CASE STUDY TURKMENISTAN

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Turkmenistan is among the 20 countries participating to the global project: "Capacity Development for Policy Makers to Address Climate Change". The 3 sectors selected at National Level to better understand the magnitude of funds needed to tackle climate change now and in the long term, are Water for adaptation aspects, and Electricity generation/Electricity demand for mitigation options. The national team has successfully completed all project activities and is now streamlining the results into their policy processes.

The **initial National Inter-Ministerial Dialogue on Climate Change**, held on 21-22 January 2009 in Ashgabat, engendered high-level participation from the Ministry of Energy and Industry, Ministry of Oil and Gas, Ministry of Economy and Development, Ministry of Water Resources, Ministry of Agriculture, Ministry of Health, Ministry of Education, Ministry of Construction, Ministry of Nature Protection, the energy management unit at the National Economic Council 'Turkmenergo', the gas company 'Turkmengaz', Statistics Committee, Committee for Hydrometeorology, the Institute of Strategic Planning and Economy, university, the private sector (e.g. Agrobusiness) and NGOs (e.g. WWF), as well as international experts from consulting companies, the project Regional Centre of Excellence and the UNDP Regional Centre in Bratislava, all in all about 50 participants. Climate change governance and coordinated long-term planning to address climate change were discussed during the Dialogue, along with the linkages between the UNFCCC negotiations and national processes. Among the main recommendations from the Dialogue agreed were the need for:

- To strengthen the interaction between agencies and organizations for joint data analysis, assessment of costs and advantages resulting from the reduction of greenhouse gas emissions through increasing energy efficiency, energy conservation, reduced use of natural gas. It is therefore recommended to:
    - Create an institutional mechanism for coordination
    - Create sectoral working groups to assess greenhouse gas emissions in national key sectors
    - Increase coordination among projects under the three global nature protection conventions.
    - Provide training by international experts to national specialists.
- To develop a national programme on climate change to reduce greenhouse gas emissions and to implement measures on adaptation to climate change for national key sectors, which is integrated into the national programming for social and economic development up to 2020. This programme should consist of:
    - Assessment of costs, advantages and sources of financing of measures
    - Proposals regarding sound methodological approaches
    - To analyze agriculture & industry relevant sectors first as pilot sectors (selected were water and electricity for this), before expanding to other sectors.
    - An accompanying education and public awareness campaign.

Based on these priorities, national experts prepared issues papers on climate change, and the sectors oil & gas, electricity sector as well as water management that described the sector's relevance and outlined approaches for the conduction of investment & financial flows (I&FF) assessments. The government decided to carry out the I&FF assessments for the **key sectors of electricity generation and electricity demand from a mitigation perspective, and water management from an adaptation perspective** with the following thematic focus:

CASE STUDY: TURKMENISTAN (cont.)

- **Electricity generation / Electricity demand:** The electricity sector in Turkmenistan is seen as a crucial segment of the economy, since it is linked in national plans to the acceleration of socio-economic growth. The energy sector as a whole accounts for 87% of greenhouse gas emissions (2004 national GHG inventory); of this, the electricity sub-sector accounts for 15.7%. There is considerable untapped energy conservation potential.
- **Water management** is also essential in Turkmenistan. A key impact will be on agriculture, which accounts for more than 90% of total water use in the country. Water demand is also increasing, even as water supply is projected to decrease as a result of climate change.

The **national I&FF assessment** seeks to answer the question: *"From a developmental perspective, what needs to be done to adapt to or mitigate climate change in the selected key sectors, and what policy framework, investment environment and financial architecture will be required to achieve that purpose?"* Among the experts involved throughout the project process were several key experts who are also involved in the development of the National Communications, which facilitated the exchange among those two initiatives and ensured mutual use of results. The I&FF assessment drew heavily from the Second National Communication, and the results of the I&FF assessment will feed into the Third National Communication. Technical backstopping was provided to the national team by Oxford Consulting, which acted as the regional centre of excellence for Turkmenistan, and UNDP.

To prepare the national team for conducting the I&FF assessment a **training was held 13-15 July 2009** in Ashgabat, to familiarize the 16 participants with the I&FF methodology. The Ministries of Economy, Energy and Industry, Water Resources and the Ministry of Nature Protection were all involved in the I&FF assessment.

I&FF assessment results

- **Electricity generation:** Implementing the mitigation scenario will require total additional financial means of US$ 2.02 billion. The existing power plants will be converted to combined cycle, and new co-generation power plants will be built.
  Potential energy savings for the years 2010-2030 amount to 40.3 billion m3 of natural gas; total CO_2 emissions reductions from energy savings are 75.5 million tonnes of CO_2. In 2030, emission reductions in the mitigation scenario will reach 6.24 million tons of CO_2 per year.
  As the government of Turkmenistan is a major investment entity for electricity production, these investments will require public funds or foreign credits guaranteed by the government.
- **Electricity demand:** The total additional cost of implementing measures is US$45.37 million from 2010-2013. Emission reductions over the period 2010-2030 will amount to 20.89 million tonnes of CO_2 equivalent.
  There is significant potential for conserving electricity in lighting, air conditioning and heating of 13.8-14% of the total electricity demand, leading to a total saving of natural gas of 11.2 billion m^3. This will reduce CO_2 emissions by almost 0.75 million tons per year by 2030.
  Costs incurred by the energy consumption sector include both public and private funds needed to purchase incandescent air conditioners, electrical appliances for heating, as well as public funds for the construction of gas-fired boilers and heating devices.
- **Water management:** The total additional investment amount needed is US$ 5.6 billion.
  The predicted water shortage of 5 km3 for irrigation needs will be eliminated through the proposed measures.
  The only source of investment for the water sector is public funds. Hence, the implementation of the required adaptation measures will only be possible with public funds or foreign loans.

CASE STUDY: TURKMENISTAN (cont.)

The results of the I&FF assessment were presented at the concluding **National Inter-Ministerial Dialogue on Climate Change**, held on 14-15 September 2010 in Ashgabat. Around 30 participants attended the Dialogue, ranging from key Ministries, Turkmengas and Turkmenergo to embassies and the private sector. The Dialogue also included panel discussions on topics including inter-ministerial coordination, climate financing, and the role of international organizations.

A 19-page executive summary (in Russian and English) and a promotional 4-page flyer (in English) that summarize the project outcomes in Turkmenistan for decision-makers were prepared, which are being used by the national team to carry the results of the I&FF assessment further.

Links to further activities:

- The I&FF results will also be used in the development of national strategies for mitigation and climate change risk management (see below). Furthermore, the assessments will be used as the basis for a cost-benefit analysis of mitigation and adaptation to develop a national strategy.
- A recently launched UNDP project on climate change risk management will further analyze the cost-benefits of adaptation measures, based on the I&FF assessment in the water sector.

Next steps

- The national team has proposed several recommendations to improve the legislative framework to create conditions for improving energy efficiency and financing new cleaner technologies, drawing from the I&FF assessment.
- Follow up steps include the development of norms and standards for energy efficiency and improving water resources management.
- Further I&FF analyses is planned as part of the Third National Communication, although this is subject to assessment of funding.
- The I&FF assessment of the water sector (adaptation options) was used in the development a national project proposal for the Adaptation Fund.
- Experiences gained in the I&FF assessment are used to analyze cost-benefits of adaptation and mitigation activities when developing and negotiating NAMA and NAPs.
- The national team further developed the spreadsheets to facilitate the calculations of the I&FF assessment and to use them for future data collection and analysis, and suggest to develop a software based on this.
- It was noted positively that all project materials and publications are available in Russian on the web platform, which would allow for further use in the region.

For more detailed reports of these activities, go to: http://www.undpcc.org/en/turkmenistan