



GLOBAL ONE HEALTH INITIATIVE

2016 – 2020

ACTIVITY & IMPACT REPORT



THE OHIO STATE
UNIVERSITY

MESSAGE FROM THE EXECUTIVE DIRECTOR

The world is facing rapidly accelerating change that impacts human and animal health and disrupts our ecosystem, the environment and plant health.

The increasing world population that is currently estimated at 7.6 billion is expected to reach 9.7 billion by 2050.¹ Regions such as sub-Saharan Africa are particularly expected to have the fastest population growth with what is dubbed as the “African youth bulge.” Such a rapid population increase is estimated to add more than 220,000 new lives each day.

This intense population pressure on planet earth has several irreversible consequences. The land-use pattern is permanently changing with accelerating urbanization, the current 55% urban-dwelling population is expected to reach 70% by 2050.¹ The rate of deforestation to expand human habitats is also consistently resulting in massive changes to our atmosphere. Associated industrialization and expansion of intensive animal productions to meet the protein demand increases greenhouse gas emissions that result in thinning of the ozone layer. **This sustained permanent climate change in turn, results in changing ecosystem of insect vectors as well as emergence of novel viral epidemics and pandemics that originate from wildlife, including the SARS-CoV2 virus that causes COVID-19.** The common and indiscriminate use of antimicrobials and other resources that mankind once believed to be silver bullets are increasingly defeated by superbugs that resist against multiple antimicrobials reaching the level of a Global Crisis (IACG, 2019).²

The interface where humans, animals, plants and the environment connect is more intense than ever before, and it will continue to be more intractably interlaced. While we recognize this is an inevitable consequence of the global dynamics, the implementation of the One Health approach has been adopted at a much slower rate than it should have been. **The Global One Health paradigm (Gebreyes et al., 2014), which has been adopted by The Ohio State University and a few institutes within the United States and around the world, is a proactive approach that allows building institutional capacity to preemptively prepare and prevent the emergence and occurrence of biological and chemical hazards. Such a proactive approach is known to be cost-effective and could save a large number of human lives each year.** The World Bank estimates that it costs \$3 billion a year to build and operate One Health systems for effective disease control in developing countries.³ By investing this modest amount, the planet could prevent catastrophic epidemics and pandemics such as COVID-19. In contrast, mitigating one pandemic could cost trillions of dollars, as we are currently witnessing with COVID-19. The impact of COVID-19 surpassed \$10 trillion within the first quarter of the pandemic.

The world is at a pivotal point. We no longer have time to waste debating the need for a proactive Global One Health approach. Ohio State’s Global One Health initiative, with its valued partners in strategic regions, particularly the developing world, and its committed stakeholders and sponsors that provide financial support, look forward to strengthening and accelerating its high-impact, integrated capacity building approach through: 1) Training capacity; 2) Applied research and implementation capacity and 3) Outreach and community engagement. We are committed to see a world with sustained capacity of institutional systems that support and advance health and enduring global community.

Wishing that everyone remains safe and healthy until we see the end of COVID-19.

Wondwossen A. Gebreyes, DVM, PhD, DACVPM
Professor and Executive Director



¹ United Nations. UN75. <https://www.un.org/en/un75/shifting-demographics>.

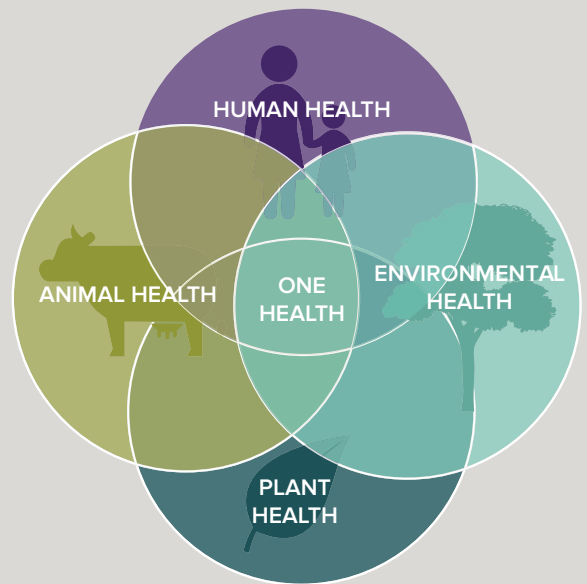
² IACG Report. <https://www.who.int/antimicrobial-resistance/interagency-coordination-group/final-report/en/>.

³ One Health Economics, World Bank. <https://blogs.worldbank.org/health/one-health-economics-healthy-people-agriculture-and-environment>.

WHO WE ARE

The Global One Health initiative's (GOHi) mission is to expand capacity for a One Health approach via applied education, training, research and outreach to more efficiently and effectively address causes and effects of diseases at the interface of humans, animals, plants and the environment.

GOHi is The Ohio State University's largest, interdisciplinary example of institutional teamwork operating on a global scale, involving 13 of the 15 colleges, 110+ active faculty participants and three faculty directors, five engaged professional and administrative staff in Columbus including the executive director, and nine employees at our affiliated entity, Global One Health, LLC, in Addis Ababa, Ethiopia; as well as 19 fellows and 81 contractors engaged with COVID-19 surveillance.



One Health recognizes the interdependence of human, animal, environmental and plant health and understands that a holistic approach to the well-being of all will lead to improved health outcomes and enhanced resilience.

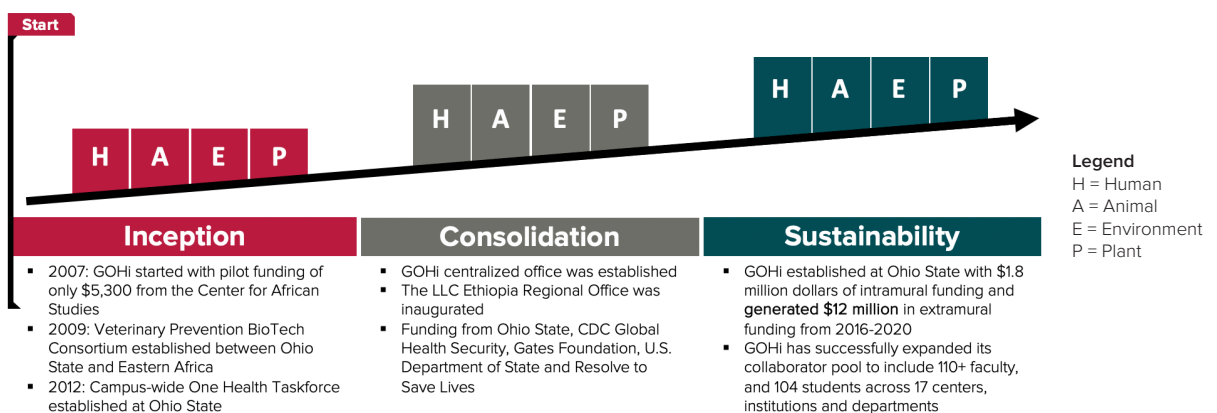
OUR VISION

Capable professionals and institutional systems that support and advance a healthy, enduring global community.

OUR STORY

In 2007, GOHi executive director, Wondwossen Gebreyes, won a modest primary investigator grant of \$5,300 for a pilot project in veterinary medicine. The pilot project grew and was formally established as a university initiative in 2016. The initiative has received multiple awards and recognitions including:

- Outstanding performance in one health capacity building, (2020) by Ethiopian National Animal Health Diagnostic and Investigation Center (NAHDIC)
- National Institutes of Health (NIH) Gold Medallion Award (2019) from the NIH Fogarty International Center in recognition of its distinguished partnership with NIH
- Best partner of the year award (2016) by the University of Gondar (Ethiopia)
- Universitas 21 Internationalization Award to recognize the innovative work being delivered at member universities
- American Public and Land-Grant Universities' Michael P. Malone International Leadership Award (2015)
- Andrew Heiskell Award (Honorable Mention) for Innovation in International Education from the Institute of International Education (2015)
- International Engagement Award from The Ohio State University (2014)
- Digital First Impact Award for electronic capacity building from The Ohio State University (2014)



GLOBAL ONE HEALTH, LLC, (GOH, LLC)

GOHi's affiliated entity, GOH, LLC, based in Ethiopia, facilitates implementation, growth and sustainability of activities concentrated in eastern Africa. Since established in 2017, the team in Addis Ababa, Ethiopia continues to flourish and is recognized as a trusted partner by the Ethiopian Public Health Institute, the Ministry of Health (MoH) and the Ministry of Science and Education. The eastern Africa regional office is led by Getnet Yimer, MD, PhD, who has served as a Principal Investigator and co-PI on six projects and now leads efforts with the MoH on an integrated COVID-19 response.

RECENT HIGHLIGHTS

COVID-19 PANDEMIC RESPONSE AND MITIGATION

Faced with the unprecedented adversity of a pandemic caused by the SARS-CoV2 virus, COVID-19, GOHi's focus on strengthening health institutions' capacities is more vital than ever. The rapid growth of GOHi and the strategic opening of an office in Addis Ababa, Ethiopia in 2017, demonstrates our ongoing commitment to face challenges by training health professionals, conducting applied research and engaging with our local and global communities. Together, we embody and embrace creative thinking, innovation, flexibility, collaboration and resilience to solve the world's most pressing issues.

Through GOHi's existing partnerships in Ethiopia, it is actively working on several COVID-19 projects including:

- Rapid Coronavirus Non-pharmaceutical Intervention (NPI) survey in Ethiopia (RESOLVE, Vital Strategies Inc.)
- Ethiopian National COVID-19 Research Priorities and Alignment (Ministry of Science and Higher Education, Ethiopia)
- Active Surveillance and Contact Tracing of COVID-19 in Ethiopia (CDC Foundation)
- Risk Communication and Community Satisfaction of COVID-19 Management in Ethiopia (RESOLVE Phase 2 project, Vital Strategies Inc.)
- SARS-CoV-2 Diagnostics and Molecular Epidemiology panel (People 2 People)
- Intellectual Discourse—The impact of COVID-19 on National Security
- COVID-19 knowledge awareness to local communities in Ohio



OUR STRATEGIC APPROACH

GOHi's Strategy is founded upon three core technical goals and two supportive goals that are critical to implementing GOHi's broad capacity building. **The strategy is aligned with Ohio State's Office of Academic Affairs' mission and the United Nations' Sustainable Development Goals (SDG).**

GOAL #1

Training Capacity: Develop a focused, mutually beneficial, high-impact and sustainable education and training system that enables Ohio State and strategic global partners to address complex issues at the interface of human, animal, plant and environmental health.

Associated SDGs: 4, 10

GOAL #2

Applied Research and Implementation Science Capacity: Define and establish integrated applied research and implementation science capacity in priority multi-disciplinary areas that have a strong and tangible impact in Ohio and the global community.

Associated SDGs: 2, 3, 6, 12, 15

GOAL #3

Outreach and Extension Capacity: Create a long-lasting impact on the Ohio State community, the state of Ohio and the international community, as well as externally with international stakeholders that have integrated extension engagement.

Associated SDGs: 16, 17

GOAL #4

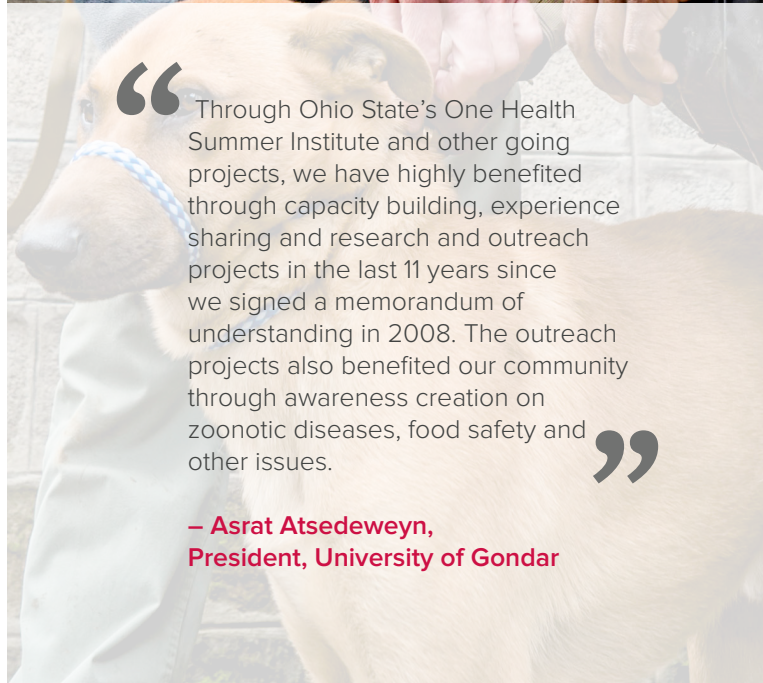
Resource Stewardship: Develop a system for an equitable and efficient utilization and transfer of training, research and outreach resources.

Associated SDG: 8

GOAL #5

Financial and Resource Sustainability: Develop a sustainable financial plan to enable and support GOHi's execution of the technical goal to create and sustain long-lasting impacts.

Associated SDG: 11



“ Through Ohio State's One Health Summer Institute and other going projects, we have highly benefited through capacity building, experience sharing and research and outreach projects in the last 11 years since we signed a memorandum of understanding in 2008. The outreach projects also benefited our community through awareness creation on zoonotic diseases, food safety and other issues. ”

– **Asrat Atsedeweyn,**
President, University of Gondar

OUR IMPACT

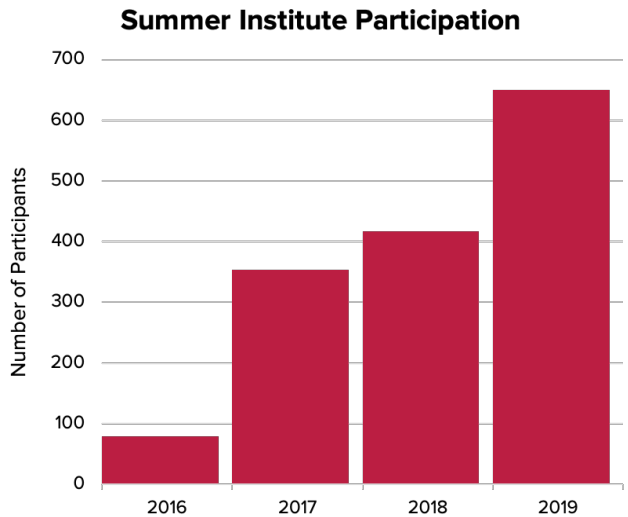


TRAINING AND INSTITUTIONAL CAPACITY STRENGTHENING

Associated SDGs: 4, 10

Now more than ever, democratizing access to information and learning opportunities is a critical mandate for academic institutions. GOHi invests time and resources to develop broader access to education and training via in-person and digital courses, open source and free materials. We do this successfully by creating and sustaining equitable relationships with funders and partners across the globe. GOHi's legacy is generating and maintaining robust knowledge bases and partnerships to strengthen health institutions globally.

- **1,700+ participants, 104 Ohio State-affiliated instructors (90 of which are faculty members), 104 Ohio State students and 69 institutions** involved in the Global One Health Summer Institute from 2012-2020
 - In 2020, the Summer Institute offered 14 courses, 3 antimicrobial resistance webinars, 21 internal medicine lectures; and brought attendees from 47 countries and 66 new instructors
- **1,500 East African professionals trained since 2016** (more than 1,760 since 2012)
- **28 PhD fellows from eastern Africa, Brazil and Thailand** hosted at Ohio State for research mentorship
- **160 healthcare providers received targeted training** on clinical specimen collection (80), master trainers training (16) and facility level trainers (47) on clinical specimen collection resulting in an average of 16.86% increase in pre/post skill tests
- **25 Master of Business Administration students at Ohio State developed four regulatory, supply chain and logistics systems** for One Health issues, including water systems, antimicrobial importation and regulation, vaccine supply chain and logistics
- Established an **inter-disciplinary Global One Health certificate program** at Ohio State along with one PhD and **one master graduate program** in Ethiopia
- **17 free online courses** offered on the learning platform, Canvas, with a **total enrollment of 26,499**

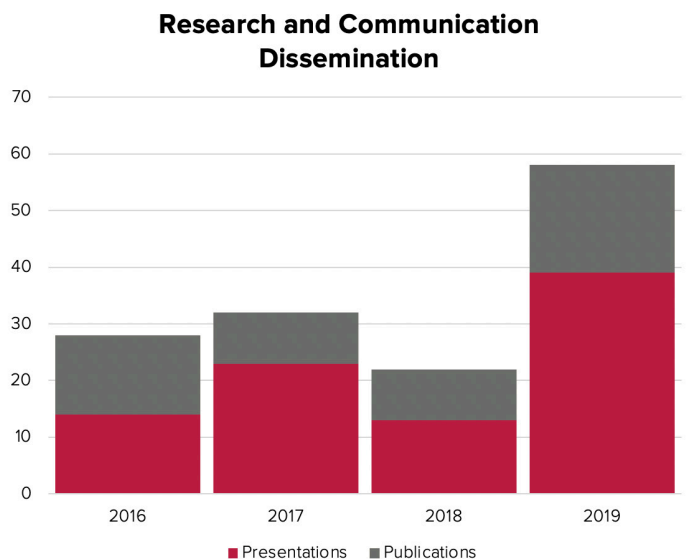


APPLIED RESEARCH AND IMPLEMENTATION CAPACITY STRENGTHENING

Associated SDGs: 2, 3, 6, 12, 15

GOHi faculty experts and committee members have a prolific portfolio of presentations and publications.

- **63 peer-reviewed articles** published in moderate to high-impact journals
- Articles and publications have been downloaded **33,704 times** and mentioned by another peer reviewed publication **293 times** (as of May 25, 2020)

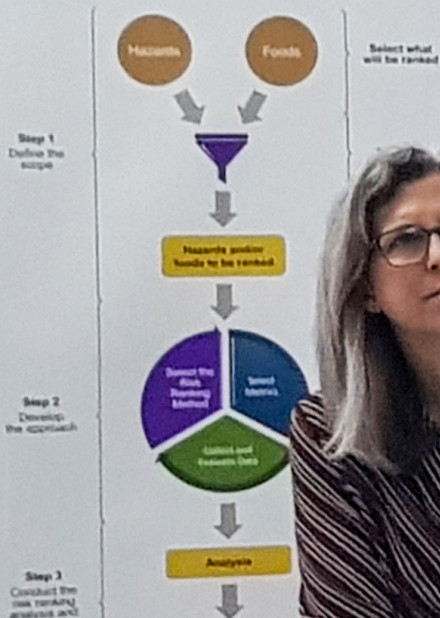


The research dissemination and extension capacity graphic highlights GOHi's progress in the training capacity and outreach/extension capacity strategic goals.

TARTARE

Establishing Risk-Based Priorities in Food Safety

- 1.) Scoping Workshop- March 3-6, 2020
- 2.) Risk-Ranking Workshop - Planned for 2020
- 3.) Risk-Prioritization Workshop - Planned for 2021



Project Support: Connect and Collaborate incentivizes Ohio State faculty to develop and grow meaningful partnerships that catalyze engaged teaching, research and service programs with measurable and sustainable benefits to the community while advancing the strategic and scholarly goals of the university. The program is unique in that oversight and funding is provided by the Stewardship Partners, with members from Ohio State and the community, and incorporates a development phase where applicant teams work closely with funders and a project development mentor to develop full proposals. GOHi has supported the following projects:

- **Cameroon** – Ann O’Connell, College of Education and Human Ecology; Rebecca Garabed (Qualitative Methods; Disease Modeling)
- **China** – Shu-Hua Wang, College of Medicine (Tuberculosis)
- **Guatemala** – Barbara Kowalyck, College of Food, Agricultural, and Environmental Sciences (Food Safety)
- **Ohio** – Sanja Ilic, College of Education and Human Ecology; Melanie Ivey College of Food, Agricultural, and Environmental Sciences (Food Innovation)
- **Republic of South Africa** – Amanda Berrian, College of Veterinary Medicine (Wildlife)

Zoonotic Diseases Implementation Science

A CDC-funded Global Health Security cooperative agreement project (2016-2021) resulted in:

- **62,328 dogs and cats vaccinated in Ethiopia against rabies**, a disease known to kill more than 1,400 children per year in Ethiopia
- **27,000+ animals and humans have been serologically tested against brucellosis**, a highly infectious disease that can be transmitted through raw milk consumption in Ethiopia
- **136+ Ethiopian para-veterinarians and other front-line staff** trained for rabies surveillance, control and bite case management
- **42 laboratorians from 10 national laboratories** trained in human and animal brucellosis diagnostics in Ethiopia

Global Infectious Diseases Research Capacity

GOHi is engaged in various research and implementation science including foodborne (such as Salmonella and Campylobacter), Waterborne (such as rotavirus, norovirus etc), Vectorborne diseases (such as Leishmaniasis) and other zoonotic diseases (Brucellosis and Rabies particularly).

- **Foodborne:** Building capability while changing regulatory policy, which impacts other low/middle-income countries
- **Waterborne:** Establishing a strong regional cholera and rotavirus research partnership in East Africa with the Kenya Medical Research Institute (KEMRI) and the University of Nairobi.
- **Antimicrobial Resistance (AMR):** Building a model One Health approach to mitigate challenges of AMR and training critical mass of health professionals (to date, 144 healthcare professionals have been trained in AMR courses)

- **Epstein-Barr virus (EBV):** Addressing the neglected and untouched area in developing setup while addressing non-communicable diseases associated with infectious agents
- **Wildlife:**
 - Student-led qualitative research project (titled, *Zoonotic pathogen risk in a resource-limited community at the livestock-wildlife interface, Mpumalanga, South Africa: a qualitative analysis*) published in the *Lancet* contributed to a more detailed understanding of gendered risk behavior and critical control points for zoonotic disease—a significant contributor to acute febrile illness in a rural, resource-limited setting
 - Pathogen discovery in tissues of road kills in Ethiopia resulting in finding of novel parvovirus
 - Spotted hyena population surveys and wildlife-domestic animal contact rate camera trap surveys throughout four regions of Ethiopia provided critical ecological information for rabies disease models, helping to clarify the role of wildlife in the transmission of rabies throughout Ethiopia—this information will inform appropriate control measures to help reduce the burden of rabies throughout the country



“ My project utilized social science methods (specifically ethnographic methods from anthropology) to investigate zoonotic disease risk factors in the community. Our main objective was to better understand how factors like gender could affect exposure risk to zoonotic pathogens causing acute febrile illnesses, such as Q fever, tick bite fever, and leptospirosis, in the rural Mnisi community. This project was conducted in collaboration with the Mnisi Community Programme (MCP) at the University of Pretoria Faculty of Veterinary Science. The villages in the study area are unique in that they stand at a critical human-livestock-wildlife interface, with many villages and cattle grazing areas bordering wildlife game reserves. ”

– Pallavi Oruganti, Student, College of Veterinary Medicine



OUTREACH AND EXTENSION CAPACITY ACTIVITIES

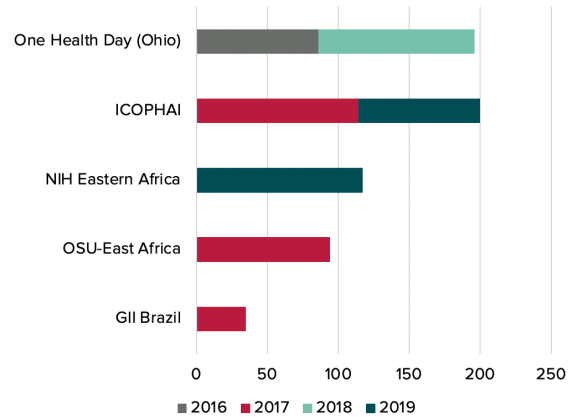
Associated SDGs: 16, 17

Staying connected with communities is essential to the success of GOHi's work. GOHi continues to listen and engage the people and institutions it aims to support. Partnerships are bi-directional, synergistic and mutually beneficial.

Outreach By the Numbers

- **110 participants** participated in GOHi-organized, One Health Day Symposium in Ohio in 2018
- GOHi led biennial International Congress on Pathogens at the Human animal Interface (ICOPHA)
 - Addis Ababa, Ethiopia (2011)
 - Paraíba, Brazil (2013)
 - Chiang Mai, Thailand (2015)
 - Doha, Qatar (2017)
 - Quebec City, Canada (2019)
- **1,099 subscribers from 81 countries and 356 institutes:** academic, research and regulatory
- GOHi convened Global One Health Eastern Africa workshop
 - **94 participants from five continents** (United Nations Conference Center in Addis Ababa, Ethiopia, 2017)
- GOHi hosted a joint NIH-Ohio State Health capacity conference with 117 multi-disciplinary participants from 35 institutes including eight U.S. universities (2019)
- Keynote and plenary speeches given by GOHi's executive director at international (23), national (12) and local (2) events
- **12 international agreements** in Brazil, Ethiopia, Kenya and Tanzania

Outreach Highlights



Professional Development

The GOHi team continues to seek and value professional development opportunities. Various staff members are pursuing advanced degrees, which increases individual cross-training capabilities, and builds complementary skills to enhance our team's operational sustainability.

- **American Council on Education Fellowship:** Wondwossen Gebreyes, DVM, PhD, DACVPM
- **Leadership training:** Certified Manager of Projects and Teams with ACCEL Model – Enhancing Professional Excellence; GALLUP – CLIFTON's Strength – Strengths based Leadership; The Ideal Team Player – Focusing on Team Building; Overview on Monitoring and Evaluation
- **Master of Public Health:** Leuel Lisanwork, MD
- **Master of Business Administration:** Tewodros Abebe (former); Ashley Bersani, MPH, CPH
- **Master of Science:** Kayleigh Gallagher; Achenef Melaku; Oumer Berta
- **Master of Accounting:** Shemeljash Mengesha



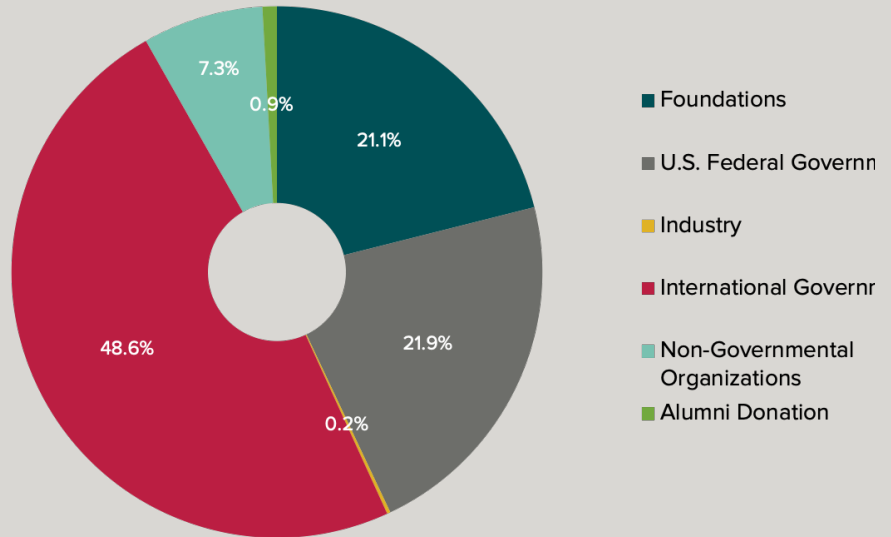
“ Although I had the opportunity to apply my accounting knowledge and experience in my former position, I only realized the richness and diversity of its applications since I joined GOHi. The internal capacity building trainings, the coaching and mentorship by my supervisors and the excellent working environment have made me a much better professional. ”

– Shemeljash Zeleke, Finance and Administrative Assistant, GOHi

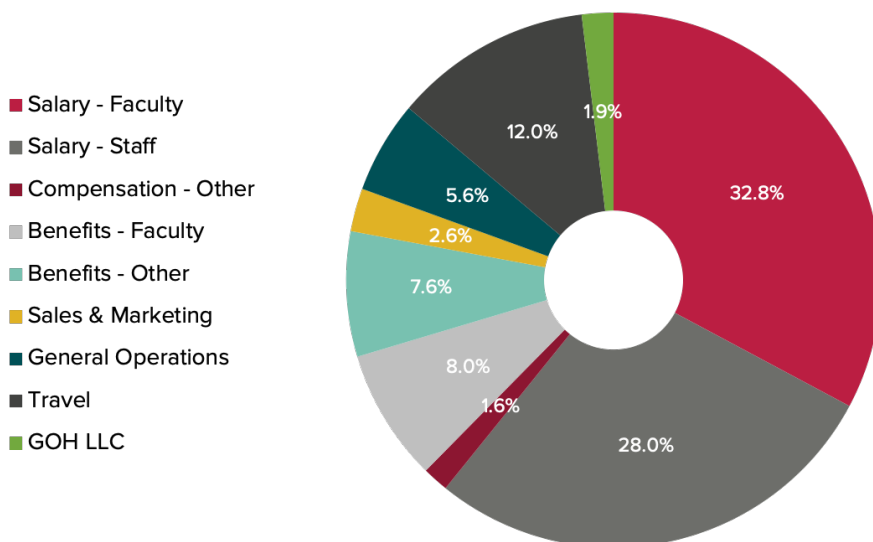
Financial Trajectory

- **\$13+ million competitive grant awards** (2016-2024)
- Key programmatic renewals for NIH training grants
- **11 grant proposals totaling \$31.6 million** currently under review
- **12 international memoranda of understanding and agreements** formalized between Ohio State and global partners
- **Proposal win rate: 47.6%** (industry average is 12%)

Sources of Support (2016-2020)



Uses of Funds (2016-2020)



In 2016, GOHi was formally established with financial contributions from six Ohio State units totaling \$1,152,255.

Using the funding responsibly, through the diligent work of faculty and staff, and by winning competitive grant applications, GOHi generated a substantial amount of revenue to benefit the university while implementing its high-impact activities.

The total revenue generated from these competitive funds to date was 8-times that of the investment, with close to \$9.2 million. (This amount does not include the additional \$4 million approved and active through 2022-2024, nor the recently acquired more than \$708,000 funds related to COVID-19 research and implementation.)

As GOHi continues to move forward, an increased need for resources is anticipated as the world continues to both respond to the COVID-19 pandemic and work collaboratively on coordinated prevention techniques.

Considering GOHi's high-impact, unique global niche and proven track record with funding sources, GOHi looks forward to continued momentum in achieving our ultimate collective vision:

Capable professionals and institutional systems that support and advance a healthy, enduring global community.

THANK YOU

To our vast and varied global and local partners and supporters, we extend **our sincere gratitude for your continued commitment to our shared mission and vision.**

Without you, we simply could not successfully and sustainably address the complex issues facing the world today.

We invite you to continue to help support the Global One Health initiative (GOHi). Your support gives GOHi and its partners the **ability to respond quickly and effectively when global health issues arise and prevent new crises from occurring.**

By working together, we can continue to strengthen professionals and institutional systems that support and advance **a healthy, enduring global community.**

For more information on giving, please contact globalonehealth@osu.edu.





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