Understanding Regional Water Availability at Select Army Installations

Marc Kodack
Army Environmental Policy Institute
Outline

• Overview of water availability studies

• Discuss findings and status
  - Findings/recommendations from the pilot study at Fort Bragg and Fort Bliss
  - Application of pilot study methods
    - Ten CONUS installations
    - Three overseas installations

• Possible next steps
Overview

Increasing Demand:
- Population growth
- Overdevelopment
- Aging infrastructure
- Increased energy use
- Agriculture and industrial use

Decreasing Supply:
- Over withdrawal
- Complex water rights
- Climate change
- Cost and financing
- Quality degradation
Effects of Climate Change on Water

Probability of changes in runoff, 2041-2060

Historic changes in snowmelt runoff timing, 1948-2002
Watershed “Health”

**RED watersheds are those having the greatest need for correction, protection, or restoration.**

![Map showing Watershed “Health” with Ft. Bliss and Ft. Bragg marked. The map color codes watershed health from very low vulnerability to high vulnerability.]
Priority Watersheds/Basins

GRAY highlights target basins/installations for more detailed study and water resource protection.
Pilot Study Objectives

• Evaluate the vulnerability of Army installations to potential water shortages over the next 30 years

• List installations by water vulnerability criteria, primary mission, and relative demand for water

• Develop methods and conduct detailed water valuations at select installations

• Identify policy options and technology advances to minimize potential affects of water shortages to Army missions
Fort Bliss

• The Fort Bliss region is anticipated to receive even less precipitation under global climate change

• Although scientific estimates of aquifer longevity differ, the aquifers are a declining resource and represent a limited non-renewable supply of water

• Existing utility wells have been capped due to salinity and the effect of pumping from new wells is unknown

• Additional demand for waters of the Rio Grande are anticipated, including upstream users in New Mexico

• Establish an aggressive water conservation program to reduce demand on existing wells and the back-up supply

• Institute a program of total water management to include a “purple pipeline” on post, as the utility has done in El Paso
Pilot Study Overall Recommendations

- Emphasize water manager staffing
- Centralize data collection on-post and globally
- Include water efficiency measures in all projects
- Adopt a total water management program
- Emphasize metering/system upgrades
- Review installation water rates/contracts
- Engage local communities in regional planning for sustainable water
Possible Next Steps

• Document tools and findings in public works tech bulletins and on websites

• Prove-out concept for adoption by all CONUS installations

• Develop and apply assessment methods for all overseas regions

• Develop Water Collaboration Portal

• Conduct a water recycling feasibility assessment