



BRICK MAKING FOR BETTER HOUSING

KAALFONTEIN TOWNSHIP

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Abstract

Brickmaking for Better Housing (BBH) is a project targeting South African townships, with Kaalfontein township being the pilot project. The aim of this project is to eradicate the problem of poor housing. Kaalfontein has a lot of shacks made from plastics and zinc. This poses a challenge to the health of the residents and perpetuates crime. The brick-making project seeks to close this gap in the township community by making cheaper and affordable bricks. The project will specifically focus on cement block bricks, which is the preferable option for most township households. Through BBH, approximately 10 000 bricks will be made a month, which is enough to build two houses of 8x5 square meters; meaning that in a year, 24 houses can be built from the project. Ultimately, BBH will have numerous benefits in the infrastructural development of South Africa's townships and there are also other indirect benefits such as improved safety, social cohesion as people come together to build their community, better health and reduction of crime.

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1. INTRODUCTION- PROJECT SCOPE

Infrastructural development growing at a slow pace in the African continent. With a population of approximately 1.4 billion people with an annual growth of 2.5%, the continent's population is expected to double by the year 2042 (Worldometer - real time world statistics, n.d.). This puts pressure on infrastructural development that can serve the growing population. Infrastructure development is Sustainable Development Goal 9 “...to support economic development and human well-being, with a focus on affordable and equitable access for all” (Sustainable Development Knowledge Platform, n.d.)

BBH has identified that poor housing in the form of shacks is a problem in most African countries because the majority of the people cannot afford to build proper houses for themselves. The solution being proposed is to engage residents to make affordable bricks that township residents can afford with Kaalfontein township in South Africa as a pilot project. It was specifically selected because there is a high number of shacks and deaths due to fires in the informal settlements. BBH will allow them to build more durable brick houses and it encourages them to make proper electrical connections. Social inclusion is realised through better housing which reduces the challenge of inequality in South Africa. South Africa is one of the most unequal countries in the world with a Gini Coefficient of 0.63, and this inequality is perpetuated by the legacy of exclusion and an economic system that is not pro-poor (World Bank, 2020.) The BBH project is focused on offering poor households the opportunity to also have proper housing that is durable.

The problem of poor housing is not peculiar to Kaalfontein. It is a replica of the prevailing situation in South African townships. Though construction is a growing industry in South Africa, it is mainly concentrated in the low-density suburbs where people can afford to buy nice houses at high prices. This is a clear demonstration of the inequalities evident in South Africa’s dual economy. Majority of the township population is young and unemployed, which means they cannot afford decent housing. The only option for them is to live in shacks that often get destroyed by storms or burglary. Shacks perpetuate crime rates because of their unsafe conditions. Safety is compromised as most shacks do not have electricity supply hence the residents engage in illegal electricity connections from the power utilities lines.

1.1.LITERATURE REVIEW

Housing is a necessity and a basic need. Housing has been a global challenge due to population growth. There is a growth of population in South Africa and the country has been hit hard in terms of housing. Growth of informal housing has taken the form of backyard shacks which are seen as a stopgap for poor households who are in dire need for shelter (Turok and Borel-Saladin, 2016). The housing material used for building township houses is poor (Manomano, Tanga and Tanyi, 2016). Govender, Barnes and Pieper (2011) further reiterate

that homeowners in townships do not have income hence resort to erecting backyard shacks constructed with poor and flammable materials such as cardboard and zinc. These shacks have no water, electricity and sanitation which poses a health problem. They are also prone to fires due to the use of unsafe energy sources such as paraffin and bridged electricity (Kimemia and Niekerk, 2017). These difficult circumstances are not felt equally in South Africa. Conditions in townships are worse than low density suburbs. Harsch (2016) comments that having a tile roof is like a dream to township residents.

1.2.DEMOGRAPHICS

In 2020, South Africa's population projections are at 59 308 690 with a population growth rate of 1.28% per year and is expected to grow to around 64 million by 2030 (South Africa Population, 2020). The median age is 27 years and there is a high population that is economically active as shown in the pyramid below.

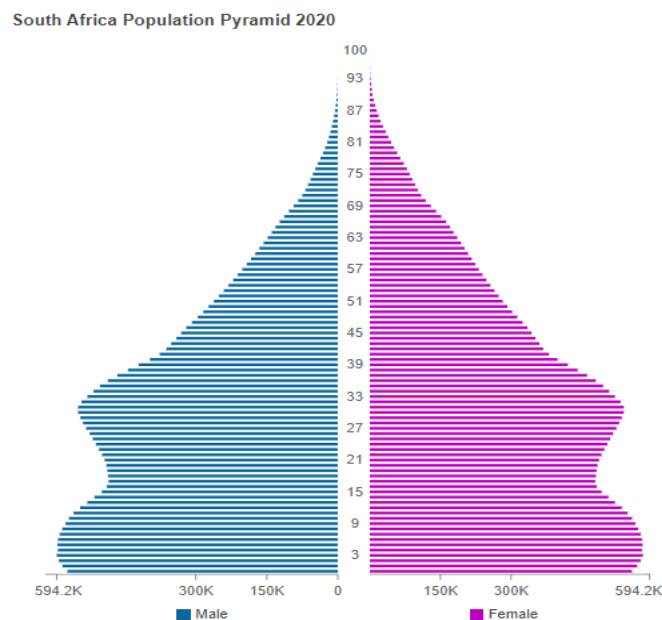


Figure 1: Source: *South Africa Population*, (2020)

Kaalfontein Township is under the City of Johannesburg Municipality. Johannesburg municipality has a growing population with a 6,5million anticipated growth by 2040 (Johannesburg Population, 2020.) Most of the population falls under the economically active bracket of 15-64 years, as shown in Figure 2 below. This age bracket is the economically active group that is redundant because of poverty and lack of technical skills. Jobs that are available tend to be taken by foreigners who have the technical skills of building, carpentry, and welding. These demographics are an insight of what is happening across South African townships. There are a lot of economically active people without income, which in turn, perpetuates crime in townships.

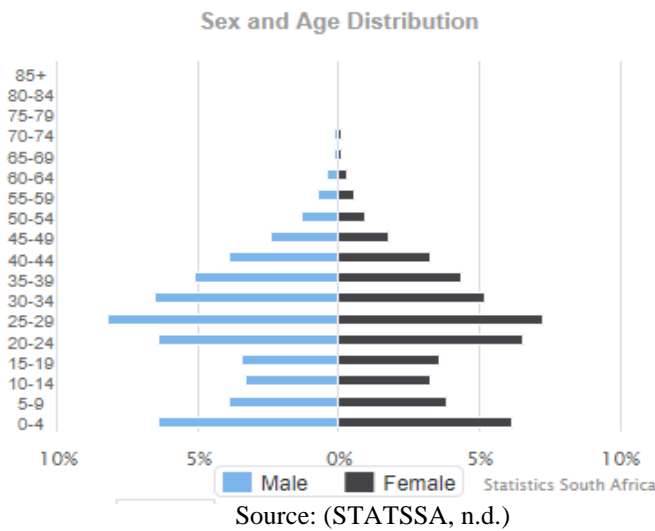


Figure 2: Kaalfontein Population Distribution

Most households do not have an income at all. This indicates that there are high levels of poverty due to lack of employment. Brickmaking will help alleviate this challenge by creating jobs for the residents who are currently redundant. It will ultimately contribute to the improved well-being of the black population in the township.

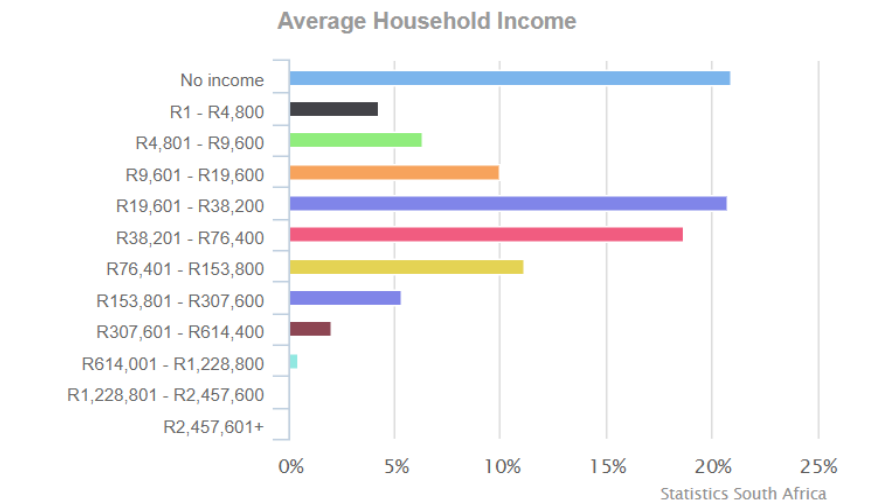


Figure 3: Average Household income

2. PROBLEM DEFINED

2.1. Housing and Infrastructure Development in Africa

There are existing and rising challenges of urbanisation in the continent. The increase in the working-age population will exacerbate urbanisation in many African regions if adequate preparation is not done. The lack of infrastructure and housing remains a problem in urban hubs with large disparities between the living conditions of the upper class and the low-income population. This is demonstrated by popular images of the Alexandra township and the affluent Sandton suburb in Johannesburg South Africa. These areas are less than 10 kilometres apart but illustrate the existing disparities (see Figure 4 below).



Figure 4: Illustration of Sandton suburb and Alexandra township in the distance (Unequal scenes, 2020).

Townships and urban slums are characterised by overcrowded living conditions, lack of clean water and sanitation, limited access to electricity and poor housing quality.

In South Africa, several townships were established during the apartheid era where non-whites were required to live on the outskirts of cities and towns. The establishment of a number of these settlements is therefore based on a foundation of prejudice and social exclusion. There are plans by the government to try equalise and diversify these areas by transforming them into mega-cities and trading/economic hubs. The vision is to create “Integrated Sustainable Human Settlements” that overcome the disparities of the past and are “self-sufficient

in providing for the housing, economic and social needs of the community” (Gauteng Partnership Fund, 2017, p. 3). An example of one of these planned mega-city projects is given in the table below.

Alexandra	<p>“A multi-storey mixed-use development. The development will consist of approximately 30 800 residential units, commercial, health and recreational facilities, educational and retail offerings” (Gauteng Partnership Fund, 2017, p. 5).</p> 
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Table 1: Planned Mega Cities in Gauteng (Gauteng Partnership Fund, 2017)

For these developments to provide sustainable transformation in these communities other underlying matters such as the rising unemployment rate have to be resolved. For example, if a young family were to be provided with fully or partially subsidised housing, how will they maintain this home and their family without a living income? The solutions provided therefore need to be holistic in nature.

2.2.Challenges of Historic Infrastructural Development Programmes

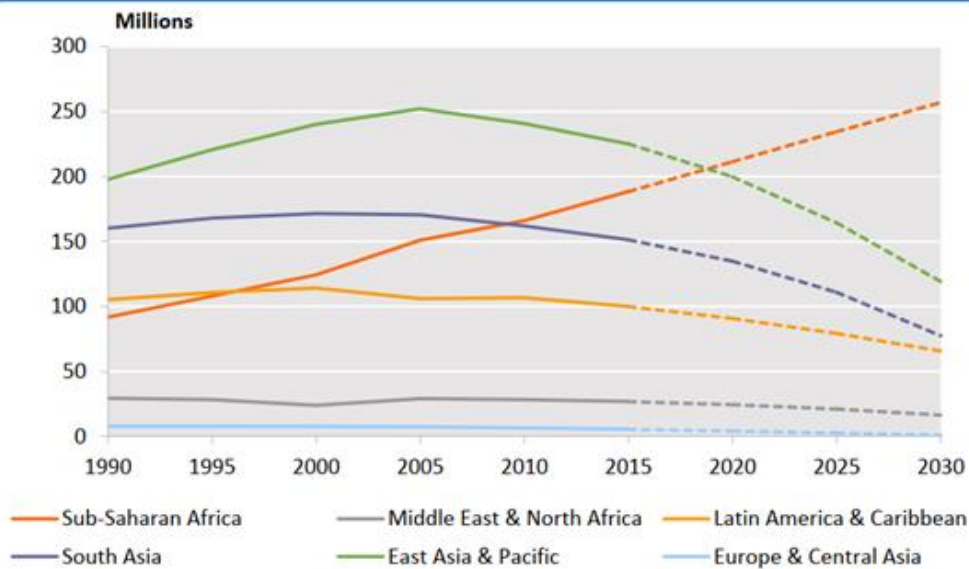
South Africa’s RDP (Reconstruction and Development Plan) was a programme launched at the wake of democracy. One of the priority areas of the programme was to provide housing, services, water, sanitation, energy, and electrification to vulnerable communities (O’Malley, 1994). This programme has however failed in many instances, where people were provided with housing, but due to pressing economic circumstances (like indebtedness) ended up selling their homes and transferring their title deeds at extremely low prices (Ashton, 2010).

These planned developments also tend to occur without the proper economic inclusion of the communities where they are established. A lot of the economic value during the implementation is transferred to large

businesses and organisations outside of the community. This is predominantly due to the lack of skills in the community and the weak supply chains in these areas.

As a result of some of the past disparities and the failed implementation of socio-economic stimulus programmes it is estimated that over 200 million people in Sub-Saharan Africa will be living in urban slums by the end of 2020 (World Bank Group, 2015, p. 2). The illustration below shows the projected increase in slum dwellings over 40 years.

Figure 2. Estimated Urban Population Living in Slums by Region, 1990-2030



Source: UN 2014.

Figure 4: Estimated populations Living in Slums per Region

3. THE SOLUTION- BRICK MAKING FOR BETTER HOUSING (BBH)

Brickmaking for Better Housing is aimed at improving housing in Kaalfontein township and spilling over to other townships. Through brickmaking, communities will be made safer and empowered. The project will have a strong impact on the socio-economic sector of South Africa through skills development, employment, improved health, and reduction of crime, among other benefits. It is a basic project that does not require heavy technology to implement hence is easily accessible to all members of the community who are interested. The municipality already provides water and sanitation services for free in Kaalfontein; which makes it less costly to execute the project. Below is a summary infographic of how the project will impact the community.

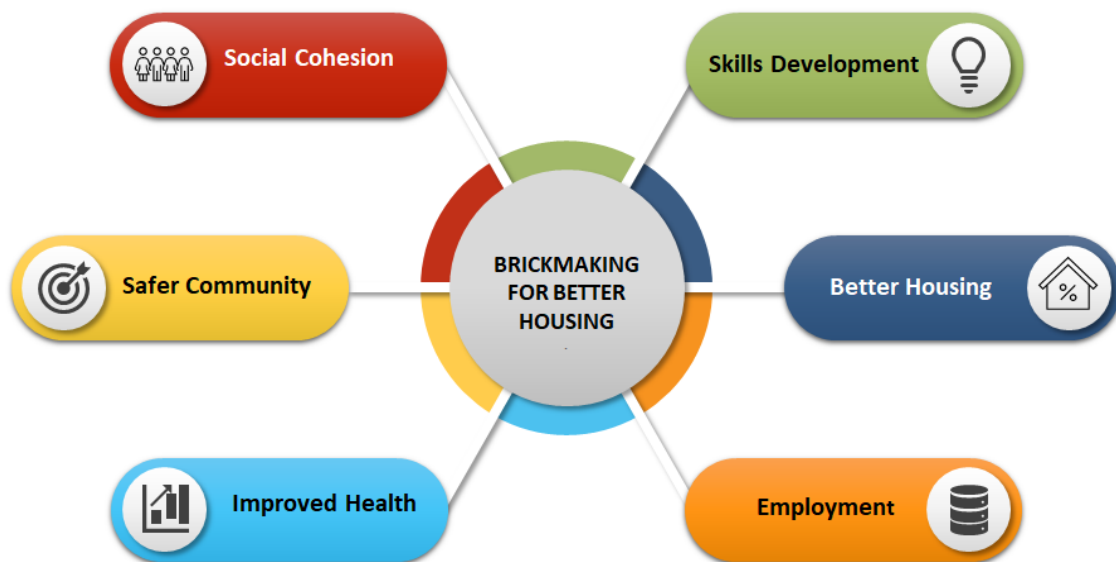


Figure 5: Summary of Expected Outcomes

3.1.Stakeholders and Awareness Campaign

Actor	Role
South African Government	<ul style="list-style-type: none"> • Legislation • Funding • Educational Campaigns • Pricing • Permits
NGOs	<ul style="list-style-type: none"> • Funding
Suppliers	<ul style="list-style-type: none"> • Hardware equipment supply
Private investors	<ul style="list-style-type: none"> • Funding
Residents	<ul style="list-style-type: none"> • Participation in project • Buying bricks

Table 2: Stakeholders in BBH

3.2.Government as the Key Actor

Government is a powerful tool needed to push forward the development agenda and the eradication of social exclusion. The state allows for public value to be realized in the different sectors of society. As the regulator, the government plays a huge role in implementing development -oriented projects and funding them. National policies also allow or bar Non-Governmental Organizations (NGOs) and other private investors to take part in development projects.

South Africa spearheaded the construction of houses for the poor and marginalized in its townships in 1994 through the Reconstruction Development Plan (RDP). After the policy was ended in 1996, construction of these houses continued but at a lower rate. Today, South Africa has a growing construction industry, but it is mainly concentrated in the low-density suburbs where the affluent stay. In the townships, where most of the poor population reside people cannot afford to build houses at competitive prices. This is a big problem that continues to marginalize the poor and breed further inequalities in a society that is already highly unequal.

Most of the township residents are not skilled enough to get jobs with a decent basic salary. They are mostly engaged in informal activities that do not offer a basic salary. As such, they cannot afford to buy or build decent houses for themselves. Another interesting point is that most workers in the construction industry reside in shacks in the townships. This clearly points out to the underlying issue of lack of financial resources to acquire decent housing. It also shows that the relevant building skills are available in townships and there is a high potential of success of making bricks locally and selling them at a reasonable price to the local residents. Government therefore becomes an important factor in pushing for this project to work through funding and regulations.

3.3.Awareness Campaign

3.3.1. Educational Awareness campaigns

Most of the awareness campaign will be done with the assistance of the community leaders such as councillors and local businesspeople so that there is buy-in from the community. Kaalfontein has a community hall and a high school which can be used to have meetings with residents and explain how the project will roll out. The aims of the project and its benefits to the community will be explained clearly. Registration for those who are interested will also take place during these meetings prior to commencement of the project. At least 3 meetings should be held before the project starts.

3.3.2. Posters

Posters can be placed in busy areas such as Kaalfontein Corner Shopping centre and at the taxi rank. There is a high traffic of people coming to buy from shops and street vendors. These locations will be very convenient in attracting more residents to participate in the project.

To measure the success of the awareness campaign, the process will be categorized into milestones that have to be achieved. This allows for coherence in resource allocation in planning and execution.

3.3.3. E-Marketing

The majority of the population within the Kaalfontein Township have access to cellular phones. 51% of South African adults own a smartphone and a further 40% own a basic phone (Geopoll, 2020). An SMS campaign can therefore be launched using the existing community databases in order to ensure more members of the community are informed about the project thereby encouraging participation.

‘Smartphone Usage and Data Costs in South Africa’ (no date) *GeoPoll*. Available at: <https://www.geopoll.com/resources/south-africa-smartphone-internet-usage/> (Accessed: 10 July 2020).

Elements of Awareness Raising	Success Factors	Comments
Planning & Monitoring	Clearly defining the goal, the existing problem, and the gap to be covered	This will be done at the beginning to address issues of target groups and the intended benefits
Goal Setting	Objectives should be clearly spelt out as poverty alleviation through better housing	Goals should be SMART (specific, measurable, achievable, realistic and time bound)
Message	Develop a clear campaign message that will encourage residents to participate in the project	Campaign messages to be in form of flyers and posters that suggest ways of eradicating the issue of informal housing
Stakeholder Engagement	Engage community leaders such as councillors, local businesspeople, construction companies and municipality	Community leaders and local businesspeople will take an active role in convincing the community since they are familiar with them.
Resource Management	Adequate funding for the awareness campaigns	Costs of printing flyers and posters needs to be covered. There is also a need to cover the cost of refreshments during the awareness meetings.

Table 3: Awareness Campaign Indicators

3.4. Benefits of Brickmaking for Better Living

Brickmaking will boost entrepreneur skills in the residents. Most of them do not have tertiary education hence this will be a good opportunity to improve their skills. Acquiring new skills leads to employment whether self-employment or recruiting other people to work in the new project. This contributes to lowering the unemployment levels of Johannesburg that are estimated to be 25% (STATSSA, n.d.). Brick making allows for better housing thereby improving infrastructural development in Kaalfontein township. Better housing also means better health and sanitation and safety for the residents.

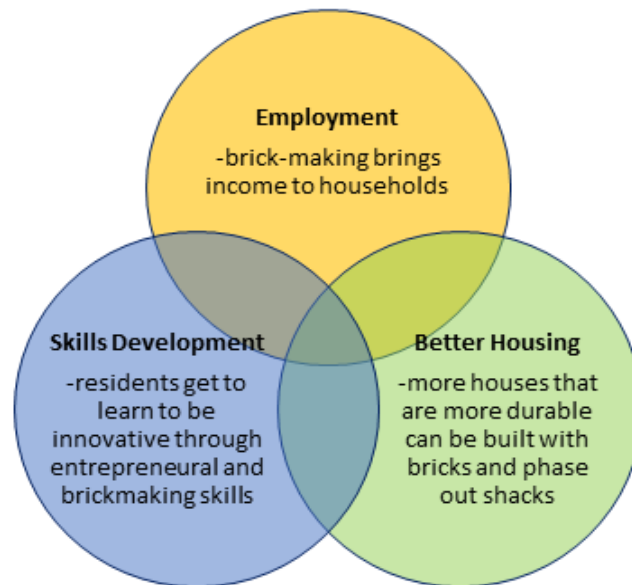


Figure 6: Core Benefits of BBH

- **Skills Development**

New skills in cost efficient brickmaking will be acquired by the interns and in turn they can share the knowledge with the rest of the community. This is a boost to the education sector of the country. In 2014, over 3 million young people in South Africa were not in education (Field et al., 2014). It is without doubt that when a nation gets its education right, it will most likely experience progress in socio-economic development and eradicate poverty. The country has a bulging youthful population and high rates of unemployment. Majority of these unemployed youths live in townships where crime and drug abuse are high. Lack of adequate education and training resulting in lack of employment lead to social ills such as crime, drug abuse and rape. BBH can re-channel these youths to become positively active in the country's socio-economic needs.

- **Employment**

Unemployment is one of South Africa's leading challenges with the rate of unemployment at 30.1% across the population and 59% amongst the youth in the first quarter of 2020 (Business Tech, 2020; Trading Economics, 2020). Creating employment for the population will not only help reduce instances of crime due to a lack of productivity and financial hardship but will also contribute to the growth of the economy as you will have larger numbers of economically active participants. When people are employed, they are also able to maintain and care for any subsidised housing they may be granted.

- **Better Housing**

One of the Sustainable Development Goals is to provide “access for all to adequate, safe and affordable housing and basic services and upgrade slums” (United Nations, 2015). This project's outcome of better housing will mitigate the issues of overcrowded living conditions and poor housing quality that exist in the township of Kaalfontein. This will be done by enhancing the community's ability to build brick housing (at an affordable rate) that is large enough to accommodate their households and safe for them to live in.

3.5.Risk Analysis

There are expected risks in the project and ways of mitigating them have been mapped out. Risks such as corruption and influx of migrants who want to participate in the project are real and they need to be mitigated wisely. The project's core is to use brick making to foster social inclusion in housing, primarily for South African citizens before it spills to migrants as well. Table 4 below summarises the risk assessment and ways of mitigating them.

RISK	MITIGATION MEASURE	RISK SEVERITY
Respiratory Illnesses due to inhaling of dust	<ul style="list-style-type: none"> Raise awareness of the risk and provide enough protective clothing such as masks and gloves 	Low
<p>Funding to Kick start the project.</p> <p>Funding is needed to buy the equipment and compensate the trainers</p>	<ul style="list-style-type: none"> Funding will be outsourced from engineering companies as part of them giving back to the community Funding will be sourced from local businesspeople who are in support of the cause 	Medium
Private construction companies may see the project as a threat because it reduces their market	<ul style="list-style-type: none"> Create a platform for the companies that are funding the project to showcase their efforts so that there is buy in for other private companies 	Low
Objection of brick suppliers in South Africa	<ul style="list-style-type: none"> Get some of the brick companies to be part of the funders and to give their expertise on brick making 	Medium
Influx of foreigners into the programme	<ul style="list-style-type: none"> Make South African citizens a priority in the project 	High
Lack of support from the residents because it is hard labour	<ul style="list-style-type: none"> Get buy-in of the local leaders such as councillors to convince the residents Have awareness campaigns to explain the benefits of the project 	Low
Corruption	<ul style="list-style-type: none"> mitigate by decentralized authority and have proper accounting systems 	High

Table 4: Risk Assessment

3.6. Project Cost and Sustainability

To check the validity and sustainability of the business model some high level cost projections were completed for the proposed project. The projected income statement for the 1st 3 months of the project is provided in Addendum A.

The compilation of the projected Income Statement helped identify the following:

- The total project establishment cost is R158 138.00 (excluding VAT) The breakdown of the establishment cost is given in Addendum A.
- For the business to be sustainable a minimum of 10 000 cement bricks must be sold monthly. A total of 10 000 cement block can build up 2 small 8 x 5 metre houses. This will allow the business to breakeven. The project will start to produce profit once the sales exceed 10 000 bricks per month.
- The projected Income Statement does not consider the issue of non-refundable grants or funding from government, businesses, or NGOs. If funding is provided it will add to the long-term sustainability and profitability of the project.
- Staffing - at the start of the proposed project, the team will be made up of a total of 9 staff members. The proposed team organogram is as per Figure 7 below. A maximum of 5 interns can be accommodated for a project that produces 10 000 bricks per month. The interns will spend at least 1 year working for the project before either being equipped to find work outside the organisation or filling any vacancies within the project.

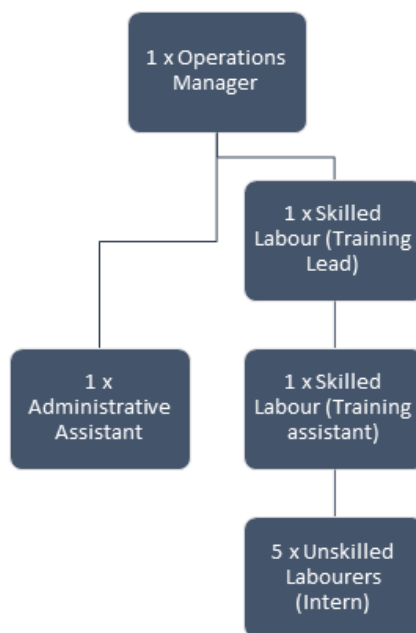


Figure 7: Proposed Project Organogram

3.7. Project Timeline and Implementation Stages

The illustration in Addendum B gives the projected timelines and implementations stages for this project proposal.

The feasibility stage of the project is projected to take 21 weeks to complete. The feasibility stage involves the following activities:

- Registration of NGO
- Identification of land or project site; negotiation with local municipality/community/landlord
- Market Research
- Compilation of bankable business plan consultant
- Submission to funders and banks
- Funds Approval

Once the funding has been approved, the actual implementation stage of the project will take approximately 14 weeks. The implementation stage includes the following activities:

- Funds made available
- Signing of lease for project site
- Order/purchase of Equipment
- Awareness campaigns to promote project
- Staff and intern recruitment
- Establish business on site
- Sale advertisements
- Project Kickstart

These time estimates are only projections and the actual timelines will be location dependent. The time to complete may be impacted by items such as the lead time of equipment, the availability of a location and the willingness of funders.

3.8. Project Review

Project will be reviewed quarterly to monitor the progress. Any key adjustments to the project will be determined by the outcomes of the quarterly reviews.

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ADDENDUM A

Estimated Project Establishment Cost (all costs are excluding VAT)

Item Description	Cost
Registration of the NGO	R 1 500.00
Detailed Market Research	R 10 000.00
Compilation of Bankable Business Plan	R 25 000.00
Marketing and Awareness Campaigns	R 7 500.00
Cost of Business Premises	R 22 500.00
Cost of Machinery and Equipment Cost	R 33 898.00
Cost of Raw Materials	R 45 240.00
Building of raw material storage	R 12 500.00
TOTAL (Excluding VAT)	R 158 138.00

Projected Income Statement:

	MONTH 1	MONTH 2	MONTH 3
Potential Unit Sales	10000	10000	11000
Average price per unit	R 7.75	R 7.75	R 7.75
Projected Sales	R 77 500.00	R 77 500.00	R 85 250.00
Unit costs (manufacturing):			
Raw Materials	R 15 080.00	R 15 080.00	R 16 588.00
Cost of Sales	R 15 080.00	R 15 080.00	R 16 588.00
Gross Profit	R 62 420.00	R 62 420.00	R 68 662.00
Operating Costs	R 57 700.00	R 57 700.00	R 62 700.00
Finance and Administration Costs	R 4 750.00	R 4 750.00	R 4 750.00
Expenses	R 62 450.00	R 62 450.00	R 67 450.00
Net Profit before Tax	-R 30.00	-R 30.00	R 1 212.00

ADDENDUM B

See next Page.

BRICK MAKING FOR BETTER HOUSING
IMPLEMENTATION TIMELINE
REVISION A
DATE: 09 JULY 2020

Milestone

[illegible]