

Project Id	115
Project Title	Polytech Waterbag
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Additional Faculty	
Faculty Department	Environmental Engineering
Project Description	<p>The goal of this project is to improve the design of the "Polytech Waterbag"; a portable water treatment and storage unit designed for disaster zones, such as major flood areas, that can be deployed by relief organizations over wide areas in less than one day. Currently, these organizations use bulky containers that are difficult to deliver quickly. Such speed is essential to prevent survivors and rescuers from contracting water-borne diseases. Already, potential users such as the American Red Cross, Centers for Disease Control, and the US Navy have expressed interest in this device.</p> <p>The main project goal is to prove that the waterbag, in combination with a chemical treatment packet, PUR® Purifier of Water, meets U.S.EPA and World Health Organization drinking water quality standards. The main parameters to test are turbidity, suspended solids, total coliform, E. coli, and chlorine residual. Some of the design needs are to develop a practical, low-cost filter to attach to the bag and universal pictographic instructions to be printed on the bag. Performance qualities that need to be met include treatment effectiveness, clogging and flow rates, ease of bulk transportation and individual carrying, cost, and ability to clean and reuse.</p> <p>This hands-on research is uniquely suited to the university setting because it requires a multi-disciplinary team that is available at Cal Poly. Graduate, undergraduate students, and professors, have the opportunity to collaborate on a design and research process with the goal to implement this appropriate technology for disaster relief.</p>
Interdisciplinary Nature Description	<p>We are in need of students to help with water quality testing (ENVE, microbiology, chemistry); students to improve filtration and valve system (mechanical engineering, materials engineering, industrial/manufacturing engineering); students to develop and test the cross-cultural pictographic instructions (sociology, psychology, anthropology); students to address the usability and ergonomics of individuals transporting the bags long distances on foot (kinesiology).</p>
Links	
Number of Honors Students Requested	3
Applicable Majors	ENVE, MCRO, CHEM, MATE, ME, IME, SOC, ANT, ANT, PSY, PSY, KINE
desired_res	As described above, plus teamwork skills.
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