboration with the Head of the PPCR Secretariat, conduct consultations with key stakeholders, including line ministries, government agencies, international organizations, civil society, to identify users needs;
- (iv) Identify the materials and equipment (hardware and software) and the facilities needed for the smooth operations of the knowledge management network;
- (v) Based on the above reviews and consultations, design a climate change knowledge management network with a core in the PPCR Secretariat and satellite operations in other organizations in the 4 administrative districts of Tajikistan;
- (vi) Secure endorsement of the overall institutional architecture, and design of the knowledge management system from the PPCR Focal Point, the PPCR stakeholders and other users;
- (vii) Assist the Head of the PPCR Secretariat in procuring the materials and equipment to establish the central node in the PPCR Secretariat and the satellite nodes in the 4 districts;
- (viii) Establish and maintain a knowledge management network that can host and disseminate updated climate change information and knowledge products, with inputs from currently available national, regional and global sources, and including issues such as the differential impacts of climate change across genders, classes, ages, abilities, and ethnic groups; the results of commissioned analytical studies to address climate change knowledge and information gaps; proceedings of seminars, stakeholder workshops, focus group discussions, progress reports and updates; and other climate change information and knowledge products generated under the United Nations Framework Convention on Climate Change;
- (ix) Identify measures to further strengthen the PPCR knowledge management service, expand its operational scope on climate change knowledge management to serve the needs of stakeholders outside the PPCR and enhance its capacity for dissemination of climate change information across sectors and institutions;
- (x) Design and develop a website to disseminate knowledge products including progress reports, findings and conclusions produced by PPCR project teams, capacity building and knowledge management programs, with links to the satellite nodes in various sectors, national, regional, and global climate change adaptation relevant institutions;
- (xi) In consultation with the Head of the PPCR Secretariat, undertake training workshops, seminars and focus group discussions to build the capacity of the counterpart staff at the central node and satellite nodes to enhance their understanding of the network and its operations;
- (xii) Provide on-the-job training to the counterpart staff in operating the knowledge management system
- (xiii) Maintain website back-up and troubleshoot technical problems on the website in a timely manner.
- (xiv) Prepare reports as advised by the Head of the PPCR Secretariat; and
- (xv) Perform other tasks relevant to this TA as may be assigned by the Head of the PPCR Secretariat.

17. Office Administrators (2 nationals, 96 person months)

19. The Office Administrator will be proficient at administrative tasks, with good communications skills, fluent with word processing, spreadsheets, diary keeping and e-mail, and have preferably 5 years experience in office administration. Good working knowledge of English is essential. The Office Administrator will be engaged on a full-time basis as PPCR Secretariat staff and will report to Senior Office Administrator of the PPCR Secretariat. The Office Administrator will:

- (i) Be responsible for general office administration for the efficient running of the Secretariat;
- (ii) Coordinate inter-agency correspondence;
- (iii) Support the Senior Office Administrator for book-keeping and accounting for petty cash expenditure;
- (iv) Organize meetings and events, domestically and internationally;
- (v) Coordinate work diaries of the Head of the PPCR Secretariat;
- (vi) Search, advertise for, and organise recruitment process of other specialist as required, in coordination with Head of the PPCR Secretariat Manager, the PPCR Focal Point and ADB; and
- (vii) Any other duties as designated by the Head of the PPCR Secretariat.