

INNOVATION FOR INTERNATIONAL DEVELOPMENT (I²D) LAB

Putting engineering innovations to work for global sustainable development



In 2015, countries adopted 17 UN Sustainable Development Goals to end poverty, protect the planet, and ensure prosperity for all. Engineering selection, adaptation, and invention is central to all 17, as "...the single most important reason why prosperity spread, and why it continues to spread, is the transmission of technology and ideas underlying them." (Sachs, 2005)

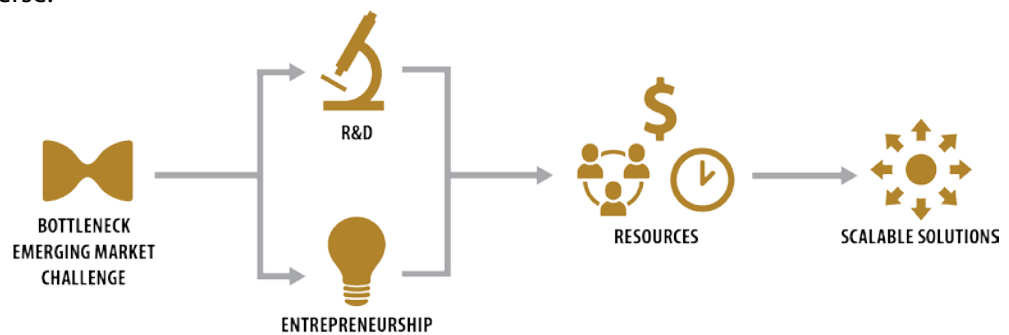
Purdue University is uniquely capable of advancing these goals, as a world-class research university in Indiana known for discoveries in science, technology, engineering, and more. It boasts three top-ten ranked colleges, along with Discovery Park, the \$1+ billion hub for interdisciplinary research.

The Innovation for International Development (I²D) Lab was thus founded to convene and catalyze consortia matching world-class capability with the most pressing global challenges. In the words of Leah H. Jamieson, The John A. Edwardson Dean of Engineering, "The I²D Lab captures the essence of the Purdue Engineering Strategic Plan: students effective in a global context, research of global significance, empowering our people, enriching our culture, expanding our notion of community to include not only our role in the state, but in the global community." A growing endowment helps support I²D's mission.



For sustainable success, I²D insists on market-based approaches, diverse collaboration, and scalability. Already, a low-cost medical diagnostic innovation has garnered a Bill & Melinda Gates Foundation Grand Challenges Exploration grant. A revolutionary supply chain and logistics system is being developed for partner Catholic Relief Services (CRS). The Purdue Utility Platform (PUP), a widely affordable highly capable vehicle, has spun off a company and received several African orders. In summer 2016, I²D co-hosted 25 business leaders and entrepreneurs through the Mandela Washington Fellowship for Young African Leaders.

Our mechanisms include the award of internal seed grants, external grant writing, program development and management, and capacity building. Our model is below, and details are on the reverse.





I²D LAB—SUPPORTED PROJECTS

WATER AND SANITATION

SLOW SAND FILTERS Kenya, Tanzania, China, India, Colombia – Jafvert (CE/EEE) & Howarter (MSE/EEE) – Maji Safi International
SOLAR UV DISINFECTION Dominican Republic – Blatchley (CE), Applegate (Food Sci.), & Camp (Comp. Pathobiology) – Las Cañas
WATER ACCESS TO EMPOWER RURAL (WATER) TANZANIA Tanzania – Merwade (CE) – Nelson Mandela African Institute of Sci & Tech

HEALTHCARE

COUNTERFEIT DRUG DETECTION Tanzania – Byrn (Pharmacy) & Clase (PPI/ABE) – Kilimanjaro School of Pharmacy
ULTRA-LOW-COST PAPER-BASED NUCLEIC ACID DIAGNOSTIC PLATFORM Kenya – Linnes (BME) – AMPATH
CELLPHONE-BASED DETECTION OF HIV DRUG RESISTANCE Kenya – Yuan (ChemE) and Liu (ChemE) – AMPATH
ESOPHAGEAL STENT Kenya – Brightman (BME) – Moi University
CHOLERA DNA TEST FOR WATER Haiti – Kinzer-Ursem (BME), Wereley (ME), and Linnes (BME) – UF-EPI Haiti Lab
SPECTROMETERLESS SMARTPHONE ANEMIA DIAGNOSIS Kenya – Kim (BME) – AMPATH

FOOD SECURITY

LOW-COST GRAIN MOISTURE SENSOR NETWORKED TO SMARTPHONES Colombia – Ileleji (ABE) & Lu (ECE) – Universidad de Los Andes
INDOOR AIR POLLUTION Kenya – Boor (CE) & Wells (HHS) – Moi University

ENERGY

HYBRID RENEWABLE ENERGY SYSTEMS Cameroon – Chen (ME) – ACREST

EDUCATION

ENGINEERING SKILLS CURRICULUM AND DIGITAL MATERIALS FOR OUT-OF-SCHOOL YOUTH Kenya – DeBoer (ENE) – Tumaini Center

LABOR-SAVING INNOVATIONS

PURDUE UTILITY PLATFORM Cameroon, Uganda, Guinea – Lumkes (ABE) – ACREST

HUMANITARIAN RESPONSE

EARTHQUAKE-RESILIENT CONSTRUCTION USING LOCAL MATERIALS Nepal – Irfanoglu (CE) & Pujol (CE) – Catholic Relief Services
HUMANITARIAN RESPONSE AND SUPPLY CHAIN MANAGEMENT Nepal – Yih (IE) – Catholic Relief Services

SELECT PARTNERS, AFFILIATIONS, AND GRANTORS



IPIA



CGFS



BDMCE



IPPH

GLOBAL ENGINEERING PROGRAMS

I2D Lab.org | GEP@purdue.edu | Purdue GEP    