



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

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May 17, 2013

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#### **Advanced GIS Workshop Concludes with Enhanced Geospatial Readiness to Emergency Situations**

ULAANBAATAR, MONGOLIA. The rolling echoes of thunder boom in the distance, as the mid-day sun is gradually engulfed by billowing clouds. The steppe is dusty and parched from a desiccated summer that yearns for any sense of moisture. However, its frail and rough surface is slowly transformed by singular droplets of heavy rain that pocket the ground like a celestial surface. The air grows cooler, and the wind increases. Then, suddenly, the heavens open and a deluge of water cascades upon the darkened landscape with fervent catastrophe. Streams swell and water overtakes sinuous banks, flooding homes and damaging the livelihood of those that were unable to escape the abrupt strength and grip of a fisted Mother Nature.

This scene, and others like it, is becoming all too familiar around the world. Changing climate patterns have caused an increase in the intensity and frequency of storms, and Mongolia is no exception. According to the Mongolia Institute for Meteorology, Hydrology & Environment, winters are producing more snow, and summers have become drier with irregular intense flash-flooding events. Additionally, sporadic wind storms are also increasing in frequency, impacting agriculture productivity and traditional lifestyles. To better understand these changes, as well as prepare for a changing climate, civil and military organizations are using Geographic Information Systems (GIS) to model, track, forecast, and analyze the environment, extreme weather events, and changing natural conditions.

To support further capacity development along this line, an Advanced GIS Workshop was held 29 April – 02 May 2013 at the National Statistical Office. The workshop was the third in a series of GIS exchanges that have coupled subject matter experts from Mongolia and the United States. “This series, which has been organized during the past three years, was very efficacious not only for me, but also our [Urban Planning and Design] Institute,” stated Ms. Uranbaigal G. “The knowledge, which I gained from the GIS series, is successfully used in my work and shared with my colleagues.”

The Advanced GIS Workshop was sponsored by the U.S. Pacific Command. The event involved approximately 45 participants from the Mongolian Armed Forces, National Emergency Management Agency, Border Protection Services, Ulaanbaatar City Mayor’s Office, the Ministry of Environment & Green Development, Tuul River Basin Authority, and others. The U.S. Army Corps of Engineers (USACE) led the instruction.

GIS exchanges between Mongolia and the United States started in 2011. The first workshop was an Introduction to GIS, which covered the basics of maintaining a geospatial system, performing analysis, and producing maps. This workshop was then followed by an Intermediate exchange that provided more capacity development on subjects such as geo-processing, geo-coding, Global Positioning Systems (GPS), and cartographic automation. This Advanced GIS Workshop furthered knowledge and capability, by covering topics such as interpolation of raster surfaces, temporal change, remote-sensing classification, model building, and project planning.

“I have attended all GIS courses organized by the U.S. Embassy and U.S. Army Corps of Engineers...The workshops have been very beneficial and efficient,” stated CPT Captain Sodnomragcha D. from the National Emergency Management Agency. “I feel that all participants have improved their knowledge and experience with GIS...They continue to apply GIS in their regular work to their benefit.”

The end result is better emergency preparedness to a changing environment. GIS is a tool that can assist with this effort. The application of GIS to specific emergency preparedness measures will continue. The Ministry of Environment and Green Development, National Emergency Management Agency and others are actively using geospatial tools to study and respond to disaster situations. The U.S. will continue to support these activities and partner with Mongolia on the use of GIS to support all phases of the disaster lifecycle from preparedness to mitigation.

USACE IWR Geographer Justin Pummell is assigned to U.S. Army Pacific (USARPAC) and acts as a liaison between USARPAC, USACE Pacific Ocean Division (POD) and IWR. He is responsible for USACE’s International Capacity Development Program in the U.S. Army Pacific Command (USPACOM) area of responsibility. As part of IWR’s International Capacity Development Program, he works directly with the USARPAC, USPACOM, U.S. Embassies and partner nations. He provides theater security cooperation support, geographic information system (GIS) technical expertise and disaster management planning to USARPAC, USPACOM and POD. He participated in this workshop.

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