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EnviroFit International

ENVIROFIT INTERNATIONAL

The most accomplished spinoff of CSU's Engines and Energy Conversion Laboratory (EECL), Envirofit International designs, manufactures, and sells clean cookstoves in developing nations. The global market leader with over 1M stoves sold in over 40 countries, EnviroFit is considered a pioneer in the social enterprise model, delivering cost savings and health benefits to 5 million people to date.

History

The venture was founded as a nonprofit in 2003 by mechanical engineering graduate students, Nathan Lorenz and Tim Bauer, along with Bryan Willson, Director of the EECL, and entrepreneurship professor Paul Hudnut. As members of CSU's winning team in the national Clean Snowmobile Challenge competition, Lorenz and Bauer created a cleaner solution for the vehicle's pollution-spewing two-stroke engine. Seeking impact on a global scale, they later repurposed this technology to retrofit these same engines in motorcycles in the Philippines, winning the 2008 Rolex Award for Enterprise.

EnviroFit entered the cookstove business in 2007, prompted by a meeting with eventual funding partner, the Shell Foundation, charity arm of Shell Oil. The foundation wanted to support initiatives targeting indoor air pollution with a particular interest in cookstoves used by half the world's population. In 2010, household air pollution from solid fuel combustion accounted for an estimated 4.3M premature deaths annually, representing 4.5% of the global disease burden.

Lorenz and Bauer, having previous experience testing cookstove emissions in a CSU lab, returned to the EECL with this challenge. The CSU Advanced Cookstoves Laboratory was established in 2008 to design high-efficiency biomass cookstoves which can burn fuel more efficiently while releasing a fraction of the toxic emissions typically seen in traditional stoves. The lab also partnered with Oakridge National Research Laboratory to develop a custom alloy that was both resilient and inexpensive, enabling groundbreaking solutions for design and mass distribution.

The EECL has since developed several products for Envirofit that have been proven to emit up to 80% less smoke and harmful gases, use 60% less fuel, and reduce cooking times by 40%. For his role in stewarding the productive collaboration of EECL and EnviroFit, Bryan Willson joined President Obama and Bill Gates in the first "Scientific American 10" honor roll for innovations that benefit humanity.

Lessons Learned

Previous cookstove initiatives had prioritized a social mission over pollution reduction with poor results. EnviroFit's eventual success came from taking a market-based approach to solving this global health issue, requiring more than just an innovative product, but innovation of every part of

the business model.

EnviroFit overcame its scaling barriers by forming strategic partnerships for global distribution of mass-produced stoves, a departure from the conventional model where villagers make their own cookstoves. Innovative partnerships with retailers and distributors at a local and national level, multinational companies including Unilever, public agencies and nonprofits have enabled Envirofit to reach customers across the world while creating local jobs. Collaborations with microfinance institutions in the developing world have created new financing options for the poor to enable wider adoption. Creative marketing efforts have included advertisements on elephants, street theatre, and the creation of a Bollywood movie to market the stoves in India.

Ongoing University Partnership

CSU and EnviroFit have become active advocates for the cookstove cause, serving as founding members of the Global Alliance for Clean Cookstoves, a public-private partnership of more than 60 national governments, UN agencies, private companies and nongovernmental organizations. At the heart of Envirofit's continued market success is a world-class R&D facility run by CSU's Center for Energy Development & Health which uses detailed customer feedback from the field to design tailored products suited to regional preferences in fuels and cooking styles.

The scope of EnviroFit's research partnership with CSU has expanded to include work with Philips to develop testing methodologies for cookstoves. CSU's College of Veterinary Medicine & Biomedical Sciences is developing a framework to quantify climate and air quality benefits of cookstove interventions to inform and encourage governments and policy makers.

Impact

Envirofit now has 15 cookstove models in the field with operations in India, Africa, and Latin America. The company employs 480 directly and has created approximately 3,000 jobs across the value chain. Furthermore, building a better stove has contributed significant economic and social impact to developing nations beyond reduced pollution:

• 50% reduction in fuel usage means less gathering by women and children in areas of conflict and violence.
• Those who buy fuel for cooking realize savings of up to one-third of their household income.
• A reduction in firewood consumption means less deforestation.

EnviroFit's founders have been widely recognized by the international community for their work in catalyzing the clean cookstove sector. A sampling of these accolades:

• 2006 – One of the Top 10 Most Innovative Technologies for Creating Social Change by the

Stanford Social Innovation Review
• 2009 - Heroes of the Environment, Time Magazine
• 2013 – Energy and Environment Innovators of the Year, The Economist Magazine
• 2016 – Social Entrepreneur of the Year, Schwab Foundation for Social Entrepreneurship

EnviroFit is working closely with CSU in paying their success forward:

• FactorE Ventures, a CSU spinoff located at the Powerhouse Campus, inherited the nonprofit structure left vacant by EnviroFit's privatization in 2012. It works to disseminate a generalizable model for social entrepreneurs building from the EnviroFit experience, offering international funding and unique expertise in supply chain management, removing barriers to scale for early-stage ventures.
• Co-founder Hudnut also founded the Global Social & Sustainable Enterprise MBA at CSU's College of Business, ranked third in the world by Net Impact for its 18-month immersive program that has attracted students from 42 countries and culminates with a team-based sustainable venture including fieldwork in developing countries.

The company also cultivates mutually beneficial relationships with student entrepreneurs from Powerhouse labs – they will run a pilot test in Kenya this summer for CSU spinoff, Qapture, winners of the MIT Clean Energy Prize competition for a power-generating retrofit device for largecapacity stoves. In January 2016, Envirofit received a $4M financing commitment from Overseas Private Investment Corporation (OPIC), the U.S. Government's development finance institution, advancing their goal of improving 100 million lives by 2020.