

# Global Water Institute

*Fiscal Year 2020 Annual Report  
May 2020*



**THE OHIO STATE  
UNIVERSITY**  
GLOBAL WATER INSTITUTE





*“One of the issues that we think of as so important in the 21st century is the issue of water. As I have said before, the 20th century was to physics and oil as the 21st century will be to biology and water. Those will be the real places of growth and the real threats to our continuation.”*

***President Michael Drake  
The Ohio State University***



*A woman carries home a bucket of clean water in a community where GWI partner, WorldServe Tanzania, has installed a new solar-powered water system*

# Introduction

Context is always a critical element of any report. This year, the GWI Team is writing its Annual Report from home as the COVID-19 crisis has fundamentally changed how we work and live. Already, the GWI Team can see the adverse impact of COVID-19 on our partner organizations that rely heavily on donations, fundraising events, and volunteers to sustain their organizations and operations. Even a foundation as large as the MacArthur Foundation has been forced to reschedule their 100&Change funding challenge and their associated Bold Solutions Network program.

As challenging as these times are, the COVID-19 crisis highlights the importance of GWI, its mission, and the deployment of Sustainable Village Water systems by the GWI team. The best frontline defense against water-borne and infectious diseases are healthy people. With assured access to clean water, food security, and enhanced sanitation and hygiene, communities in Tanzania and Kenya will be better prepared to meet the challenges faced by COVID-19 and future crises.

On behalf of the GWI Team and our partner organizations, we are pleased to submit our FY 2020 Annual Report.

As background, GWI was created in March 2016 to solve pressing global issues at the regional, national and international level. GWI is a requirements-based, customer-focused, solutions-oriented university Institute. In just 4 years, GWI has grown from a new institute to one that: provides clean water access for thousands of people in rural Tanzania; runs two large USAID-funded projects (WADA and GROWS) in East Africa; has built a network of partners in the US and East Africa drawn from government agencies, the NGO community, private companies, universities, and foundations; and is poised to greatly expand Ohio State's impact

at home and in East Africa as the Land Grant University of the Future.

For the last two years, GWI has focused its efforts on the execution of its Sustainable Village Water Systems (SVWS) concept in Tanzania. Today, over 45,000 people have obtained improved access to clean water in Tanzania thanks to the efforts of the GWI Team, while many more will receive access to these resources in the future. Access to water greatly changes a person's quality of life and a village's level of economic activity, impacting health, education and food security. Hundreds of smallholder farmers have received the training and support they need to increase their harvest yields, diversify their crops, improve household nutrition, and increase market sales. As attested to by Dean David Williams in his visit to Tanzania in May 2019, GWI's activities are having a profound impact on the lives of the most vulnerable communities.

The SVWS model's integrated approach to building long-term improvements in water, food and health in rural communities has also garnered attention from other actors in East Africa keen to collaborate with GWI. Towards that end, GWI is finalizing new agreements to work with the KenGen Foundation (Kenya), the University of Zambia, and WaterAid East Africa (headquartered in Rwanda), and renewing agreements with the University of Dodoma and the Ministry of Water in Tanzania.

GWI continues to work with the Ohio State Office of Advancement to secure either a MacArthur Foundation 100&Change grant or a Bold Solutions Network grant. The Ohio State-led team was just informed the down select to the final ten proposals will be postponed until this summer. In the interim, the GWI team works to make its team and baseline suite of projects even more competitive. In July 2019, GWI moved organizationally from the Office of Research to the College of Engineering. This

move was made to increase the level of faculty and student engagement with GWI across campus, as well as enable existing projects to layer the work of GWI, e.g., installing solar lighting in a village where GWI has installed a solar-powered water system.

In parallel, the move facilitated the recruitment and hiring of a new Executive Director to write the next chapter of the GWI Story. After an extended search that intimately engaged the GWI Faculty Advisory Committee, GWI is pleased to announce that Prof. Tom Darrah, Ohio State, Arts and Sciences College, School of Earth Sciences, will take over the reins of GWI in May 2020.

The GWI team and its partners are eager to continue their mission of solving pressing global problems. We look forward to working with the Ohio State community to make the next four years even more impactful.

As the GWI team moves into a new year, it finds itself developing several initiatives that will build new internal and external collaborations and expand Ohio State's impact on critical global issues. These new initiatives include: a) Water Quality; b) Water Resiliency in Light of Changing Climate in partnership with Byrd Polar Climate Research Center; c) Water Availability and Utilization; d) the Water-Energy Nexus; and e) the Water-Food-Health Nexus, including an infectious disease monitoring, diagnosis and treatment project. It also finds itself working closely with the CEHE, ODI, OIA, ASC, OR, and FCOB to identify new faculty and student engagement opportunities in Tanzania and other locations in East Africa.

Marty Kress

Tom Darrah

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# Global Challenge

## GWI Focus

Globally, nearly one billion people lack access to sustainable and safe drinking water, and nearly three billion people lack access to adequate sanitation. These trends are being exacerbated by population growth and climate change. For example, declining snow mass in the Himalayas impacts water supply across China, India and, in particular, Bangladesh. Similarly, climate change has started to impact Sub-Saharan Africa, Australia, and many other regions of the world. Here at home, water quality continues to be an issue. Water contamination jeopardized the water supply in Toledo and algal blooms still threaten the entire state of Ohio from Lake Erie to the Ohio River. Meanwhile, coastal communities across the globe, large and small, are dealing with sea level rise, groundwater drawdown, and other effects of global climate change. Agencies including the World Health Organization, the

World Bank, the United Nations, and the National Oceanic and Atmospheric Administration have declared that water quantity, quality and access issues will only increase as population rises and the climate changes.

Today, GWI is a valuable Institute at Ohio State University as well as a partner of choice for internal and external partners for projects and activities in East Africa and around the world in water, sanitation, hygiene, health, and other disciplines. The project side of GWI lends itself to the interdisciplinary engagement being sought by new faculty hires, pre-tenure faculty, and tenured faculty at Ohio State and researchers with real-world applications: sustainable village water systems, surface and subsurface water resources research, improving access to agricultural extension,

improved food storage capabilities, drought-resistant crops, low-cost filtration systems, infectious disease, coastal resilience, and sustainable provision of food, energy, water, health and sanitation.

The current portfolio of GWI activities and its focus on a blend of traditional and non-traditional funding provides Ohio State faculty and researchers with unique opportunities to work on pressing global issues. Having a pathway to non-traditional research funding opportunities, such as foundations and international organizations, is also important in a period when federal and state support for basic research is projected to decline and when foundations and firms are supporting more solutions/applications-focused research initiatives.

*“To the extent that we know how to remedy poverty, there is no reason to tolerate the waste of lives and talent that poverty brings with it.”*

***Abhijit Banerjee and Esther Duflo  
Nobel Memorial Prize in Economic Sciences 2019 Recipients***

# GWI – A New Model for Research and Philanthropy

- \* **Systems focus:** GWI develops end-to-end (as opposed to component-oriented) systems solutions that are economically viable, environmentally sound, socially acceptable, and technically maintainable.
- \* **Broad perspective:** The three current focus areas of GWI (Sustainable Village Water Systems, Coastal Resilience and Solutions, and Infectious Disease East Africa Initiative) demonstrate that a wide range of issues can be successfully tackled with the same essential approach.
- \* **Globally relevant:** GWI development priorities align with United Nations (UN) Sustainable Development Goals, UN Global Compact Principles, World Business Council for Sustainable Development Action 2020 Priority Areas, and the goals and objectives of its governmental and NGO partners.
- \* **A “Hub” for water experts:** GWI links Ohio State’s water assets with other research institutes, government, NGO and industry entities. For example, GWI’s network in Tanzania enables Ohio State faculty to collaborate with researchers at the University of Dodoma, support rural water access priorities of the Tanzanian Government, partner with and learn from in-country NGOs with years of field experience in water and agriculture.
- \* **Requirements-driven:** GWI facilitates research at the nexus of water, food, energy, hygiene and sanitation needs and the requirements of funders.
- \* **Catalytic funding:** GWI works to leverage and layer each dollar invested with another dollar, if not two. This requires the integration of key investors around key themes.
- \* **Lasting impact:** GWI supports locally-owned and operated projects (often women- owned) for lasting economic, social, and environmental impact.
- \* **Technical support:** GWI provides virtual communications between user communities and the network of experts they need to contact.
- \* **Education and training:** GWI activities will develop the next generation of water innovators – both undergraduate and graduate students as well as young people in user communities – through in-person and distance education.
- \* **Innovative Business Models:** GWI integrates market-based solutions when feasible, including framing business models, to enable the deployment of sustainable solutions that will lead to long-term improvement in water resource issues. An example is the in-country franchising model being assessed for Tanzania and planned to expand to East Africa.

*“Why aren’t we integrating the assets of our nation’s land grant universities to solve these pressing global issues?”*

**Robert Gates**  
**Former Secretary of Defense**

GWI stimulates requirements-driven research by conveying to researchers the real-world technical, social and economic conditions that underlie the water resource issues faced by its partners. GWI relies upon experts in the field (including government agencies, NGOs, other not-for-profits, university and industry partners) to identify the requirements and constraints surrounding an

issue, and the tools, processes and knowledge they need to be able to meet their goals. GWI then gathers faculty and external experts to meet research needs, whether through research that generates new knowledge or interdisciplinary integration of novel and best practice tools and knowledge into new projects. As an integrating entity with a sustainable systems

approach to complex issues, GWI is also working to achieve recognition by philanthropic entities seeking to make maximum impact in an area of concern (e.g., lack of clean water access in rural Africa and around the world, insufficient resources for infectious disease tracking and diagnoses, recurring refugee crises after sea levels rise and water availability patterns change).



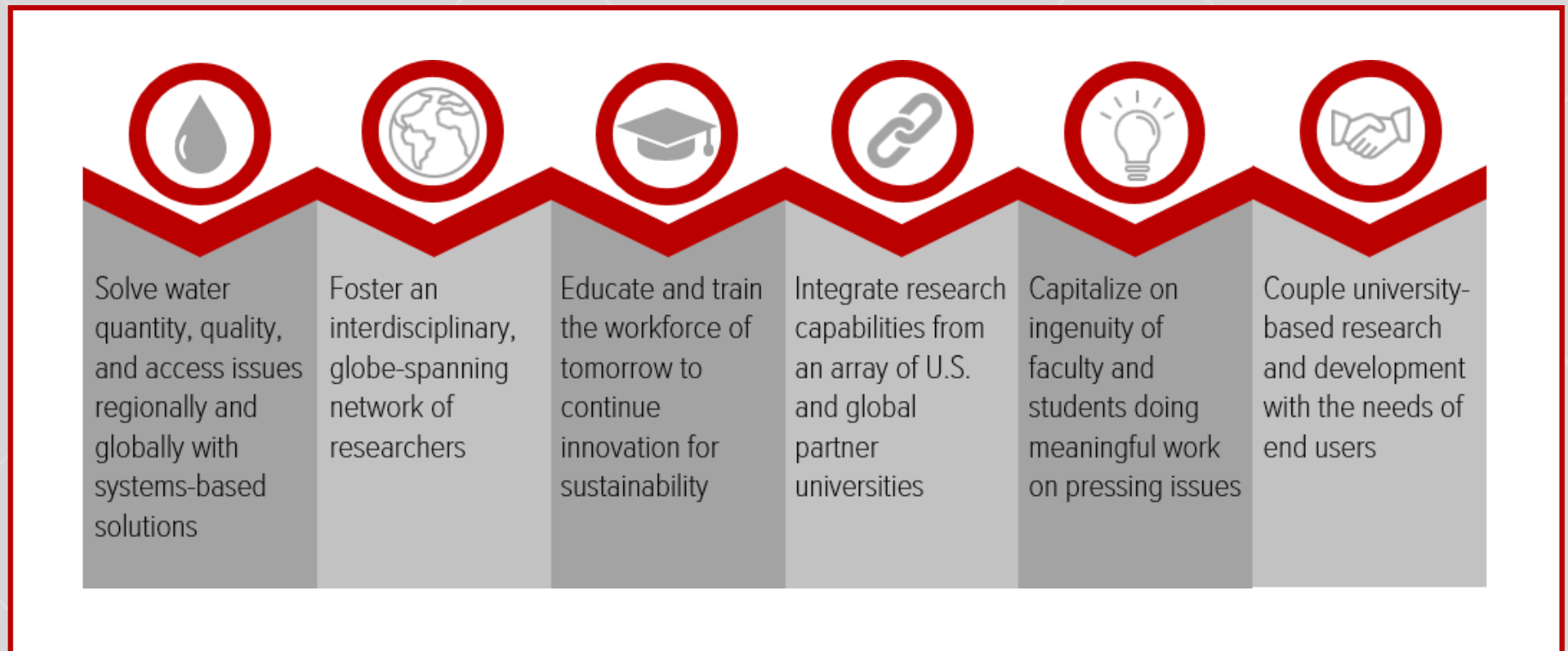
# Our Mission

The mission of the Global Water Institute at Ohio State is to provide sustainable systems solutions for communities facing water resource challenges. Sustainable systems solutions are ones that are economically viable, environmentally sound, socially acceptable, user-driven, and technically maintainable.

# Our Vision

The vision of GWI aligns directly with that of the university: to establish Ohio State as “the world’s preeminent public comprehensive university, solving problems of worldwide significance.” GWI’s emphasis on applied research and requirements-based design supports President Drake’s Vision 2020 emphasis on solving “critical issues of our time,” and GWI’s commitment to integrating disparate assets at Ohio State reinforces his conviction that “our collective efforts can and will transform lives.”

# Objectives



## A Holistic Approach to Water Access

*The development of the SVWS model was inspired by the shocking rates of water system failures in Tanzania and elsewhere across Sub-Saharan Africa – commonly in the range 30-60%. These numbers represent wasted investments and failure to improve people's health beyond the initial installation period.*



GWJ's Sustainable Village Water Systems (SVWS) Model is its key discriminator and what makes GWJ unique. The SVWS model represents the application of the overarching GWJ Model to a pressing global issue – assured access to improved water on a sustainable basis. The SVWS model operates at the nexus of water, food, sanitation and hygiene, and it addresses the need to target all core issues at the same time to achieve real improvements to peoples' health and livelihoods.

In the SVWS model, GWJ installs solar-powered wells in its target villages, with distribution points at least four locations within the community, including the local school and health clinic. As soon as feasible, access to water at the schools and clinics is followed by new sanitation and hygiene facilities – improved toilets and handwashing stations.

In parallel, agricultural extension officers are supported to provide intensive, in-person

training to smallholder farmers. The officers facilitate the formation of farmer groups, through which training in improved agricultural practices can be provided more effectively and farmers can build stronger peer-to-peer support networks. These training efforts improve nutrition and incomes by introducing crops with different nutritional, economic and environmental values, increasing harvest yields, and linking farmers directly to markets.

Deployment of the integrated system is only the first step in creating a sustainable solution. There needs to be equivalent emphasis on other activities:

- \* Training for village residents to operate and maintain the water systems and providing them with an Operator Manual containing both technical and business guidelines
- \* A business model that sets aside funds for near-term technical support and long-term

capital investments to replace the pumping system, solar power arrays and controller every 7-10 years

- \* Community-wide behavior education on best sanitation and hygiene practices
- \* Handheld devices to remotely connect local health officials with district and regional hospitals to enhance diagnosis and medical treatment
- \* tools to remotely connect farmers to agricultural extension support to sustain the impact of in-person training after the initial intensive period has ended
- \* evaluation of long-term outcomes measures to assess the sustainability of the system and its impact on the health and livelihood of the community, e.g., number of operational days per year for the water system, incidence of water-related disease, number of new women-owned businesses, school attendance and graduation



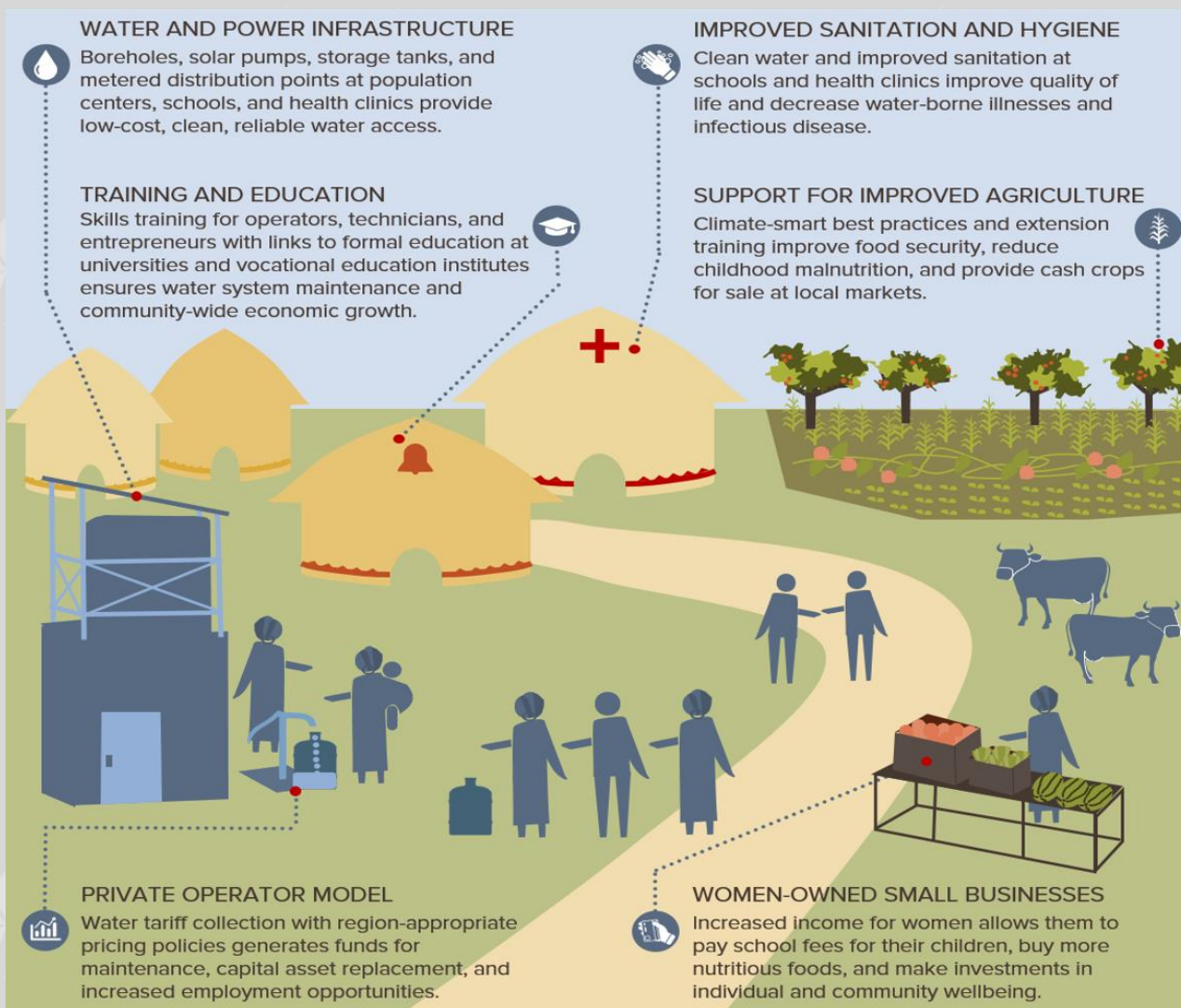
# Success of the Model

Today, as shown by GWI's extensive networks and formal partnership agreements, the SVWS concept has garnered a great deal of support, with interest in expanding projects beyond Tanzania to Kenya and Zambia.

Key to support of the SVWS model was GWI's focus on integrating in-country capabilities, recognizing and respecting local domain experts with proven track records and finding ways to multiply their impact rather than trying to bring new assets to the

table. Ohio State's neutral position as an academic institution also played a critical role in being able to ally government entities, NGOs, companies and universities to form partnerships worth more than the sum of their parts.

Implementation of such a comprehensive model is not easy. Developing partnerships and managing projects at a distance is challenging, as is finding donors willing to fund an integrated system rather than a single component. But the GWI team is up to the challenge. It has already built a solid foundation in Tanzania from which to grow its programs and partnerships and works hard to position itself for funding. GWI is confident it can move the SVWS model forward with success.



# Value Proposition

Since its inception, GWI has worked to align its goals, objectives, and value proposition with that of the Ohio State. As depicted below, GWI measures activities and funding, outcomes and benefits, faculty, student, and college engagement similarly to other Ohio State centers and institutes.

But the real value proposition for GWI is not fully captured if one only uses these traditional measures, which was a key theme in Dean William's report on the GWI Value Proposition. GWI's real value rests with its ability to:

- 1) Integrate Ohio State assets with external assets to provide sustainable systems solutions that address pressing global issues and human needs
- 2) Attract new partners, capabilities, and funding sources to GWI activities, as manifested by its agreements and MOUs with governmental entities, international universities, not for profits, and

foundations and its pending MacArthur Foundation Proposal

- 3) Integrate and layer GWI activities with other Ohio State faculty and student activities as demonstrated by its Faculty R&D Grants and annual "Did You Know" event
- 4) Gain recognition for Ohio State for innovative systems solutions, creating the capacity and tools to enable the deployment of sustainable systems, and promoting Ohio State as the Land Grant University of the Future

The GWI SVWS represents more than just a USAID investment of \$1M in Tanzania. It represents a systems-focused, sustainable development model for Sub-Saharan Africa that operates at the nexus of water, food, sanitation and hygiene. Its value proposition will be measured by its adoption by other international organizations and governments, the sustainability of its

activities, and its impact on United Nations Sustainable Development Goals (SDGs).

Towards that end, the pending GWI MacArthur Foundation 100&Change proposal would implement the SVWS model in 250 villages across rural Tanzania, provide clean drinking water to more than 1.25 million people, and address 9 UN SDGs. Moreover, by implementing the SVWS project at scale, the MacArthur Foundation award would allow collection of data on critical outcome measures and help shift the focus of international water projects from installation of a water point to the sustainable operations of a water system and the long-term and attainment meaningful outcome measures – improved food production, increased school attendance, reduced incidence of water borne disease, and stimulation of new economic activities, with a focus on women entrepreneurs.

*“Land Grant Universities were charged with educating the sons and daughters of everyone back in 1870. The Ohio Agricultural and Mechanical College focused on solutions to feeding the growing population of Ohio. Today, GWI is applying Ohio State’s science, engineering, and business expertise to finding sustainable water resources in East Africa, and beyond, consistent with the mission of the Land Grant University of the 21st Century.”*

**Dean David Williams**  
**College of Engineering, The Ohio State University**



# Investment in the University

GWI activities and investments are targeted to benefit both the Ohio State community and in-country communities and collaborators we work with.

For example, the value proposition of GWI's funding and activities to a faculty member or student activity can be measured by its ability to attract future grants, engage Ohio State students in experiential learning, and build collaborations between the Ohio State community and domestic and international in-country partners.

For our partners in Tanzania, GWI's work with Ohio State faculty and students helps support locally-driven efforts to build resilience in the face of climate change and changing economic conditions. GWI's investment in an MBA Global Applied Project (GAP) Program is mapping the current technical training programs in Tanzania. This effort has two goals: (1) give Ohio State students greater insight into the importance of capacity building and project deployment, and (2) provide GWI with the information needed to start a new training program in Tanzania to support the creation of a solar systems servicing industry to maintain SVWS projects.

A new USAID grant (GWI as lead PI) to assess innovative private operator concepts for water services in Kenya, Uganda, and Tanzania will produce productive research results for pre-tenure and junior faculty and support graduate student development. But it will also help improve the GWI private

operator model, provide recommendations for future USAID Mission activities, and provide research material for students now enrolled in the new franchising/social impact investing course at FCOB. To further ensure that GWI was capitalizing on its full value proposition in FY2020, the GWI Team began a campus-wide effort to assess Ohio State activities focused on either engineering or education. The objective is to find ways to layer GWI activities with educational experiences for students and teaching and research opportunities for faculty.

For example, the faculty lead for students in the COE Solar Education and Outreach Organization was introduced to faculty in FCOB, CEGH and MC who currently support an orphanage in Tanzania. The orphanage presented an overview of its existing needs, and the COE students were able to work on solutions that brought their knowledge and skills to solve a real-world problem. The result is that the orphanage now has solar-powered lighting in its dormitories and a solar-powered hot water system for its kitchen. To expand upon these activities,

students could be introduced to a community where GWI is currently working. The students could work on solutions to the problems of lighting in the local health clinic and school, as well as power for digital learning and record keeping.



*Students in the Fisher College of Business Global Applied Projects Program visit Ghalunyangu village, one of GWI's pilot project communities.*

# The Power of Opportunity

- 1 USAID Funded Projects**
  - \$4M to secure external recognition for GWI
  - Helps take Sustainable Village Water Systems and private operator concept to markets
- 2 Pending MacArthur Foundation Grants**
  - From \$5M - \$100M with team of 13 entities
  - External brand recognition for OSU and GWI across global network of foundations and donors
- 3 Faculty R&D Grants**
  - \$110K to six OSU faculty for interdisciplinary research
  - Agricultural training, water catchment, business development, and more
- 4 Faculty Engagement**
  - 50-75 OSU faculty and staff members, including Faculty Advisory Committee
  - Faculty involved in research, graduate student funding, undergraduate courses, etc.
- 5 Student Engagement**
  - Help fund Senior Capstone courses, Global Applied Project programs, FCOB courses
  - Partner with student organizations for trips, student sustainability initiatives, annual outreach events, etc.
- 6 Outreach Initiatives**
  - Columbus Council on Global Affairs partnership with Columbus City Schools high school students
  - At OSU – Alumni Association collaborations, GWI annual Did You Know event, Sustainability Council partnership, etc.
- 7 External Advisory Board**
  - Extends GWI reach into foundations, NGOs, and in-country organizations
- 8 Foundation Reach**
  - Interactions with Dewji Foundation, Arabella Advisors, KenGen Foundation, WaterAid Foundation
  - Projected funding amounts of \$5M - \$10M
- 9 Academic Collaborations**
  - University of Dodoma, Sokoine University of Agriculture, University of Zambia, Texas A&M University, University of Florida, and Global Center for Coastal Resilience

There are many other opportunities for Ohio State faculty and students to collaborate with GWI and its international in-country partners to further enhance activities and outcomes.

GWI had planned a trip to Tanzania in June 2020 that would involve the Deans of CEHE, ASC, and FCOB, the Vice Provosts for ODI and OIA, and the Senior Associate VP for Research. The purpose of this trip was to assess new initiatives that would enhance the Ohio State faculty and student learning experience while providing value to organizations in Tanzania. Such initiatives could include annual medical checks and eye exams for Tanzanian schools, training programs to help rural teachers prepare their students for the high school entrance exam, or the introduction of online courses for students at all levels.

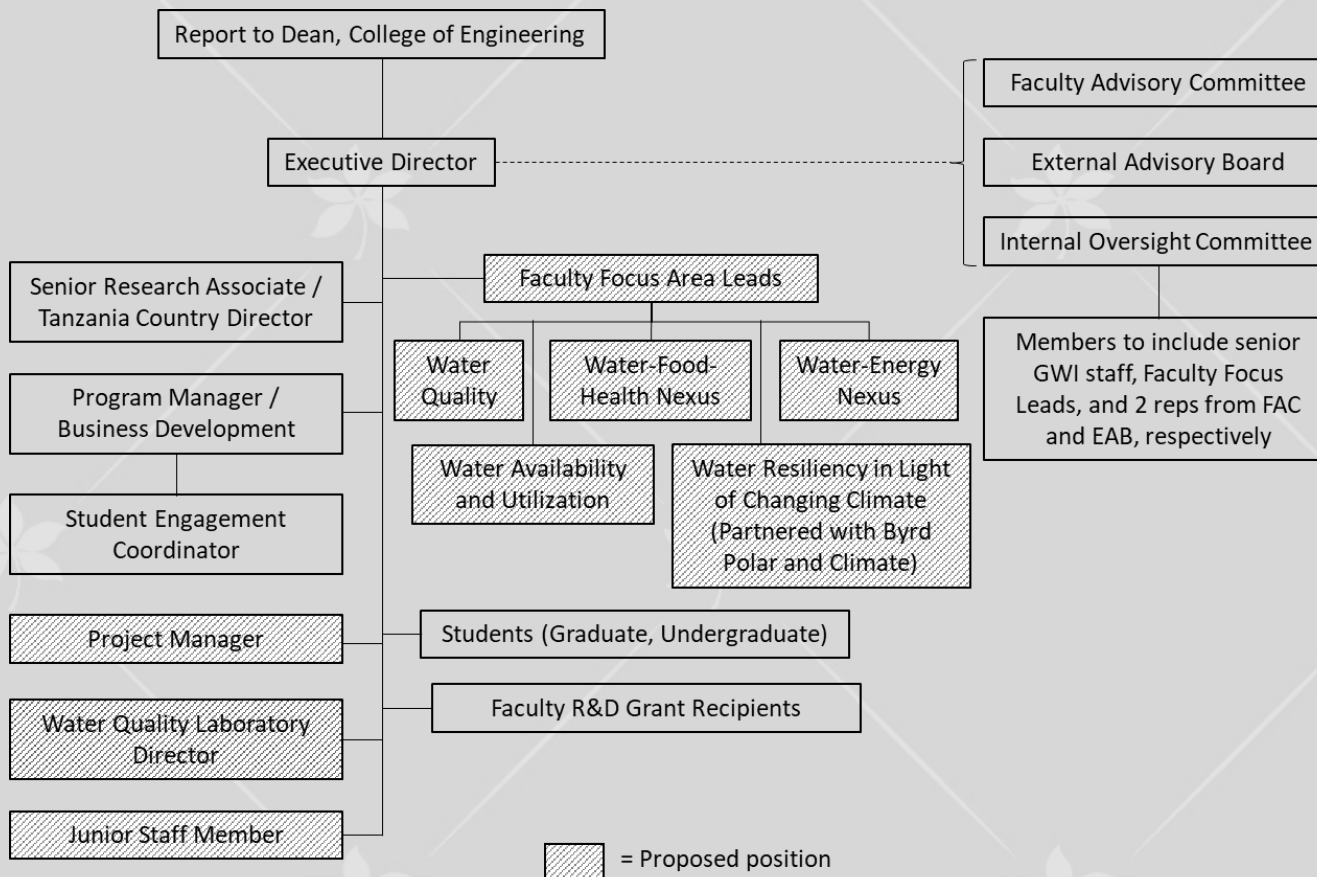
The capacity of Ohio State – its faculty, staff and students, capital assets, global reach, and expansive institutional mission – provides unlimited opportunity for GWI to provide sustainable solutions to peoples and countries in need.



*Participants in the Neonatal Survival Program in Tanzania led by Ohio State's Office of Global Health.*



# Organizational Structure



At present, GWI has six assigned billets, but only four are presently staffed. GWI has prepared and will soon release a Position Description for a Project Manager to replace its Systems Engineering position that was vacated in March 2020. GWI will defer its pursuit of an additional staff position in 2020 for a junior staff member with significant field experience, preferably field experience in east Africa, until 2021 in recognition of the budget pressures at the university and college levels.

The key organizational change for GWI in 2020 is the retirement of its founding Executive Director Martin Kress and his replacement by Tom Darrah. With the transition to COE, GWI's business and communications needs are addressed by the COE core staff. This negates the need for GWI to fill its Communications and Networking staff slot that was vacated in 2019. This action also represents a budget savings for investors in GWI.

In FY2019, GWI funded a student intern from

CFAES (Michelle Cane). Michelle Cane was hired this past Fall and is now the Student Engagement Lead for GWI. In a short period of time this has led to a new series of student focused activities.

GWI has a cost share agreement with FCOB for a graduate assistant from the MBA program and for an annual project with the Global Applied Projects Program for MBA students.

Initially, GWI had the flexibility to bid its operational cost as cost share. More recently, GWI has transitioned to a blended model when feasible. At present, two members of the core team bid direct and indirect labor costs.

All members of the GWI team are engaged with business development and proposal formulation, as well as educational and research activities at Ohio State.

In addition to their core functions, GWI staff also oversee senior capstone projects, Global Applied Projects Program research, Engineers Without Borders, GWI Faculty R&D Grants, and other faculty and student engagement activities.

GWI is reviewing its original organizational concept in which Ohio State faculty were assigned as thematic leads for each core GWI activity. With the maturity of GWI's in-country activities and partnerships, GWI is in a strong position to support Ohio State faculty in building a larger research program that leverages GWI's network and

capitalizes on the wealth of interdisciplinary research at Ohio State. Hence, GWI will actively pursue involvement of faculty in core focus areas. It will also refocus its Faculty R&D Grant Program towards this end.

If GWI were to be awarded a major grant from the MacArthur Foundation, the Bold

Solutions Network, or other foundations in 2020 or 2021, GWI would rely on core staff to support key activities. But as proposed in the MacArthur Grant, GWI would hire 4 new staff members, including one that would be based in Tanzania who could also support and vet additional Ohio State activities and

collaborations.

The GWI team believes its value can be enhanced by co-locating GWI with other like-minded institutes and centers on campus. Towards that end, GWI will be moving to Scott Hall on West Campus in Autumn 2020.

## Faculty Advisory Committee

GWI's success owes a great deal to the sage counsel of its Faculty Advisory Committee (FAC) and External Advisory Board (EAB).

The FAC was intentionally built to include tenured and non-tenured faculty, unit leaders, key Ohio State Center and Institute leads across campus. Its members play an active role in framing and executing GWI activities, research, initiatives and proposals, and serve as a link to other centers and institutes at Ohio State. In addition to its own proposals, GWI collaborates with FAC members on their activities.

Members of the 2019 GWI Faculty Advisory

Committee were drawn from 7 colleges, one institute, and two offices across the Ohio State campus. GWI is pleased to note that several members of the FAC serve as PIs for research activities funded by GWI via its government contracts and GWI R&D grants.

During the course of this past year, Scott Shearer (CFAES) traveled to Tanzania to assess GWI projects. That visit has now led to a new research grant to develop agricultural training materials for Maasai communities and to a pending grant from WaterAid East Africa on climate change impacts on agriculture, water and sanitation.

Keely Croxton (FCOB) and Michael Camp (COE) were the primary interfaces with the University of Dodoma, Tanzania, for the first ever Business Plan Competition at UDOM in the Spring of 2019. They also provided the interface to UDOM for the 2020 competition as well as mentoring Sokoine University of Agriculture for the 2021 competition.

Audrey Sawyer, who leads GWI's hydrogeology research activities, hosted a UDOM scholar for GWI and is currently framing a hydrogeology workshop to be taught at UDOM planned for Autumn 2020.

### 2019-2020 Faculty Advisory Committee

#### Arts and Sciences

Berry Lyons  
Mark Moritz  
Audrey Sawyer

#### Engineering

Steve Ringel  
Linda Weavers

#### Food, Agricultural, and Environmental Sciences

Sathya Gopalakrishnan  
Scott Shearer

#### Business

Michael Camp  
Keely Croxton

#### Office of Global Health (COM)

Diane Gorgas

#### Public Health

Michael Bisesi  
Jiyoung Lee (joint apt, FAES)

#### Global One Health Initiative (OIA)

Wondwossen Gebreyes

#### Sustainability Institute

Kate Bartter  
Elena Irwin

#### Ohio Sea Grant

Christopher Winslow

*"Having observed "first water" from a new well in rural Tanzania, I recognize how the GWI model provides Ohio State faculty and students with personally rewarding educational and life experiences. From teaching Maasai warriors how to transition from animal grazing to crop production, training local farmers on adoption of unique agroforestry systems, and fostering the development of solar powered lighting systems for schools and orphanages; GWI is ours to capitalize on!"*

**Scott Shearer**  
**Chair, Food, Agricultural and Biological Engineering**  
**GWI Faculty Advisory Committee Member**

# External Advisory Board

The EAB represents a team of highly accomplished and internationally networked individuals. Every EAB member is engaged in networking on behalf of GWI. The membership of this committee is an outgrowth of early interactions between GWI, Greif, Inc. (Delaware, OH) and the World Business Council for Sustainable

Development.

Members of the 2019-2020 GWI External Advisory Board include representatives from the business community, the international community, governmental agencies, universities, and the not-for-profit community, in both the US and in East Africa.

EAB members have greatly extended GWI's reach and standing in the business, NGO, foundation and not-for-profit communities. The EAB Chair, in particular, has not only opened doors at foundations for GWI, he has accompanied the GWI Executive Director to such meetings in NYC, Philadelphia, and the Netherlands.

Other board members provide access to key networks and policy makers in both the US and East Africa. Our DFID member co-chairs the Development Partners Group for Water in Tanzania, and our BM Farm Africa member provides us with key access to the agricultural extension world.

One EAB member is teaching a course on franchising at FCOB, and we have another member integrating Ohio State into new renewable energy initiatives in East Africa. This is a most active board and GWI's progress over the last several years is a direct result of their support and continuous engagement.

## 2019-2020 External Advisory Board

### Chair

**Mr. Ian Reece** – Former Managing Director, Rabobank

### Vice-Chair

**Dr. Maria Eileen Pagura** – Senior Program Officer, World Bank

### Members at Large

**Dr. Araya Asfaw** – Executive Director, Horn of Africa Regional Environment Centre and Network, Addis Ababa University

**Ms. Monica D. Ellis** – CEO, Global Environment & Technology Foundation

**Prof. Happiness Nnko** – Director of Research, Publications, Innovations, Consultancy and Collaboration, University of Dodoma

**Mr. John Garland** – Attorney at Law, Former President of Central State University

**Mr. Bahati Hakimu** – Director, BM Farm Africa

**Mr. Kris Kaffenbarger** – VP for System Optimization, The Wendy's Company

**Eng. Emmanuel N.M. Kalobelo** – Deputy

Permanent Secretary, Ministry of Water, Tanzania

**Mr. Lukas Kwezi** – Adviser, Department for International Development, Tanzania

**Mr. Chris Long** – Founder and Executive Director, The Chris Long Foundation / Waterboys

**Mr. Alais Ole-Morindat** – Former Chairman, Tanzania Natural Resource Forum

**Mr. Michael H. Seid** – Founder and Managing Director, Michael H. Seid & Associates, LLC

**Dr. Winston Oluwole Soboyejo** – Provost, Worcester Polytechnic Institute

**Mr. David Wilhelm** – Partner and Chief Strategy Officer, Hecate Energy

*“I am extremely proud of what the GWI Team is doing to provide sustainable systems solutions for communities facing water resource challenges. They are integrating key players across Africa to improve the quality of life and economic conditions of many people across East Africa via our Sustainable Village Water Systems Model.”*

**Ian Reece**  
**Retired Managing Director, Rabobank**  
**Chair, GWI External Advisory Board**



# Project and Business Development

From the beginning, the GWI Team has worked to gain an identity for Ohio State in the international water domain as a “thought leader”, “systems solutions provider”, and a “neutral technology integrator”. Building on the expertise of Ohio State faculty and researchers working in the water domain, GWI tried to bring Ohio State to the next level of external standing – as the partner and solutions provider of choice for government and non-governmental organizations.

In pursuit of that goal, GWI has taken a multi-tiered approach to business development and proposal formulation. In addition, GWI has established five foci to drive project and business development:

- 1) Focus on Systems Concept
- 2) Build External Recognition
- 3) Identify Non-Traditional Funding Sources
- 4) Build Strategic Alliances
- 5) Be a Catalyst for Research Funding

## Currently Pending / Interest

MacArthur Foundation 100&Change Competition	Green Climate Fund	Lever for Change’s Bold Solutions Network	Breakthrough Energy Ventures
Foundations: Dewji (Tanzania), Arabella, Water.org, KenGen (Kenya), Tawani, WaterAid East Africa, Foundation for Civil Society			

## 2019 Targets of Opportunity

LASER-PULSE (led by Purdue University, research for Mission priorities)	University Partnership Initiative Africa (only South Africa, Ghana, Rwanda, Ethiopia)	USAID new targets of opportunity (3 concept papers for US Mission in Tanzania)
Additional proposals: US Mission Kenya, KenGen Foundation (Kenya), Dewji Foundation (Tanzania) Rabobank Foundation, Tawani Foundation, WaterBoys/Chris Long Foundation		

## 2018 Awards: USAID-Funded Projects to Build Strategic Alliance with GETF

Water and Development Alliance (WADA) – 26 sustainable water systems in Tanzania with WorldServe International, WaterBoys, and Global Partners for Development	Governance Research on Water Systems (GROWS) – assessment of private sector engagement in rural water sector in Tanzania, Kenya, and Uganda
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## 2016 Investments: Frame the SVWS Concept and Build Partnerships

GWI investments – Pricewaterhouse-Coopers evaluation of GWI concept, site assessments of villages for SVWS pilot projects and WADA, Geneva Global assessment of strategic funding targets	SVWS pilot projects: GWI funded initial site assessments and agricultural extension activities (carried out by Trees for the Future and BM Farm Africa), contributing funding from WorldServe International (water systems), Global Partners for Development (M&E), and WaterBoys
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# Drivers of Project and Business Development

1

## Focus on Systems Concept

GWI has pursued funding for initiatives that differentiate GWI and Ohio State from others working in the water space. Based on Price Waterhouse Cooper's assessment of GWI, a key discriminator for GWI is a focus on systems-oriented solutions rather than individual components.

GWI's first initiative was to frame the Sustainable Village Water Systems Concept. This concept focuses on the nexus of water, food, sanitation and hygiene, long-term outcome measures, and sustainable business models including private operators.

Most recently, GWI has framed a systems concept for infectious disease in East Africa that focuses on the monitoring, detection, diagnoses and treatment of infectious diseases. GWI plans to initiate Ideation Sessions between its Tanzanian partners and Ohio State collaborators once the COVID-19 outbreak is behind us.

In parallel, GWI is working with faculty in Byrd Polar and ASC to frame a Water Resiliency in Light of Changing Climate concept in light of challenges facing society related to climate change. This too will take a systems approach, and it will deal with resilience and mitigation solutions for a set of issues such as loss of snow/ice pack water supplies, sea-level rise and saltwater incursion, coastal water availability and quality, and marine resources and conversation.

The introduction of a new Executive Director (Darrah) will enable GWI to grow its Water Resiliency in Light of Changing Climate Focus Area as well as develop new technology assessments and its infectious disease concept.

2

## Build External Recognition

GWI has focused on projects and activities that will give GWI and Ohio State greater standing in the broader national and international water community. This was the rationale behind our pursuit of the USAID-funded Water and Development Alliance (WADA) grant. This \$2 million award not only has a significant impact on rural Tanzanian communities, through the installation of water systems in 15 communities, but raises our profile with USAID, other US agencies and other bilateral donors.

3

## Identify Non-Traditional Funding Sources

GWI has worked to identify non-traditional funding opportunities linked to providing systems solutions in line with GWI's objectives and mission. This will be increasingly important to GWI's and Ohio State's activities as traditional US-federal-based funding sources continue their downward trend.

GWI's current interactions with the MacArthur Foundation, the Dewji Foundation, Breakthrough Energy Ventures, the Rabobank Foundation, and the Ikea Foundation all represent the guidance provided in its Geneva Global Report on how to secure funding and, perhaps more importantly, gain invites to present at key donor meetings and conferences.



## 4

### Build Strategic Alliances

GWI has continued to grow its network of strategic partnerships both in the US and abroad. GWI continues to have formal agreements with key organizations like Hecate Energy, WorldServe International, WaterBoys, the University of Dodoma, the Tanzanian Ministry of Water, WaterAid Tanzania, as well as informal working collaborations with the World Bank, Oikos, UK's DFID and other key organizations in Tanzania and East Africa.

Based on increased interest in the GWI Sustainable Village Water Systems concept, three new organizations are framing agreements with GWI: the KenGen Foundation in Kenya, the University of Zambia, and WaterAid East Africa. Two other existing agreements are being renewed, with the University of Dodoma and the Tanzanian Ministry of Water.

GWI has also framed a Teaming Agreement for the MacArthur Foundation 100&Change proposal that combines existing partners with new ones: Hoops-2-O, Talus Analytics, BM Farm Africa, WEDECO, Trees for the Future, and Sokoine University of Agriculture.

These partnerships are essential to GWI's development of projects and activities that will provide lasting benefit for communities, address critical needs, support development of new faculty research programs, and open the doors to new funding opportunities.

GWI's strategic alliance strategy represents a great model for future initiatives such as the infectious disease initiative that has gained support in Tanzania from the Ministry of Health, Director of Preventive Medicine, National Lab Director, the Abbott Foundation and WaterAid Tanzania.

## 5

### Be a Catalyst for Research Funding

GWI works to support Ohio State researchers, particularly pre-tenure and junior faculty, to secure grants and research opportunities they may not be able to secure on their own. This includes introducing faculty to GWI partners and potential collaborators in country, building on GWI's field activities to stimulate new ideas and provide access to data, and supporting access to new funding sources.



*Farmers practice sustainable growing techniques on a demonstration plot led by GWI partner BM Farm Africa.*



# Partner Organizations

## Internal Collaborations

*“FCOB is proud to support GWI. In collaboration with GWI, FCOB executed another Global Applied Project Program for MBA students and conducted the first ever business plan competition at the University of Dodoma in Tanzania last year.”*

**Dean Anil Makhija**  
**Fisher College of Business**

The foundation for GWI's internal collaboration was established by its MOU with the Office of Academic Affairs, the Office of Research, COE, CAS, CFAES, FCOB, and the CPH. Establishment of GWI's Faculty Advisory Committee extended GWI's

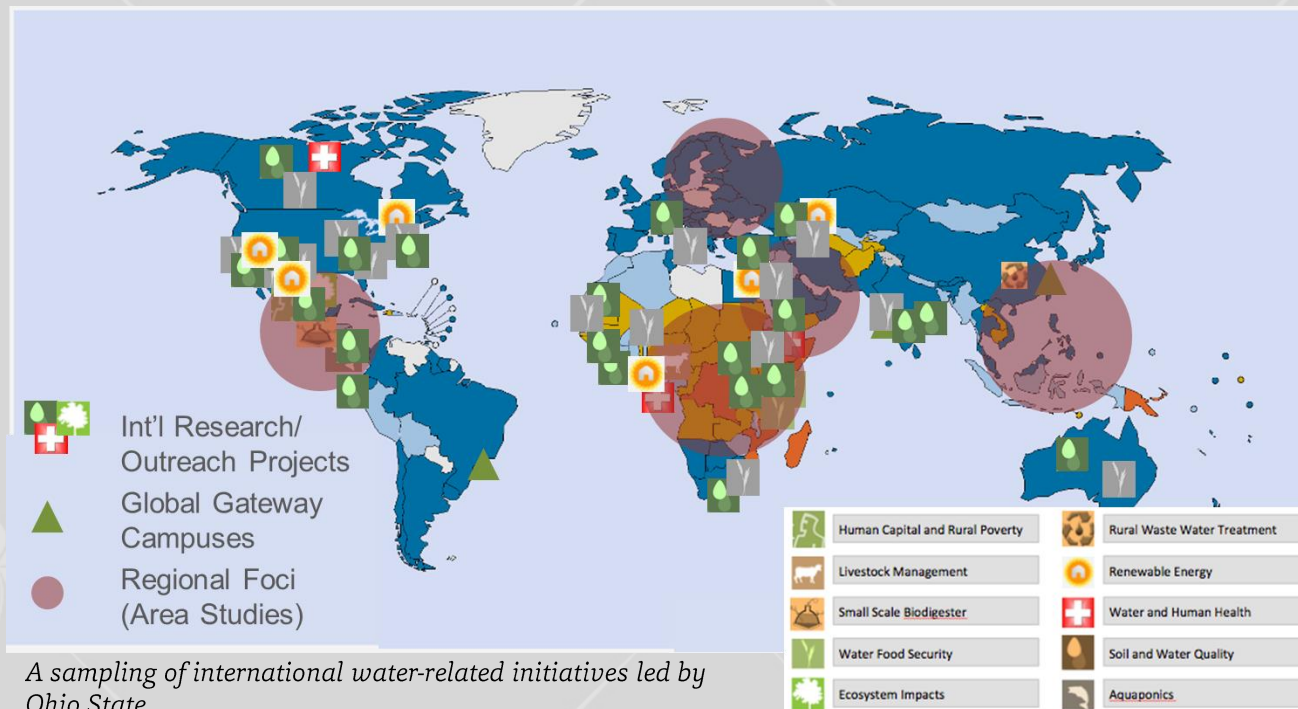
involvement with other institutes (e.g., Infectious Disease Institute, Sustainability Institute), centers (Byrd Polar and Climate Center), and discovery themes on campus.

From its inception, a key objective for GWI has been to leverage and integrate the

existing talents, experiences and capabilities at Ohio State to help achieve GWI's mission of addressing critical water resource issues. GWI has actively sought out faculty and students doing work on pressing global issues to build a coalition of researchers who can provide expert advice and conduct research to inform and support GWI projects. This strategy not only capitalizes on the wealth of assets already available within Ohio State, but also provides opportunities for faculty members to broaden their research networks and tackle requirements-driven challenges with immediate impact.

As depicted in the map, Ohio State has a global presence with projects and activities on all seven continents. GWI is eager to partner with ongoing initiatives and to bring their findings and solutions to its projects or the countries where it is working.

During 2019, the SVWS initiative in Tanzania was the focus of GWI activities. Successful implementation of this multidisciplinary project and associated applied research



activities requires engagement with multiple colleges (i.e., COE, ASC, CFAES, CEHE, FCOB, COM) and departments.

Building on the SVWS model's development of private operators for rural water services, GWI secured a USAID grant for the GROWS research project. This project investigates governance issues in rural water provision and the impact of the private sector in rural water services in Kenya, Tanzania and Uganda. Research is being conducted by faculty and graduate students in CFAES and ASC in conjunction with GWI core staff.

Hydrogeological research is an important

part of GWI's activities in Tanzania, both to fill knowledge gaps that impact the sustainability of GWI's water systems

installations and to build capacity to understand water resource availability and management in a region that is data limited. This research has been conducted by faculty, postdoctoral scholars and students in ASC, in collaboration with GWI core staff.

As an institute focused on critical water problems – e.g., access issues facing vulnerable populations, potential impacts due to climate change and variability, anthropogenic impacts on water quality –

GWI's engagement with researchers working in these fields will continue to grow moving forward.

Having initially been approached by the Minister of Water in Tanzania and asked, "Can you help me feed my people?", food security became a critical element of the SVWS model and GWI has established a good working relationship with faculty in CFAES. Recognizing the need for continuous support to farmers after the initial period of intensive training ends, GWI has supported a project to develop remote training and expertise through mobile phones. This is a collaborative project between faculty in CFAES, GWI and the University of Dodoma in Tanzania. It is now heading into its final phase and expectations are high for this new application.

GWI is eager to collaborate with any Ohio State faculty (see next page) and is constantly searching for opportunities to increase the breadth and depth of its researcher network.



ASC's Assoc. Prof. Amanda Robinson (second from left) and CFAES's Assis. Prof. Mary Rodriguez (third from left), together with two Ugandan facilitators, visit the local government of Masindi district in Uganda to conduct field work as part of the USAID-funded GROWS research project.

*"The Office of Diversity and Inclusion welcomes the opportunity to join the Global Water Institute and to contribute its (our) strategies, expertise, and resources related to educational access both here in the US and abroad."*

**Vice Provost James L. Moore**  
**Office of Diversity and Inclusion**



## GWI Faculty and Staff Recruitment Strategies

To explore further opportunities to collaborate with Ohio State entities, GWI is working to develop two new initiatives.

One initiative focuses on infectious disease. Its objective is to greatly expand Tanzania's capacity to monitor, detect, diagnose and treat infectious diseases that emanate from the Congo corridor, such as cholera, Ebola and dengue fever. Such an effort would draw on the expertise, relationships and assets from multiple colleges. The second initiative is a new Water Resiliency in Light of Changing Climate focus area for GWI. This initiative would develop and integrate activities in the Byrd Polar and Climate Research Center and ASC.



## External Partners

*“The work we’ve achieved together over the last few years is helping assure the food security for over 1,000 people in Tanzania when they need it most. Together we’ve defined a model that can impact millions.”*

**John Leary**  
**CEO, Trees for the Future**

GWI has built a diverse network of partners and collaborators, both in the US and in East Africa (see next page).

These relationships help GWI to maximize its understanding of key in-country needs and knowledge. Additionally, these activities better position GWI to develop programs and activities that address critical needs in-country, support implementation of GWI activities (primarily the SVWS initiative),

develop applied research projects, and the necessary introductions to potential funders of activities in East Africa.

Many of these relationships are formalized in agreements with Ohio State. GWI's partners include government agencies, NGOs, companies and universities, and span sectors including water, agriculture, sanitation and hygiene, and energy. In addition to more formal agreements with

external partners, GWI also developed working relationships with a variety of organizations that provide valuable insight into the policy, regulatory and business dimensions of its activities. This network is particularly strong in Tanzania and includes relationships with the World Bank, UK's Department for International Development, the Tanzania Private Sector Foundation, Coca Cola, the Abbott Foundation of Tanzania, the Italian NGO Oikos, and the Dewji Foundation (housed in Tanzania).

As one example, GWI works closely with the World Bank, Oikos, and the newly formed Tanzanian Rural Water Supply and Sanitation Agency (RUWASA) to coordinate water access activities in rural Tanzania. These efforts include organizing training workshops



for local engineers and officials on solar-powered water pumping systems, which were run by the manufacturer Lorentz, and development of new contract and training materials for private operation of rural water services. GWI recognized early on that faculty interactions and exchanges would be

an essential aspect of the Institute.

Towards that end, GWI has been working directly with the US State Department to pursue Fulbright Fellowship opportunities for Ohio State and GWI's collaborators in Tanzania. To date, GWI has facilitated two

exchanges: an SENR faculty member to conduct research and teaching at the University of Dodoma for 9 months, and a Dean from UDOM to conduct research at Ohio State with our leading experts in HIV and AIDS.

The latter activity has already enabled a new research project in Tanzania focused on HIV/AIDS in Dodoma and the former activity

led to the creation of the Sustainable and Resilient Tanzania Initiative, now operated by COE. This program integrates Ohio State and University of Dodoma students in the field to work on community water issues.

Most recently, GWI initiated activities with staff in the Office of Distance Education and eLearning. There is interest at the US State Department, Ohio State and the University of Dodoma to continue pursuing Fulbright Fellowships that allow for two-way exchanges between our universities.

GWI also facilitated a visiting scholar from the University of Dodoma, who was hosted by ASC's School of Earth Sciences. The scholar collaborated with ASC faculty to continue work on hydrogeological research begun by GWI two years prior. This exchange and the resulting work have greatly facilitated the planning and preparations for the GWI sponsored workshop and one-week special course on hydrology.

## External Partners

Non-Profit Organizations	NGOs and For-Profit Organizations	Academic Institutions	Governmental Entities
Abbott Foundation	Abbott	Duke University	Chinese Academy of Sciences
BM Farm Africa	Coca Cola	Massachusetts Institute of Technology	Chinese Geological Survey
Breakthrough Energy Ventures	Department for International Development	North Carolina State University	Geoscience Australia
Dewji Foundation	Lorentz	Sokoine University of Agriculture	Kentucky Geological Survey
Global Environment and Technology Foundation	Matador Resources	Stanford University	Pennsylvania Department of Environmental Protection
KenGen Foundation	Maverick Energy	University of Calgary	Tanzanian Ministry of Health
Oikos	Talus Analytics	University of Dodoma	Tanzanian Ministry of Water
Tanzania Private Sector Foundation	ThermoFisher Scientific	University of Florence	US Mission (Kenya)
Trees for the Future	World Bank	University of Florida	US Mission (Tanzania)
WaterAid		University of Guelph	
WaterBoys		University of Naples	
WEDECO		University of New Mexico	
WorldServe		University of Rochester	
		University of Texas	
		University of Waterloo	
		University of Zambia	
		Yale University	

## GWJ External Agreements

### In Place

- **Catalytic Funding for a Common Cause** – Agreement to Cooperate
  - Partnered with Chris Long Foundation on joint fundraising for water projects in Tanzania
- **MacArthur Foundation Proposal** – Teaming Agreement
  - 13 partners, including gov't of Tanzania to deploy 250 SVWS in Tanzania
- **Singida Villages Pilot Project** – Memorandum of Understanding
  - Partnered with WorldServe, WaterBoys, Global Partners for Development, and WaterAid on two SVWS pilot projects in the Singida region of Tanzania

### Being Executed

- **WaterAid East Africa** – Memorandum of Understanding
  - OSU, University-wide collaboration on SVWS and WASH projects / research
- **KenGen Foundation** – Memorandum of Understanding
  - Partnered with KenGen Foundation and WorldServe on two SVWS Pilot Projects in Kenya
- **University of Zambia** – Memorandum of Understanding
  - Partnered with College of Engineering and Arts and Sciences College on SVWS and renewable energy research

### Being Renewed

- **University of Dodoma** – Memorandum of Understanding
  - OSU, University-wide collaborative research on food, energy, water, sanitation and hygiene, and capacity-building
- **Tanzanian Ministry of Water** – Memorandum of Understanding
  - Partnered with College of Engineering and Arts and Sciences College to collaborate on SVWS projects and set government requirements in Tanzania

## Faculty Grants and Research

As noted in the Organizational Structure section, GWI relies heavily upon its Faculty Advisory Committee members for insights into Ohio State capabilities and inputs on GWI proposals and activity development.

To further engage Ohio State faculty in GWI activities, GWI has a Faculty R&D Grant Program that awarded six grants in FY2020 (see below). These grants are focused on topics directly related to GWI's mission, projects and proposal activities. Ohio State faculty also conduct research for the two USAID-funded projects developed and led by GWI – Michael Durand and Audrey Sawyer (both ASC) for WADA, and Amanda

Robinson (ASC) and Mary Rodriguez (CFAES) for GROWS.

In FY 2020, FAC member Scott Shearer (CFAES) and Don Hempson (Global Gateways) both visited several of the GWI project sites in the Singida Region of Tanzania. They also met with GWI's key advisors in country. This trip reinforced GWI's goal of further expanding its agriculture-focused initiatives in collaboration with Maasai communities, WaterAid, University of Dodoma and Sokoine University of Agriculture.

GWI's activities in East Africa position it to develop new research and educational

possibilities for Ohio State faculty.

For example, remotely monitored sensors installed on each of GWI's water systems will provide data on groundwater levels, water drawdown, and aquifer pumping flow rates for each borehole supplying water to rural communities. These data will be made available to interested faculty for research and teaching purposes. Audrey Sawyer (ASC) is currently positioned to access the data. She plans to use it to better understand the hydrogeology of central Tanzania and to conduct a training workshop in Tanzania on groundwater monitoring and borehole pumping.

### 2019 Faculty R&D Grant Awards

Faculty PI – Project (Academic Unit)	Grant Amount (\$)
Audrey Sawyer – Tanzania Hydrogeology Research (ASC)	\$ 25,000.00
Chris Igodan – Maasai Agricultural Training (CFAES)	\$ 25,000.00
Diane Gorgas – Global Health Neonatal Training in Tanzania (COM)	\$ 25,000.00
Keely Croxton – UDOM Business Plan Competition (FCOB)	\$ 5,000.00
Michael Camp – UDOM Business Plan Competition (COE)	\$ 5,000.00
Michael Hagenberger – Rainwater Catchment (COE)	\$ 25,000.00
Wondwossen Gebreyes – Global One Health Initiative (OIA)	\$ 25,000.00
<b>TOTAL FACULTY RESEARCH GRANTS</b>	<b>\$ 135,000.00</b>



# Wells to Wellness Faculty

GWI has worked hard to build a network of Ohio State faculty who can engage with GWI's Wells to Wellness focus area, especially GWI's activities in Tanzania and the Sustainable Village Water Systems program.

## Wells to Wellness Faculty Members

Name	Dept./School/Division/Center	College	Role
Amanda Robinson	Political Science	ASC	Co-PI, collaboration
Audrey Sawyer	Earth Sciences	ASC	PI - hydrogeology project
Bharat Bhushan	Dept. of Materials Science and Engineering	COE	Collaborator - Bioinspired water harvesting
Chris Igodan	Wooster Campus Ag Extension	FAES	PI - R&D Grant
Diane Gorgas	Emergency Medicine	COM	Lead for new neonatal center in Dodoma
Elena Irwin	Dept. of Agricultural, Environmental and Development Economics	CFAES	Consultation, exploring collaboration
Frank Schwartz	School of Earth Sciences	ASC	Collaboration
Greg Allenby	Dept. of Finance	FCOB	Collaborator - Orphanage in Arusha
Keely Croxton	Dept. of Marketing and Logistics	FCOB	Consultation, exploring collaboration
Mark Weir	College of Public Health	CPH	Joint Proposal Development
Mary Rodriguez	Dept. of Agricultural Communication, Education, and Leadership	CFAES	Co-research lead on new USAID- funded grant
Michael Camp	Center for Design and Manufacturing	COE	PI - Faculty R&D Grant
Michael Hagenberger	Dept. of Civil, Environmental and Geodetic Engineering	COE	Capstone advisor, trip leader to Tanzania
Mike Bisesi	Division of Environmental Health Sciences	CPH	Collaborator - Joint Project Development
Paul Berger	Dept. of Electrical and Computer Engineering	COE	Collaboration
Raghu Machiragu	Translational Data Analytics Discovery Theme	OoR	Joint Project Development - PI
Robin Chenoweth	College of Education	COHE	Joint Project Development
Scott Shearer	Dept. of Food, Agricultural and Biological Engineering	CFAES	Consultation, exploring collaboration
Steve Ringel	Dept. of Electrical and Computer Engineering	COE	Consultation, exploring collaboration
Tom Darrah	Earth Sciences	ASC	PI - Executive Director
Tricia Allenby	Department of Pathology	COM	Joint Project Development
Wondwossen Gebreyes	College of Veterinary Medicine	CVM	Exploring collaboration / Cost Share of Key Staff



As part of Audrey Sawyer's research, water samples are collected at village wells by technicians in Tanzania, and students interpret water quality results at Ohio State.

*“Congratulations to the GWI Team for another productive year. The scope and depth of their accomplishments are truly impressive, only perhaps surpassed by their dedication and sense of service.”*

**Professor Berry Lyons**  
**School of Earth Sciences**  
**Chair, GWIFAC**

# Student Engagement

GWI puts considerable effort into enhancing experiential learning opportunities for Ohio State undergraduate and graduate students. There is high demand among students for hands-on globally focused and interdisciplinary programming.

During FY 2020, GWI continued to support

student activities that draw on challenges seen in GWI's activities in Tanzania to provide real-world problems for undergraduate and graduate students to solve. These projects not only assist student learning but also feed back directly into GWI's proposal and project program development. For example, GWI staff

member Amanda Davey serves as adviser to the Ohio State Engineers Without Borders group, which is implementing a project in The Gambia to install solar-powered water pumps for rural communities.

Student activities directly framed and sponsored by GWI in FY 2020:

- \* Capstone project with CFAES to design a solar oven for use in rural Tanzanian communities, to reduce the need for wood fuel
- \* Global Applied Projects (GAP) program with FCOB: engaged MBA students in providing an assessment of Tanzania's capacity to train solar power technicians. Such capacity will be needed to ensure sustainability of GWI's solar-powered water systems.
- \* Graduate assistant from FCOB: developed prospectus and fundraising materials to support the new infectious disease initiative being developed by GWI in collaboration with the Ministry of Health and WaterAid in Tanzania
- \* GWI partnered with FCOB to introduce a new course on franchising and social impact investing, focusing on lower income country needs such as water, energy and public health. The course is being taught by a member of GWI's External Advisory Board - Michael Seid, founder and CEO of MSA.



*Engineering Without Borders members from Ohio State visited The Gambia for project implementation. They drilled a borehole, capped the well, created a water tank stand, and installed solar panels for the pump*



GWI also introduced the faculty lead for the COE Solar Education and Outreach Organization students to staff in CEHE, FCOB and MC who support an orphanage in Arusha, Tanzania, with lighting and heating needs. The students were able to design and build a solar-powered lighting system for a dormitory and a solar hot water heater for the orphanage's kitchen.

In the fall of 2019, GWI hired a new Student Engagement Coordinator (Michelle Cane) to expand its student activity portfolio. Since her hire, Ms. Cane has developed new relationships with the International Affairs Scholars Program, the student-led Sustainability Council, and the Columbus Council on World Affairs, among others. She also organized GWI's participation in "Time

for Change" co-sponsored by the Sustainability Institute, Green Buckeyes, and the Sustainability Council. Unfortunately, many of the other activities planned for Spring 2020 had to be cancelled due to the COVID-19 outbreak. If conditions permit, GWI will resume student activity engagement in Autumn 2020.

GWI is also considering other possibilities to expand student engagement with GWI activities in Tanzania. One idea is to build on the Sustainable and Resilient Tanzania program (run by COE), which attracts 20 students from Ohio State and 20 students from the University of Dodoma in Tanzania to work on water supply projects for communities in the Kilimanjaro region. GWI could help enhance the existing program and/or adapt the program's model to build other student-centered programs.

## Student Engagement Activities 2019-2020 Academic Year

Event	Purpose
International Affairs Scholars Presentation	Expose scholars program students to on-campus opportunities in international work and connect students to GWI affiliated staff and faculty
Farm Science Review Student Outreach	Talk to middle and high school students throughout central Ohio about GWI and its activities at Ohio State and abroad
World Food Day Food Fair	Student activities related to GWI's agricultural components
Engineers Without Borders Ohio State Chapter	Students address water shortage issues in The Gambia through sustainable engineering solutions. The students are advised by Amanda Davey, GWI's Program Manager.
FABE Capstone Course	Engineering students work to design a solar oven for use in rural Tanzanian communities to reduce the need for wood fuel based on inputs from GWI staff, affiliated faculty, and in-country partners
FCOB GAP Program	Graduate students conduct assessments on current workforce development programs in Tanzania, to be used in future GWI program development
Time for Change Week	Provide sustainability-themed programming to Ohio State students in a week long student-organized and hosted event. The 2020 event was switched to virtual programming due to COVID-19
Did You Know Presentation Series	Provide students an opportunity to present their work to other Ohio State staff and faculty in related fields
CCWA Global Scholars Program	Expose CCS high school students to global issues. GWI has been selected as the single partner for the 2 <sup>nd</sup> year case study program to give students more in-depth information about water issues

*"This project [for our FABE capstone course] has allowed our team to use our engineering skills to develop appropriate technologies and provided an eye-opening experience in working with developing areas that many of us do not get in our normal coursework."*

**Molly Kern**  
**CFAES Class of 2020**



# New Engagement Opportunities

GWI is currently developing two new research initiatives that aim to engage a variety of faculty and students in applied research.

One initiative will be focused on infectious disease in East Africa. GWI is working to frame an ideation session around this initiative with faculty and staff from CPH, TDIA, IDI, GOHI, GH, ASC and COM, in collaboration with partner organizations in Tanzania.

The second initiative will be focused on coastal resilience and solutions in the face of climate change. GWI created a small group to begin a dialogue in 2018-19 and it supported a conference held by the Mershon Center on this topic in 2019. Faculty members who could be affiliated with this new initiative are shown below.



*Molly Kern, leader of the Food, Agricultural and Biological Engineering capstone project team sponsored by GWI, presents on the team's solar oven project at the annual "Did You Know" event*

## Water Resiliency in Light of Changing Climate Potential Faculty Members

Name	Title	Dept./School/Division/Center	College
Anne Carey	Professor	School of Earth Sciences	ASC
Berry Lyons	Professor	Byrd Polar and Climate Research Center	ASC
CK Shum	Professor	School of Earth Sciences	ASC
Frank Schwartz	Professor	School of Earth Sciences	ASC
Ian Howat	Professor/ Director	School of Earth Sciences / Byrd Polar and Climate Research Center	ASC
Mark Moritz	Associate Professor	Department of Anthropology	ASC
Michael Durand	Associate Professor	School of Earth Sciences	ASC
Rebecca Gianotti	Senior Researcher	Global Water Institute	COE
Sathya Gopalakrishnan	Associate Professor	Agricultural, Environmental and Developmental Economics	CFAES
Tom Darrah	Professor	School of Earth Sciences	ASC

GWI works to promote not only its own activities but those of other faculty, staff, students and entities across Ohio State with similar objectives. To that end, GWI hosts an annual "Did You Know" event to share stories and build relationships across campus. The January, 2020 event was co-chaired by Vice Provost for Global Strategies, Gil Latz, and Dean of Engineering, David Williams.

Participants included Diane Gorgas (Global Health), who presented Ohio State's Neonatal Survival Program, and Jesse Kweik (ASC), who described his HIV/AIDS research in Tanzania and his new collaboration with the University of Dodoma (UDOM) after hosting Dr. Stephen Kibusi (Dean of Nursing,

UDOM) as a Fulbright scholar in summer 2019. Student presenters highlighted their Engineers Without Borders project, capstone projects, and the FCOB GAP Program. Keely Croxton (FCOB) presented the new Business

Plan Competition being executed at UDOM thanks to support from FCOB faculty. GWI will continue to host these events and seek out synergies with other efforts across campus.

Tour in Tanzania in 2019. This tour was used as a way to inform alumni of the breadth and depth of activities carried out by faculty, staff and students, with the goal of increasing funding for future initiatives. GWI provided inputs to the tour's publicity materials and assisted with promotion.

GWI also supported the Ohio State Alumni

## 2019 Ohio State Engagement in Tanzania and Alumni Tour Destinations

**Did You Know**  
Ohio State Involvement In Tanzania



**Tanzania Migration Safari**  
Alumni Tour

THE OHIO STATE UNIVERSITY  
GLOBAL WATER INSTITUTE

### What's Inside

**INFORMATION**

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**WATER ACCESS & QUALITY**

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**EDUCATION**

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- Innovation Lab
- Extension Plan Competition
- Map Menu
- Global Innovation Survival Program

### Welcome to Tanzania

Over the course of the next ten days, you will all see some of the natural wonders of the world. Tanzania is a nation blessed with spectacular national parks that attract people from around the world.

But Tanzania is also a developing nation in Sub-Saharan Africa which means that millions of its people live without access to clean water, power and sanitation, secure access to food, a quality education or healthcare.

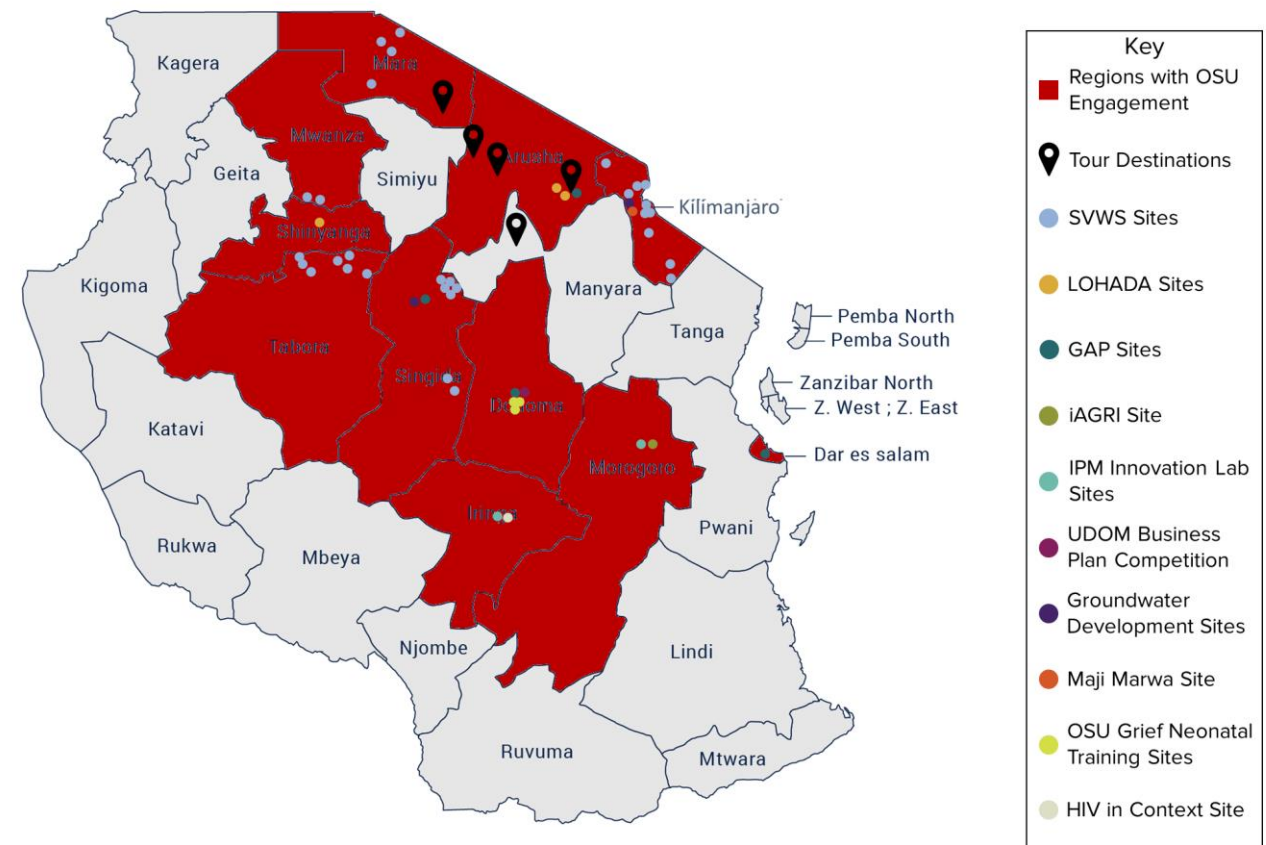
And where there are pressing global needs, you will find The Ohio State Faculty, Students, and Alumni working to improve the quality of life.

So welcome to the first ever edition of Did You Know, a new feature of the Alumni Office that lets you know what your alma mater is doing in the countries where we sponsor Alumni Tours.

We hope this booklet makes you as proud to be Buckeyes as it made us in preparing it.

Go Buckee!

Deborah Vargo  
Laura Rose  
The Ohio State University Alumni Travel Office





## Community Impact

GWI launched its Sustainable Village Water System (SVWS) program in two pilot villages – Ghalunyangu and Mughanga – in the Singida region of central Tanzania in November 2017. These communities are located in a semi-arid region that is one of the most impoverished in Tanzania. The

primary economic activity is smallholder subsistence farming, and both communities have marginal access to clean water or sanitation and poor access to infrastructure and transportation.

Implementing the SVWS projects in these two pilot communities has involved intensive,

prolonged work by our in-country partners to build strong relationships with the communities and local government, get inputs and feedback to ensure that design and implementation aligns with real community needs, and carry out the work to the highest possible standard.



*Left: Ghalunyangu community members celebrate successful implementation of a new solar-powered water system through GWI's Sustainable Village Water System pilot project*



*Right: GWI Executive Director Mary Kress (standing, red hat), COE Dean David Williams (standing, eighth from right) and GWI staff member Rebecca Gianotti (kneeling, third from right) celebrate with Mughanga community members at the new solar-powered water system*



GWI is extremely proud to report that this sustained effort has produced successes in multiple dimensions in the two communities:

- \* clean water supply and improved access for approx. 10,000 residents, now operational for over one year without interruption;
- \* first ever on-site water supply for the Ghalunyangu health center, which includes a labor and delivery ward;
- \* first ever on-site water supply for the Ghalunyangu primary school, which serves over 700 children from kindergarten to grade 7;

- \* formation of farmer groups to facilitate effective and efficient agronomic training and improve peer-to-peer support networks;
- \* development of nurseries to support forest gardens;
- \* introduction of orange sweet potato and other crops to improve household nutrition, diversify crop types and improve soil quality;
- \* intensive training to increase harvests and link smallholder farmers directly to markets.

In FY 2020, GWI also continued

implementation of its USAID- and Coca Cola-funded Water and Development Alliance (WADA) program. This \$2 million award not only has a significant impact on rural Tanzanian communities, but raises our profile with USAID, other US agencies and other bilateral donors.

Again, this project has required sustained effort by our in-country partners to build community relationships, obtain buy-in and feedback from communities and local governments, design and build appropriate water systems to the highest quality possible. The project involves installation of solar-powered water systems in 15 communities across three regions of central Tanzania, each presenting challenges with regard to site access, hydrogeologic conditions, and population density and distribution.

Thus far, the project has completed installation of the first 10 of the 15 water systems in Phase I of this program. We expect the remaining 5 systems to be completed by summer 2020. When complete, this program will provide improved access to clean water to over 75,000 people.

In 2019, GWI also conducted site visits for USAID and GETF to showcase quality of installations and scope of project impact.

In conjunction with both the SVWS pilot projects and the WADA program, the GWI Team has prepared an Operations and Training Manual. This manual is intended for use by local private operators of the water systems, and includes both technical



*GWI Executive Director Mary Kress (red hat) meets with Mughanga community members to learn about the forest garden seedling nursery established with GWI partner Trees For The Future as part of GWI's Sustainable Village Water System pilot project.*



guidance, focused on Lorentz solar powered pumping systems, and business training to help establish good small business practice. The manual and the Lorentz pumping systems installed with GWI projects are also endorsed by the World Bank, OIKOS, and Lorentz.

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*Above: Entrepreneurs from the village of Nduamughanga, central Tanzania, describe the new seedling nursery business they created with the newly flowing water as a result of the GWI-led WADA project to GWI staff member Amanda Davey (left) and project sponsor Global Environment Technology Foundation engineer Bryan Enslein (third from left).*



*Left: GWI staff members Amanda Davey (third from right) and Jeff Melaragno (center, purple shirt) meet with community members in the village of Sagara and GWI partner WorldServe Tanzania to show project sponsor Global Environment Technology Foundation engineers (Marc Dettmann, kneeling, and Bryan Enslein, standing, third from left) some of the new infrastructure installed as a part of the GWI-led WADA project.*



# University Engagement

In FY 2020, GWI increased its engagement with faculty and students around Ohio State to build stronger collaborations across campus and in East Africa:

- \* USAID-funded \$2 million GROWS research project (GWI core staff PI) conducted field work in Uganda, Kenya, and Tanzania
  - \* engaged two junior faculty (Robinson from (ASC) and Rodriguez (FAES)) and two graduate students over 3 years (with F&A provided to CFAES and ASC)

- \* built field experience, in-country research and collaborator networks
- \* results focused on innovative private sector water services in East Africa will be used by USAID Mission staff to guide future program development
- \* GWI support secured a Fulbright Scholar from Tanzanian University of Dodoma who spent 6 months at Ohio State doing HIV/AIDS research with Ohio State faculty, which has already led to new collaborative research activities
- \* COE successfully recruited the new

Executive Director for GWI in collaboration with GWI's Faculty Advisory Board

- \* New course offering on franchising and social impact investing was made available at FCOB by GWI External Advisory Board Member Michael Seid
- \* GWI and FCOB faculty coached University of Dodoma faculty and students in their first ever Business Plan Competition
- \* GWI and COE supported a CEHE initiative to provide a Tanzanian orphanage with solar-powered lighting in its dormitories and a solar hot water heater for its kitchen



*FCOB faculty member and GWI FAC member Keely Croxton (seated, third from left) helped to establish and judge student entries in the first University of Dodoma, Tanzania, business plan competition in 2019.*



# External Partnerships and Endorsements

- \* GWI secured endorsement of its proposed Infectious Disease concept from key Tanzanian organizations (Ministry of Health, Office of Infectious Disease, National Laboratory, Abbott Foundation, and WaterAid Tanzania)
  - \* The next step will be an ideation session with key Ohio State groups (CPH, IDI, TDIA, GH, COHI, etc.)
- \* GWI Team supported World Water Day at the US State Department/USAID celebration in Washington, D.C.
  - \* Chris Long, founder of WaterBoys and a GWI partner, was a keynote speaker
- \* GWI established a relationship with the KenGen Foundation, WaterAid East Africa and the University of Zambia to collaborate, with an initial focus on Sustainable Village Water Systems and educational activities (MOUs are currently being finalized)
- \* GWI Team framed and submitted a MacArthur Foundation 100&Change Proposal for \$100M in collaboration with the Ohio State Office of Advancement
  - \* Proposal was ranked in the Top 100, included on the Bold Solutions Network, and now under final review
- \* GWI EAB Chair and GWI Executive Director met with Rabobank Foundation in the Netherlands to discuss funding options for SVWSs and its core elements and to secure referrals to Rabobank's Africa Foundation and Master Card.
- \* GWI in collaboration with World Serve, World Bank, Oikos, and Lorentz conducted a solar-powered water system training program for engineers and managers of the Tanzanian Government's new Rural Water Supply and Sanitation Agency
- \* GWI, WorldServe Tanzania, World Bank, and Oikos collaborated on Singida Region Initiative with the Ministry of Water Regional Superintendent. Supports 100 solar powered wells all based on same technology and agreements.
- \* GWI finalized a concept for franchising water services in East Africa in collaboration with a key board member.

*“Ohio State is focused on ensuring our best thinking crosses disciplines to have an impact on the world around us.”*

**Provost Bruce McPheron**  
**The Ohio State University**

# Budget

During FY 2020, the GWI team had three key foci regarding budgets and business development.

Firstly, the team competed internally and externally for the MacArthur Foundation 100&Change Grant. Being upselected by MacArthur highlights the relevance of GWI activities and positions the Institute for highly visible funding in the range of USD \$1M to \$100M. GWI is one of the final 100 proposals. MacArthur will downselect to ten proposals this summer.

Secondly, GWI framed and submitted several proposals to key foundations and US Missions. Some of these proposals were solicited, some were unsolicited, some were not accepted, and some are still awaiting feedback. This includes proposals to the KenGen Foundation for two SVWS pilot projects in Kenya and to the US Mission in Nairobi, Kenya, for 50 SVWS projects. The latter proposal was framed for the US Ambassador.

Lastly, GWI focused on the execution of its two USAID-funded projects, GROWS and WADA, with the expectation that these projects would secure funding for GWI from other USAID and State Department initiatives. To date, additional USAID funding beyond the GROWS and WADA awards have not come to fruition. The USAID PULSE-LASER program only offered small seed funding, additional funding concepts submitted to USAID went unanswered, and the new African University Initiative GWI supported ending up targeting only four countries, none where GWI has a footing.

The payback for these activities was anticipated in 2020, and it still is. But that adversely impacted revenues in 2019 that reflect the fringe, tuition and F&A for GROWS and WADA. The current revenue estimate for those two projects is \$325,000. ASC accrued all of the WADA F&A and the GROWS F&A was split between ASC and CFAES.

Note: GWI is currently assessing a new USAID RFI for capacity building with the Rural Water and Sanitation Agency in Tanzania. GWI will partner with a recognized NGO and private sector firm for this proposal valued at \$30-40M over five years.

Unfortunately, due to the COVID-19 crisis the timing for the potential MacArthur Foundation/Bold Solutions Network funding has been pushed back to 2021, as well as other foundation funding in our line of sight, in particular, WaterAid East Africa and the Dewji Foundation in Tanzania.

Expectations for MacArthur Foundation/Bold Solutions Network, WaterAid (sanitation and hygiene systems and agricultural activities), and Dewji Foundation funding are reflected in the projected revenues for these activities in FY2021 – \$2.5-\$5.0M. Expectations are for similar levels of funding in FY2022 for these projects.

With the transition of GWI to COE and recruitment of a new Executive Director (Darrah), GWI will also have access to additional revenues in 2020, including water quality lab tests, governmental contracts with Canada and Australia, and funding from new research themes. Ongoing and new research themes initiatives include: a) Water Availability and Utilization; b) The Water-Food-Health Nexus; c) Water Resiliency in Light of Changing Climate; d) Water Quality; and e) The Water-Energy Nexus. The best estimate for these revenues in FY 2021 is \$2.5-\$7.5M.

Central to the GWI go forward plan is a renewed MOU with the OAA and key colleges across Ohio State. GWI was funded, on average, under the initial MOU at \$900,000 per year. This investment covered the operating costs of GWI including indirect personnel costs, faculty and student engagement, and travel. It also covered Faculty R&D grants that have played a key role in the GWI

business development strategy.

As GWI has evolved, staff costs have been able to be charged partially as both direct and indirect costs to funded projects. GWI will further expand this model in FY 21. GWI plans to re-classify staff based on ongoing workloads and activities, while re-allocating FTEs to 75% taking some of the pressure off the requested budget for 2021. As a result, budget allocations for staff will be more flexible to changes in response to changes in external funding levels. If GWI were to secure the MacArthur Grant, the GWI project staff would be fully covered.

It should be noted that the GWI budget is augmented with an annual investment of \$50,000 by the Dean of FCOB to support a GA and a Global Applied Project Program for MBA students every year. GWI would hope to attract more of these types of investments in the future as it expands its relationships with other colleges, centers, and key administrative groups.

GWI also expects to increase its investment in student and faculty activities in 2021 by securing foundation grants in collaboration with the Office of Advancement. It took a team effort with Advancement for GWI to advance in the MacArthur Foundation Competition. Both parties hope to further expand this relationship in 2020-21, starting with student and faculty activities.

Based on the current budget uncertainty at the University and College level, the GWI will defer finalization of its FY21 budget and its proposed MOU until it has received more guidance.

# Future Plans and Metrics of Success

GWI had four main goals and objectives for 2019 to further enhance our research and project activities related to water, food, energy, sanitation and/or hygiene. GWI is pleased to report progress in each area:

- 1) Successfully executed existing projects in Tanzania, Kenya and Uganda.

Outcome: The one area where GWI has been delayed is with its private operator model for rural water services, the precursor to the franchising model. The 2019 creation of a new government agency handling rural water services in Tanzania, RUWASA, has resulted in an extended review of both the concept and the qualifications of a private operator. GWI is actively working in collaboration with RUWASA and local government officials to finalize the expectations around private operators for water services and put the appropriate entities in place. This is only possible due to the established relationships GWI had built with the Tanzanian government and in-country partners.

- 2) Validate GWI's innovative business models in a real-world environment and then introduce the next phase of the model – franchising for water services.

Outcome: the USAID-funded GROWS research project began and has

proceeded successfully with field work in Tanzania, Kenya, and Uganda. The USAID-funded WADA project will deliver 15 village water systems to rural communities in Tanzania by the end of 2020, with the expectation of 11 more villages being provided with water services under a forthcoming grant. GWI is currently working with WorldServe International to identify a candidate foundation or donor.

- 3) Continue to frame new initiatives and projects that brand Ohio State as the Land Grant University of the Future – an implementer of highly integrated, requirements-driven, sustainable, systems-oriented projects.

Outcome: GWI's submission of a proposal to the MacArthur Foundation's 100&Change competition and development of its Infectious Disease Initiative address this goal.

- 4) Continue to attract key thought leaders, domain leads, and funders to build GWI's network and role as a neutral technology and thought integrator.

Outcome: GWI recruited a team of ten leading organizations to be its partners in the framing of the MacArthur Foundation proposal, each a recognized specialist in its domain. Building that team and having a well-

scored proposal have greatly added to the recognition of GWI and hence Ohio State.

In addition, GWI was approached by the KenGen Foundation, WaterAid East Africa and the University of Zambia to develop new collaborations, based on the perceived value of our model, our teaming agreements, and our commitment to solving problems and improving the overall economic development model.

Those four activities are still at the heart of the GWI model and are central to its FY2021 goals and objectives. GWI's FY2020 plans build on the successes of GWI's activities in 2018 and 2019 to further enhance GWI's impact and profile (see next page).

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# Goal #1

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**Capitalize on GWI's new home in COE and new faculty lead to significantly expand student and faculty engagement. GWI has achieved some success in building Ohio State community engagement thus far, but can expand this work with a recently-hired Student Engagement Coordinator, the communications and networking resources available through COE, and the addition of a GWI Faculty Executive Director from ASC.**

GWI can significantly enhance the experiential learning opportunities for Ohio State students and the in-country research and education opportunities for faculty by providing engagement with its projects and partners.

Metrics of Success

- \* securing the support of new organizations on campus for the new GWI MOU
- \* framing 5 new faculty/student initiatives for 2020-21
- \* engaging over 250 students in GWI activities

# Goal #2

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**Capitalize on the expertise of the new Executive Director (Darrah), GWI's core staff (Cane, Davey, Gianotti, Whyte), and the suite of assets at Ohio State to frame a set of ongoing and new research themes that pair Ohio State research capacity with increased external funding from federal, industry, and foundation support.**

These ongoing and new research themes initiatives include: a) Water Availability and Utilization; b) the Water-Food-Health Nexus; c) Water Resiliency in Light of Changing Climate; d) Water Quality; and e) the Water-Energy Nexus.

As GWI's networks and partnerships have grown, it has become clear that these research themes and associated issues must remain or become a core part of its go-forward strategy. This is also evident in the funding priorities of large philanthropic organizations, such as the Global Philanthropic Foundation, MacArthur, or Breakthrough Energy Ventures.

Metrics of Success

- \* framing a position paper that defines the state of the science and research needs for each theme
- \* start a rotating semi-annual on-campus symposium to address each of the key themes in partnership with key entities (e.g., Sustainability Institute, Byrd Polar Climate Research Center)
- \* develop targeted proposals related to each theme annually in collaboration with theme leads (e.g., DOE, NSF IUCRC, BIRD Foundation, MacArthur, Global Philanthropy)

## Goal #3

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**Capitalize on the GWI integrated systems, solutions-focused approach and GWI's networks in Tanzania to frame an initiative that integrates multiple institutes and centers at Ohio State. This new initiative will initially focus on the monitoring, detection, diagnosis and treatment of infectious diseases in the Congo Border Corridor of Tanzania. A future goal will be to expand the work to other countries in East Africa.**

GWI is now working to set up an ideation session around this concept with CPH, IDI, GH, GOHI, TDIA, which would include participants from the Tanzanian Ministry of Health, WaterAid Tanzania, the Office of Preventive Medicine, and the Abbott Foundation of Tanzania.

Metrics of Success

- \* gaining support on campus from relevant colleges, centers and institutes
- \* hosting a potential partner/team member meeting in Africa to further define the concept and gain key support
- \* frame a stepwise plan for moving the concept forward

## Goal #4

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**Capitalize on the MacArthur Foundation 100&Change Proposal and the working relationship GWI has developed with Ohio State's Office of Advancement to approach other foundations and donors, not just to secure funding but to receive invitations to their meetings where GWI can present its concepts and activities.**

Metrics of Success

- \* revenues secured by GWI for its core staff and activities
- \* develop three new proposal and business development opportunities annually
- \* 2 major presentations by GWI at a key foundation/donor meeting annually
- \* 2 new African nation partners for GWI activities

NOTE: It will be noted in the next section on Challenges that the execution of the GWI goals and objectives will require a full complement of staff. A new staffing plan and budget is being prepared in parallel with this activity. In addition to proposing funding for the open slots, it also is proposing a budget to assign faculty leads to the key GWI focus areas.

# Challenges

Special Note: This report is being written in March 2020. The GWI Team would be remiss if it did not note that the COVID-19 crisis has adversely impacted GWI and its key activities on campus and in Tanzania. The anticipated project delays of up to 3-4 months will impact schedules and budgets to an extent not yet quantifiable. Delays in getting new agreements in place negate key differentiators in our MacArthur Foundation 100&Change proposal. These are only the adverse impacts on GWI projects and proposals. The real threat is the adverse impact of the crisis on Ohio State University, university and college finances, and external giving.

In the past year, two events have demonstrated the importance of GWI's integrated approach to solving problems of critical human needs.

The first was Dean William's site visit to Tanzania in May 2019. His subsequent report concluded, "GWI is a one-of-a-kind outreach institute, unlike any other organization that exists on campus...Based on my observations, GWI has more than fulfilled its goals and objectives first defined two years ago...everyone from Ohio State who has visited GWI in Tanzania...say[s] that GWI is the most extraordinary outreach program they have ever seen." Based on the Dean's assessment, GWI's MOU was honored and GWI was transferred to COE to enable Ohio State to further capitalize on GWI's activities.

The second event was the Office of Research approval of GWI's proposal submission to the

MacArthur Foundation's 100&Change challenge. GWI proposed a project that was representative of the Land Grant University of the Future – a university operating at the nexus of water, food, sanitation and hygiene to provide sustainable systems solutions that rely on private operators, locally owned and operated systems, long-term outcome measures, and workforce development and training.

The subsequent success of the GWI proposal in the 100& Change competition thus far and its inclusion in the Lever for Change's Bold Solutions Network has validated that external players and key foundations support GWI's integrated approach to long-term solutions. As the Land Grant University for the State of Ohio, Ohio State was created to solve problems and provide technical solutions. Much as we do that across the state and the nation, as the Land Grant University of the Future, we can and will bring our solutions to the world.

GWI would like to be part of that evolution from the campus to the world, and it has created a solid foundation in Tanzania to build from. To continue its work developing and implementing integrated, long-term solutions to critical global challenges, GWI requires COE and Ohio State support with five key challenges:

**Challenge #1:** put a new MOU in place for GWI that provides the necessary resources and university support to continue its mission. Ideally, this process would include other campus entities – CEHE, ODI and OIA.

**Challenge #2:** approve a staffing plan and budget that enables GWI to better engage faculty and staff at Ohio State with project and research activities and in active collaborations across East Africa.

**Challenge #3:** continued support from Ohio State's Office of Advancement, including introductions to donors and foundations. The team effort between GWI and the Office of Advancement on the MacArthur Foundation 100&Change proposal should be expanded into other areas.

**Challenge #4:** expand the profile of GWI. GWI's staff position for communications and networking has been vacant for nearly 2 years, which has limited GWI's ability to tell its story. Transitioning to COE has greatly enhanced that ability, but GWI would also like to be a featured story in the Ohio State Alumni Magazine. Support of the GWI MOU and Mission by University and College Leadership will facilitate that task.

**Challenge #5:** embrace the long-term vision for the GWI Team and its partner organizations. The desired outcomes for GWI projects – such as increased economic activity, reduced incidence of water borne disease, and increased school attendance – require sustained effort and long-term monitoring. Such projects and outcomes are also the target for large funding organizations like the MacArthur Foundation. To achieve these goals will require a long-term commitment from Ohio State.



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