Global Resolve

ASU’s Eight Design Aspirations:

- Leverage Our Place
- Transform Society
- Value Entrepreneurship
- Conduct Use-Inspired Research
- Enable Student Success
- Fuse Intellectual Disciplines
- Be Socially Embedded
- Engage Globally
Abstract:

GlobalResolve is an engineering-based, social entrepreneurship program at Barrett, The Honors College at Arizona State University (ASU). The primary goal of this program is to solve challenges and impact lives in the developing world. Through GlobalResolve, ASU students and faculty collaborate with international universities, local communities and governments, financial institutions, and nongovernmental organizations (NGOs), to develop and disseminate appropriate solutions that address pressing needs in developing populations. GlobalResolve does this by leveraging faculty and student expertise, curiosity and passion to approach the problems associated with disadvantaged and vulnerable groups in a meaningful and sustainable way. These challenges are among the most difficult problems in the world and experience has shown that it is impossible to make substantive progress on these issues when approached from a single disciplinary perspective. With this in mind, GlobalResolve teams consist of students and faculty from many academic disciplines and socio-economic backgrounds, all working together with stakeholders in grassroots communities toward commonly understood goals. These projects require ASU students to embrace the diverse skills and talents that all team members bring to the project to create real-world solutions with the support and buy-in of community partners. The result of participating in these efforts is life-changing for the students. Since its 2006 launch, GlobalResolve has involved more than 700 students in projects around the world. The program has received over $600,000 in funding and provided scholarships for international graduate students in developing countries. An External Advisory Board chaired by ASU Alumnus Mark Kerrigan provides technical and developmental support to GlobalResolve.

Background:

GlobalResolve was first inspired by a conversation between four ASU professors who wanted to enhance the experience of students through real-world projects in social entrepreneurship. Among them were Dr. Mark Henderson, President’s Professor of engineering and Associate Dean of Barrett Honors College, and Dr. Brad Rogers, Associate Professor of Engineering and Associate Director of The Polytechnic School. Dr. Henderson and Dr. Rogers are the Co-Founders and current Co-Directors of GlobalResolve. To maximize impact for both the students and the populations served by the projects, Dr. Henderson and his colleagues created a mission statement that called for a multicultural, multidisciplinary approach to encourage sustainable economic growth in developing countries by helping solve water, health and energy problems with technology-based solutions. In turn, the goal was for these solutions to inspire community-owned businesses to pursue sustainable approaches to addressing community development challenges. Drawing from the expertise of faculty in diverse fields, including engineering, business, design and global studies, GlobalResolve allows undergraduate and graduate students the opportunity to gain hands-on training in their field of
expertise, push the boundaries of their comfort zone, and have a true, quantifiable impact on the economies of developing nations through high-impact problem solving and innovation.

GlobalResolve has three main objectives:

1. Expose ASU students to life-changing experiences that empower them to make an impact in the world.
2. Design solutions to help relieve the effects of poverty in the developing world.
3. Create collaborative opportunities for ASU colleges with external partners.

**How it Works:**

GlobalResolve is designed to let students take the reins in project design and development, with faculty supporting and guiding their efforts. Students also work with local governments, financial institutions, NGOs and international universities. Most importantly, faculty project leads and students engage in dialogue with key community stakeholders to ensure there is local support and a commitment to long-term, sustainable collaboration. Throughout the year, student teams develop solutions for pressing issues identified at the various project sites. Students hear from guest speakers and are mentored by faculty project leads with direct knowledge about the local communities in GlobalResolve project sites—such as their opportunities, challenges, needs and resources—so that they can ensure the solutions they develop are viable, reasonable and relevant.

These projects are unique in that they are designed not only to improve the quality of life for the local people, but they also contribute to the economy and meet the overarching goal of addressing economic challenges and their effects in a sustainable manner. The resulting approach is truly holistic. GlobalResolve has active project sites in Mexico, Peru, Indonesia, Honduras, Nepal, South Pacific, Rwanda and Kenya, with one domestic project located in the Navajo Nation in Arizona.

Once designed and developed, students have the opportunity to travel to the community for which they designed their solution and help with its launch and implementation. This curriculum and program design approach not only seeks to prepare students for the demands of industry, but also produce ASU graduates with enhanced global awareness.

While engineering plays a key role in the projects, the full potential of GlobalResolve is realized through a number of complementary disciplines involved in the effort. From the areas of design, business, sustainability, engineering and global studies, ASU students benefit from multiple perspectives and voices in the development of well-rounded solutions. Such collaboration enriches not only the student experience, but also the impact these projects have on their intended localities. For example, GlobalResolve’s work to revitalize the town of San Antonio Buenavista, Mexico, includes engineering, design and business students working together to create a series of product and service-related businesses—from a bicycle-based health food vendor to new concept restaurants and more—which help support the economy of the region and spur development.

**Outcomes and Impact:**

While the project sites are multi-year efforts, GlobalResolve has produced tangible positive outcomes in its communities of focus. From providing a Peruvian orphanage electricity to developing a smokeless stove for villagers in Ghana, these projects have improved the quality of life in a way that the local residents can maintain and grow on their own moving forward.

One of the most recent and successful projects is in Amaltari, a small Nepal community near the Chitwan National Park. Invasive plants, especially two vines called Mikania micrantha and common Lantana, have overtaken the indigenous forest vegetation used by wildlife and local animals, including the endangered one-horned rhinoceros.
By working with scientists from Tribhuvan University in Kathmandu and from the Nepali government and identifying the scope and nature of the problem by listening to the community to understand the practical challenges of removing these plants from their forests, GlobalResolve students and faculty helped the community harvest the vine and turn it into a cash crop called biochar. Biochar is an alternative to the traditional wood charcoal used in Nepal. The community sells the biochar to a local company to make into charcoal briquettes that are then sold on the street. The community has now taken ownership of the local biochar production business.

For Dr. Henderson, the most rewarding part is to witness the moment his students realize the impact they can have on the world at large and to watch the passion it inspires in them long after they return from trips abroad. “We get to see students come to the realization that engineering can be such a force for making a positive difference in so many peoples’ lives. I love to see the change that comes over them when that happens” (Dr. Mark Henderson, President’s Professor and Associate Dean, Polytechnic Campus; Co-Director and Founder-GlobalResolve, Barrett, The Honors College, ASU).

The GlobalResolve project based in Cusco, Peru, serves as another example of the kind of impact GlobalResolve has on the students who participate. For four years in a row, GlobalResolve students have spent their spring breaks travelling to Peru to focus on improving the quality of life for children at Azul Wasi orphanage. In 2014, they designed and built a greenhouse, and in 2015, they worked on an aquaponics farm. The goal of both projects was providing food and an income generation opportunity for Azul Wasi. In 2016, the students returned to set up an off-grid solar panel system to help the local orphanage meet their own energy needs. Currently, these innovations and improvements provide 3kw of power daily and have resulted in a savings of over $1,200 annually. The money saved by the orphanage is now used to buy clothing and school supplies for the children. By providing the orphanage with a facility to produce food, automatic watering systems, and a self-sustaining electrical grid, GlobalResolve students have given the Azul Wasi orphanage the freedom to focus on its children’s learning and development rather than spending time working to meet their most basic needs. Aligning with the program’s mission, this project provides sustainable solutions and opportunities for local people. Additionally, by providing a means to meet their basic needs, time and energy are redirected towards improving education and economic growth.

This impact truly resonates with the students involved. “Not only will we be providing a reliable power source, but we’ll be given the opportunity to inspire young kids to pursue STEM-related education and empower them to problem solve” (Priscilla Perez, GlobalResolve Club Student, Biological Sciences Undergraduate Student).
One of the most distinguishing aspects of GlobalResolve is their long-term, holistic approach to working with their target communities. Instead of choosing new projects and locations every year, GlobalResolve works to build up single communities step-by-step, taking care of the most pressing needs first. This allows the faculty and students to create a genuine connection with the people they are working to help and provides the opportunity to see the transformation their work has on a community over time.

“We decided to go back because we want to see the relationship we have with this community grow. Most humanitarian projects visit once, do their business, and then leave. They won’t return to see how the community has improved.” (Damian Gudino, GlobalResolve Student, ASU Graduate)

Student impact has long-term implications as well. Student alums have said that the hands-on experience gained in GlobalResolve set them apart from their peers and continues to impact their career success long after their involvement on campus. According to Andres Neal, a GlobalResolve Alumnus, the lessons he learned from Dr. Henderson carried him far past his days as a student. Fresh into the work force, his experiences with creating diesel fuel and extracting coconut oil on a project in Trinidad and Tobago led to an opportunity with Baker Hughes, the third largest oil field services company in the world. According to Neal, it was his experience with GlobalResolve that most prepared him for the workforce, not only in terms of technical skills needed, but also in his ability to perform outside of his comfort zone.

The impact goes well beyond the students and communities served. The opportunity to play a part in students’ accomplishments is why Dr. Henderson says after 34 years at ASU, he can still wake up every morning and have something to be excited about.

What’s Next:

Barrett, The Honors College at ASU serves as the program home for GlobalResolve and provides administrative and development support to the projects, as well as managing the HON: 394 course-Design for The Developing World in which the project teams are based. Moving forward, Drs. Henderson, Rogers and other partnering faculty continue to look for opportunities to strengthen GlobalResolve by developing solutions for challenges identified in the project communities and promoting collaboration and innovation between the various academic disciplines at ASU required for long-term sustainable development. Additionally, Dr. Henderson seeks to increase the participation of faculty members from every corner of the university. Current faculty collaborators include Professors Laura Hosman, Mike James, Buyung Agusdinata, Mark Huerta, Netra and Nalini Chhetri, Tom Martin, Jimmy Abbas and Peter Waswa.

For additional information or questions about GlobalResolve, please send an email to: globalresolve@asu.edu