

**GRAND CHALLENGES IN GLOBAL SECURITY: THE WATER, CLIMATE,
SOIL AND FOOD NEXUS**

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Land degradation, water quality and quantity, air quality, climate change, soil contamination, and food security are foremost issues of our time. We must be at the forefront in addressing and providing solutions to these vexing challenges that threaten humankind. It is also incumbent that we tackle the research needs in an interdisciplinary manner by forging collaborations with natural scientists, social scientists, engineers, and humanists. We must also communicate the results and solutions in a meaningful way to decision makers and the public.

This presentation will include case studies dealing with soil, air, and water contamination and carbon cycling/sequestration to show how the application of a multi-scale, interdisciplinary approach can provide important insights into environmental degradation and restoration.