

Safi Organics: Freeing rural farmers' unhealthy dependence on expensive imported fertilizers

Nairobi, Kenya

Kevin Kung

Year Founded:

2011

Organization type:

for profit

Project Stage:

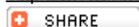
Start-Up

Budget:

\$10,000 - \$50,000

Website:

<http://takachar.blogspot.com>

 SHARE

- [Climate change](#)
- [Income generation](#)
- [Sanitation](#)
- [Renewable energy](#)
- [Youth leadership](#)
- [Urban development](#)
- [Waste](#)

Project Summary

Elevator Pitch

Concise Summary: Help us pitch this solution! Provide an explanation within 3-4 short sentences.

Safi Organics presents an alternative fertilizer called fortified biochar from organic waste. We have developed technologies enabling farmers to make their own fertilizers in 30 minutes, thus saving them 40% of the cost of traditional fertilizers (US\$100/year) while counteracting soil acidity.

WHAT IF - Inspiration: Write one sentence that describes a way that your project dares to ask, "WHAT IF?"

What if rural farmers can make their own fertilizers in 30 minutes?

About Project

Problem: What problem is this project trying to address?

Africa's fertilizer price is 2-4 times more expensive than the world price because most fertilizers are manufactured using capital intensive processes abroad and then imported. At the same time, by 2040, the world fertilizer price is predicted to rise by 500%. This adds to the cost of food production for farmers, driving them into a vicious cycle of poverty. The use of some fertilizers may even acidify the soil, leading to long-term yield loss.

Solution: What is the proposed solution? Please be specific!

Safi Organic's fertilizer relies on two innovative steps to break farmers' dependence on imported fertilizers. First, by converting locally available farm waste, farmers can produce their own biochar, a carbon-rich solid material. Secondly, while biochar alone is insufficient as a fertilizer replacement, in conjunction with our unique fortifying recipe, it can replace chemical fertilizers at a cost 40% lower. Notably, our MIT-developed, field-tested biochar converter is designed for extreme affordability: it costs less than \$20 to manufacture, and can be repaired/replaced completely locally. Safi Organics enables every farmer to locally produce their own fertilizers under 30 minutes without relying on expensive imported fertilizers.

Impact: How does it Work

Example: Walk us through a specific example(s) of how this solution makes a difference; include its primary activities.

James is a 30-year-old rice farmer in Mwea whose land has become degraded by ammonium fertilizer overtime. He earns an average of \$40/month and spends \$5/month on improving land. At the same time, he needs to set on fire most of the excess post-harvest farm waste, which is a nuisance. Through the Irrigation Board, he becomes aware of our conversion process, which makes use of the waste he has in plenty to make biochar in 30 minutes. We supply him with a unique recipe to blend with the biochar to make the nutrient complete. The flowering on his farm becomes earlier and yield is slightly increased, but more importantly, he just saved 120 kg of chemical fertilizers. This saving is enough to afford a nice bicycle or send 4 children to school.

Impact: What is the impact of the work to date? Also describe the projected future impact for the coming years.

So far we have sold more than 15 tons of our product, which has shown to be profit-making. We actually have farmers who are willing to drive more than 50 km to pick up our product. This has helped the community save more than US\$500. Not only that, our project has also managed more than 60 tons of discarded farm waste, which would otherwise have been set on fire to create toxic pollution and contribute towards urban smog. This is equivalent to roughly 80 tons of averted greenhouse gas and particulate emissions into the atmosphere. Furthermore, we have also engaged in

extensive training and dissemination of our biochar converter in various communities such as Rumuruti, Nairobi, Machakos, Meru, and Mombasa. One community, for example, pooled together their resources and invested in more than 70 biochar converters amongst themselves.

Spread Strategies: Moving forward, what are the main strategies for scaling impact?

To maximize our impact, we have made our \$20 biochar converter open-source without patents, so that any farmer can locally manufacture the converter from his/her village metalworker. This helps us eliminate the barrier in setting up our own manufacturing process and distribution channel. On the other hand, our unique fortification recipe is being made at a central facility and will be distributed via agricultural partners and anchor institutions throughout Kenya and beyond. To scale beyond Kenya, we will use the commissioned agent model, and are already talking to potential partners.

Sustainability

Financial Sustainability Plan: What is this solution's plan to ensure financial sustainability?

Our primary profit-making source is the revenue from our fortifying recipe, which we distribute to the farmers to mix with their fertilizers to complete the soil. On the other hand, the dissemination of low-cost biochar converters is being done on a cost-recovery basis (e.g. not-for-profit) and is designed to maximize reach. We need a 150 tons/month production to be cash positive, and in the meanwhile, we rely on grant money to bridge the gap.

Marketplace: Who else is addressing the problem outlined here? How does the proposed project differ from these approaches?

re:char (now defunct) tried to make and sell biochar in Kenya using an organic recipe, but their biochar converter is 4 times more expensive than ours. The use of organic compost is being promulgated by companies such as Sanergy, Takataka Solutions, as well as many community-based or NGO-funded projects, but the problem is that organic compost or manure is not only labor intensive, but also takes long time and much land area to decompose. Use of agricultural lime (e.g. Famicare, Athi River, Elgon Kenya) incurs an additional cost of \$90 and is beyond the affordability of most farmers.

Team

Founding Story

Samuel and Kevin have been working together for more than a year now, exploring the potential uses of farm waste in rural Kenya. The team, for example, has managed to sell more than one million low-toxin mosquito coils (made from agricultural waste) to a supplier. We were originally making the rice waste in Mwea into fuel briquettes, but since rice is high in ash content, this proved an unsuitable product. We had a panic moment with tons of rice waste but no market for it. Samuel, in consultation with the local agricultural research institute (KARI) and laboratories, devised a recipe to make fortified biochar from farm waste. Kevin was at first sceptical, but the increasing data from user experiences has made him excited too.

Team

Samuel Rigu has been an agricultural manager in Kenya. In the past, as an entrepreneur, he has partnered with a large mosquito coil manufacturer and successfully sold more than one million mosquito coils. Kevin Kung is a current MIT PhD student whose research focuses on making better biochar from waste. Kevin has had 3 years of business experience in Kenya, and currently sits on the advisory board of Greenchar (a Kenyan company).

About You

Organization:

Takachar

About You

First Name

Kevin

Last Name

Kung

Twitter URL

Facebook URL

About Your Project

Organization Name

Takachar

How long has your organization been operating?

Please select

The information you provide here will be used to fill in any parts of your profile that have been left blank, such as interests, organization information, and website. No contact information will be made public. Please uncheck here if you do not want this to happen..

Project

Organization Country

, Nairobi

Country where this project is creating social impact

Funding: How is your project financial supported?

Friends and family, Individuals, Foundations, Customers.

Supplemental

Awards: What awards or honors has the project received?

Two peer-reviewed publications, three conference oral presentations
Winner, 2014 MIT IDEAS/Global Challenge Competition
Awardee, 2013-2015 Legatum Fellowship
First Prize, 2013 Tufts Extreme Inclusion Competition
Second Prize, 2013 Walmart Better Living Business Plan Competition
Second Prize, 2012 Orange African Venture Prize

Where have you learnt about the competition?

Email solicitation from Ashoka

Tell us about your partnerships:

Both Innovators and Inventors Association of Kenya and Kenya Wildlife Fund trains the local community in new income-generating activities. We reached an agreement with the head of the organization to include our biochar converter as part of their portfolio. Research is done in partnership with University of Nairobi and Kenyan Agricultural Research Institute. We are talking to potential distribution partners such as One Acre Fund, SOS Energie.

Challenges: What challenges might hinder the success of your project and how do you plan to overcome them?

As we scale beyond Kenya, some countries have strict laws on businesses from outside. Likewise, some countries have specific (and different) standards of what constitutes fertilizers. Moreover, subsidies for fertilizers are in place in some countries. These subsidies could be either a curse or a blessing. All these details must be researched beforehand, and our product must be packaged and branded appropriately. Our first rule of engagement in a community is to always ensure relevant authorities are on board with the project and its community benefits, as we have done so in Kenya.

Source URL: <https://www.changemakers.com/discussions/entries/safi-organics>