Water Resources Research Act Program—Current Status, Development Opportunities, and Priorities for 2020–30

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Seven focus areas as thematic framework to organize priorities and goals.

1. **Water Scarcity and Availability** —Drivers and outcomes of water availability and demand are understood and addressed to sustain human and environmental needs. **Goals:**
   - Quantify agricultural water needs and opportunities for conservation and efficiency.
   - Improve understanding of groundwater resources, including recharge, management and governance.
   - Provide solutions, resources, and tools to mitigate competing uses for variable surface water supplies.
   - Develop knowledge to manage drought risk and effects of climate variability.
   - Advance science, outreach, and education to meet water, energy, and food needs.

2. **Water-Related Hazards and Climate Variability** —Extreme hydrologic events and the effects of climate variability are understood and addressed to enhance community preparedness and resilience. **Goals:**
   - Increase engagement to underserved/vulnerable populations, preparedness/recovery extreme events.
   - Mobilize scientific expertise of USGS NIWR network to respond to hazards at local, State, territorial levels.
   - Understand infrastructure relations to acute and chronic hazards.
   - Protect water security by ensuring water availability and sanitation.

3. **Water Quality** -High-quality water safe and accessible ensured to sustain humans and ecosystems. **Goals:**
   - Decrease incidence and severity of waterborne pathogens including harmful algal bloom events.
   - Minimize human and environmental health risks from legacy and emerging water contaminants.

4. **Water Policy, Planning, and Socioeconomics** —Policy, planning, and socioeconomics are integrated and applied toward the comprehensive management and governance of water resources. **Goals:**
   - Enhance understanding and ramifications of the valuation of water.
   - Investigate the human dimensions of water resources.
   - Public policy through evidence-based contributions, outreach, effective science communications.
   - Enhance effectiveness and robustness of water-related infrastructure planning.
   - Complete informative, integrated water resource models.
   - Increase transdisciplinary approaches incorporating economics in water-related issues.
   - Assess the economic value of USGS water science and data.

5. **Ecosystem and Drainage Basin Functions** —Ecosystem and drainage basin functions are conserved to support and revitalize ecosystem services. **Goals:**
   - Contribute to the development of a robust and informative National Water Model.
   - Advance science, outreach, education improve drainage basin functions, provision ecosystem services.

6. **Water Technology and Innovation** —State-of-the-art water technology and innovation are advanced to meet societal and ecosystem needs. **Goals:**
   - Provide innovative educational and entrepreneurial programs.
   - Advance research and development on water innovation, including innovation for urban areas.
   - Advance water technology innovation to meet energy, food, and water needs.
   - Transfer innovative water technology research to stakeholders.
   - Explore industrial ecology to meet water-related needs.

7. **Workforce Development and Water Literacy** —A diverse workforce equipped to address our Nation's need for water resources is achieved with greater public understanding of water resources. **Goals:**
   - Increase experiential education opportunities for students and underrepresented/underserved groups.
   - Increase capacity and opportunities to share and translate research results with stakeholders.
   - Cultivate and nurture an institutional culture that embraces diversity, equity, and inclusion.
   - Enhance programmatic capacity in science communications.