

Questions from University Research Subcommittee

MEMORANDUM

February 22, 2016

To: Vice Provost W. Randy Smith

RE: Proposal for University Center status for the Global Water Initiative

From: University Research Subcommittee

Thank you for asking the University Research Committee to review the proposal to establish the current Global Water Initiative (GWI) as a university center. The proposal has many worthwhile aspects. This note does not address the worthy aspects of the proposal, but instead discusses the areas where additional details would better meet the University rules as well as serve to clarify the goals and impacts of the initiative. The Committee has three areas of concern where more details would strengthen the proposal: 1) inclusion and scope; 2) administration/student focus; and 3) metrics.

1. Inclusion and scope

- 1.1 The current proposal says that GWI is a stand-alone research entity. This committee understood the GWI to be a coordinating entity across existing university research activities. What additional research capacity is being added through GWI, and is it redundant with existing activities? How will redundancy be resolved between the university center and existing university capabilities?
- 1.2 The proposal has 'global' in its name, and a point is made that the initiative will be globally relevant. It is not clear that the proposal is well aligned with Ohio's state priorities, which must remain a priority. We are concerned that the initiative will lose state support if it is seen as overly focused on far away locations that already have international resources focused on them..
- 1.3 Where the proposal does address regional water problems, there is no mention of partnership with other Ohio universities. Would the initiative take the lead within the state to coordinate research and implementation approaches, similar to the proposal for African solutions?
- 1.4 Other partnerships that could be pursued include ones with Battelle Memorial Institute and the national laboratories that it manages. We recognize that the proposal cannot cover all possibilities, but Ohio State's close relationship with Battelle is worth mentioning as a possible partner.
- 1.5 No mention is made of partnership with commissions that govern the Great Lakes. Nor is there mention of entities with significant interests, such as the Ohio Department of Natural Resources (and other states neighboring the Great Lakes) or the University of Wisconsin-Milwaukee Great Lakes Water Institute/School of Freshwater Sciences. Should they be included in planning?

1.6 The proposal does not seem sufficiently inclusive of interests across OSU and its regional campuses—(for example, one of us having lived through the Milwaukee cryptosporidium outbreak wonders where is public health in this initiative; in light of what happened in Flint, Michigan, can social work and other units with a social justice mission be included; and, how might a greater campus presence reflect the initiative's international interests; and, since so much of this proposal involves policy, will partnership with the Glenn College be pursued?

2. Administration/student involvement

2.1 On page 6, the proposal needs to be updated since it still includes earlier roles for Provost Steinmetz and Acting Provost McPheron. It strikes us that it is acceptable to mention Provost Steinmetz as part of the history but not as a current administrative leader. The proposal should note that it is not possible to commit a future Provost to this kind of venture when we do not know who that person will be.

2.2 The section on student involvement is thin, and appears to mention only historical activities. Plans for future student involvement are critical to moving this proposal forward, in our view. The proposal lacks the integration of student learning in the mission. Although a center does not need to create curriculum, to what extent can this center serve students? This GWI presents an opportunity that is not discussed to propose minors (interdisciplinary), majors or certificate programs mentioned; integrative courses; integrative PhD opportunities outlined; or post-docs mentioned in the plan. Can you speak to this deficit?

3. Evaluation metrics

3.1 The proposal lacks specific goals and measureable outcomes by which the initiative can report back to the Committee on Academic Affairs (CAA) on its progress. It is difficult to determine from the proposal what the metrics would be for evaluating the initiative once it becomes a University Center. Clearly, under the rules, the Center would be reviewed on a regular basis in the future but the proposal needs clear metrics of success that will be included (besides, perhaps, having developed some funding) and what funding autonomy might look like.

3.2 The proposal is not clear on the sources of funding. Can a budget be added that shows existing funds, promised funds, and plans for fund raising?

Responses to Questions

1.1 The current proposal says that GWI is a stand-alone research entity. This committee understood the GWI to be a coordinating entity across existing university research activities. What additional research capacity is being added through GWI, and is it redundant with existing activities? How will redundancy be resolved between the university center and existing university capabilities?

The question refers to a sentence from the Introduction to the proposal.

Initially, GWI was framed as a model for emerging Discovery Themes at Ohio State. Today, GWI is a viable, stand-alone research entity as well as a partner of choice for several of the Discovery Themes.

—GWI Institute Proposal, page 3

The Committee's understanding is correct: rather than attempting to accumulate research assets, the GWI is an integrative entity, capitalizing on existing assets and capabilities at the university and with its partners to allow the university to pursue larger aims (funding, projects, research, scholarship) than would be possible with these disparate entities acting alone.

The term “stand-alone” was intended to note that GWI was recognized as an initiative in May 2014; i.e., funds have been provided to support GWI activities by FAES, OR, and OAA; job descriptions have been approved by HR for each key staff position at GWI; and a dean/VP-level Oversight Committee is being established to guide and direct GWI.

The adjective “stand-alone” was not intended to mean that GWI will create its own research teams and not interact with others at Ohio State. GWI is a matrix organization and collaborating with other university organizations and capitalizing on Ohio State faculty and researchers—as well as others—is a key component of its interdisciplinary model.

For example, the Faculty Advisory Committee for GWI is the product of a conscious effort to engage faculty members aligned to the three GWI focus areas, as well as leaders of existing institutes/centers and Discovery Themes focused on water and the key nexus themes that intersect with it: food, energy and health.

It should be noted that GWI was framed by combining the best features of the widely commended Institute for Materials Research (IMR) at Ohio State and the Discovery Themes. On the one hand, GWI acts as a loose “umbrella” entity coordinating large-scale collaborative activities with autonomous but related centers across campus – similar to what IMR does with the Center for Automotive Research, Nanotech West, and the Center for Electron Microscopy and Analysis. On the other hand, it acts as an aggressive business development agent for the university and its collaborative partners with staff on board that can manage complex cross-university, multiple-institution projects.

Similar to the Discovery Themes, GWI realizes that having a core cadre of dedicated staff working with Ohio State faculty and center leads can extend our reach and permit the university to take on challenges/proposals/projects that require greater project management, a broader network of collaborators, access to non-traditional funding, and more complex proposals. GWI hopes to be the catalyst for bringing partners together as needed to pursue larger opportunities that benefit all involved and that would be impossible for any of the disparate entities to achieve without coordination and integration.

In the case of research capacity, the GWI team does not intend to build in-house research capabilities. Rather, the GWI team helps identify and frame collaborative research activities in conjunction with our proposed partners. An illustrative case in point is the integrated research plan between Ohio State and the University of Dodoma (UDOM) faculty that will serve as the foundation for a GWI USAID Higher Education Partnerships for Impact and Innovation (HEPII) proposal that will be submitted this summer. The initial research concepts were reviewed with UDOM during an August 2015 delegation to Columbus, after which each university assigned lead points of contact, with the VP for Research at UDOM as counterpart for the GWI interim director. Discussions and faculty reviews have been conducted to develop collaborative research and education plans in each of the nexus areas of energy, water and health with food to be scheduled.

As of today, the water research and education plan is the most mature of the four nexus areas. Ohio State and UDOM faculty with this broad area of expertise have agreed upon a research agenda and have identified key laboratory assets and test capabilities to pursue (mostly at UDOM) to execute it. In addition to the proposed USAID HEPII proposal, the GWI research and technology lead is now convening a meeting of 27 hydrology-oriented researchers at Ohio State to stimulate complementary research and education related to an integrated water resource plan for Tanzania. In this case, GWI is the catalyst, facilitator, convener to help frame and identify new and innovative research projects, with the execution and funding/scholarly attribution resting in the hands of Ohio State and UDOM faculty, researchers and students.

1.2 *The proposal has ‘global’ in its name, and a point is made that the initiative will be globally relevant. It is not clear that the proposal is well aligned with Ohio’s state priorities, which must remain a priority. We are concerned that the initiative will lose state support if it is seen as overly focused on far away locations that already have international resources focused on them.*

Global relevance of GWI focus areas

As discussed in the proposal, the challenges on which GWI elected to focus its initial efforts were chosen for global applicability. These challenges (listed below) were selected based on many criteria, including resonance with Ohio State strengths and stated institutional priorities, interdisciplinary nature of the problem and solution space, perceived urgency as pressing issues by expert advisors and external organizations including UN, USAID, WHO, UNESCO, WBC, and availability of non-traditional funding sources.

Accordingly, “global” is in the GWI name because GWI intends to deal with issues that have widespread applicability around the world. The word “global” does not signify “international”—we mean it simply to encompass problems that many different regions face. A strong example is harmful algal blooms, which is a problem faced on every inhabited continent. The same Ohio State researchers who are funded through GWI to tackle harmful algal blooms in Lake Erie or Grand Lake St. Marys are also collaborating with colleagues in China, Brazil, Botswana and other countries to tackle these same issues, compare strategies, and ultimately participate in a global-level scholarly dialogue that translates directly to local solutions. The benefit of GWI in such a situation is that we help to raise Ohio State’s profile as a global thought leader in these scholarly dialogues through coordinated proposals and communications.

The GWI focus areas are listed below with an indication of both global and local (Ohio) applicability. At present, the Field to Faucet (harmful algal blooms) focus area has the most direct applicability in the state of Ohio, as noted in the proposal. But all of the GWI focus areas capitalize on Ohio assets and capabilities, brand the university and the state as having innovation solutions, provide for access to new funding sources, and resonate directly with the Ohio State University mission and vision.

Focus Area	Main Challenge	Geographic Scope of Applicability	
		Global	Local (Ohio)
Field to Faucet	Prevent/mitigate harmful algal blooms (HABs)	Blooms are becoming a public health concern on all inhabited continents. Solutions and BMPs are highly portable.	Local, state and federal legislators are highly concerned about freshwater HABs that affect Lake Erie, many Ohio reservoirs and a wide stretch of the Ohio River.
Wells to Wellness	Improve rural water and sanitation access in developing countries	Problem affects over 1 billion people. Key UN Focus Area, key area of industry and foundation interest.	Smarter solutions to rural water management can potentially impact Ohio's rural water quality. Distributed systems solutions can apply to sections of Ohio. Opens portal to world for OSU researchers.
Coastal Resilience	Predict/prepare for climate change effects on coastal communities	Sea level rise and severe weather from climate change affect all parts of the world.	Better predictive tools stand to benefit Ohio cities and industries both on Lake Erie and elsewhere. Ohio Sea Grant Program focuses on coastal resilience.

Issue of GWI's support at the state level

Through its Field to Faucet suite of activities, GWI has the active support of several State of Ohio agencies and has delivered over \$1 million in new funding to Ohio State faculty over the past year directly from the State. These activities are described on p. 9-10 and p. 15-16 of the GWI Institute proposal. The following bullets recapitulate these activities with updated information on events since the proposal was submitted:

- GWI was the architect of the Ohio Department of Higher Education's Harmful Algal Bloom Research Initiative (HABRI), with funding by ODHE and implementation led by Ohio State and the University of Toledo. Compared to previous state-funded research efforts, HABRI is a requirements-focused, solutions-oriented research endeavor that is based on the stated needs of four state agencies (Ohio Environmental Protection Agency, Ohio Department of Natural Resources, Ohio Department of Agriculture, Ohio Department of Health). These agencies have been engaged with HABRI from the beginning—from conception of the initiative to formulation of research requirements to proposal review to project oversight—so that research outcomes reflect their highest priority needs.
- Ohio Sea Grant (part of Ohio State University) was chosen to manage the proposal review and project administration processes due to their reputation as a well-known, well-respected neutral agent by researchers and state agency partners.
- The first round of HABRI funding (\$2 million with 1:1 cost-share by universities) was launched in 2015 with 18 projects from eight Ohio universities. Thirteen Ohio State investigators were funded.
- The second round of HABRI funding (\$2 million with 1:1 cost-share by universities) was announced Feb. 24, 2016. GWI, in partnership with Ohio Sea Grant, was again a driving force in this initiative, from the development of research requirements with OEPA, ODNR, ODA and ODH to proposal review to drafting the press release on behalf of ODHE. Thirteen projects were funded with researchers participating from eight Ohio universities (slightly different from first round, with a total of ten Ohio universities and colleges engaged over both years). Eleven Ohio State researchers were funded on five projects in the second round of funding.
- GWI is already leading discussions with state agencies about how to leverage even greater funding and regional (not just state of Ohio) collaboration for the third round of HABRI to launch in 2017. Early conversations with the directors of state agencies (e.g., a two-hour ideation session with the director of OEPA in January 2016) have identified areas where State of Ohio agency needs align with the priorities and compliance requirements of regional agencies and agreements such as the Western Basin of Lake Erie Collaborative Agreement, Annex IV of the Great Lakes Water Quality Agreement, the Great Lakes Commission, the Alliance for the Great Lakes, the Nature Conservancy, and the USDA Natural Resources Conservation Service.

In summary, GWI has strong relationships with state entities, both in government as well as with nine other academic institutions with which it is collaborating to execute HABRI research and outreach and engagement.

Rather than see GWI's interest in global challenges as a negative, the contacts we are interacting with at the state level see it as positive, since it will help position Ohio in the global marketplace and it will help attract funding for research and educational activities from key international groups and firms. The GWI team is supporting several initiatives intended to attract foreign investment and new research and educational opportunities to Ohio State, and we are

getting great support from key regional organizations.

Question of whether “Ohio’s state priorities” must take precedence in institute creation

We interpret this concern as stemming from the land-grant charter of the university, which has historically been interpreted as applying primarily to the citizens of Ohio. We are confident that we have demonstrated the relevance of GWI activities to the state of Ohio with our discussion above.

In addition, it should be noted that in recent years, both the Office of Academic Affairs (Discovery Themes initiatives; university mission, vision) and the Office of the President have explicitly expanded Ohio State’s purview beyond the borders of the state and the nation to a global context and to solving pressing global concerns. By focusing on issues that have relevance both at home and abroad, the GWI seeks to help create the land-grant university of the future, where the solutions to seemingly distant problems create knowledge that can translate to problems at home—and vice versa.

The Ohio State University will be the world’s preeminent public comprehensive university, solving problems of world-wide significance.

—Ohio State Vision

We exist to advance the well-being of the people of Ohio and the global community through the creation and dissemination of knowledge.

—Ohio State Mission

The capacity of The Ohio State University to address compelling problems that we face in the world is unmatched. It really is a national university—its size and scope are such that it’s relevant across this country and around the world in so many ways.... Our test bed has been Ohio, and we’ve done wonderful things to raise the level of productivity and the level of the economy and the standard of living in Ohio in the 145 years that we’ve been here. It’s been incredible, and we enjoy very much having partnerships in other parts of the world that allow us to extend that reach a little more.

—President Michael Drake, M.D., Comments to Tanzania Delegation 2015

1.3 Where the proposal does address regional water problems, there is no mention of partnership with other Ohio universities. Would the initiative take the lead within the state to coordinate research and implementation approaches, similar to the proposal for African solutions?

Partnerships with other Ohio universities that are part of the current Field to Faucet suite of activities are described on p. 9-10 and p. 15-16 of the proposal and in the response to question 1.2 above. Collaborating universities are listed below. GWI's coordinating role in the ODHE Harmful Algal Bloom Research Initiative is described above and on those pages.

Ten Ohio universities have participated over two annual funding rounds of HABRI, and all of the funded research projects represent collaborations between at least two Ohio universities.

1. Ohio State University (initiative co-chair)
2. University of Toledo (initiative co-chair)
3. University of Akron
4. Heidelberg University
5. University of Cincinnati
6. Bowling Green State University
7. Central State University
8. Sinclair Community College
9. Kent State University
10. Defiance College

Attached is a copy of the press release the Chancellor of ODHE released last week announcing the Round 2 HABRI proposals. As you can see, collaborative research is a critical element of HABRI. In addition to enabling collaborations between faculty at the Ohio research universities, this initiative is also providing critical hands-on training for graduate students at the participating universities, which is highly valued by the Chancellor.

Not surprisingly, the GWI Ohio State-University of Toledo team hopes to expand HABs collaboration in Lake Erie with research universities in Quebec, Michigan and Indiana – all located on the Lake and all active in research and outreach at many levels of the problem. Federal funding options are now being assessed towards this end.

It should also be noted that the NSF Lake Erie Science and Technology Center and the NSF Engineering Research Center pre-proposals spearheaded by GWI and led respectively by Linda Weavers (COE) and Scott Shearer (FAES), integrated key researchers from not only across the midwest but also Canada, Ireland and the Southeast.

So the answer to the question is – whether the focus is Field to Faucet, Wells to Wellness or Coastal Resilience, GWI will foster and promote collaboration across the colleges, centers and Discovery Themes at Ohio State and with external parties for the projects that it is spearheading or leading.

1.4 Other partnerships that could be pursued include ones with Battelle Memorial Institute and the national laboratories that it manages. We recognize that the proposal cannot cover all possibilities, but Ohio State's close relationship with Battelle is worth mentioning as a possible partner.

As a former Vice President/General Manager of Battelle, GWI interim director Marty Kress still has strong ties with Battelle and he shares the Committee's view that Battelle is a key asset in the portfolio of GWI activities. Several key collaborators at Battelle have been briefed about the GWI concept and potential opportunities to collaborate. Marty has also been working closely with the OSU-Battelle Senior Researcher on this initiative, who has contributed key inputs to the proposed construct and to the core systems being considered for use in the Wells to Wellness program in Tanzania. In particular, he helped convene a meeting with key experts from ARPA-E, DOE and Battelle on energy storage solutions applicable to water systems. Based on that interaction, GWI is now assessing the feasibility of using refurbished car batteries for energy storage in remote areas.

As GWI further assesses options for distributed energy systems in Tanzania, it is confident that its relationship with Battelle will be strengthened and some of their key capabilities will be integrated into future projects.

At the same time, GWI is in discussions with other national labs and federal agencies regarding assets and capabilities that might be brought to bear to its Tanzania, Coastal and Lake Erie initiatives. For example, discussions about innovative applications of unmanned aerial systems (UAS) for communications, remote sensing, disaster relief, and sustainable agriculture have been initiated with NASA GRC, AFRL and NOAA and further discussions are anticipated.

In addition, GWI has also engaged with DOD and the Africa Command about a new United Nations initiative regarding the transition of DOD technologies for water purification, communications, power systems and health to Africa. GWI has been notified that it will be invited to the first meeting of the groups in March. Based on the quality of these interactions, DOD was one of the key sponsors of Ohio State/GWI in its recent application for membership in the US Water Partnership.

Lastly, we would be remiss if we did not note the key role that the USEPA water quality research center in Cincinnati played in helping to frame both Field to Faucet and the Harmful Algal Bloom Research Initiative (HABRI). EPA staff provided great insight regarding research gaps and critical needs.

In framing the proposal, the team erred on the side of not trying to list everyone it has interacted with. While GWI can say it has staff support at Battelle, it is premature to say it has Battelle support. As the concept evolves, GWI will assess collaborations with Battelle and other key research groups depending on the nature of the project, the end user requirements, and the available funding.

1.5 No mention is made of partnership with commissions that govern the Great Lakes. Nor is there mention of entities with significant interests, such as the Ohio Department of Natural Resources (and other states neighboring the Great Lakes) or the University of Wisconsin-Milwaukee Great Lakes Water Institute/School of Freshwater Sciences. Should they be included in planning?

GWI has intentionally aligned its Field to Faucet (F2F) suite of research activities with state, regional, national, and international agreements and priorities. While not explicitly stated in GWI's institute proposal, these criteria played a key role in the interactions with the State of Ohio that have resulted in the development of the Harmful Algal Blooms Research Initiative (HABRI). The basic goal of F2F and HABRI—to support research to reduce nutrient runoff in Lake Erie—is based on Annex IV of the Great Lakes Water Quality Agreement. The core team for the Field to Faucet initiative—Marty Kress, Jeff Reutter, Chris Winslow, Jay Martin, Kate Barter—all have key interfaces with the commissions for the Great Lakes Region as well as several of the key nonprofit organizations in the region. Included in this list are the International Joint Commission, the Lake Erie Protection Fund, the Great Lakes Sea Grant Network, Annex 4 Objectives and Targets Task Team, etc. In addition, as noted in the response to question 1.2 above, the Ohio Department of Higher Education, Ohio Environmental Protection Agency, Ohio Department of Natural Resources, Ohio Department of Agriculture and Ohio Department of Health are all involved in the Lake Erie programs.

This issue is discussed in the response to question 1.2 above and on p. 9-10 of the proposal. Expansion of the statewide harmful algal bloom collaboration to include other Great Lakes states and provinces is also discussed above in responses to questions 1.2 and 1.3.

To date, the consortium has focused on Lake Erie as a starting point because its algal issues are the most severe and because the state of Ohio is the most affected by Lake Erie harmful algal blooms (both as a source of nutrients and as a recipient of consequences). In the context of Lake Erie, GWI is actively pursuing regional collaborations. For example, an Ohio State research team integrated the Universities of Michigan and Toledo into an ensemble modeling project for the second round of HABRI funding.

The interim director of GWI met with the Great Lakes Water Institute at the Water Council Meeting in Milwaukee, and it is likely that GWI will have a representative at this meeting again this year. But as of today, there are no active discussions for collaborating on a targeted project with the University of Wisconsin-Milwaukee. Based on GWI's assessment of the new Moonshot for Water initiative and its possible collaboration to frame a new National Network for Manufacturing Innovation (NNMI) proposal based on water research, new collaborations could be framed and key groups on Lake Michigan would be great partners.

1.6 *The proposal does not seem sufficiently inclusive of interests across OSU and its regional campuses—(for example, one of us having lived through the Milwaukee cryptosporidium outbreak wonders where is public health in this initiative; in light of what happened in Flint, Michigan, can social work and other units with a social justice mission be included; and, how might a greater campus presence reflect the initiative’s international interests; and, since so much of this proposal involves policy, will partnership with the Glenn College be pursued?*

Role of public health in GWI

- Faculty in the College of Public Health have been engaged since the beginning of the Global Water Initiative, including two faculty investigators under the Field to Faucet focus area (proposal p. 16), a collaboration under discussion for the Wells to Wellness focus area (not discussed in the proposal as it is not yet formalized), and the service of two CPH faculty on the GWI Faculty Advisory Committee (proposal p. 25-26).
- Other involved faculty who do not reside in the College of Public Health but deal centrally with issues of public health include the head of the College of Medicine’s Global Health Program and the head of the multi-college One Health Program spearheaded by the College of Veterinary Medicine. Both of these faculty serve on the Faculty Advisory Committee (proposal p. 25-26).
- Perhaps a useful parallel example to the cryptosporidium outbreak is the 2014 drinking water crisis in Toledo caused by harmful algal blooms, which was the impetus for both Field to Faucet (F2F) and the state-funded Harmful Algal Bloom Research Initiative (HABRI) discussed above. Not only were Ohio State faculty called upon for expert consultation in the height of the crisis, F2F and HABRI created a solutions-oriented, near-term set of research opportunities inspired by state agencies at the front lines of the crisis. A number of critical unknowns regarding the best way to configure water treatment plants to remove algal toxins—directly analogous to the cryptosporidium issue—are now both better understood and results have already been incorporated by treatment plant operators in 2015. GWI played a coordinating, integrating role throughout this process, and the same faculty that were called upon during the Toledo crisis are (by virtue of their expertise and stature in the region) now investigators under Field to Faucet and, in some cases, GWI Faculty Advisors (proposal pages 16 and 25-26 respectively). GWI will take the same role with respect to issues of lead contamination in municipal water.

Engagement with regional campuses

- GWI regularly engages with faculty at the OARDC and ATI. Three examples include Yebo Li, a funded Field to Faucet investigator; Casey Hoy, the lead for the Initiative for Food and Agricultural Transformation (InFACT) Discovery Theme with which GWI is exploring collaboration; and Victor Ujor, the new lead for renewable energy who has a keen interest in the Tanzanian initiative.
- Interim Director Marty Kress has met with Dean Gavazzi at Mansfield to explore potential collaboration there, particularly in the area of sustainable forestry as it impacts land and water (relevant both in Ohio and in Africa). Dean Gavazzi has also asked Marty to help with his EcoLab Vision.

Response to Flint

- In light of the ongoing crisis in Flint, GWI has initiated conversations with state officials and has conducted a survey of capabilities at Ohio State among its faculty affiliates.

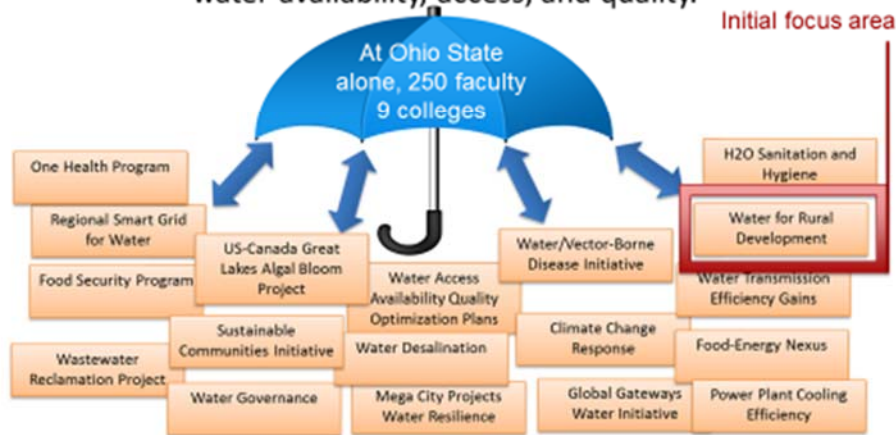
These actions are preparatory to either 1) receiving a request from state or local governments to provide service or expertise as a university, and/or 2) proactively organizing an initiative from Ohio State. In the latter case, we would certainly be open to collaboration with the College of Social Work.

Role of policy and potential for future collaboration with Glenn College

- GWI is most interested in collaborating with faculty and centers across the university. As a new entity, we know that we have to carefully focus our resources and staff if we are to succeed. GWI frames proposal and project teams based on the requirements of the opportunity/challenge. At present, there has been a limited need for policy analysis, since the State of Ohio was not interested in funding this focus area for the HABRI. There is a role for the social sciences in the Tanzanian initiative, and discussions are underway with many faculty across the university.



GWI would be an umbrella that would support various specific, targeted, interdisciplinary projects focused on water availability, access, and quality.



- As for collaboration with the Glenn College, the above chart was part of the May 2014 briefing to then Provost Steinmetz. As it shows, in addition to Water for Rural Development, the initial focus of GWI, there are many other emerging water issues that could be candidates for collaboration between GWI and the Glenn College or new Glenn-based initiatives. Included in this list are transboundary water issues, water pricing, infectious disease, water waste, market-based incentives, innovative policies and technologies to optimize water use, contamination of public water distribution systems, the impact of climate change on water treatment facilities, dumping in Lake Erie, a water trust fund in Ohio, etc. The UN's recognition of sanitation and access to clean water as fundamental rights was a key catalyst for policy discussions and project definition in the developing world. But policy issues abound at the local, state, regional, national and global levels. There is no shortage of opportunities – just a shortage of resources.

How a greater campus presence would align with GWI's international focus

- As discussed in the Student Involvement section of the proposal (p. 19-20), GWI receives overwhelmingly more interest from students in engaging with our international projects than with any of the more domestically oriented activities. We anticipate that greater prominence for GWI (both in the form of formal institute recognition and in stronger collaborations with academic units) will only increase the level of interest we experience from both students and faculty in international development work. We also hope it will enable us to support more student engagement both in and out of the classroom.
- GWI's capstone and applied projects activities with the College of Engineering (COE) and Fisher College of Business—funded by the Office of Energy and Environment—are one key reason for this interest. But the emergence of the Humanitarian Engineering Program; the new COE course Appropriate Technology for Developing Countries; the service learning initiatives at COE, FAES and other colleges; the new Pure Water Access Project non-profit started by Ohio State medical students; the Hydropolitics lecture series at Mershon; the One Health initiatives; and the new Ohio State Global Gateways have also had a profound impact on OSU students and their interest in food, energy, water and health issues in the developing world.
- When GWI was initially assessing its options for thematic focus areas, a key factor for selecting rural water development was the stature of Ohio State in producing Peace Corp volunteers and the suite of international projects the university already had underway including iAGRI in Tanzania, the university's largest international activity. GWI is pleased to note that several of those Peace Corps volunteers have returned and they now support our capstone projects. Indeed, that initial assessment underestimated the level of student interest in projects that address critical global needs.

2.1 On page 6, the proposal needs to be updated since it still includes earlier roles for Provost Steinmetz and Acting Provost McPheron. It strikes us that it is acceptable to mention Provost Steinmetz as part of the history but not as a current administrative leader. The proposal should note that it is not possible to commit a future Provost to this kind of venture when we do not know who that person will be.

The proposal has been updated on pages 5 and 6 to update the current roles for Drs. Steinmetz and McPheron.

The proposal does not presume to speak for any future provost. The statements in the final paragraph on p. 6 simply indicate that a large number of current and past university leaders—as well as others inside and outside the university—have expressed support for the promotion of GWI from “initiative” to “institute” status.

As you already know, the proposal was submitted on November 13, 2015 for a second time. The October 2014 submission was put on hold due to the restriction on the creation of any new institutes until the leadership team had resolved some core issues. It was in late August 2015 that then Provost Steinmetz gave GWI the green light to resubmit and we immediately began working towards that goal with Vice Provost Randy Smith.

At the time of submission we did know that Dr. Steinmetz was leaving, but we did not yet know who the interim provost would be.

2.2 The section on student involvement is thin, and appears to mention only historical activities. Plans for future student involvement are critical to moving this proposal forward, in our view. The proposal lacks the integration of student learning in the mission. Although a center does not need to create curriculum, to what extent can this center serve students? This GWI presents an opportunity that is not discussed to propose minors (interdisciplinary), majors or certificate programs mentioned; integrative courses; integrative PhD opportunities outlined; or post-docs mentioned in the plan. Can you speak to this deficit?

Education and student engagement in research are a key part of GWI's vision for the role it can serve as a university institute. We are happy to elaborate on that here. The descriptions of past student involvement activities were included in the proposal to show that despite its recent launch (May 2014), GWI already has a track record of student engagement.

GWI will and does enthusiastically support genuine grass-roots efforts by its faculty collaborators to enhance the student experience through institutional processes such as the proposing of new majors, minors or other programs. This support may include networking, coordination, advocacy, proposal development and other services. However, on its own, GWI has made a strategic decision to limit its own forays into these time- and energy-intensive processes separate from a coalition. (For example, the campus dialogue surrounding an undergraduate Water major are at least 15 years old, predating the tenure of GWI and any of its staff at Ohio State.) We feel that within our leaner working model, we can have much greater impact on the student experience by concentrating on providing opportunities that students cannot easily find elsewhere at Ohio State. Specific areas of focus include:

- Distance and e-learning (discussed in the proposal)
- Sponsored interdisciplinary capstone experiences (discussed in the proposal)
- Undergraduate, graduate and post-doctoral research
 - Supporting major center proposals (in the last year have coordinated NSF Science and Technology Center and Engineering Research Center proposals) that offer innovative, interdisciplinary opportunities for trainees at all levels
 - Integrating students into funded research (already underway in Field to Faucet and Wells to Wellness focus areas)
- Supporting initiatives by collaborating faculty, e.g., Humanitarian Engineering Center and Minor

An illustrative example of the role GWI envisions for itself with respect to student programs is a proposed Tanzanian study abroad program in development between the Colleges of Food, Agricultural and Environmental Sciences and the College of Engineering. The program concept is the result of two faculty members meeting at a GWI event. One of the faculty led a GWI-sponsored capstone engineering project and trip to Tanzania and the other applied for a pending Fulbright application as a direct result of GWI support and facilitation. Naturally, GWI was delighted at the unforeseen collaboration between these two colleagues to meet a mutual need—for their undergraduate students to have access to a set of rural villages in a (stable, accessible) developing country where Ohio State has a long-term relationship with the community and where mutual trust has been established for Ohio State faculty and students to offer technical and other types of support as learning and research experiences. Since the collaboration between these two faculty began in November 2015, their respective chairs and college representatives have been engaged with positive results such that the program is

expected to launch in the 2017-2018 academic year. In addition, the team has submitted four proposals—with GWI support—for seed funding to launch the program with matching funds from the participating units.

3.1 The proposal lacks specific goals and measureable outcomes by which the initiative can report back to the Committee on Academic Affairs (CAA) on its progress. It is difficult to determine from the proposal what the metrics would be for evaluating the initiative once it becomes a University Center. Clearly, under the rules, the Center would be reviewed on a regular basis in the future but the proposal needs clear metrics of success that will be included (besides, perhaps, having developed some funding) and what funding autonomy might look like.

Metrics for success

Quantifiable metrics for success/criteria for evaluation are outlined on p. 31 of the proposal. As noted in the proposal, these metrics will be assessed and updated by GWI's various oversight and advisory committees. A key goal for the first meeting of the GWI Oversight Committee, chaired by the university Vice President for Research, is to secure approval of these overall metrics for GWI. GWI would be happy to answer specific questions from the Subcommittee about any of these metrics.

Note: In addition to the overarching metrics for GWI, GWI will also frame metrics for the key research and programmatic activities it engages in.

A vision for funding autonomy

Please see response to question 3.2 below.

3.2 The proposal is not clear on the sources of funding. Can a budget be added that shows existing funds, promised funds, and plans for fund raising?

Existing, promised and targeted funds are described on p. 28-29 of the proposal, but we are happy to elaborate here. The numbers that are included in the tables below have been checked and approved by the business manager for the Office of Research.

Operating Expenses	FY 2016	FY 2017	FY 2018
Personnel ¹	741,000	832,000	749,000
Faculty Grants ²	100,000	100,000	100,000
Student Activities/Capstones/Projects	20,000	20,000	20,000
Consulting Agreements/Subcontracts	125,000	75,000	50,000
Conference/Forum -- Annual Event	25,000	25,000	25,000
Travel ³ *	50,000	50,000	50,000
Office Operations *	10,000	10,000	10,000
Space	0	0	0
Projected Budget	1,071,000	1,112,000	1,004,000

¹ Executive Director, Lead Systems Engineer, and Senior Research Associate will partially bill to projects as they come online.

² For externally funded grants, GWI is including funding for faculty grants and student activities above.

³ Travel assumes at least 6 international trips, 15 to US cities, and 15 to Ohio venues per year.

* Project travel and operations costs associated with projects will be billed as a project expense.

Existing and Promised Internal Funds	FY 2016	FY 2017	FY 2018
Existing Central (OAA) Funding	500,000	250,000	
Existing CFAES Funding	100,000	100,000	100,000
Existing OR Funding	347,000	347,000	347,000
COE Commitment		150,000	150,000
FCOB Commitment--TBD			
CAS Commitment		150,000	150,000
Prior Year Unobligated Funds	225,000	100,000	0
Internal Funding	1,172,000	1,097,000	747,000

It should be noted that the out-year funds listed (FY 2017 and 2018) are still projections. GWI is engaged with OAA in a new process to frame MOUs with its supporting organizations. The initial meeting on this new process was held on February 26. The expectation is that GWI will have MOUs with its key internal sponsors and investors by the end of May 2016. As such, a current projection could go up or down, and there are a lot of meetings and negotiations still to take place on behalf of GWI.

Existing, Targeted External Funds	FY 2016	FY 2017	FY 2018	Notes
1. Field to Faucet				
Existing				
ODHE Funding -- HABRI	2,000,000	2,000,000	2,000,000	Funding in hand for '16 Discussions Underway
Project Matching Fund	1,000,000	1,000,000	1,000,000	
Baseline GWI Funding	3,000,000	3,000,000	3,000,000	
Targeted				
Federal				
NSF Food, Energy, Water	1,000,000	1,000,000	1,000,000	Proposal Due March 22
NSF S&T Center				Target in 2018
2. Coastal Resilience				
UNESCO Coastal Resilience Funding		1,000,000	2,500,000	Discussions Initiated
Long Term Monitoring of Bangladesh Coastal Zone	3,200,000	3,200,000	3,200,000	Pending Proposal
Downstream Water Resources Management in Bangladesh	150,000	150,000	150,000	Pending Proposal
3. Wells to Wellness				
Grant Funding -- GWI-WE³ Program				
Monsanto Foundation	1,000,000	1,000,000	1,000,000	Proposal Due Feb 29
Abbott Foundation	250,000	250,000	250,000	Proposal Submitted
Coca Cola Foundation	2,000,000	5,000,000	5,000,000	Proposal being assessed
Nestle Foundation	1,000,000	1,000,000	1,000,000	Concept paper submitted
Gates Foundation				Being Developed with Advancement/Ohio State Foundation
USAID Funding -- GWI-WE³ Program				
HEPII	1,000,000	2,000,000	2,000,000	Proposal Due Last Summer 2017
WADA	2,000,000	5,000,000	5,000,000	Open Task Order -- GETF
American Schools/Hospitals Abroad Program	1,500,000			Proposal Due May 2 -- Assessing Eligibility
Global Development Alliance				Discussions Underway with Partners
Power Africa Funding	250,000	250,000	250,000	Discussions Initiated
DOE Funding	250,000	250,000	250,000	Discussions Initiated
Best Case Scenario (100% win rate)	13,600,000	20,100,000	21,600,000	
<i>25% capture rate</i>	<i>3,400,000</i>	<i>5,025,000</i>	<i>5,400,000</i>	
<i>50% capture rate</i>	<i>6,800,000</i>	<i>10,050,000</i>	<i>10,800,000</i>	
<i>75% capture rate</i>	<i>10,200,000</i>	<i>15,075,000</i>	<i>16,200,000</i>	
Revenue Forecast	\$3.4M - \$10.2M	\$5M - \$15M	\$5.4M - \$16.2M	These are in addition to State Baseline Funding for HABRI

Note: There are other proposal opportunities that were not included in this list. For example, the GWI Team is still assessing the White House Moonshot for Water initiative, which is funded by multiple federal agencies and could provide opportunities in all three focus areas. The team is also working to gain more insight into the Great Lakes initiative being led by the U.S. State

Department.

Our goal in this discussion is to highlight the fact there are emerging opportunities in this domain and a well-established institute at Ohio State can be capturing them on behalf of faculty, researchers and students to our mutual benefit. Many of the proposals on the GWI list require a full-time team layered with faculty, key external collaborations, the integration of assets from several colleges, as well as a combination of business and organizational innovation.

It also should be noted that GWI is intimately engaged in many of the highlighted procurement activities but only peripherally engaged in others. For example, the GWI Senior Faculty Lead is engaged in the NSF INFEWs proposal, but the core team for GWI has focused their time and attention recently on a proposal to the Monsanto Foundation, the pending USAID HEPII proposal, and preparations for meetings with Coca Cola and Nestle.