**SIMULATION WORKSHOP:**

Technology Innovation for International Development

*or*

The Zeer Pot of Enlightenment And Frustration

an open source activity toolkit by

Anne Dare: USAID

David Fields: National Peace Corps Association (NPCA)

Khanjan Mehta: Lehigh University

Alex Moseson: Purdue University

*with thanks to these additional inaugural facilitators*

Brian Bingham: USAID

Matt McCambridge: The Massachusetts Institute of Technology (MIT)

Kurt Richter: Michigan State University (MSU)

Pitch To Participants:

From problem statement to award ceremony, BE a development innovator like those you support, teach, or want to become. In this immersive simulation facilitated by experts, enjoy the organized chaos, humor, dirty hands, and deep lessons  
that only experience can impart.

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Attribute to, “*Zeer Pot Simulation 2017 by Dare, Fields, Mehta, Moseson et al.”*



**Executive Summary:**

Participants will gain a thorough understanding of the joys and challenges of technology innovation for emerging markets. In this hands-on simulation, they will develop a zeer pot (a.k.a. Pot-in-pot cooler) as a refrigeration solution. In short: a problem (rotting produce) and solution concept (zeer pot) is presented; solutions are prototyped, presented, and awarded; and all reflect.

Participants will be constructively frustrated by, and begin to overcome, issues which often make programs fail such as: poorly framed problem choice, incomplete or misleading information, scarcity, competition (and eventual collaboration) with peers having similar goals, budget constraints (and exchange rate), technical difficulties, M&E (metrics and evaluation), communication and marketing, and stakeholder interactions including end users.

The simulation requires several experienced facilitators (3+), approximately $300 of materials for every 10 teams (~30 participants), and a large space with easy cleanup. Even with this comprehensive toolkit, there is significant effort required. It’s worth it.

This simulation is hands-on, holistic, immersive, memorable, and transferrable. Participants in early iterations have rated it highly as they literally rolled up their sleeves, laughed, cried, and learned as much from each other as from us.

**In This Toolkit:**

**Behind The Scenes Materials**

1. Guide (This document!)
2. Materials List
3. Property Sign
4. Character cards
5. Graphic Assets

**Stage Materials**

1. Slides
2. Printable currency
3. Coratania fact sheet
4. Official Form MPRFMERLRCFWMTYOFB
5. Consultant agreement
6. Consultant NDA
7. Score sheet
8. First place award poster

**Simulation Outline:**

*Times given for 2 hour session. Recommend 1.5 - 2.5 hours, plus .5 - 1 for setup and cleanup.*

*Character Cards detail who does what in each act.*

* ACT 0: Space prep (30m - 60m)
  + Set up the space in three zones: presentation “stage,” prototyping/testing, and bazaar
* ACT I: The Setup (15m)
  + Introduction by Donor, brief Q&A
  + Split participants into teams of 3 - 4
* ACT II: Prototyping (45m)
  + Purchase materials from Bazaar Merchant(s)
  + Build prototypes
  + Engage End User(s), Expert Consultant(s), and Expert Team Member(s)
* ACT III: Testing, Pitches, and Awards (30m)
  + Test prototypes in batches. *While testing at fans,* teams deliver 1-minute pitches.
  + Donor awards winner, End Users voice opinions and buy / show alternatives
* ACT IV: Reflection (30m)
  + In semi-structured panel format, participants discuss observations and lessons with organizers
* ACT V: Cleanup (30m - 60m)
  + Clean up!

ACT I: A Donor representing the Global Order Of Some Highly Innovative Things (GOODSHIT)\* congratulates participants on winning a seed grant to solve a problem in the imaginary country of Coratania. Using slides, explain the premise to participants. Split them, or let them self-select, into teams of 3 - 4 people, and distribute 25 “shillings” each.

ACT II: Teams do research on their own devices, ask questions or seek other support from characters, buy materials at the “bazaar,” and build their best attempt at a zeer pot prototype that meets the specifications. End Users (ideally 2+) are available to observe or consult if teams pay the fare (per *person*) to “travel” to them. To their detriment, not everyone will consult them. Expert Team Members can be conveniently purchased to have one on your team for the whole exercise. It’s expensive, but a bargain compared to Expert Consultants available for hire by the minute. Consultants also take an inordinate amount of time to retain due to paperwork. The focus will be on optimization and specialization (e.g. extra features like a carrying handle, high capacity, etc.), with teams free to discover the value of inspiration and collaboration. Selection criteria (revealed late!) are internal temp, aesthetic, usability, and price.

ACT III: In sets of 2 teams, prototypes are placed in front of the fan(s), and the interior temperature measured. While their prototypes are being tested, teams give 1-minute pitches while everyone watches. Donor(s) judge them, while end users observe. Donor awards winner, one End User buys one for cash, one End User chooses a wholly different tech (e.g. fridge).

ACT IV: Semi-structured reflection will compare teams with high/low budgets, first to market, which metrics matter, partnership vs. competition, and more. See Learning Objectives below.

**Resources Required:**

* *People:* For every 10 teams of participants (30 participants or so), 1+ lead facilitators and 2+ (ideally 5) additional “characters.” Recommend that lead facilitators have substantial international development innovation experience, including in the field, and that volunteers have some experience, at least related to their respective characters. See Character Cards for detailed roles.
  + Must have: Donor, Bazaar Merchant, End User
  + Recommended but optional: Expert Consultant(s), Expert Team member(s), Additional End User(s)
* *Materials*: Total ~$300 for 10 teams (~30 participants).
  + *Consumables:* Per the Materials List; sand, dirt, gloves, gallon bags, tarps, etc.
  + *Durable materials (can be borrowed or reused):* Per the Materials List; hand tools, digital thermometers, box fan(s), extension cord(s), etc.
  + *Rewards:* $5 for an End User to buy their favorite with
  + *Participant resources:* (optional) phones, laptops
* *Space*: Large space with easy cleanup (even outside). Ideally with tables and chairs. Projector/TV, nearby water, and electricity are must haves. WIFI is nice to have.

**Target Audience:**

This simulation is relevant to those who support, teach, or want to become international development innovators. They might be innovators, academics, donors, private sector employees, students, end users, or beyond. For those who understand development innovation, it will hone their skills and provide a case study and reference material to help teach others. For those with inaccurate assumptions, it will be eye-opening, demonstrating both the power of innovation and the ways it often fails. Participants, their programs, and their impact will be stronger for it.

Skillful real-time adaptation by the facilitators will ensure the intended, impactful learning outcomes.

**\***This level of humor may not be appropriate for some audiences. The simulation works fine without it; feel free to substitute your own organization name!

**Learning Objectives:**

Consider these concepts and example questions to participants, to guide your facilitation and reflection. In general, tie the hyperbolic lessons of the simulation to the real world.

* *General starting questions (often naturally leading to the concepts below)*
  + What were you most surprised by?
  + What were you most frustrated by?
* *Poorly framed problem choice*
  + Was the zeer pot solution presented appropriate? Did it embody a full understanding of the problem and stakeholders?
  + Were apples (or your chosen fruit) appropriate? What does that say about the framing?
  + Is it better to go quickly, or correctly?
  + How did you feel when an End User chose an entirely different solution?
* *Incomplete or misleading information*
  + Do you feel you were operating with all the information you needed at all times?
  + Did you trust your various sources (Donor, Coratania fact sheet, experts, end users, internet research, etc.)?
* *Scarcity*
  + How did scarcity of time affect you?
  + How did scarcity of materials affect you?
* *Competition (and eventual collaboration) with peers having similar goals*
  + How did you view your competing teams...enemies? frenemies? Friends? Did it matter that this was for “the greater good” rather than just profit?
  + Did any team collaborate with - or steal from - another team?
* *Budget constraints (and exchange rate)*
  + Did you have enough funding?
  + If not, would the Donor have gotten better results investing more in fewer teams?
  + Was cost - of prototyping, production, sales, etc. - a high enough priority for you?
* *Technical difficulties*
  + Were your greatest challenges technical, or nontechnical?
  + What setbacks did you experience in the physical prototyping?
* *M&E (metrics and evaluation)*
  + Was the Form reasonable?
  + Were you recording everything in detail for audit, or too busy doing the work?
* *Communication and marketing*
  + Did you feel well prepared for the pitch?
  + Were you able to set your solution apart from similar competitors?
* *Stakeholder interactions, including end users*
  + Did anyone have a great, or awful, experience with a facilitator character?
  + In hindsight, how important were the End Users relative to everyone else?
* *Reflections on the development sector*
  + Who had the power, and was it the right people?
  + Did the Donor design this in the best way to get results?
  + What struck you as unfair?

**A Note On History:**

In summer 2016, this activity was conceived and created by [Anne Dare](https://www.linkedin.com/in/anne-dare-53976a70) and [Alex Moseson](http://www.linkedin.com/in/AlexMoseson) for prospective Purdue University students, with Mandela Washington Fellows playing most characters. In Fall 2016 it was refined and formalized with two additions to the team, [David Fields](https://www.linkedin.com/in/davidkfields) and [Khanjan Mehta](https://www.linkedin.com/in/khanjan-mehta-b690203), plus additional facilitators, for the more sophisticated audience of development practitioners attending the USAID/HESN TechCon conference. In summer 2017, it was repeated at Purdue with 60 simultaneous participants instead of 25.

Now, it is yours. (But please do abide by the open-source license.)

**References:**

There are *many* relevant references for the subjects this simulation touches upon! Here are the three included in the slides:

1. MIT D-Lab: [Evaporative Cooling Technologies for Improved Vegetable Storage, by Eric Verploegen](https://d-lab.mit.edu/resources/projects/evaporative-cooling-technologies-improved-vegetable-storage)
2. [Evaptainers.com](http://www.evaptainers.com/)
3. [eBook on ResearchGate: Solving Problems That Matter And Getting Paid For It](https://www.researchgate.net/publication/282236898_Solving_Problems_that_Matter_and_Getting_Paid_for_It_STEM_Careers_in_Social_Innovation_and_Global_Sustainable_Development), by Khanjan Mehta