

A conversation with Alex Chetkovich and Beatrice Fuchs, June 9, 2017

Participants

- Alex Chetkovich – Managing Director, Seed Change
- Beatrice Fuchs – Executive Director, Seed Change
- Josh Rosenberg – Senior Research Analyst, GiveWell
- Andrew Martin – Research Analyst, GiveWell
- Scott Weathers – Summer Research Analyst, GiveWell

Note: These notes were compiled by GiveWell and give an overview of the major points made by Mr. Alex Chetkovich and Ms. Beatrice Fuchs.

Summary

GiveWell spoke with Mr. Chetkovich and Ms. Fuchs of Seed Change (www.seedchangetanzania.org). Conversation topics included the organization's background, program model, and evaluation strategy.

Background

Purpose

Seed Change provides high-yielding *tenera* variety oil palm trees to smallholder farmers in Kigoma Region, Tanzania. This is expected to greatly increase the profits of smallholder farmers, most of whom currently live on about a dollar a day, thereby lifting them out of poverty.

Origins

Seed Change was founded in late 2013 by Mr. Chetkovich, who has a background in both agriculture and international development. He had spent time in Tanzania since 2012 and the idea emerged from his master's research.

Ms. Fuchs joined the organization in 2014. She has a background in policy and evaluation, and was drawn to the program by its public policy strengths.

Funding

The annual budget fluctuates considerably depending on the success of grant applications, but is around \$200,000. Around 15-20% of this comes from private donations and is largely unrestricted. The remainder is from competitively-won grants and bilateral aid. Since 2014, the largest portion (around 50% of the total budget) has been from a program in Tanzania funded by the Danish International Development Agency (DANIDA).

Branding

Mr. Chetkovich and Ms. Fuchs consider themselves effective altruists (EAs) and their interest in EA ideas pre-dates Seed Change. They set up Seed Change due to the high impact per dollar and founded the organization expressly with EA ideas in mind.

Early branding reflected this, with a strong focus on impact. However, they found that EAs preferred to support more established, GiveWell-recommended charities, while private funders were generally less responsive to data-driven messages. The website was therefore changed to make it resemble a traditional NGO, resulting in an increase in private donations.

The intervention

Program model

Seed Change has a relatively straightforward model, with three basic steps:

1. **Grow high-yielding *tenera* oil palm trees.** The trees take four years to mature with the first cohort planted in 2014.
2. **Provide the trees to farmers.** Most are given for free or at subsidized prices, depending on ability to pay. Some are also sold for a profit to commercial farmers.
3. **Provide ongoing training and support.** All farmers take two classes a month for nine months, covering agronomy, financial literacy, and sustainability. These are facilitated through farmer groups, comprising about 20 individuals each. Some of the groups already exist and approached Seed Change after hearing about the program, while others are set up with the organization's assistance, based around geographical areas. Meeting spaces and refreshments are initially provided, but the groups will hopefully become self-sustaining once the participants recognize the value of working together.

Costs

The total cost per tree is around \$6.50. The tree itself is \$5 and the rest covers the other elements of the program – training, monitoring, etc.

Selection

The program area was chosen after consultation with the Department of Agriculture. It is based around four central villages with a high concentration of palm farmers.

Farmers applied to the program following an advertising campaign. For the last three years it has been oversubscribed so public lotteries have been used to select individuals for support.

Market access

Seed Change has not yet attempted to connect farmers to buyers, but this will probably be unnecessary in the short term as there is already a thriving market in palm oil. The vast majority is sold and consumed within 300km of the farms: much is used in the town of Kigoma, the capital of Kigoma Region, and some is sold into adjacent Burundi or across Lake Tanganyika to the Democratic Republic of the Congo through informal trade links.

Tanzania currently imports \$380 million of palm oil, mostly from Southeast Asia. Even if the price of Kigoma oil falls 20 cents below the international average (which is not expected), local producers could outcompete imports. Moreover, Seed Change believes that even if the price of oil in Tanzania falls 25% due to increased supply (which, again, it does not believe is likely), the market could easily absorb it.

With sufficiently high production, involving thousands of liters a month, it should be easy to secure an offtake agreement (agreement to purchase a set quantity of palm oil) with one of the two large industrial refiners in Dar es Salaam, the biggest city in the country. Smallholders may struggle to meet the volume and standards required by large processors, but Seed Change is willing to assist with quantity and quality control if required. In five to ten years, perhaps \$20-30 million of Tanzania's imports could be substituted by Kigoma palm oil.

Expected outcomes

Seed Change confidently estimates that using the new trees will increase farmers' profits by about 900%. This may sound implausibly high, but there are reasons for thinking it is realistic, or even conservative. In particular:

- The estimate assumes a yield considerably lower than the world average for that type of tree.
- The intervention only changes one element of the system: the trees themselves. It does not require any behavior change as the new trees require the same inputs as the previous ones.
- Similar interventions by Southeast Asian governments have shown results of this magnitude for smallholder palm farmers. In Africa, One Acre Fund has successfully used a similar model with other crops.

The only significant threat to the attainment of these outcomes is therefore inadequate input from farmers themselves, resulting in poor yields. The training and support is designed to give participants the motivation as well as skills to make their farms succeed.

Scaling up

Seed Change currently works with about 800 farmers with a total of ~50,000 trees planted on farms in the region – this number is expected to reach 75,000 by December 2017. The goal is to reach ~200,000 productive trees in the next couple of years, requiring at least another ~\$800,000. The program would also like to invest in additional projects, such as a demonstration mill, bringing the total to about \$1-1.5 million over 2-3 years. At this point, there should be enough production to attract processing facilities and other elements of the private sector, leading to a cycle of reinvestment. This would obviate the need for outside assistance.

There are currently about 30,000 farming families in Kigoma Region, around 10% of the population, all of whom could potentially benefit from the program. If the next few years show the program to be successful, Seed Change would eventually hope to

scale to reach these other families. Seed Change currently spends about \$200 per farming family supported per year, so to reach all relevant farmers in Kigoma it may need to spend about \$5-6 million per year (though cost per person could decrease substantially at larger scale). Additionally, Seed Change staff expect investment from smallholders, commercial farmers, and/or others to increase as the project grows, reducing the need for philanthropy. In addition, many others will be drawn into the industry if it is successful – perhaps up to 200,000 families in total.

Seed Change does not anticipate reaching many farmers beyond this in Tanzania. It may be possible to implement the program in areas of Tanzania where palm grows less well, but it is unclear how successful this would be.

There is much greater opportunity for scaling in other tropical parts of Africa. Seed Change has not ruled out working in other countries, but will focus on Tanzania for now.

Why have the farmers not already switched to *tenera* trees?

This seems to be due to market failure. With incomes of at most around \$300 per year, farmers simply lack the disposable income to invest in new trees. As elsewhere in sub-Saharan Africa, it is also very difficult to get credit: the National Microcredit Bank charges 22% interest. Seed Change tried to negotiate a more favorable loan structure on behalf of smallholder farmers, but the efforts were not successful. Moreover, importing the *tenera* seeds is logistically challenging, as well as being expensive for small orders.

Why have other organizations not already done this?

It has been done very successfully by governments in Southeast Asia, albeit with a heavy environmental cost. The income benefits and environmental damage seen in Southeast Asia are well documented in many research papers and journal articles.

Seed Change is unsure why large agricultural NGOs, such as One Acre Fund, have not worked with palm. Potential reasons include:

- It may be less scalable than other low value staple crops such as maize or cassava, which can be farmed in more than just the tropical parts of Africa.
- There may be concerns about public relations aspects of supporting palm oil farming since this farming has caused substantial rainforest damage in Southeast Asia.
- It may be that the time scale for results from this work is too long for many funders. For example, Seed Change has heard from potential donors in the past that they could not support Seed Change's work because they only fund work that can show demonstrable results in 1-3 years.

Monitoring and evaluation

Evaluation plan

Due to funding constraints, the planned evaluation of the program is not as thorough as Seed Change would like, and does not include a control group. It

currently has three components, which will provide data for a difference-in-differences analysis:

1. **2013 survey.** Before the program began, a very basic baseline livelihood survey was administered to around 70 farmers on topics such as household consumption, asset ownership, demographics, and current farming practices.
2. **2017 survey.** A similar, brief survey is being given to 800 farmers including GPS data collection. Of these, 10% will be selected by stratified random sampling, with the strata being geographical location and the gender of the head of the household. They will complete a more detailed livelihoods survey covering the same topics in more depth, such as economic indicators, demographics, agriculture, land titles/land security, and market function. This will constitute the baseline used in future evaluations. The survey will also include checks on the development of the trees, using well-established metrics taken from Malaysian farms, and their progress compared to ones managed to a high standard by Seed Change staff.
3. **2019 survey.** This will be a repetition of the 2017 survey. This survey will capture the first harvests from the high-yielding trees. The survey will be repeated every two years.

Further research

With additional funding, further studies could usefully be conducted.

- **Randomized controlled trial.** This would make causal claims more credible. However, if the effect size is as large as expected a control group may not be necessary. It would probably require doubling the number of data collectors, and would stretch over roughly 4-8 years as the trees take time to mature. The total cost is not yet clear.
- **Consumption.** It would be interesting to discover what the farmers spent their extra income on. Some have said they would send their children to school; many children are currently kept home because the fees and uniforms are too expensive, or because they are needed for labor. Others may invest in their farms or other income-generating activities, such as buying a taxi or setting up a shop. Seed Change noted that part of its current survey collects data on consumption indicators but there is substantial room to collect more data.
- **Other countries.** Research could help promote sustainable smallholder palm oil industries in other parts of Africa. Otherwise, it is likely that many of them will be taken over by big plantations in the next ten years or so.

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