

TAFARI ENGINEERING QUESTIONNAIRE

Company and Product

1. *What do you consider to be your fundamental inspiration for starting this company?*

Inspiration is to provide affordable housing for Ugandans. The Ugandan population doubles every 20 years, therefore the current 47m right now will be over 80m in 20 years. With the shortage already a big problem, the future will be a lot worse.

2. *What makes your interlocking bricks and modular houses unique and innovative?*

The interlocking bricks are unique because they are innovative and made with precision so as to reduce the cost of construction. They do not use cement, lighter and allow for the customer to have options when constructing while still bringing down the cost of construction by over 40%.

They are just assembled and can be disassembled and reused which reduces on construction time and labor by over 80% and construction waste by over 90%.

The modular houses which derive from using the interlocking bricks are unique in that they can be edited without losing the material. Because the interlocking bricks are not permanently bound together, it makes it easier to construct the house and later be able to edit it with additions or to be able to disassemble it and move it to another location without losing the principal material that built the house. Metal pipes filled with mortar are used to reinforce the walls so as to achieve an in-wall skeleton. The design of the houses is based on the principals of mechanical engineering that uses the balance of energy and forces to achieve a stable structure.

3. *How do you differentiate your products from competitors in the market?*

The TIB is lighter than any comparable brick, have cube crevices that run $\frac{3}{4}$ of the height, and use a circle/cone-into-square lock design.

Market Opportunity

1. *What market size and growth potential for interlocking bricks and modular affordable houses are you hoping to cover?*

For the first 2 years, a market size of 5% will be a good start. I should be having a market growth of 5% every year after the first 2 years with a goal of 40% in 10 years.

2. *Who is your target customer, and what are their key needs and pain points?*

My target customer is the lower middle class Ugandan (earning average of \$130) where one can start with a small house and can add onto the house with time, thereby turning their rental payments into actual equity of owning the house.

The key needs and pains are the lack of affordable housing options and high rent costs as a percentage of their income but don't gain any equity on it.

3. *How do you plan to capture market share and establish a competitive advantage?*

Capturing the market will be through aggressive marketing of our products, having an in-house trained construction crew that will construct the structures much easier and faster so as to maintain quality of product.

The competitive advantage lies in speed and lack of waste during construction for comparable products which results in over 40% overall savings.

Technology and Operations

1. How do you ensure the quality and durability of your products?

Tafari products are made to a standard above that of the market. The TIB is made with set ratios to achieve and maintain the highest quality, 5.5 MPa compressional strength versus the 3.5 MPa industry standard for load bearing bricks.

a) Ordinary bricks: the TIB far surpasses the strength, construction time, and brings in over 40% in savings compared to the ordinary clay/mud bricks (2.5-3.5 MPa) or cement blocks (3-4 MPa).

b) Other interlocking bricks: The TIB is much lighter and hence much cheaper by a factor of 35%. This is due to the reduced amount of material used.

2. How far do you plan on scaling up production to meet market demand?

Production should be a minimum of 5,000 bricks per day to meet the early demand, and should scale up to 20,000 bricks per day to meet the growing market.

Team and Culture

1. Tell me about your team and their expertise in the industry;

The TIB and Modular houses are designed and tested by Brian Osende, the lead engineer and director. I have both my bachelor's and master's in Mechanical Engineering from the University of St. Thomas, MN, USA. This concept of house design is derived from mechanical engineering principals that follow the balance of energy and forces like how a vehicle is designed.

In addition to the above, I have supervised the construction of over 10 residential properties, my own included, and have learnt where to adjust and improve in the construction process so as to maximize savings hence creating affordable housing.

In the process of constructing those properties, I have built a team with experience in masonry, roofing, plumbing, and electrical expertise. This makes the construction process faster as all the necessary experts are on site.

2. What is your company culture like, and how does it contribute to your success?

The company culture is built on teamwork and continuous learning. Every employee understands that everyone has to play their part for the company to be successful and that we have to keep continuously improving our products and services through learning and improving our knowledge.

3. *How do you attract and retain talent in a competitive market?*

By creating a conducive work environment and giving them some ownership of the company success to the employee incentive to work with us. Their pay is also tied to the company's success which means that their wage goes up as the company grows. The employee has a sense of satisfaction seeing how their contribution is impacting the lives of fellow countrymen and being part of ground breaking innovations.

Funding and Financials

1. *What are your plans for future fundraising?*

Raising funds is planned around making sales of the bricks and home constructions. The aim is to have clients prepay for their products and that money used to construct produce the bricks and construct their house.

2. *What are your revenue and profitability projections in the next 3-5 years?*

I project that in the first year, the company should be able to bring in revenues of Ugx. 960m annually, using a monthly target of 80m which is 2,000 bricks produced per day. This should grow to Ugx. 2.4 - 3 billion in the next 3-5 years as improvement in the manufacturing process is made more efficient.

3. *What are the key financial aspects you track to monitor your company's performance?*

Expenditure and Sales are the main things that I track. The expenditure is supposed to bring a ROI through sales. The sales should be able to be above the breakeven point for the company so as the company to remain viable.

Impact and Sustainability

1. *How do your interlocking bricks and modular houses contribute to solving the affordable housing crisis?*

The TIB solve the housing crisis through two prongs, through reduction of materials and labor used. Materials are saved because no mortar is used to bind over 90% of the bricks. The labor is saved through quick construction because no motor is used. Labor is a factor of time, and that yields savings of over 60% coupled with the reduction of amount of labor use.

2. *What measures have you taken to ensure the sustainability and environmental friendliness of your products and operations?*

The products used to make the bricks have almost no effect to the environment. No emissions are given off in the manufacturing process of the bricks. When the bricks are used, they reduce the carbon footprint by cutting out the cement used.

Exit Strategy

1. What are your long-term goals for the company?

The company should in the future be able to additional products like bricks from plastic waste which would greatly reduce on the plastic pollution.

Additionally, the company should become more efficient and make its products even cheaper in the future so as to drop the cost of housing even further.

2. Do you have any intentions for an exit strategy, such as an IPO or acquisition?

Not at the moment.

3. The biggest challenges you foresee for your company in the coming years?

The biggest challenge for the company in the future will be the increased demand that will come with the success of the bricks and modular houses. This demand might outstrip production and create long delays.

4. The biggest opportunities you foresee for your company in the coming years?

The company has a big opportunity of being the number one residential contractor in Uganda. The savings generated through the modular housing and the brick will give it an upper hand over the competition.