



PILOT PROGRAMME FOR CLIMATE RESILIENCE – TAJIKISTAN

**WORKSHOP ON CLIMATE RESILIENCE AND THE ENERGY SECTOR
DUSHANBE, 6-7 MARCH 2012**

Draft Final Report

Executive Summary

A stakeholder workshop on climate resilience and the energy sector was held on 6th – 7th March 2012 as part of PPCR programme in Tajikistan. The main purpose of the workshop was to present the findings of PPCR Phase I energy sector activities and to set energy sector priorities for PPCR Phase II. The workshop was organised under four themes: i) use of hydro-meteorological data, ii) climate change impacts at the sector level, iii) climate change impacts at the facility level, and iv) climate change impacts at the community level. There was also a special session on climate change and water, to reflect the important climate-water-energy nexus. Key themes that emerged from the workshop were the need to improve the use of hydro-meteorological and climate data for decision-making in the energy sector, the need to make use of adaptive management approaches in order to cope with uncertainty, and the need to strengthen understanding of community-level impacts in order to improve service delivery. The priorities that were agreed for PPCR Phase II were i) improving understanding of community-level energy security and climate vulnerability, ii) building capacity for managing climate risks to hydropower operations, iii) integrating non-structural and structural climate resilience measures into ‘best practice’ demonstration hydropower rehabilitation project, and iv), coordination with other relevant activities in the energy sector.

Background

2. The Pilot Programme for Climate Change (PPCR) is an initiative under the Climate Investment Funds (CIF) that aims to pilot innovative approaches to financing adaptation to climate change. Tajikistan has been selected as one of eleven PPCR pilots, with the participation of the Asian Development Bank, European Bank for Reconstruction and Development and the World Bank. Overall coordination is the responsibility of the PPCR Secretariat in the Office of the President of Tajikistan.



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

Tajikistan's Strategic Programme for Climate Resilience (SPCR), approved in October 2010, identifies improving the climate resilience of the energy sector as a priority for Tajikistan. The development of the energy sector is critical for the country's economic development and poverty reduction. However, the high dependence on hydropower means that Tajikistan's energy security is highly vulnerable to climatic variability and change.

3. In accordance with Tajikistan's SPCR, EBRD is leading on the energy sector component of the PPCR in partnership with the Ministry of Energy and Industry and the state power utility Barki Tojik. PPCR Phase I included a dedicated preparatory activity (project A4) "*Improving the Climate Resilience of Tajikistan's Energy Sector*". This project, which was managed by EBRD in partnership with Barki Tojik and Tajik Hydromet, was launched in October 2010 and was implemented by a consortium of the consulting firms Acclimatise and SKM together with international and Tajik experts. The objectives of the project were to assess the vulnerability of Tajikistan's hydropower sector to climate change and to identify options for improving its climate resilience. This assignment was successfully completed during 2011 and a draft project report was submitted by the implementing team in October 2011. This report was circulated by the PPCR Secretariat to government agencies and a wide range of PPCR stakeholders.

4. In accordance with the requirements of the PPCR, the findings of project A4 were presented and discussed in a stakeholder workshop in order to agree energy sector priorities for PPCR Phase II. The workshop, which took place on 6th – 7th March 2012, was organised by EBRD and the PPCR Secretariat and was hosted by Barki Tojik. It was attended by representatives of government ministries and agencies, international organisations, NGOs and academia. The workshop agenda is attached at Annex A and the list of participants is attached at Annex B.

Findings of Phase I project A4 "*Improving the Climate Resilience of Tajikistan's Hydropower Sector*"

5. The opening session was chaired by Mr Khairullo Ibodzoda, PPCR Focal Point, Office of the President. A presentation was made by Professor Robert Wilby, Loughborough University, UK, who was one of the lead experts in the project A4 team. Professor Wilby explained that the objectives of project A4 were to analyse the climate vulnerability of Tajikistan's hydropower sector, and to recommend ways in which the analysis can inform investment planning, including the use of Phase II PPCR resources to support specific adaptation activities leading to a more climate-resilient hydropower sector. Professor Wilby presented the methodology and findings of the six project activities: i) assembly and analysis of historic hydro-climate trends, ii) production of a synthesis of regional climate scenarios, iii) development



of hydrological models to evaluate impacts, iv) a review of climate impacts alongside other natural hazards, v) an evaluation of potential scenarios for hydropower, and iv) the identification of options for building resilience to climate change. The project was careful to acknowledge and emphasise the uncertainty inherent at each of the steps, and to adopt approaches that facilitate decision-making in the light of that uncertainty. Consequently, the project findings showed that there are a range of possible outcomes in terms of hydrology and hydropower plant performance. The challenge therefore is to pursue adaptive management instead of aiming to adapt to a particular scenario. Professor Wilby concluded the presentation by grouping the projects recommendations for building climate resilience under three themes: i) further analytical work and modelling, ii) training and collaboration for national agencies, and iii) investments in hydropower facilities, emphasizing the complementary role of both non-structural and structural modifications.

6. In response, workshop participants noted that one of the main barriers to this kind of analysis is access to good data, in particular information on snow and ice in headwater basins. However this project alone has demonstrated what can be achieved by accessing existing data sources, even if this requires painstaking data entry and digitisation work to safeguard these valuable assets. Workshop participants also noted the usefulness of the modelling work that was done under this project.

Theme I: Use of hydro-meteorological data

7. This session was chaired by Mr Anvar Hamidov, Tajik Hydromet. The first presentation was made by Mr Saidakhmad Dustov, Head of the PIU for the ‘Strengthening Hydromet’ project. Mr Dustov explained that this project, which is managed by the World Bank with PPCR and IDA, has the objectives of: i) institutional strengthening of the Tajik Weather, Climate and Hydrological Service, including improvements in professional and financial management standards, ii) improving the system of weather, climate and hydrological monitoring ensuring timely warning of natural catastrophes and improved water resources management, and iii) improving Tajik Hydromet’s service provision. Mr Dustov pointed out the relevance of this project to PPCR project A4, explaining that Tajik Hydromet wants to be able to provide quality hydro-meteorological data services for users such as the energy sector.

8. A further presentation was made by Professor Wilby, Loughborough University, on ‘Best practice in using climate scenarios and hydrological models’. Professor Wilby explained how uncertainty can be made explicit in climate scenario analysis and described a number of approaches that can be



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

adopted in order to make decisions in the light of uncertainty about climate change impacts. Strategies include improving resilience at both the network and facility levels.

9. Workshop participants pointed out the relevance of this area of work to the energy (hydropower) sector. The hydropower industry is taking steps to improve its systems for sharing information between plants, and better hydro-meteorological services and equipment could help them to achieve this. ADB added that their support to the PPCR process includes capacity building support for climate modelling, which will complement the ‘Strengthening Hydromet’ project.

Theme II: Climate change impacts at the sector level

10. This session was chaired by Mr Haknazar Boboev, Head of the Ecology Department, Ministry of Energy and Industry. A presentation was made by Mr Simon Croxton, Senior Natural Resources Specialist at the World Bank. Mr Croxton explained that climate change may have a range of impacts on the energy sector as a whole, which may be mediated through its effects on energy production, transmission and/or consumption. However, there is again uncertainty over what these impacts might be, how severe they could be and when they could take effect. Mr Croxton went on to outline the methodology that the World Bank plans to use in its forthcoming assessment of energy vulnerability at the sector level. This methodology, which has already been used in similar studies in Albania, and is currently underway in the other Central Asian countries, will involve running a climate risk screening of the energy sector in order to identify and prioritize hazards, current vulnerabilities and risks from projected climate changes with a 2050 time horizon. It will entail the identification of adaptation options to reduce overall vulnerability together with a high-level cost benefit analysis of key physical adaptation options. The study is expected to commence by the end of 2012.

11. EBRD complemented the presentation by adding detail of their investments in loss reduction and generation capacity, pointing out that both demand-side and supply-side measures are necessary for promoting the climate resilience of the energy sector. ADB added that they are also investing in transmission upgrades and an energy sector master plan. Workshop participants pointed out that renewable energy sources other than hydropower should be considered in the study.

Theme III: Climate change impacts at the facility level



12. This session was chaired by Mr Rashid Gulov, Deputy Chief Engineer, Barki Tojik. A presentation was made by Mr Craig Davies, Senior Environmental Adviser, EBRD on behalf of Mr Ralph Silver, President, Technik Eaucan, on 'Hydro-Québec's Experience in Adapting to Climate Change'. Mr Silver had been unable to complete his journey from Canada due to travel complications but had sent through a detailed presentation for the workshop. Mr Silver's presentation set out the methodological framework developed by Hydro Quebec for understanding and addressing climate change risks to hydropower operations. Quebec, like Tajikistan, is heavily reliant on hydropower for its energy needs, and energy output is influenced by climatic conditions. Hydro Quebec has conducted analyses of hydrological regimes that have helped them to make forward projections of hydrological condition and to understand the potential direction of climate change over the coming decades. A four step experimental approach was conceived that should be used prior to applying climate change adaptation measures to hydropower projects. The steps involved are: Step 1: Current hydrology, initial configuration, and operating rules. Step 2: Projected hydrology, initial configuration and operating rules, Step 3: Projected hydrology, initial configuration, but with adapted operating rules. Step 4: Projected hydrology, with both adapted configuration and operating rules. Evaluations are made at the watershed level using simulation and optimization tools that take into account the existence of other structures throughout the watershed, global productivity objectives, as well as environmental, agricultural and other objectives and constraints. Application of the approach provides information and guidance that will help to identify potential structural and non-structural modifications that can progressively be applied to hydro projects as climate changes develop. A key consideration is 'adaptability' as opposed to 'adaptation'.

13. A further presentation was made by Mr Jack Mozingo, Principal Environmental Adviser, EBRD on 'Implications of Climate Change on Environmental and Social Management in Hydropower Projects'. Mr Mozingo explained that climate change impacts on hydropower plants should also take into account environmental impacts on river systems and related regulation such as minimum biological flows. Maintaining environmental flows in turn can affect power generation and thus project economics. Potential environmental impacts and mitigations have to be taken into account when devising flow regimes and operating rules. Environmental and social impact assessments (ESIAs) have to take account of the inherent uncertainty and provide for adaptive management and mitigation.

14. Much of the discussion focused on the important role of operating rules. Barki Tojik explained how they coordinate with Tajik Hydromet and also cooperate with international partners to revise dam



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

operating rules on transboundary rivers. Good governance (especially transboundary) is important for setting effective operating rules. A number of objectives can be used to constrain operating rules including dam safety, hydropower generation, water supply, and environmental flows. These can be adjusted in line with evolving national circumstances and climate conditions.

Theme IV: Climate change impacts at the community level

15. This session was chaired by Mr Ilhom Rajabov, Head, PPCR Secretariat. A presentation was made by Ms Michaela Bergman, Senior Social and Gender Policy Adviser, EBRD on 'Climate Resilience and Communities'. Ms Bergman explained that it is important to consider energy security at the community level, and to understand how this may be influenced by climate change. The climate-energy-poverty nexus is not yet well understood in Tajikistan, and further research is likely to be needed to understand its implications and possible solutions. There may be differences in energy use and climate vulnerability between different members of the community (men, women, older people, people with disabilities) and it may be important to develop services and interventions to meet these different uses, needs and priorities. Gender is an important dimension, as energy vulnerability may have specific impacts on women; such as the increased use of low-grade fuels for cooking and heating which leads to health impacts, increased time spent on the collection of firewood, leading to opportunity costs, and fewer education/income generation opportunities due to lack of indoor lighting.

16. Workshop participants pointed out that female-headed households are an important issue in Tajikistan (due to male migrant workers departing for Russia) and that they may further influence the gender dimension of energy security/climate vulnerability. Some participants added that increasing energy generation and distribution capacity is an important way of addressing energy vulnerability at the community-level. Little work appears to have been done in the form of household surveys of energy use, leaving a gap in the understanding of how energy insecurity and climate variability affect households in Tajikistan. In line with these points, and as part of the United Nations Development Programme's Mainstreaming Human Development in Tajikistan project, UNDP Tajikistan has initiated the preparation of a National Report on Human Development 2012 "*Tajikistan: Poverty in the Context of Climate Change*".

Special session on climate change and water resource management



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

17. This session was chaired by Mr Craig Davies, Senior Environmental Adviser, EBRD. Mr Davies explained that water and energy issues are closely interlinked, due to the fact that a great many climate change impacts are mediated through the hydrological cycle. This is especially relevant to the hydropower sector, which is hugely influenced by hydrological conditions and which is also subject to complex water resource management issues such as competing demands between different water uses (e.g. hydropower, irrigation, environmental concerns) which are often transboundary in the Central Asian context.

18. The first presentation on ‘Integrated Water Resource Management (IWRM) and its implications for the energy sector in Tajikistan’ was made by Mr Yarash Pulatov, Ministry of Land Reclamation and Water Resources. Mr Pulatov explained how the principles of IWRM are being applied in Tajikistan in order to ensure that the needs of different water uses (e.g. power generation, irrigation, tourism, fisheries, environmental quality) are balanced as best as possible. A further presentation on ‘Safety of hydraulic engineering installations under global climate change conditions’ was presented by Mr Daler Kholmatov, Ministry of Land Reclamation and Water Resources. Mr Kholmatov explained how critical water infrastructure is for Tajikistan, especially irrigation infrastructure. However much of the country’s water infrastructure is old and in need of modernisation. A final presentation on ‘Dam Security in Central Asia’ was made by Mr Jon Church, United Nations Economic Commission for Europe, who emphasised the importance of maintenance and improved governance to ensure the safety of ageing dams in the Central Asian region.

19. Workshop participants pointed out that water sector management and governance also need to be given adequate attention, alongside infrastructure development and maintenance. High quality hydrological data are important for forecasting, as well as for better water resource management and balancing the needs of different water users.

Analysis of international support for the Tajik energy sector

20. This session was chaired by Mr Ilhom Rajabov, Head, PPCR Secretariat. Mr Craig Davies (EBRD) facilitated a participatory discussion in which international support for the energy sector in Tajikistan was analysed using the framework of the four main themes of the workshop.

Use of hydro-meteorological data



21. There are a number of important MDB initiatives in this area, including the World Bank/PPCR ‘Strengthening Hydromet’ project and the ADB/PPCR support for climate science and modelling. PPCR Phase I Project A4 (EBRD) should also be considered as a relevant activity under this theme. Workshop participants concluded that this theme already has significant international support and that the priority should be coordination of these activities with the energy sector (Barki Tojik) instead of launching further activities under this theme as part of PPCR Phase II.

Climate change impacts at the sector level

22. MDBs and donors are running a number of initiatives to support improved energy sector planning. Furthermore, the World Bank is about to launch a very timely and appropriate high-level study in climate risks to the energy sector, which will help to inform energy sector planning from a climate change perspective. Workshop participants concluded that there is no strong case for launching further activities under this theme as part of PPCR Phase II, but instead the findings of the World Bank study should be used for future sector planning and coordination.

Climate change impacts at the facility level

23. There are quite a number of MDB and donor activities under this theme, covering infrastructure rehabilitation (generation and distribution), feasibility studies for new investments and demand-side energy efficiency projects. However, all of this work appears to be being carried out in the absence of any consideration of climate change issues. Workshop participants agreed that PPCR Phase II should support the development of approaches for improving the climate resilience of hydropower plants (which are more directly climate-sensitive than other energy infrastructure) and that these approaches should be piloted in a concrete investment project. These approaches should include both non-structural measures, such as forecasting and the optimisation of operating rules making better use of climate and hydro-meteorological data, and structural measures such as equipment upgrades. It was agreed that the proposed rehabilitation of Kairakkum HPP, which EBRD plans to commence in 2012, would be the most suitable concrete investment that could serve as a ‘best practice’ demonstration project to pave the way for further climate resilient hydropower investments in the future.



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

Climate change impacts at the community level

24. It was quite clear that there is a significant gap under this theme, with very little work, if any, being undertaken in order to understand the important climate-energy-poverty nexus in Tajikistan. This means that important community-level, social and gender dimensions of climate change risks to energy security are not well understood and therefore are not currently being reflected in sector planning and investment. Workshop participants agreed that PPCR Phase II should include a programme of household surveys of energy use and climate vulnerability in order to fill this knowledge gap and better understand the different uses, needs and priorities for energy consumption at the community and household level. . So that the findings of these surveys can best inform energy sector planning and operations, it was suggested that the surveys should focus on Sughd Province, where Kairakkum HPP is located and where EBRD is also investing in loss-reduction (demand-side) investments in the transmission network.

Identification of energy sector priorities for PPCR Phase II

25. Mr Ilhom Rajabov (PPCR Secretariat) chaired a participatory discussion in which the priorities for PPCR Phase II were summarised. It was agreed that PPCR Phase II will focus on the following priorities:

- A pilot programme of household surveys of energy use and climate vulnerability in Sughd Province;
- Investigating the possibility of a study tour for Barki Tojik staff to visit hydropower facilities in a developed country in order to gain first-hand experience of best practice in managing climate risks to hydropower operations;
- The integration of non-structural and structural climate resilience measures into the rehabilitation of Kaiarakkum HPP so that it can serve as a ‘best practice’ demonstration project;
- In addition, coordination will be encouraged with other relevant MDB and donor activities such as the work to strengthen hydro-meteorological and climate modelling services (including short-term and seasonal flow forecasting), as well as assessments of climate change risks and opportunities at the energy sector level.

Workshop conclusions and next steps

26. Mr Rajabov concluded the workshop by thanking the participants and hosts, adding that the next step will be for EBRD to prepare an application for PPCR Phase II energy sector activities, to be submitted to the CIF Admin Unit for approval by the PPCR Sub-Committee later this year.



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**



Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan

ANNEX I: WORKSHOP AGENDA

TUESDAY 6 MARCH	
08:30 – 09:00	Registration
09:00 – 09:30	Session One: Opening <ul style="list-style-type: none">• Opening remarks and adoption of the agenda [<i>Mr Yorov</i>]• PPCR activities in Tajikistan and Government priorities [<i>Mr Khairullo Ibodzoda</i>]• Structure and objectives of the workshop [<i>Mr Craig Davies</i>] <p><i>Chair: Mr Abdullo Yorov, Chairman, Barki Tojik</i></p> <p><i>Speakers:</i></p> <ul style="list-style-type: none">• <i>Mr Khairullo Ibodzoda, PPCR Focal Point</i>• <i>Mr Ulf Hindström, Head, EBRD Resident Office, Dushanbe</i>• <i>Mr Craig Davies, Senior Environmental Adviser, EBRD</i>
09:30 – 11:00	Session Two: Findings of PPCR Phase I project A4 “Improving the Climate Resilience of Tajikistan’s Hydropower Sector” <p>During 2010-2011 a study was carried out under PPCR Phase I, managed by EBRD in partnership with Barki Tojik and Tajik Hydromet. Using the Syr Darya and Vakhsh river systems as case studies, this work examined the vulnerability of Tajikistan’s hydropower sector to climate change and identified key issues relevant to the potential strengthening of the sector’s climate resilience. This session will cover (i) overall objectives of the study, (ii) outline of the methods applied, and (iii) headline findings and recommendations.</p> <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Presenter: Prof. Robert Wilby, Loughborough University, UK</i></p> <p><i>Discussants:</i></p> <ul style="list-style-type: none">• <i>Mr Rustam Rakhimov, Deputy Chief Engineer, Barki Tojik</i>• <i>Mr Mahmad Safarov, Director, Tajik Hydromet</i>• <i>Mr Craig Davies, Senior Environmental Adviser, EBRD</i>



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

11:00 – 11:15	Coffee break
11:15 – 12:30	<p>Session Three: (1) Monitoring and analysis for climate resilience in the energy (hydropower) sector</p> <ul style="list-style-type: none">• Progress with strengthening hydrometeorological services in Tajikistan [<i>Mr Dustov</i>]• Best practice in using climate scenarios and hydrological models [<i>Prof. Rob Wilby</i>] <p><i>Chair: Mr Mahmad Safarov, Director, Tajik Hydromet</i></p> <p><i>Presenters:</i></p> <ul style="list-style-type: none">• <i>Mr Saidakhmad Dustov, Head, PIU of ‘Strengthening Hydromet’ project</i>• <i>Prof. Robert Wilby, Loughborough University, UK</i> <p><i>Discussants:</i></p> <ul style="list-style-type: none">• <i>Mr Simon Croxton, Senior Natural Resources Specialist, World Bank</i>• <i>Mr Craig Davies, Senior Environmental Adviser, EBRD</i>
12:30 – 13:30	Lunch
13:30 – 15:00	<p>Session Four: (2) Energy sector planning for climate resilience</p> <ul style="list-style-type: none">• Managing climate risks to energy security at the sector level [<i>Mr Simon Croxton</i>] <p><i>Chair: Mr Boboev Haknazar, Head of Ecology Department, Ministry of Energy and Industry.</i></p> <p><i>Presenter:</i></p> <ul style="list-style-type: none">• <i>Mr Simon Croxton, Senior Natural Resources Specialist, World Bank</i> <p><i>Discussants:</i></p> <ul style="list-style-type: none">• <i>Mr Ramses Ruziev, Power & Energy Analyst, EBRD</i>• <i>Ms Cinzia Losenno, Senior Climate Change Specialist, Asian Development Bank</i>
15:00 – 15:15	Tea break



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

15:15 – 16:30	<p>Session Five: Special session on climate change and water resource management</p> <ul style="list-style-type: none">• Integrated water resource management in Tajikistan and its implications for the energy sector [<i>Mr Yarash Pulatov</i>]• Implications of climate change for dam safety [<i>Mr Akbarkhoja Nabiev and Mr Jon Church</i>] <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Presenters:</i></p> <ul style="list-style-type: none">• <i>Mr Yarash Pulatov, Head of State Institution “TadzhikNIIGiM”, Ministry of Land Reclamation and Water Resources</i>• <i>Mr Akbarkhoja Nabiev, Director, Tajik Hidroprojekt</i>• <i>Mr Jon Church, UNECE Liaison Officer in Tajikistan</i> <p><i>Discussants:</i></p> <ul style="list-style-type: none">• <i>Mr Christian (Ben) Hell, Attaché, EU Delegation to Tajikistan</i>• <i>Mr Simon Croxton, Senior Natural Resources Specialist, World Bank</i>
16:30 – 17:00	<p>Session Six: Summary of day one</p> <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Rapporteurs:</i></p> <ul style="list-style-type: none">• <i>Mr Ilhomjon Rajabov, PPCR Secretariat</i>• <i>Mr Craig Davies, Senior Environmental Adviser, EBRD</i>

WEDNESDAY 7 MARCH



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

09:00 – 11:00	<p>Session Seven: (3) Optimising climate resilience through hydropower plant design and operations</p> <ul style="list-style-type: none">• Hydro-Quebec’s experience in adapting to climate change: lessons from Canada [Mr Ralph Silver]• Implications of climate change for environmental and social risk management [Mr Jack Mozingo] <p><i>Chair: Mr Rustam Rakhimov, Deputy Chief Engineer, Barki Tojik</i></p> <p><i>Presenters:</i></p> <ul style="list-style-type: none">• Mr Ralph Silver, Senior Hydraulic Engineer, Technik Eaucan Inc., and consultant to Hydro-Quebec, Canada• Mr Jack Mozingo, Principal Environmental Adviser, EBRD <p><i>Discussants:</i></p> <ul style="list-style-type: none">• Mr Ramses Ruziev, Power & Energy Analyst, EBRD• Mr Boboev Haknazar, Head of Ecology Department, Ministry of Energy and Industry
11:00 – 11:15	Coffee break
11:15 – 12:30	<p>Session Eight: (4) Climate change and energy security - social and community aspects</p> <ul style="list-style-type: none">• Energy security and climate vulnerability at the community level – social and gender issues [Ms Michaela Bergman and Ms Dilorom Safarova] <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Presenters:</i></p> <ul style="list-style-type: none">• Ms Michaela Bergman, Senior Social and Gender Policy Adviser, EBRD• Ms Dilorom Safarova, Deputy Head of Research on Social and Labour Issues, Centre for Strategic Studies of the President of the Republic of Tajikistan <p><i>Discussants:</i></p> <ul style="list-style-type: none">• Ms Cinzia Losenno, Senior Climate Change Specialist, Asian Development Bank• Mr Ilhomjon Rajabov, PPCR Secretariat



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

12:30 – 13:30	Lunch
13:30 – 14:30	<p>Session Nine: MDB and development partner activities: mapping exercise</p> <p>MDBs and donors will present details of their ongoing or planned activities that could contribute towards improved climate resilience in the energy sector. These will be categorised under the four thematic areas presented earlier in the workshop:</p> <ol style="list-style-type: none">1. Monitoring and analysis of climate/hydromet data2. Energy sector planning (i.e. sector level)3. Plant design and operations (i.e. project level)4. Energy security: social & community aspects <p>A matrix will be developed mapping current and planned activities against the four thematic areas.</p> <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Contributors:</i></p> <ul style="list-style-type: none">• EBRD representatives• World Bank representatives• ADB representatives• Other donor representatives
14:30 – 15:00	<p>Session Ten: MDB and development partner activities: gap analysis</p> <p>A gap analysis will be conducted on the above matrix in order to identify areas in which additional action is required in order to improve the climate resilience of the energy sector.</p> <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Facilitator: Mr Ilhomjon Rajabov, PPCR Secretariat</i></p>
15:00 – 15:15	Tea break



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

15:15 – 15:45	<p>Session Eleven: PPCR Phase II priorities</p> <p>The gap analysis will be used to identify funding priorities for PPCR Phase II.</p> <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Facilitator: Mr Ilhomjon Rajabov, PPCR Secretariat</i></p>
15:45 – 16:15	<p>Session Twelve: Wrap-up session</p> <ul style="list-style-type: none">• Conclusions from the two days• Actions to be taken forward <p><i>Chair: Mr Khairullo Ibodzoda, PPCR Focal Point</i></p> <p><i>Rapporteurs:</i></p> <ul style="list-style-type: none">• <i>Mr Ilhomjon Rajabov, PPCR Secretariat</i>• <i>Mr Craig Davies, Senior Environmental Adviser, EBRD</i>



Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan

ANNEX II: LIST OF WORKSHOP PARTICIPANTS

#	Name	Position	Organization
1.	Khairullo Ibodzoda	PPCR Focal Point	Office of the President of Tajikistan
2.	Yarash Pulatov	Head of State Institution “TadzhikNIIGiM”	Ministry of Land Reclamation & Water Resources
3.	Aslov Zainidin	Chief Specialist of Macro-economic Analysis, Forecasting and Economic Reform	Ministry of Economic and Trade Development
4.	Kamolov J	Committee of Emergency Situations and Civil Defence	Head of the Social Welfare Department, Colonel
5.	Boboev Haqnazar	Head of Labor and Ecology Protection Department	Ministry of Energy and Industry of the Republic of Tajikistan
6.	Sangakov Eraj		Ministry of Energy and Industry of the Republic of Tajikistan
7.	Yokubov Fazliddin	Leading Specialist of State Project and Strategies Monitoring Department	State Committee of Investment and Management
8.	Nazarov Kholmahmad	Deputy Chairman, Epidemiological Station Service	Ministry of Health



Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan

9.	Nosirova T.	Head of Department of Science and Realization of Scientific Achievements	Ministry of Agriculture
10.	Yorov Abdullo	Chairman	Barki Tojik
11.	Rustam Rakhimov	Deputy Chief Engineer	Barki Tojik
12.	Saydahmad Dustov	Head	PIU – Strengthening Hydromet
13.	Ilhom Rajabov	Head	PPCR Secretariat
14.	Zafar Mahmudov	Communications Manager	PPCR Secretariat
15.	Cinzia Losenno	Senior Climate Change Specialist	ADB
16.	Asel Chyngysheva		ADB TJRM
17.	Zarina Abdulalieva		ADB
18.	Craig Davies	Senior Environmental Adviser	EBRD
19.	Jack Mazingo	Principal Environmental Adviser	EBRD



**Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan**

20.	Michaela Bergman	Senior Social and Gender Policy Adviser	EBRD
21.	Ulf Hindström	Head of Dushanbe Office	EBRD
22.	Prof Robert Wilby	Centre for Hydrological and Ecosystem Science, Department of Geography	Loughborough University, UK
23.	Christian (Ben) Hell	Attaché	EU Delegation
24.	Jon Church	Liaison Officer	UNECE, Tajikistan
25.	Simon Croxton	Senior Natural Resources Specialist	The World Bank, Almaty, Kazakhstan
26.	Askarsho Zevarshoev		Aga Khan Development Network
27.	Nailya Mustaeva	Programme Associate	UNDP
28.	Abdulkhamid Kayumov	Project Assistant	Third National Communication UNFCCC
29.	Rustam Babajanov	Project Manager	Mainstreaming Human Development in Tajikistan, United Nations Development Programme
30.	Ramses Ruziev	Analyst, Power & Energy	EBRD



Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan

31.	Nadezhda Leonidova		
32.	Nasreddin Minikulov		
33.	Anvar Khamidov	Head of Hydrometeorology Department	Committee of Environment Protection
34.	Qurbonjon Kabutov		NGO
35.	Sukhrob Olimov		
36.	Kholmatov Daler	Head Engineer	Tajik Gydroproject
37.	Rakhimov T.O		
38.	Babadjanova M.		CAREC
39.	Orifov H.		Barki Tojik
40.	Shodmonov M.	Project Manager	Third National Communication UNFCCC
41.	Sherali Mustafokulov		First National Channel



Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan





Пилотная Программа по адаптации к изменению климата –
Таджикистан
Pilot Program for Climate resilience - Tajikistan

