

NPLD 552: Energy, Innovation, and Impact in the Global South Spring 2021

Instructor

Dr. Ethan Kay

Teaching Assistant

Anna Dausman

Course Dates and Times

January 20th to February 28th

Wednesdays, 10:00am – 11:15am (Synchronous sessions)

Summary

Over the past decade, a new type of social enterprise has emerged, which aims to deliver goods and services to the huge market of off-grid, low-income households in developing countries. These social enterprises, known as ‘Base of the Pyramid’ (BoP) ventures, seek to simultaneously achieve profits, scale, and social impact. This new operating model has reframed the way companies, foundations, and NGOs engage billions of poor people.

This course will focus on a sector that has been radically transformed by BoP ventures over the last decade – clean energy. Not only has this sector been catalytic to delivering clean energy access across the developing world, it also directly aims to combat climate change, the existential issue of our age.

Inside the BoP energy ecosystem, progress between sectors could not be more different. For example, the clean cooking sector has failed in its mandate to address the problem of open fire cooking. By contrast, the solar lighting sector has scaled massively. This emergent field has attracted a generation of professionals looking to balance profitability and social impact, from social entrepreneurs to impact investors. Yet is the hype justified — is there really a ‘Fortune at the Base of the Pyramid’?

This course will unpack the nuances of market-based poverty alleviation, and illustrate how hard, and at times problematic, it is to balance profit and impact. It will also highlight several emerging models that have begun to deliver upon the BoP narrative’s promise. It will frame the opportunity and challenges commercializing a BoP venture, grapple with the normative consequences of such ventures on society, explain why many ventures to date have been unsuccessful, and also identify emerging pathways to scale and impact.

This is a course for those who are interested in becoming social entrepreneurs, particularly in developing countries. It will reveal the complexities of operationalizing these ventures and provide a business toolkit for designing and launching a social venture. The course will equally be topical for those who are simply interested in better understanding the inner workings and implications of this fast-growing and alluring model of alleviating poverty and disease. While renewable energy will serve as a focal point, the course will also grapple with a range of cross-cutting themes, including climate change, gender, culture, public health, and the role of the private sector in development.

Learning Objectives

- Develop a grasp of the BoP operating model and how it has reframed the way companies, foundations, and NGOs engage billions of poor people.
- Express a clear point of view regarding whether there is really a ‘Fortune at the Base of the Pyramid.’
- Examine BoP organizations working in the clean energy sector (esp. cooking and lighting), and their impact, or lack thereof, improving living standards of low-income families. Are these ventures moving the needle on the Sustainable Development Goals?
- Demonstrate an understanding of elements of the business toolkit needed for designing and launching a social venture and/or evaluating the impact, scalability, and sustainability of existing social ventures.

Class 1 (Jan 20th): The Base of the Pyramid

What is the BoP narrative? What are BoP ventures? This class will introduce the BoP narrative, and distill its strengths and weaknesses. It will explore how it has quickly become orthodoxy among development practitioners, social entrepreneurs, and even governments. It will grapple with the consequences, viability, and ethics of business replacing governments, multi-laterals, and charities as a provider of basic services to poor people. It will look at tensions between profitability and impact, and explore emerging models to deliver these services, such as partnerships between corporations and NGOs.

Required Readings:

- Karnani, Aneel. “The Mirage of Marketing to the Bottom of the Pyramid: How the Private Sector Can Help Alleviate Poverty.” *California Management Review*, vol. 49, no. 4, 2007, pp. 90–111.
- Prahalad, C.K. *The Fortune at the Bottom of the Pyramid Eradicating Poverty through Profits*. Pearson Education, 2014.

Canvas Assignment:

- Personal intro (i.e., name, major, why you’re taking the class) and your initial perspective on the Base of the Pyramid narrative, referencing the required readings (up to 250 words)

Class 2 (Jan 27th): Off-Grid Lighting

This class will aim to provide an introduction on energy poverty in the developing world. It will highlight the dramatic difference in progress over the past decade to address two closely related developing world energy challenges: clean cooking and off-grid electrification. The sector of clean cooking presents a massive health, climate, and gender impact opportunity, but has tragically little to show in terms of results. On the other hand, the off-grid electrification sector has brought electricity to many millions of households and has raised over \$1.5B in commercial capital over the few decades. Yet cracks in the sector are starting to emerge: few such ventures are financially sustainable, and there are questions about their social impact.

Using BioLite as a case study, it will present key components of a full go-to-market strategy for a BoP focused clean energy business. It will provide an overview of BioLite's business designing, manufacturing, and distributing clean cookstoves and solar home lighting systems to off-grid households, and highlight key learnings and challenges over the eight years of BioLite's operations.

Required Reading:

- Lighting Global. [Off-Grid Solar Market Trends Report 2020: Report Summary](#), February 2020.

Required Asynchronous Content:

- Inamdar, Amar. "[The Thrilling Potential for Off-Grid Solar Energy](#)" *TEDGlobal* 2017, 26 January 2018. His bio is [here](#).
- Interview with Caroline Frontigny, co-founder and Chief Business Development Officer of [upOwa](#), Cameroon-based solar home system distributor. ([Video available on Canvas.](#))
 - **Bio:** In 2015, Caroline launched upOwa's first operations in Cameroon, recruited and managed the Cameroonian team and is now in charge of business development. Previously, she was a private sector development analyst at the World Bank in Washington DC where she specialized in improving access to electricity for businesses in Africa and Latin America. Before that Caroline worked on energy policy at the Embassy of France in the United States. She has received a M.Eng in Energy and Science from Supélec, France.

Canvas Assignment:

- Discussion post on the viability, scale, and impact of the off-grid lighting sector, referencing the required readings, class notes, and quotes from in-class and asynchronous interviews (up to 250 words)

Class 3 (Feb 3rd): Clean Cooking

This class will focus on the problem of cooking on smoky open fires – which kill over four million people a year from respiratory-related diseases and emit more black carbon than all the world's cars and trucks combined – and the promise and challenges of developing and distributing advanced biomass cookstoves to mitigate these health and climate catastrophes.

Required Readings:

- Bilger, Burkhard. “Hearth Surgery.” *The New Yorker*, 14 December 2009. www.newyorker.com/magazine/2009/12/21/hearth-surgery.
- Morrison, Sara. “Undercooked: An Expensive Push to Save Lives and Protect the Planet Falls Short.” *ProPublica*, 12 July 2018, www.propublica.org/article/cookstoves-push-to-protect-the-planet-falls-short.

Required Asynchronous Content:

- Interview with Erik Wurster, Director of Carbon Finance at BioLite. His bio is [here](#). Interview is available on Canvas.

Canvas Assignments (due Feb 5th at 5 pm EST):

- Reflection post on the opportunities and challenges of clean cooking and carbon finance, drawing on required readings and in-class / asynchronous interviews (up to 250 words)
- Final small group project sign-up – select from the portfolio listed in the Canvas discussion post.

In-Class Guest Speaker

- Dymphna Van Der Lans – CEO of the Clean Cooking Alliance. Her bio is [here](#).

Class 4 (Feb 10th): Social Entrepreneur’s Toolkit

This class will focus on putting together a venture pitch, and dive in more detail into two key financial building blocks –a unit economic model and an income statement. The asynchronous content will also introduce another facet of building a BoP venture – product development. This toolkit will then be utilized to develop your venture pitch for an existing BoP clean energy business.

Required Reading:

- Baehr, Evan. *Get Backed: Craft Your Story, Build the Perfect Pitch Deck, and Launch the Venture of Your Dreams*. Harvard Business Review Press, 2015. (Focus on Chapter 2: “The Building Blocks of the Pitch Deck”)

Required Asynchronous Content:

- “Tortoise Economics” Interview with Cuyuni & Mazi Agarwal Khan. Interview available on Canvas.
- Kay, Ethan, and Ryan Gist. “[BioLite: Talks at Google](#)” (cookstove product development)

In-Class Guest Speaker

- Michael Mutemi, BioLite’s Director of Finance for Emerging Markets. His bio is [here](#).

Class 5 (Feb 17th): Reading Week

- Final project team check-ins with Ethan and Anna (via Zoom breakout rooms)

Class 6 (Feb 24th): Off-Grid Energy Pitch Competition

This final class meeting will unite students' prior work and discussions in the final group pitch presentations. (See below for pitch guidelines.) Each group's presentations will be reviewed by a panel of investors who will ultimately select one pitch to invest in.

Required Reading:

- Bruggmann, Jeb, and C.K. Prahalad. "Cocreating Business's New Social Compact." *Harvard Business Review*, Feb. 2007, hbr.org/2007/02/cocreating-business-new-social-compact.

Assignments:

- Final Pitch Deck (due in class on Feb 24th)
- Canvas reflection post on whether, to what extent, and why your perspective on the Base of the Pyramid narrative has changed, drawing on this week's required reading, other previous readings and interviews, and your research and experience preparing your BoP clean energy pitch deck (up to 500 words) (due Friday, March 5th at 5 pm EST)

Grading

Attendance and Class Participation	25%
Weekly Discussion Posts	30%
Final Group Pitch Presentation	30%
Final Discussion Post on BoP	15%
Total	100%

Final Group Pitch Presentation

- Groups will be assembled by the instructors at the beginning of the course.
- Groups will be expected to articulate the case to finance the selected venture, drawing on secondary research, with guidance from Ethan and Anna.
- Group presentations will be evaluated by a panel of investors.
- The pitch deck should be no longer than 15 slides.
- Pitches should generally follow the structure of the pitch presented in *Get Backed* (especially Chapter 2), and should therefore express a clear understanding of the problem the BoP venture has set out to address, the proposed solution, the target customer segment, competition, the market size, business model, and the financials.
- Ethan and Anna will have three check-ins with each group – during weeks 4, 5, and 6 – to answer any questions and, if helpful, provide business-specific assumptions for the financial model / unit economics.
- Each member of the group should be responsible for presenting a section of the pitch.
- The team will have 10 minutes to make their pitch, followed by 10 mins of Q&A by the investor panel.
- Here is additional pitch deck advice from leading startup incubators:

- o <https://blog.ycombinator.com/how-to-design-a-better-pitch-deck/>
- o <https://www.techstars.com/content/blog/the-perfect-investor-deck-for-raising-a-se-ed-round/>
- o <https://teten.com/blog/2015/02/09/dont-pitch-a-venture-capitalist-without-this-checklist/>

Instructor Bio

Dr. Ethan Kay is Managing Director of Emerging Markets at [BioLite](#). BioLite designs and manufactures clean energy products for off-grid households in the developing world. Ethan has spent the last 15 years commercializing market-based solutions to poverty in India and Sub-Saharan Africa. He holds a Ph.D. and M.Phil. from the University of Oxford, where he was a Fulbright Scholar and Sauvé Scholar. His doctoral research examined the cultural complexities of retailing clean cookstoves in rural India. He also holds a B.S. in Economics from the Wharton School at the University of Pennsylvania. Together with BioLite, Ethan was awarded the *Fast Company* Innovation By Design Award and was selected for the Public Interest Design ‘Global 100’.

TA Bio

Anna Dausman is Program Manager at the [Center for Social Impact Strategy](#) at the University of Pennsylvania, where she runs the Center’s residential programs (Impact Houses, Penn Impact Lab, and partner programs) and manages alumni initiatives. Prior to joining the center, Anna worked with the national organization Break Away to train universities how to nurture active citizenship through service-learning programs. Anna earned her MS in Public Administration from Fels Institute of Government at the University of Pennsylvania, and a BA in English and Linguistics from the College of William & Mary.