



U.S. Army Corps of Engineers Institute for Water Resources

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January 13, 2014

IWR Embassy Science Fellow Conducts Research Assessment Related to Lake Chad

ALEXANDRIA, VIRGINIA. Institute for Water Resources (IWR) team member Dr. Kristin Gilroy recently completed a one-month Embassy Science Fellow Position through the U.S. State Department in N'Djamena, Chad. Dr. Gilroy was selected for the Embassy Science Fellow (ESF) position to conduct a comprehensive assessment of current research efforts and opportunities for U.S. engagement toward finding science-based solutions to the disappearance of Lake Chad.

While in Chad this past summer, Dr. Gilroy worked to complete the following requested tasks:

- Identify the current status of various research projects as well as key gaps in research and critical analytical information on the disappearance of Lake Chad.
- Identify areas for potential U.S. public- or private-sector involvement in Lake Chad research in support of U.S. Government policies.

Agencies, institutions, and organizations with whom the Dr. Gilroy consulted include the Lake Chad Basin Commission, African Development Bank, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Federal Institute for Geosciences and Natural Resources (BGR), the European Union, l'Agence Française de Développement, Societe de Developpement du Lac Tchad, the French Embassy, Ministère de l'Hydraulique Urbaine et Rurale, and the University of N'Djamena.

The Lake Chad Basin (LCB) has experienced significant reductions in precipitation since the 1960's as population growth has increased water resources demands. Additionally, the region's dams and irrigation schemes were engineered based on data from a wetter era and are often not operated optimally, altering the hydrologic flow regime of many of the basin's rivers. The effects downstream have been to subject larger surface areas of water to the region's high evaporation rates. As a result of these climatic and anthropogenic components, the surface area of Lake Chad has declined by 95 percent and water security issues persist throughout the LCB.

The Lake Chad Basin Commission (LCBC), consisting of all countries within the LCB, is tasked with regulating and controlling the utilization of water and other natural resources in the LCB, among other roles. The LCBC has undertaken a number of efforts:

- Proposal of an Interbasin Water Transfer from the Congo River Basin to secure water resources for the region.
- Promoting effective integrated water resources management throughout the transboundary basin, which will require capacity building at all levels, from communities to universities and national ministries to the LCBC itself.
- Completion of the Transboundary Diagnostic Analysis under the GEF-LCBC study in 2006, which determined that the LCBC does not possess the power to enforce transboundary management in the

basin due to the lack of necessary funds, the lack of power to arbitrate water conflicts, and the lack of a mechanism to enforce basin-level integrated water resources management. Since then, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has made efforts to restructure the LCBC to augment its ability to make transboundary water management decisions.

- Development of a basin planning model through European Union support.
- Implementation of groundwater studies supported by the Federal Institute for Geosciences and Natural Resources (BGR).
- Ratification of a Water Charter to ensure equitable management of water resources within the basin.

Dr. Gilroy recommended the U.S. consider engaging in the area in several ways, including developing capacity building programs for the LCBC and ministries and universities with which it collaborates; collaborating on existing groundwater studies led by BGR; and assisting in small-scale irrigation projects and water conservation education. Dr. Gilroy also suggested that the U.S. could conduct environmental studies to assess the biodiversity within the LCB and the effects of hydrologic variability and water management infrastructure on the multiple wetlands and floodplains that support the region's economy.

Dr. Gilroy will return to N'Djamena, Chad in February 2014 as part of a World Bank mission to further develop a project proposal for engagement with the LCBC.

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