Ministry of Nature, Environment and Tourism
Water Authority

URBAN WATER VULNERABILITY TO CLIMATE CHANGE IN MONGOLIA

Ulaanbaatar
2010

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Ministry of Nature, Environment and Tourism
Water Authority, Mongolia

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FOREWORD BY UNEP

The United Nations Environment Programme (UNEP) is mandated to regularly keep the state of the environment under review and bring emerging issues of significance to the attention of decision-makers for action. One mechanism to achieve this is through the Global Environment Outlook (GEO) process with global, regional, sub-regional, national and city-level assessments. The GEO process is participatory and consultative, with capacity building at its core. The result is scientifically authoritative information for environmental management and policy development tailored to a wide target audience.

Mongolia, with a population of 2.5 million of which more than 50% live in the capital city Ulaanbaatar, is already confronted with the effects of climate change. Natural disasters such as drought, heavy snowfall, floods, snow and wind storms, and extreme cold and hot temperatures are becoming increasingly frequent. Annual mean temperatures have increased by 2.1°C since the 1940s. Over 80% of Mongolia's water consumption of approximately 5,000 million m^3 is consumed by industry and agriculture. About 80% of drinking water comes from aquifers and, for domestic water use, 70% of residents either acquire their own water from water trucks or from public kiosks. Water consumption of the population living in the traditional "ger" districts of large cities, town centres and big settlements is equal to 8 to 10 litres per person per day, 4-5 times lower than the accepted sanitary norms. Research results are emerging of the likely pattern of future climate: it is forecast to include higher temperatures all year round, with more snow in winter and less rain in summer. It will also bring more variable weather conditions with longer and more frequent droughts.

The Urban Water Vulnerability to Climate Change in Mongolia Report confirms that with strong evidence of impacts of climate change to water resources, providers for drinking water, as well as agencies dealing with storm water, flood water and wastewater will experience the consequences of effects like reduced snow cover and increased frequencies of floods and droughts. As existing infrastructure is already in need of significant investments to maintain current levels of service, climate change is exacerbating the need for additional resources. Over and above the impact on the urban services, other sectors like health, agriculture and energy are also affected.

The assessment findings provide practical policy options for follow-up actions by the Water Authority, under the Government of Mongolia, especially on adaptation which is to Develop an Integrated Urban Water Management plan for the Tuul river basin, implemented to harmonize the interests of stakeholder groups and environmental constraints and provide a sustainable future for water resources in the Basin.

I strongly hope that the preparation this Report has enhanced the technical capacity of the Water Authority, under the Government of Mongolia and at the same time, the findings of the Report contribute to the mandate of the government and the Ministry in responding to urban water resource and supply management as an urgent issue. I believe that the Report will also provide valuable information and options to assist the country to sustain the quality of life of its residents.

Young-Woo Park

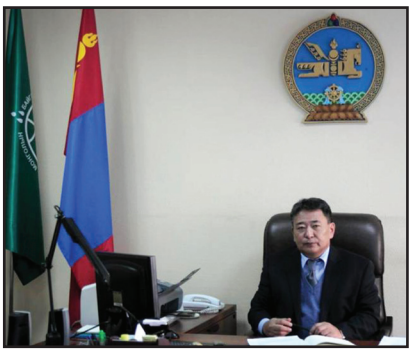
Dr Young-Woo Park

Regional Director and Representative

United Nations Environment Programme

Regional Office for Asia and the Pacific

FOREWORD BY MNET



It is well-known that water is an essential resource for life on earth. What is unfortunately far less common is the knowledge of how to manage this resource properly to ensure its availability for future generations. The mission of the Ministry of Nature Environment and Tourism is to direct the collective efforts and initiatives of the state, citizens, businesses and organizations in fulfilling the right to live in a healthy and safe environment, linking social and economic development with ecological balance, protecting the natural environment in the interests of present and future generations, and making appropriate use of natural resources including water resources and creating proper opportunities for their restoration.

Recently climate change in Mongolia is of growing concern, and its impacts on the economy are potentially significant. Major consequences are likely to be manifested through the water system.Climate change studies conducted in Mongolia so far mostly focused on the impacts on and vulnerability of natural resources but did not focus on the impacts of climate change on urban water and its implications for urban water utilities in Mongolia. This initiative is a response to fill the mentioned gap. The Ministry realises the importance of understanding how the urban water infrastructure will be affected and how these impacts may be mitigated by changes in design and operation. The report points out that climate change will affect all aspects - from the natural water resources to the effectiveness of the water supply capability. Ultimately this will change urban water management practices. This study aims to present the impacts of climate change upon urban water particularly upon the performance of the urban water supply, wastewater and storm water infrastructure, through compiling existing studies on climate change and water resources. When describing impact of climate change on water resources, the term water supply is often used synonymously with urbanization. Thus the urban water supply is no longer the concern of the municipality only. Solving water-related issues under changing climate requires technical and scientific expertise, and greater understanding and integration of environmental, social and political factors and inter-organizational coordination at different level.

The Urban Water Vulnerability to Climate Change in Mongolia Report is the output of effective and successful collaboration effort between the United Nations Environment Programme and the Mongolia Water Authority and provides an assessment of the impact of climate change on and vulnerability of water resources in Mongolia, with the emphasis on urban areas. The report confirms the challenging links between climate change and water availability with solid scientific evidence for the selected rivers and lakes. The report also draws on challenges for country as a whole as well as in urban area in terms of further reducing the climate change burden in water supply, human health and aquatic ecosystems. Conclusions are drawn relating to: i) understanding current and future of vulnerability of water resources to climate change; ii) better integrating water and other policies for sustainable development; and iii) water-related adaptation to climate change in context of urban water management. On behalf of the Ministry, I would like to thank the UNEP Regional Office for Asia and the Pacific for both financial and technical support in preparing this report and special thanks is extended to the team in Mongolia for their commitment. I strongly believe that the report will contribute a great deal to support the urban water management in Mongolia.

Jargalsaikhan Ch.

Vice Minister

Ministry of Nature, Environment and Tourism

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