



2022-2027 Strategic Plan

THE UNIVERSITY OF
ALABAMA® | Global Water
Security Center



Motivation

Water is essential for life – drinking, agriculture, energy, industrial production, and maintaining the environment around us. Yet as demand for water grows while uncertainty caused by changes to the physical environment increases, many communities around the world already face water crises that compound the impacts of disease and poverty, exacerbate food and energy insecurity, undermine economic growth, and reduce biodiversity.¹ As the 2017 U.S. Global Water Strategy² stated, “Water may be the most important issue we face for the next generation.”

The wide-ranging effects of water scarcity impact United States national and foreign policy objectives, making water a critical consideration in the nation’s security strategy. The Office of the Director of National Intelligence (ODNI) noted in a 2020 memorandum that over the next 20 to 30 years, some countries—particularly those affected by severe drought—will be unable to adequately address water challenges, risking internal political instability and interstate geopolitical competition.³ In 2021, the National Intelligence Estimate on Climate Change⁴ reiterated that the future will see coun-

try instability (strain on energy and food systems; negative health consequences; internal insecurity and conflict; greater demand for aid and humanitarian relief; strain on military readiness) as well as geopolitical flashpoints (cross-border water tension and conflict; migration) resulting from water insecurity.

“Droughts, water scarcity, and other natural resource limitations could exacerbate national security threats and the resiliency of governments as competition over scarce resources can lead to conflict,” according to a November 2020 Department of Defense (DoD) report. “These challenges [will] require the DoD to develop long term strategies and plans to reduce its vulnerabilities and to address the threats to military infrastructure and personnel readiness.”⁵

Water security: Access to water in the right amount, timing, and quality for daily human needs and health, industry, economic growth, energy production, transportation, and agriculture.



¹ “Global Trends 2040.” Office of the Department for National Intelligence, March 2021, https://www.dni.gov/files/ODNI/documents/assessments/GlobalTrends_2040.pdf.

² “U.S. Global Water Strategy.” U.S. Agency for International Development, Jan. 2017, www.usaid.gov/what-we-do/water-and-sanitation/us-global-water-strategy.

³ National Intelligence Council Memorandum. NICM 2020-05949, 10 July 20.

⁴ “National Intelligence Estimate – Climate Change and International Responses Increasing Challenges to U.S. National Security Through 2040.” NIC-NIE-2021-10030-A. October 21, 2021.

⁵ “Top DoD Management Challenges – Fiscal Year 2021.” Department of Defense Office of Inspector General, 19 Nov. 2020, www.dodig.mil/In-the-Spotlight/Article/2420714/top-dod-management-challenges-fiscal-year-2021/.

Global Water Security Center Mission

Through ground-breaking research and analysis, operationalizing applied science, and developing and implementing best practices in risk communications, the Global Water Security Center (GWSC) will create the most reliable water and environmental security-related information, tools, and analysis. By communicating to key U.S. decision-makers in contextually appropriate ways, GWSC will aid U.S. water security interests and improve outcomes like water access, food security, economic opportunities, and health.

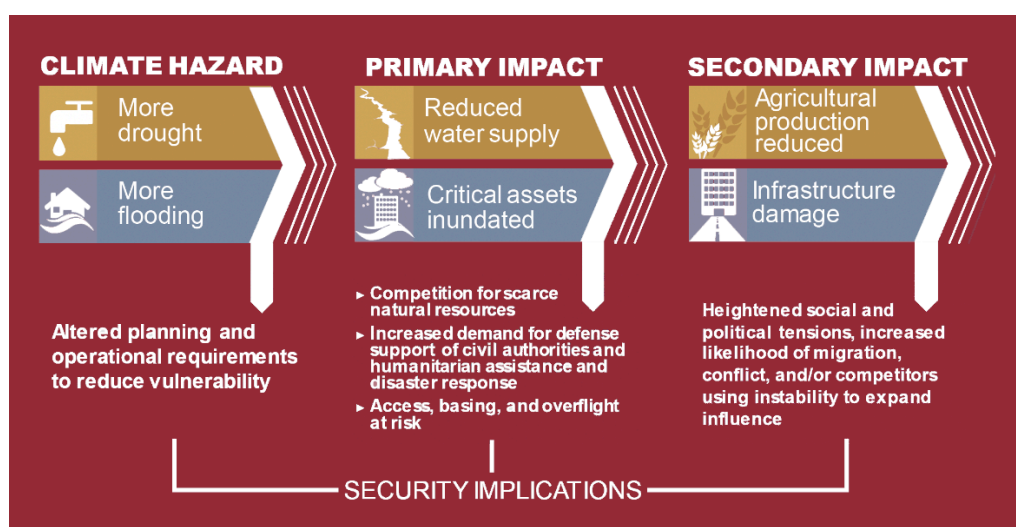
GWSC Vision

To improve national security by providing data, knowledge, and solutions for water and environmental security issues, leading to international recognition as the go-to applied interdisciplinary center for water and environmental security.

GWSC Strategic Themes

GWSC is an applied research and operational center commissioned to respond to our nation's need for water and environmental security insights. GWSC will inform national and international agencies as well as multi-national companies (MNCs), non-governmental organizations (NGOs), and others with global interests in water quality and quantity impacts on sectors such as diplomacy, transportation, and supply chain management.

We anticipate our stakeholders will include organizations such as the Department of Defense (DoD), Intelligence Community (IC), State Department, FEMA, Red Cross, USAID, private companies (e.g., Coca Cola, Unilever), and data producers such as the U.S. Geological Survey, National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and academia. Through research, analysis, and communications, we will produce innovative and actionable water and environmental security products that enable decision makers to take appropriate action on water-related issues. To achieve our mission and vision, we will pursue the themes and goals found on the following pages.



The security implications of a changing water environment are highlighted in the Department of Defense Climate Risk Analysis.

Theme 1: Expand Water and Environmental Security Research to Gain New Insights into National Security Impacts

Objective: Advance water and environmental security science by facilitating research through collaborative partnerships with academia, government, and industry.

GWSC will support science applications and analysis of environmental (in)security within the water, food, energy, and health nexus. Through various funding mechanisms, networking, and awareness-raising, the center will facilitate research to help the Department of Defense and its national security partners understand water and environmental security impacts on military capability, alliances, and infrastructure.⁶ To achieve Theme 1, GWSC will pursue the following activities:



Through select partnerships, the Global Water Security Center will enhance U.S. national security by analyzing global water events and sharing key resulting information with decision makers.

Goal 1.1: Optimize Funding Opportunities to Increase Innovation. GWSC will advocate for government and private funding that enables innovation within water and environmental security science.

Goal 1.2: Maintain Awareness of R&D Activities. GWSC will stay updated on and share information about DoD, IC, government, academic, and commercial research and development activities relevant to the water security nexus. In addition, GWSC will stay abreast of the science of evaluation, integration, and successful research-to-operations transitions. This will be done through interaction with senior scientists, analysts, and policy decision makers.

Goal 1.3: Pursue U.S. Whole-of-Government Partnerships. GWSC will be a key partner to DoD as it engages in whole-of-government efforts to address climate change security risks, which entails working closely with allies, partners, and multilateral institutions to build understanding of water-related threats and inform courses of action to mitigate and adapt to water and environmental security issues.⁷ To enable these key partnerships, GWSC will pursue agreements with DoD laboratories and U.S. science agencies [e.g., NASA, Department of Energy (DoE), NOAA] to leverage their best available science.

Goal 1.4: Pursue Partnerships Beyond Government Agencies. GWSC will be a centralized hub of research activity on water and environmental security for the wide range of stakeholders interested in these issues. As a center at an academic institution, GWSC has a unique opportunity to partner with non-governmental entities such as private corporations, non-governmental organizations (NGOs), international organizations (IGOs), and nonprofit foundations.

⁶ As called for in: Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment). 2021. Department of Defense Draft Climate Adaptation Plan. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer. 1 September 2021.

⁷ Department of Defense, Office of the Undersecretary for Policy (Strategy, Plans, and Capabilities). 2021. Department of Defense Climate Risk Analysis. Report Submitted to National Security Council.

Theme 2: Develop a Repository of Global Water and Environmental Security Information and Analysis

Objective: Develop and maintain water and environmental security information and data that are consistent, up-to-date, and reliable. This will improve engagement with partners while encouraging them to integrate the information into key national security work.

GWSC's success depends on its ability to deliver continuous monitoring analytics by leveraging the best-available science and making it actionable.⁸ The center's investments will complement our partners' existing capabilities to deliver timely data through insight-generating analysis that informs policymaking, identifies opportunities, and warns of threats before they become crises.⁹ To achieve Theme 2, GWSC will pursue the following activities:

Goal 2.1: Become the Preferred Knowledge Transition Partner for Academic, Governmental, and Private Organizations. GWSC will collaborate with academic, government, and private organizations on their environmental security-related research and its applications.¹⁰ Through these collaborations, GWSC will facilitate the transition of appropriate scientific research to the center's repository to allow the data to be used operationally by decision makers, thereby increasing research and development return on investment.¹¹

Goal 2.2: Advance New Algorithms and Technology Through the Use of Advanced IT Concepts. GWSC will operationalize the best-available science, identified or developed as part of Theme 1, by creating tools and visualizations within an effective information technology portfolio to deliver insight to our stakeholders. GWSC will seek to harness artificial intelligence (AI), machine learning and decision support tools to inform national security planning and operations in the U.S. and abroad.¹²

Goal 2.3: Enable Open Science for Agile, Spiral Development. GWSC will enable internal and outside analysts to create tailored situational awareness products by operationalizing research science and data. This will also provide feedback to partner research organizations for continuous scientific improvement.

Goal 2.4: Provide Authoritative Insight on Environmental Security. GWSC will develop a data and analysis capability for DoD, its Under Secretary of Defense for Intelligence [USD(I)] components, and national security agencies to provide tailored insights that enable water and environmental security information to be integrated into areas such as peacebuilding, contingency basing, military theater operations planning, and building partnership capacity plans.^{13, 14} As part of doing so, GWSC will first identify where U.S. environmental policy, science, and technology deficiencies exist.

⁸ A requirement articulated in: Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment). 2021. Department of Defense Draft Climate Adaptation Plan. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer. 1 September 2021.

⁹ As called for in: "Interim National Security Strategic Guidance." March 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

¹⁰ As called for in: Department of Defense, Office of the Undersecretary of Defense (Acquisition, Technology, and Logistics). 2016. DoD Directive - 4715.21 Climate Change Adaptation and Resilience. 14 January 2016.

¹¹ Ibid.

¹² The need to harness AI specified in: Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment). 2021. Department of Defense Draft Climate Adaptation Plan. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer. 1 September 2021.

¹³ Requirements specified in: "USAID Climate Strategy 2022-2030 Draft." November 2021. <https://www.usaid.gov/sites/default/files/documents/USAID-Climate-Change-Strategy-2022-2030-Of-ficial-Draft.pdf>

¹⁴ Requirements specified in: Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment). 2021. Department of Defense Draft Climate Adaptation Plan. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer. 1 September 2021.

Theme 3: Enhance Water and Environmental Security Situational Awareness Among Stakeholders

Objective: Deliver data, information, knowledge, and training to help key decision makers understand the connection between water security and national security and to leverage that knowledge to achieve their missions.

Global water security issues lack visibility and unambiguous linkages to human security.^{15, 16, 17} At the same time, scientists and researchers lack the resources to provide actionable information on water issues. The National Intelligence Council's (NIC) 2012¹⁸ and 2020¹⁹ reports stated that no comprehensive organization exists to provide executable, strategic information about water security threats and to identify opportunities to address the interconnected challenges to water and environmental security and stability across all levels of planning.

GWSC will fill that gap, ensuring a more secure world by allowing societies to better manage risks and become more resilient to future water and environmental disruptions. To achieve Theme 3, GWSC will pursue the following activities:

More than 2.1 billion people are affected by water stress—the ability, or lack thereof, to meet human and ecological demand for water.

Goal 3.1: Increase Water and Environmental Security Knowledge. GWSC will actively engage stakeholders and decision makers through tools and visualizations to ensure they have the data and analysis to manage risks, strengthen resilience, and recover from environmental security disruptions.^{20, 21}

Goal 3.2: Improve Strategic Communication. GWSC will deliver communication narratives and strategic communications in jargon-free and compelling language while maintaining scientific meaning and significance. Through collaboration and coordination with stakeholders on messaging and events, we will address gaps in consistent and effective communication.

Goal 3.3: Conduct Research and Deliver Strategic Risk Communication Capabilities. GWSC will create and fund research on effectively communicating environmental security risk, work that will be done by multi-disciplinary teams including operational, communications, natural, and social science experts. This will enable improved communication of and response to water and environmental security issues by both governmental decision makers and the general public.

Goal 3.4: Develop Environmental Security Experts and Leaders. GWSC will train the next generation of mission-ready environmental specialists. GWSC will deliver opportunities for training, internships, jobs, and publications with real-time, real-world data to provide these future leaders with significant experience.

¹⁵ "Water and U.S. National Security." Council on Foreign Relations, Council on Foreign Relations, www.cfr.org/report/water-and-us-national-security.

¹⁶ Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment). 2021. Department of Defense Draft Climate Adaptation Plan. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer. 1 September 2021.

¹⁷ "Interim National Security Strategic Guidance." March 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

¹⁸ "Global Water Security – Intelligence Community Assessment." Office of Department of National Intelligence, 2 Feb 2012, www.dni.gov/files/documents/Special%20Report_ICA%20Global%20Water%20Security.pdf.

¹⁹ "Water Security Threatening Global Economic Growth, Political Stability." Office of the Department of National Intelligence, 10 July 2020, NICM 2020-05949, <https://www.circleofblue.org/wp-content/uploads/2020/11/2020-Nov-NIC-Memo-re-Water-Insecurity-Final.pdf>.

²⁰ Requirements specified in: Department of Defense, Office of the Undersecretary of Defense (Acquisition, Technology, and Logistics). 2016. DoD Directive - 4715.21 Climate Change Adaptation and Resilience. 14 January 2016.

²¹ Requirements specified in: "Interim National Security Strategic Guidance." March 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

Conclusion

As outlined in the 2017 United States Global Water Strategy, the U.S. should lead in understanding and addressing the impacts of water insecurity on all facets of life. The U.S. Strategy implores both public and private institutions to strive for a water-secure world that can sustain sufficient water quantity and quality to meet human, economic, and ecosystem needs. GWSC's strategic plan lays the foundation to meet these goals and for The University of Alabama to be a global leader in national and international water issues. GWSC aspires to improve human security by shaping a water-secure world for a better tomorrow.

Information About The University of Alabama

The University of Alabama, part of The University of Alabama System, is the state's flagship university. UA shapes a better world through its teaching, research and service. With a global reputation for excellence, UA provides an inclusive, forward-thinking environment and nearly 200 degree programs on a beautiful, student-centered campus. A leader in cutting-edge research, UA advances discovery, creative inquiry and knowledge through more than 30 research centers. As the state's largest higher education institution, UA drives economic growth in Alabama and beyond.



The Global Water Security Center is housed in Cyber Hall (circled in crimson in the image above) on The University of Alabama campus in Tuscaloosa, near the banks of the Black Warrior River. Led by Director Mike Gremillion, it is an affiliate of the Alabama Water Institute.