2020 REPORT

LOW COST HIGH QUALITY ECO HOUSING FOR THE COMMUNITY OF MGIDZA, VUVULANE **– DEMO HOUSE**

Pioneering an environmentally friendly & low cost way of building. Built by the community for the community. Every child deserves a beautiful & safe home.

PREPARED BY:

VUVULANE ORPHANS' AND VULNERABLE CHILDREN'S OUTREACH FOUNDATION

AUTHOR:

Khulekani Msweli

OVERVIEW

PROPOSED PROJECT

25 Low Cost High Quality Eco
Housing for the Community of Mgidza, Vuvulane.

STAKEHOLDERS

Community of Vuvulane | Farmers | Architects | Designers | Donors/Partners | Builders | Volunteers | NGO's | Schools | Clinics.

IMPLEMENTING ORGANIZATION

Vuvulane Orphans & Vulnerable Children's Outreach Foundation (VOVCOF)

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REGISTRATION NUMBER: R7/37094

For donations please see (VOVCOF) banking details:
Standard Bank,
ACC: 9110003382756
Sort Code 660864,
Swift Code SBICSZMX

CONCEPTUALIZATION & PROJECT MANAGEMENT

Khulekani Msweli

REPORT LAYOUT DESIGN & GRAPHICS

Siphilele Magagula

1 | BACKGROUND

1.1 Vuvulane Orphans & Vulnerable Children's Outreach Foundation (VOVCOF) is a registered non-profit NGO (Community volunteer run with no wage incentive or full time staff) based in Vuvulane, Lubombo Eswatini. It was founded in 2008 by the Msweli family who are sugarcane farmers and active residents of Vuvulane. The NGO has a core focus on caring for the welfare of orphans and vulnerable children in Vuvulane, by providing adequate health and nutrition, through a soup kitchen which has an organic vegetable garden, a clean ablution facility and the low cost eco-housing project. There has been a lot of progress in our general goals and we are nearly complete in making sure that our target of closing the gap of a vicious cycle of poverty is met. The low cost, high quality eco housing project is a key component in improving the lives of the children of Vuvulane.

1.2 It is with great sadness to share that a child, 7 years old, within our community of Vuvulane, had a horrific ending to her life when a dilapidated house wall, in her homestead, fell and crushed her to death, in January 2020! We, as a community and citizens of Eswatini, failed to keep her safe and provide her with a basic human right of safe shelter. This horrific incident brings even greater meaning to the project that is entailed within this report.

1.3 Vuvulane is a sugarcane growing agricultural town, located in the hot and dry north east Lubombo region of Eswatini (Established in the late 1950's), with a high rate of poverty. Mgidza, the focal village for the low cost eco-housing project, is an area within Vuvulane which was set aside as a residential area, together with several other areas - for farm workers. 'Farmers are expected to supply their labourers with houses in one of the labourers' villages [such as Mgidza] – usually the one closest to their leasehold. Housing in these unplanned villages is built by the farmer and his labourers out of local natural materials such as wood, thatch and sugar cane. Each house is on an allocated plot and built along 'roughly' traditional lines with no ablution facilities. Often the labourers join together to build a 'beer hall' or beer hut. The water for these villages is obtained from the irrigation canals, and requires boiling before being used in cooking.' [1]

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[1] Vuvulane (Swaziland) Township Structure Plan, John Lea, Nick Patricios, Department of Town & Regional Planning, University of the Witwatersrand, Johannesburg, 1973

1.4 Due to the low profit margins gained by the farmers from their small farms, they have been unable to provide adequate housing for their employees. As the farm work is seasonal, the need of having a full time employee is no longer there thus further eliminating the enthusiasm to build adequate shelter. With that said, Mgidza has a population of approximately 123 residents (the number is never constant as some are there for a short period, when work is available, yet some live there permanently). It is a community of migrants from various areas of Eswatini and some who left Mozambique during the civil war. These circumstances have left Mgidza in a state unfit for children to grow and flourish in.

1.5 As Mark Lazenby stated in 1973, 'Most new urban housing is built by the people themselves with the help of friends and relatives, and it is this disorganised situation which leads to slum growth. Slums can be curtailed by aiding people to build their homes and by improving existing housing fabric, thus rehabilitating urban areas by meeting the needs of urban societies which are already in a critical state. Governments, industries and investors can encourage rehabilitation by developing strategies for the provision of basic house parts and sanitation.

1.6 'The definition of environmental quality is a critical design determinant, in that environment is appreciated in terms of an occupant's values and culture. It would appear that a sound approach would be to study the vernacular shelter forms of the people, since these forms reflect the relationship between social values, behaviour, and physical organisation. The lessons learnt in this way can be a major influence in evolving a strategy for shelter.

1.7 'A design response can be to offer the maximum environmental choice in terms of both design and selection. This means fixing some infrastructure and generally applicable space organisation which relates to the limits of the given Swazi culture, economic and physical context.

1.8 'The improvements and additions to the infrastructure can be left to the inhabitants, and they will be able to make choices about, and involve themselves in, their environment'. [2]

[2] Developing Africa, The Growth of a Town in Swaziland, Mike Lazenby, Department of Town & Regional Planning, University of the Witwatersrand, Johannesburg, 1973

2 | INTRODUCTION

2.1 The proposal made by Lazenby, above, offered me some guidance as I, together with the support of VOVCOF, the community of Vuvulane and our friends, took the stand in January 2017 to bring about meaningful change in my community, which is also about the restoration of our dignity. It just could not be that nearly 70 years have passed and the state of housing, for farm workers, is as it was 70 years ago. I, as the third generation living in Vuvulane, trained as a designer and artist, owe it to my grandparents, who were among the founding farmers, to find solutions to the housing situation in Mgidza, Vuvulane.

2.2 This report is a reflection of the journey travelled from a concept idea, in 2017, to the opening of the completed demo house in 2019. The report also hopes to form new partnerships with those that share our vision so we can truly build resilient communities that can thrive and develop holistically.

2.3 Our project vision is an ideal which is not in isolation, but aligns with some of the United Nations Sustainable Development Goals. In particular, goal 11 and 13; '**11-** *Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient and sustainable*, **13** – *Climate Action – Take urgent action to combat climate change and its impacts.*'[3]

2.4 It is also an ideal which aligns well with Eswatini's Economic Strategic Road Map 2019-2023: '*Priority III – Infrastructure, Investment & Innovation: Focus on renewable energy: deliver solar and biomass industries.*'[4] The project's focus on ecologically harmonious methods of building and living will hopefully bring to focus, and demand for renewable energy and sustainable practices.

[3] https://sustainabledevelopment.un.org/?menu=1300
[4] https://www.scribd.com/document/409974662/Swaziland-Economy-Strategic-Roadmap-2019-2023

"...[the project] aligns well with Eswatini's Economic Strategic Road Map 2019-2023. 'Priority III – Infrastructure, Investment & Innovation: **Focus on renewable energy: deliver solar and biomass industries."**

2.5 The demo house was completed and officially opened on the 18th of July 2019. We are targeting to build 24 more houses so that the most vulnerable children, in our community, have safe, environmentally friendly and beautiful homes. Subject to availability of funds, we hope to have the project completed by the year 2023.

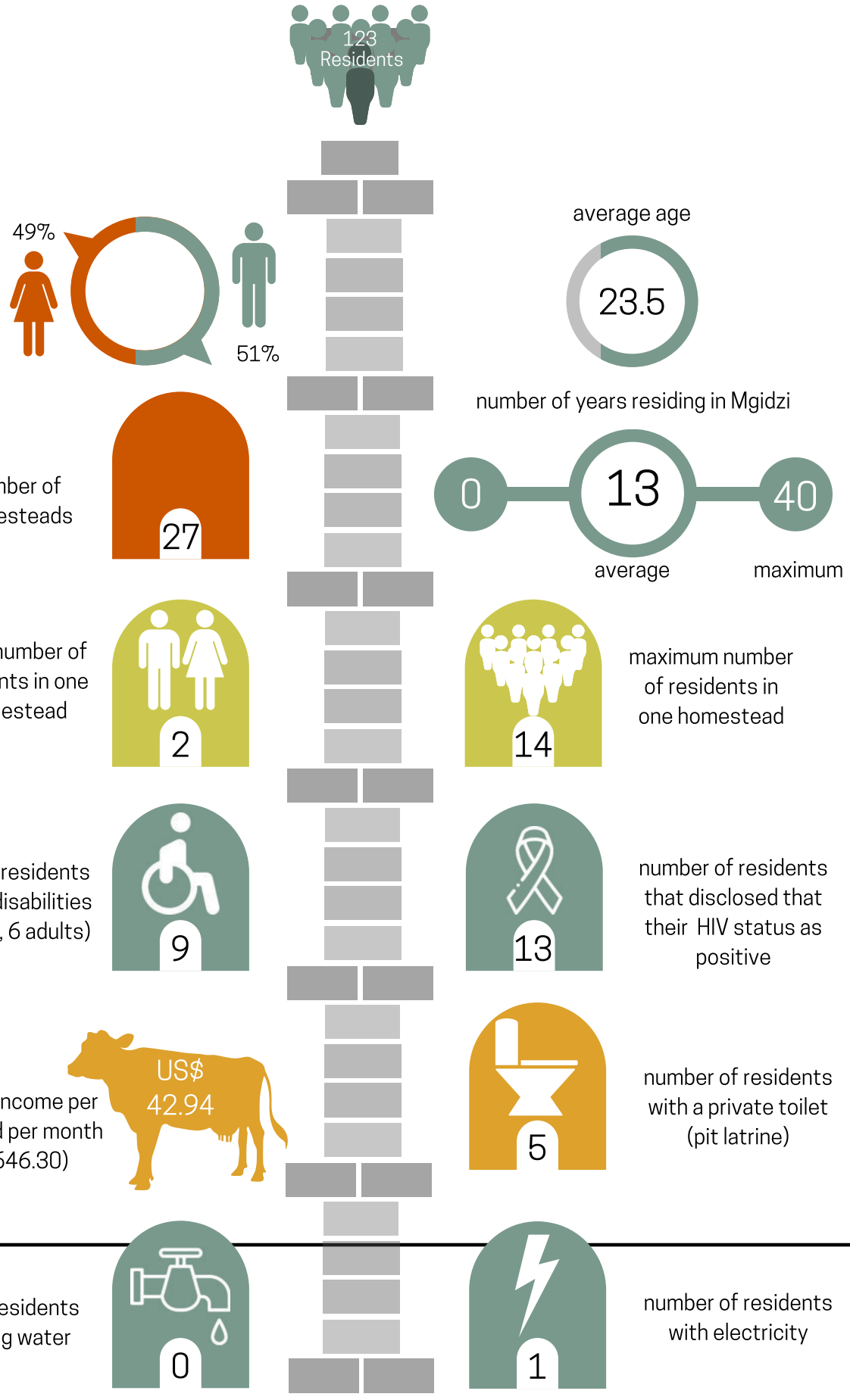
3 | EXISTING CONDITIONS

3.1 The children of Mgidza, Vuvulane are faced by harsh life realities. Through the unfortunate circumstances that they were born into a situation of poverty whereby their basic human rights are compromised: limited food, shelter, health, education and clothing. Most of the children and their families, at Mgidza, do not have adequate homes: homes that are safe, healthy and beautiful.

3.2 The high unemployment rate, amongst the youth, also hinders the development of Vuvulane, thus perpetuating petty crime, alcohol abuse, sexual offences and domestic violence.

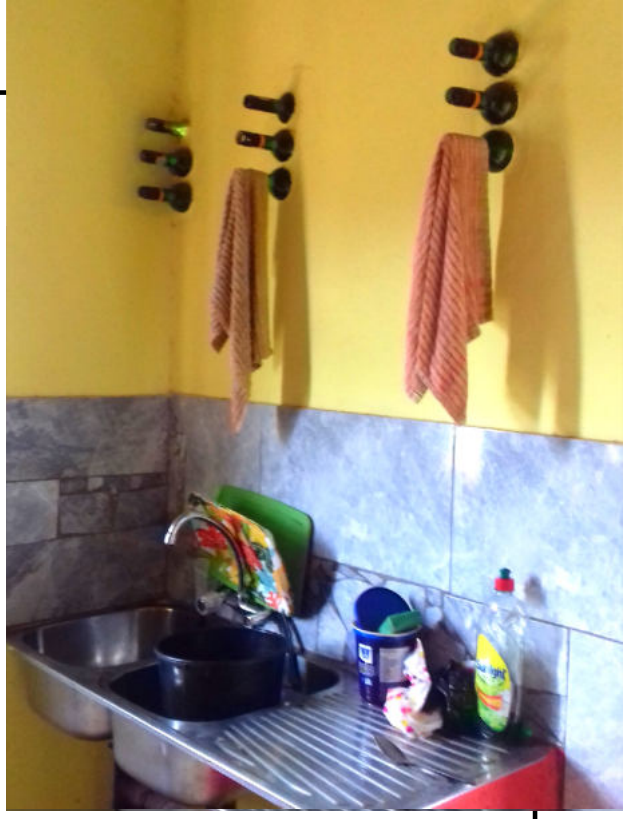
Current housing in Mgidza, Vuvulane.

3.3 In 2016, before embarking on the project in 2017, I was able to conduct a door to door survey, in Mgidza, which revealed the following information:



4 | IMPROVEMENTS

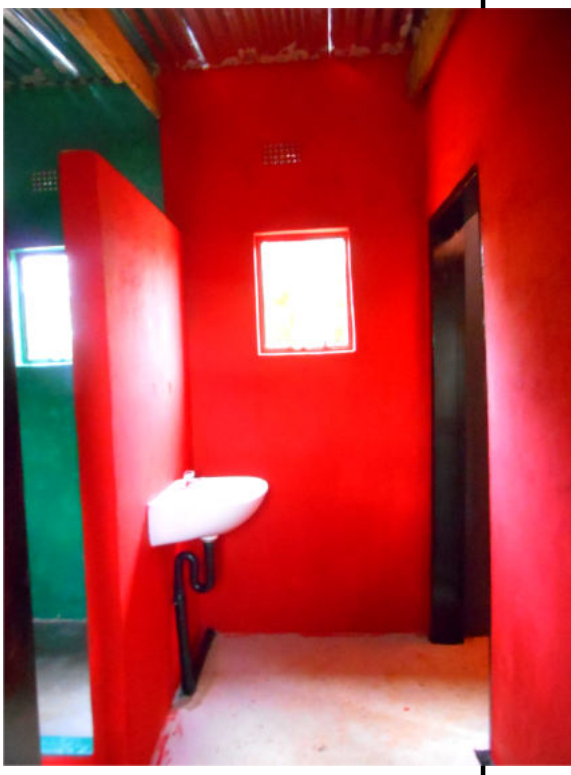
As the Vuvulane Orphan's and Vulnerable Children's Outreach Foundation, we are instilling hope at Mgidza by taking action towards breaking the cycle of poverty. We have established a creatively built soup kitchen with: an organic vegetable garden, access to clean water- thus improving children's nutrition, and a beautiful ablution facility with running water - which mitigates bad hygiene. These core issues form a vicious part of a poverty cycle. It might seem highly ambitious but we do believe that every family at Mgidza can own a low cost, environmentally conscious, well-designed and built home.



Soup Kitchen in Mgidza, Vuvulane.

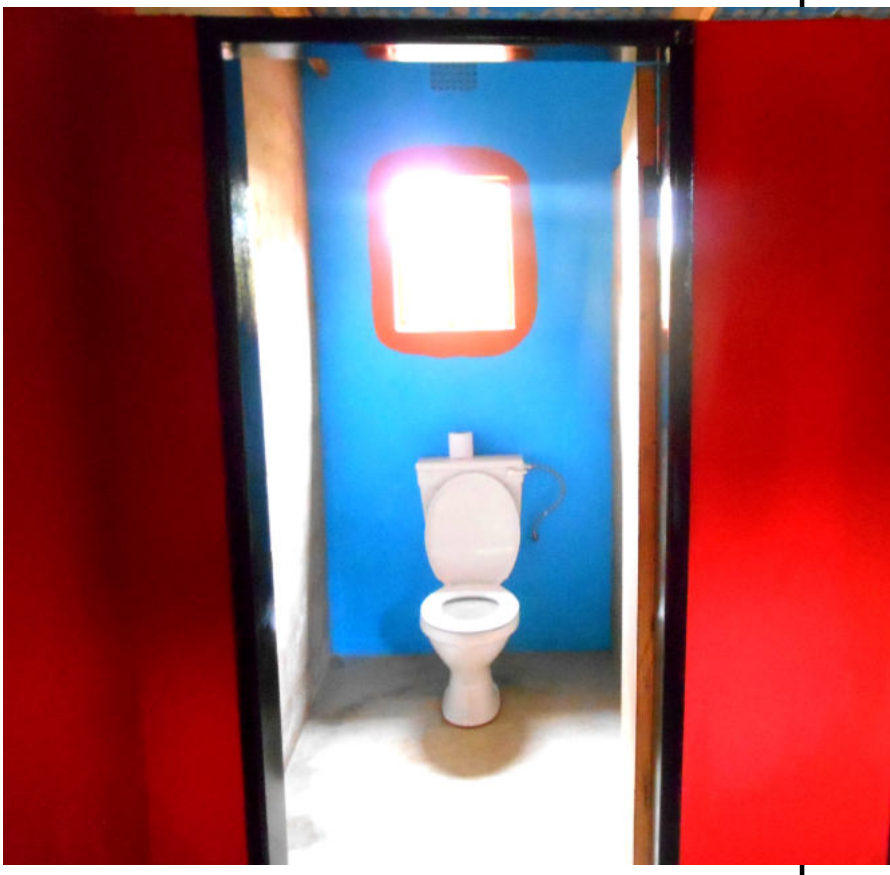
Soup Kitchen & Garden.

Ablution Facility Colourful Exterior.



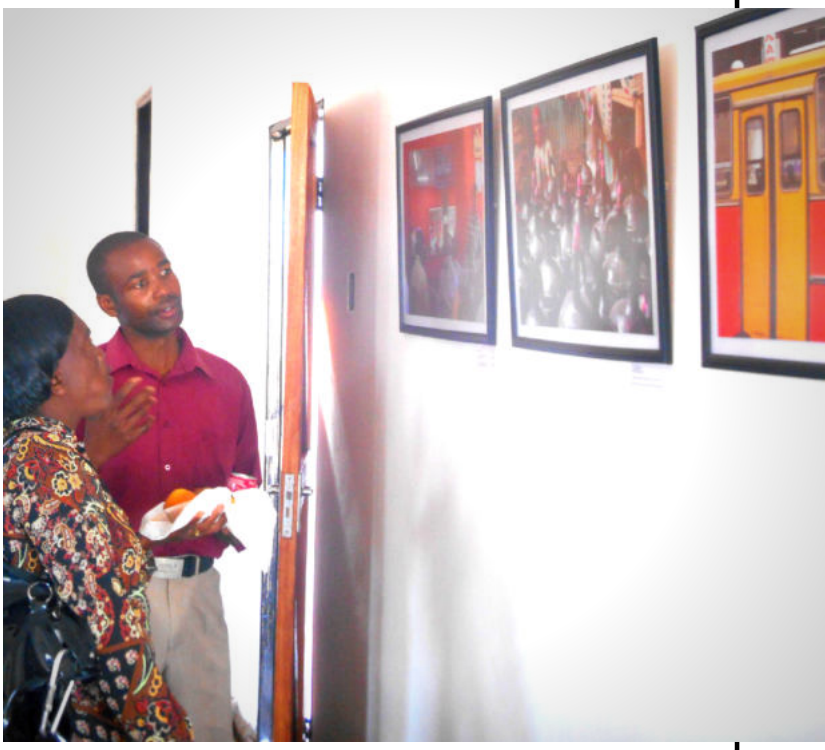
Ablution Facility Vibrant Toilets.

Community solar powered cellphone charger.



Ablution Facility Vibrant Toilets.

The following images show the community church, whose foundation spearheads and supports these clean water and food security projects in Mgidza. Seen here are images taken inside the church which is furnished with a collection of local and international contemporary art. Congregants get the unique opportunity to admire and enjoy world class art - bringing beauty and dignity through unique access to the creative arts.



5 | DESIGN & ARCHITECTURE

5.1 Traditionally, the Swati home is made of natural materials, *mostly licunga* grass, reeds, sticks, stones and mud. The constructed dwelling is known as *gucasithandaze* ('beehive hut') or *lilonto* (circular shaped mud wall with a steep thatched roof). *Umhlanga* (Reeds) are used to create wind shields and privacy around the home. These home structures have excellent thermal properties, allowing for a pleasant stay throughout the seasons. The cutting of the grass and reeds is seasonal, to allow for nature to regenerate and provide consistently. Floors are rammed earth with a top coating of wood ash and cow dung. It is important to note that traditional African or Swati architecture has always been environmentally conscious, using what is available within the landscape. It is unfortunate that such indigenous knowledge, in architecture, was negated for a long time, labelled as primitive and a symbol of poverty, thus giving way to 'modern' homes that have mostly been working against nature.

5.2 The use of generic concrete bricks and construction of 'square' houses is a modern, colonial, and commercial import which has led to our environmental degradation and homes that require air conditioners. Only recently, due to the wide spread awareness of climate change, has there been a wide celebration of the 'primitive' architecture and permaculture as a way of life. Dr. Ron Eglash's research work offers a glimpse into the importance of African design and its link to fractals, together with, architects, Sir David Adjaye and Francis Kere's contemporary interpretations of African architecture.

Traditional Swati home, *gucasithandaze.*

5.3 The Msweli family offered their piece of land, which is situated in the Mgidza village, to be utilized for the construction of the demo house. That was a great gesture as it offered unrestricted creative freedom without fear of backlash incase the project fails.

5.4 Having stated the above, it was important to get advice from friends and professionals on how best to approach the low cost eco house project. As a trained designer and artist, I had to find a great balance between the aesthetic, functionality, environmental and social impact of the project. Sharing the idea of the project with Bonga Dlamini, a friend and local young architect at Expressions Architects, allowed him to partner with the project and offer his creative insight.

5.5 It was a deliberate and conscious decision to seek a local Swati architect as he would easily relate to the social way of life in a community like Mgidza and be able to translate that into architecture that is not too alien to the community's way of life. After taking time to tour the Mgidza area, Bonga offered his services pro-bono, explored various designs and materials that could be used; from sand bags to wooden pallets.

Mgidza residents creating mud to plaster the current housing's sticks and stones.

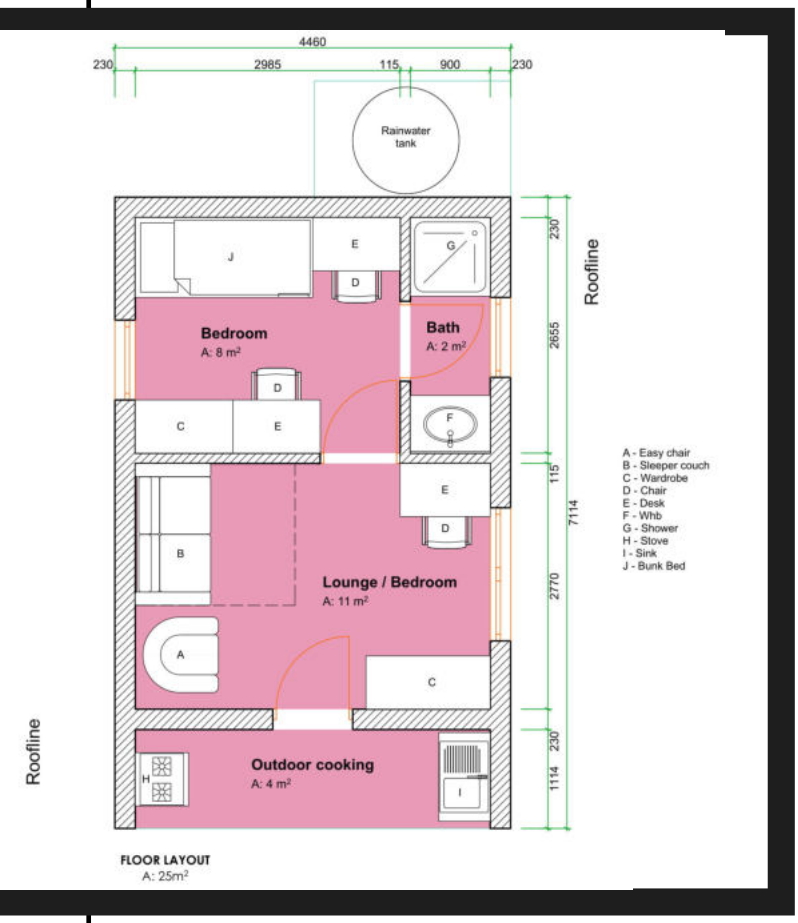
5.6 When I mentioned the project to Claudia Beretta Bellomo, who is a friend, environmentalist and photographer, she too was happy to be a part of it. Claudia then introduced me to Alessandro Masoni, an architect that had worked on various ecologically built community led projects, who brought to our attention the Hydraform mud brick making machine, encouraged us to invest in it and utilize it to make the bricks for the houses. Alessandro's insight was greatly beneficial. Bonga was able to come up with a design which we agreed to, although there were alterations to the initial design, when the actual house was being built.

Ndlangamandla & Dlamini load mud into the Hydraform brick maker.

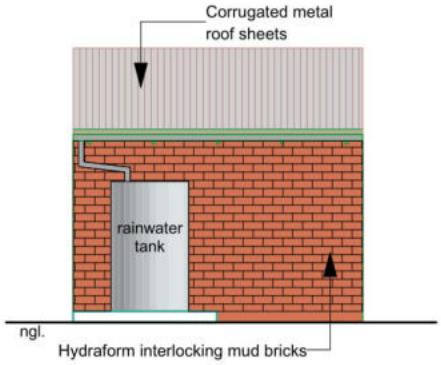
5.7 The design of the house plays a crucial role. Time has been dedicated in analyzing and recording the current living condition and way of life in the Mgidza village. The design is respectful of the inhabitant's way of life by making it more efficient and comfortable. An element such as privacy, for adults, is crucial. A children's bedroom that accommodates at least 4 bunk beds, study tables, clothes storage and toys. A basic kitchen, with ample storage which has doors that can also become a dining table, counter top with a gas burning or 'rocket' stove and body cleansing room (shower and sink), all within a limited space.

5.8 Plumbing is to be kept to a minimum as there is a communal ablution facility but French drains, leading to the garden have been considered. A wood sawdust bucket compost toilet has been featured, thus reducing the need of solid waste plumbing and unnecessary wasting of water, through flushing. Natural air flow and natural light have been considered as the area experiences very hot summers and cold winters.

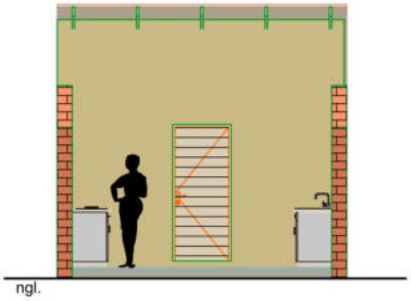
Expressions Architects' 3D Architectural renderings of the Eco-house, before final modifications.



Proposed Floor Plan /Furniture Plan - final furniture layout had adjustments.



back elevation
scale 1:100



front elevation
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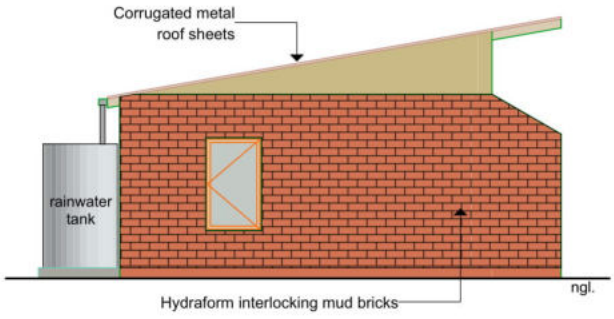
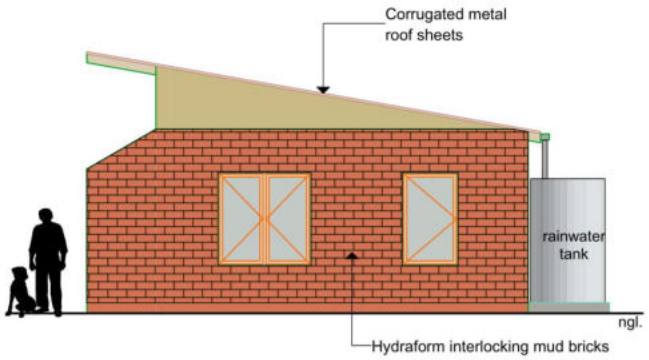


side elevation
scale 1:100



side elevation
scale 1:100

Expressions Architects' Architectural drawings and 3D renderings of the eco house, before final modifications.

5.9 The construction of up-cycled pallet wooden framed windows with shutters and mosquito nets allows for cross ventilation day and night, with no fear of mosquitoes penetrating. The window opening has been deliberately made small in width so that no burglar can enter through it when it has been open. All the current homes have wind shields (*Liguma*) which also create space for a private courtyard, outdoor cooking and the rearing of chickens, therefore this aspect has been taken into consideration. The kitchen area has an indoor outdoor feel for maximum ventilation when firewood is used for cooking. It also allows you to have a view of what is happening outside the house. The child and wheelchair friendly layout allows the children to do their school work, access the home library and also eat on the table.

5.10 The roll-up grass blinds, custom made by Gogo Vilakati (a disabled elderly community member) allow for privacy when needed. The roof tilts to one side to become an effective water harvesting tool. Space for a 5000L rainwater tank has been considered. Lighting is to be solar powered - at the moment the house is able to use portable solar lamps for each room. Interior colours are calming neutrals. Outdoor colours have to take inspiration from the landscape, thus neutral earth tones.

Gogo Vilakati working on grass roll-up blinds

Views of windows with shutters (made with reclaimed wooden pallets and grass roll-up blinds.

5.11 The selection of building materials and standard fixed furniture fittings play a crucial role in the cost effectiveness and overall aesthetic appeal of the home. Our hope is to have homes that are not just cost effective but are beautiful and eco-friendly. I would like to believe that a beautiful home offers a sense of pride and a positive outlook to life. The outdoor gardens or communal spaces have been considered when designing. The area has beautiful mature indigenous trees which provide ample shade and enough grounds to design a children's park, meeting area, communal vegetable garden and a waste management area. The design fully considers the whole regeneration of the area.

5.12 This particular first home or demo home will be the 'home before home' house where each resident will alternate living in it while each of their new home is being built, thus allowing the residents to familiarize themselves with their would be new home.

5.13 The recipient of the first home has been identified as Gogo Vilakati. She is wheelchair bound and lives with two, very young, grandchildren. Despite having a home that is not suitable for living and being disabled, she retains her dignity by running a small business, selling paraffin, pounded peanuts and grass mats, which she makes. Her generosity towards others is very humbling and a true reminder of the African spirit of Ubuntu, no matter what your circumstance. The order of which resident becomes the next recipient will be done by picking names from a hat, as that seems the most transparent and fair way thus minimizing any animosity towards one another.

6 | USE OF MATERIALS

6.1 There are various building materials that we were able to source for free.

6.2 Such materials include:

1. Timber Wood Pallets
2. Rocks/Canal concrete rubble
3. Red mud earth
4. River sand
5. Licunga grass
6. Gum poles

Digging of the house's foundation trench.

6.3 Utilizing mud bricks, made by the community from red earth, dug on site, and a mixture of river sand, small amounts of cement and a bit of water (which is from our site's rainwater catchment tanks), is cost effective and lowers the project's carbon footprint. The Hydraform mud brick making machine has been utilized as it makes interlocking bricks which do not require the application of mortar for every join and layer, thus further reducing the cement quantity. The machine uses minimal amounts of electricity. The bricks, once cured (stacked on the ground and then covered with plastic to retain moisture for 21 days), were tested for strength and offered superior strength when compared to the widely used generic hollow cement brick. The mud brick specifications are as follows:

Width: 180mm, Length: 220mm,

Height: 115mm

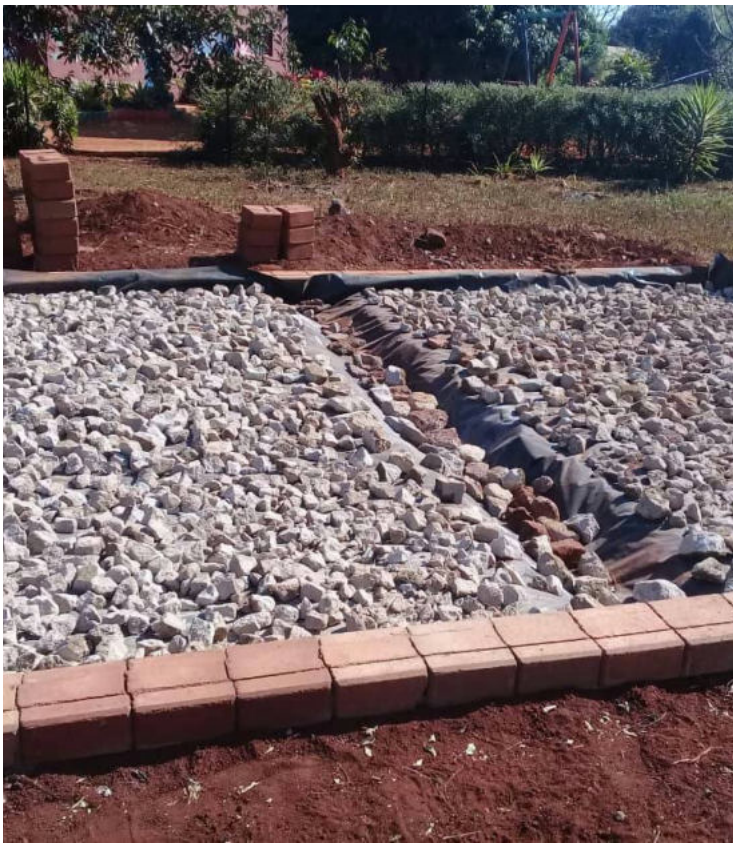
Weight: 7kg

Strength: 7-9MPa

Ndlangamandla & Wolmarans pressure testing the strength of the mud bricks.

Salvaged concrete from local irrigation canal, used within the trench foundation.

Prosper Takawira, Nelisa Lawton & Paul Msweli (l-r) observing the progress



Foundation progress.

6.4 Roofing material has to allow for rainwater harvesting, so corrugated metal roofing sheets have been utilized. Thatch has also been utilized to roof the kitchen area of the house. Thatch has far better thermal properties than the corrugate metal sheets but is not cost effective in comparison to the metal sheets. We only used the thatch on the kitchen side for demonstration purposes to show that thatch can be used for the entire house if the home owner can cut their own grass, rather than buying it. At the moment, the gradient of the thatched roof is not steep enough, thus allowing rainwater to seep through. The next houses, if thatch is to be used, have to utilize a steeper roof gradient to mitigate the rainwater penetration, which also causes the thatch to rot.

6.5 Due to the area having a large concentration of termites, the natural type of materials have to be treated to prevent decay. We did try to use firewood ash and lemon juice, as an ecological termite preventative measure used by the community, by sprinkling it around the base edges of the entire house but it has not stopped the termites from penetrating the house. A more aggressive solution has to be considered when building the next houses.

7 | LABOUR

7.1 The issue of labour is usually one that is of great debate as that can consume a large chunk of any construction budget. As it is a project for the community by the community, it was discussed during the community meetings that the community members have to be the labourers. Due to the fact that the community cannot afford to pay for their own housing construction, they have to volunteer their time and offer the labour without expecting any payment. The involvement of the community in making the mud bricks and building the house is crucial as that provides them with additional skills, which allows for the project to be sustainable in the long run and instills a sense of ownership for the project.

7.2 In the beginning of the brickmaking process, we had 10 volunteers (9 male and 1 female), mostly in their teens, 20s and 30s in age. Having more male volunteers was not expected as in past projects we have had more female volunteers. The only possible reason for such an outcome is that most of the young men were curious to see and learn how the Hydraform brick maker works. Bernard Wolmarans, a South African builder, volunteered his time and expertise to lead the construction phase of the project. He was sent on an all-expenses paid compulsory full week training course at the Hydrafom HQ in Boksburg, South Africa. The course familiarized him with how to best utilize the machine once on site. His insight and guidance played a major role in propelling the project forward. Most importantly, he was able to impart his skills to the rest of the volunteers.

The image shows the innovative *Hydraform* mud brick making machine at work creating low waste interlocking bricks made with locally sourced mud / *sibovu* - in a rich burnt orange colour - seen all over the Mgidza area. Seen here are members of the Mcolo, Herefords community who were inspired by the Vuvulane project bought their own machine, supported by the Linksway Foundation, and have built a preschool.

7.1 The challenges faced, labour-wise, were mostly the frequent absenteeism which resulted in daily targets not being met. After much engagement with the community, to find the root cause of the absenteeism, two conclusions were made:

1 | The fact that the volunteers are not being paid, they cannot commit to be at the building site on a daily basis as they need to utilize some days working in the sugar cane fields to earn money for their daily needs.

2 | As was stated earlier that most of the volunteers were young men, most of them have never had steady jobs which instill set rules and guidelines on how to conduct one's self at the workplace, therefore some had to be sent back home as they would arrive late, while also under the influence of alcohol. Having shebeens (home brewed beer traders) nearby the construction site was not helpful, as some volunteers would not return after their lunch break, having had several cheap (also provided on credit) alcoholic beverages.

7.2 As the construction continued, we had about 5 - 7 committed volunteers. In-order for our daily targets to be met, we had to offer a daily allowance of SZL 60.00 (USD 3.99) and lunch to the remaining labourers. The progress was then rapid and efficient.

7.3 For future houses, there has to be a budget for labour, only to be utilized when the volume of volunteers starts to dwindle and the enthusiasm is running low.

7.4 We have to take it into consideration that the community is way beyond the poverty line. A few professionals such as plumbers and electricians will be engaged to lead in their various expertise so there has to be a budget for them as they were paid during the making of the demo house.

8 | TIMELINE

8.1 The completed demo house took much longer than anticipated (January 2017 to July 2019). This was largely due to the fact that the concept was still being refined, identifying project partners, inconsistency of community volunteers and fund raising became a challenge.

8.2 Cost and time tend to go together, thus we hope that the 24 other homes will be completed within a short space of time (4 weeks is desirable but not more than 6 weeks, per home), so that all the other houses can follow a similar timeline thus being cost effective. We are hoping to commence the construction of the other houses by September 2020 and the last house completed by December 2023. A role out plan, budgeting for the remaining houses and a massive fund raising drive would commence in March 2020.

Bunk beds, tables, seats and shelves were made from reclaimed wooden pallets.

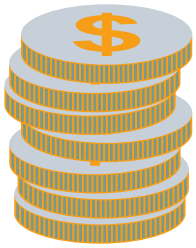
Construction at different phases.

9 | BUDGET

9.1 There was no specific construction budget allocated to the project when it started, but we had a target of not exceeding costs of SZL 50,000.00 (USD 3,339.57). The demo house eventually cost approximately SZL 52,000.00 (USD 3,473.15) (inclusive of the upcycled interior furniture). The over expense was caused by the fact that the project was started without the full amount raised to tackle the project. Therefore, material was not bought in bulk, thus increasing transportation costs of materials, labour and food fees went on for a much longer time, and there were several faults during the building, which resulted in more material being purchased.

9.2 Having learnt a lot, from building the demo house, a 'comfortable' budget for each of the other houses would be SZL 59,887.94 (USD 4,000.00). This amount would cushion for any inflations, admin and professional's fees. For 24 houses we would need SZL 1,437,310.58 (USD 96,000.00). It is important to fund raise for the full amount, or at least two house, before we begin building the next house.

9.3 The Hydraform mud brick making machine required E96,564.84, excluding import duty and transportation. The machine is a key asset for the project and is a major component in making the houses ecologically friendly.

BUDGET ESTIMATE	AMOUNT SPENT ON DEMO HOUSE	'COMFORTABLE' BUDGET PER FUTURE HOUSE
		
USD 3,339.57	USD 3,473.15	USD 4,000.00
SZL 50,000	*SZL 52,000*	*SZL 59,887.94*

10 | APPROACH TO FUNDRAISING

10.1 Getting to our current point, where we have a fully functional demo low cost eco house, stands as a testament to what can be achieved with a solid vision, community effort and donor funds. It has not been easy and the lack of sufficient finances has been a major challenge.

10.2 The fundraising effort for the demo house was propelled by Claudia Beretta Bellomo and her family, EU Ambassador Nicola Bellomo, Nicolo and Nuri Bellomo who made fabric bags and filled them with 250g of sugar. As Vuvulane and Mgidza village are a sugarcane growing area, it made sense to sell sugar from Vuvulane. The sugar bags were sold during the Bushfire festival, in May 2017. A special mention to Nuri, Nicolo and their friends for being the main sales agents during the festival. SZL 2,200.00 was raised from that initiative. The Bellomo family further introduced me to the Brussels based Open Earth Foundation's (www.openearthfoundation.org) director, Angel Carro, who has become a friend and supporter of the housing project. Angel took time out and toured the Mgidza village and fully understood the vision that we have for the community. He further facilitated for me to travel to Brussels, in November 2017, as an artist in residence, to raise awareness about my creative endeavors and the low cost eco housing project. It was a great opportunity to network, meet more people who were able to share their experiences and advice on how to best approach the project. The Brussels based BEPS International School made a donation to the project. The Open Earth Foundation made two monetary donations to the project.

Claudia Beretta Bellomo, Angel Carro & Paul Msweli.

Angel Carro, Khulekani Msweli, Claudia Beretta Bellomo, Antoinette Henwood, Amb. Nicola Bellomo, in Carro's Brussels residence.

Khulekani Msweli addressing the pupils at the BEPS International School.

Khulekani Msweli addressing guests in the Bellomo's Brussels residence.

10.3 Ireland based photographer and founder of Art Aid, Aidan O'Neill, took interest in the project, having seen its promotion during the Bushfire Festival. Aidan toured the Mgidza village and committed several monetary donations towards the housing project. He has been a great friend and partner as he was able, together with his friend Keith Maher, to secure monetary funding, to the value of EUR 6,316.00, for purchasing the Hydraform mud brick making machine, through Electric Aid Ireland. Receiving the funding from Electric Aid Ireland was a huge milestone as we were able to purchase the machine from Hydraform, South Africa, and fully get the project in motion.

Aidan O'Neill & Khulekani Msweli.

10.4 Jerempaul, my business, and the Msweli family were able to host fundraising dinners and finance a number of the financial shortfalls that the project needed. Several individuals made small financial donations but mostly in kind, such as a truck load of river sand, gum poles, wooden pallets and food. The Phendvuka Calvary Worship Centre (as featured on page 11), has been of great assistance as it provided the electricity, safe storage for the Hydraform machine and a working area to make the bricks.

2016 Fundraising dinner at the Msweli residence in Vuvulane.

2017 Fundraising dinner at the Msweli residence in Vuvulane.

10.5 As an organization, we have an outstanding record of handling donor funding, by doing what the funds were set to do. The USA Embassy (Grant for building the ablution facility at Mgidza), Royal Swaziland Sugar Corporations (Funding for providing clean water and rainwater collecting tanks at the children's soup kitchen), Art Aid, Open Earth Foundation and Electric Aid Ireland are great references to our handling of their donations.

2018 Fundraising lunch at the Msweli residence in Vuvulane.

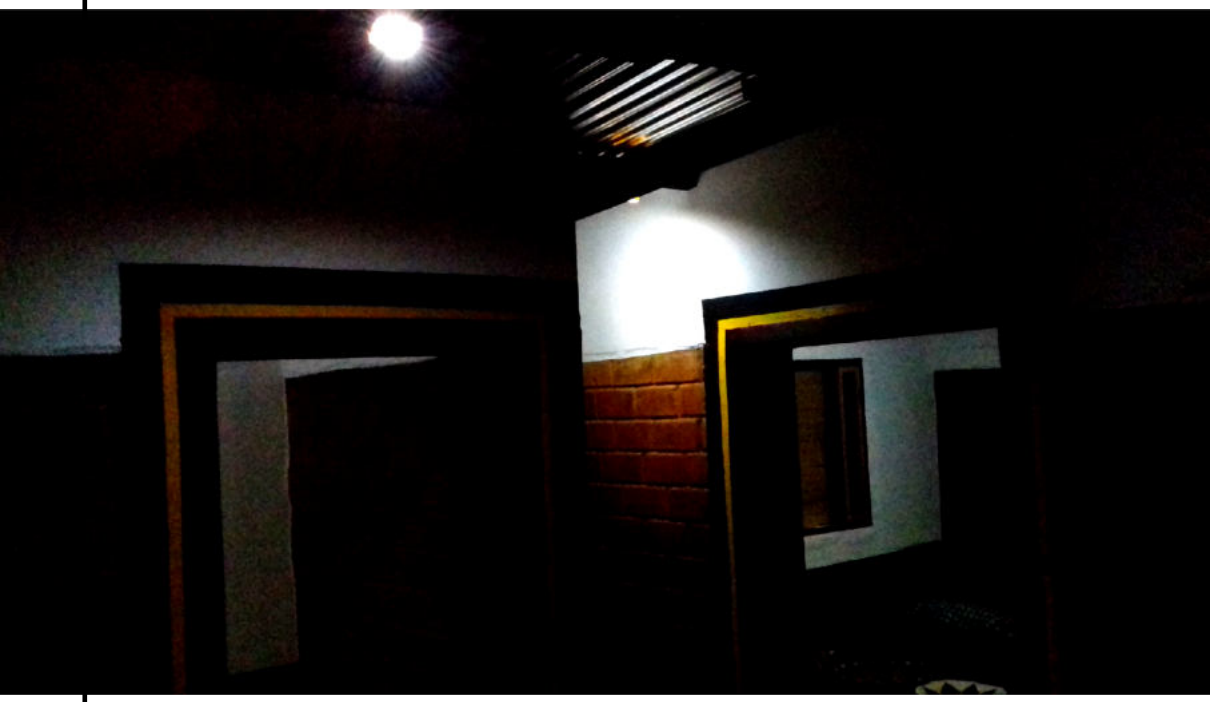
11 | SUSTAINABILITY

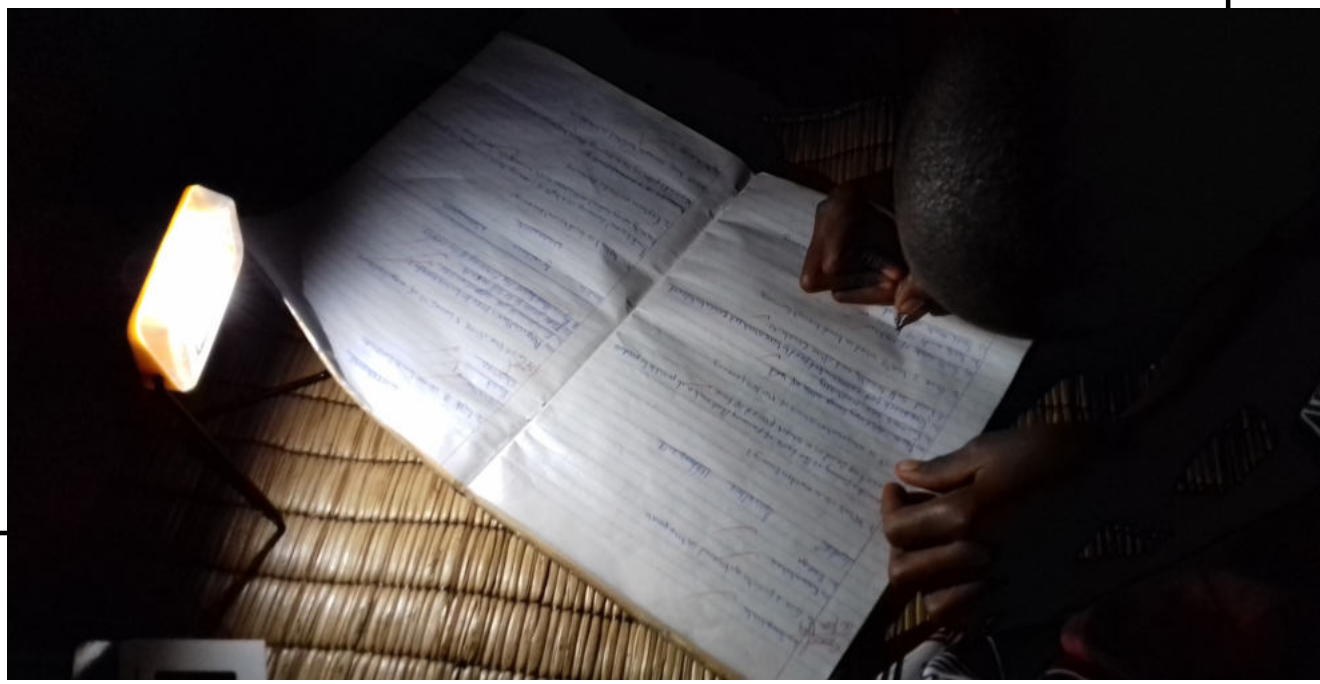
11.1 For project sustainability, the Hydraform machine has the potential of working for the community so that there can be money reinvested back into the community's projects. We have received multiple requests, from the public, to sell them the bricks that the machine makes. No bricks have been sold yet, as we have been assessing on how to best handle that aspect as a business, but we have been able to price each brick at SZL 10.50 (USD 0.71). Selling the bricks would not only offer some revenue for the project but also offer some employment for several of the community members. Due to the fact that the bricks are unique in their form, they require the user to receive some training on how to lay them, which could be a slight challenge for those wanting to buy them.

Mcolo, Herefords, community who were inspired by the Vuvulane project bought their own machine, supported by the Linksway Foundation, and have built a preschool.

11.2 The general environmental sustainability and performance of the house has so far proved to be self-sustaining and healthy. The thermal properties of the house are great, offering a very low temperature when it is hot outside and warmer temperature when it is cold. Rainwater collected from the roof and into the tank supplies relatively safe drinking and cleaning water. Solar energy offers light in the evening, currently provided by the UK based Namene Solar lights.

11.3 The exterior walls have not been painted but have maintained the natural hue of the earth, thus not requiring the expense of using toxic wall paints every other year. This particular approach, to a way of living, removes monthly bills, which the Mgidza community would not afford, and is ecologically friendly. The house takes care of itself.





Namene Solar lights in use.

12 | CHALLENGES & SOLUTIONS

12.1 We have faced several challenges throughout the construction of the demo house but have been able to learn and find solutions to them.

1. Some of the community members were not very positive with the project as they felt it is another pipe dream and false promise but the completion of the demo house proved to them that it is a reality that can be achieved.

2. There was apprehension from the community that once they built the houses, the farm owner's children might want to occupy them as they would be at a very desirable standard. To address that issue, we invited the local advisory council of elders, *Bandla ncane*, represented by its chairman Prince Mpisi Dlamini. He was able to eradicate those fears and explained the dwelling rights of the area.

3. The lack of sufficient finance, when the project started, put a lot of strain on me, as a project initiator and manager. It became apparent that we have to raise the full amount for each house before its construction begins.

4. The inconsistency of the construction community volunteers put a strain on the time it took to complete tasks. We have to consider making sure there is food available and lunch is eaten as a group. A small stipend has to be offered when certain targets are to be met, so that everyone really puts an effort on the construction.

5. We unfortunately had no budget for protective clothing, especially safety shoes, gloves and hard hats, thus putting ourselves at risk. We have to allocate funds for that as the new project commences.

6. The pitch of the thatched roofing, in kitchen areas, is low thus not suitable for the thatch as it does not accommodate for the water to run off, causing it to leak into the kitchen area. The water that pools within the grass causes it to rot. Yes, aesthetically, the thatch looks appealing, but will only be practical if the pitch is at a higher gradient.

7. Mgidza has a high rate of termites therefore the demo house is frequently having termite mound tracks along the interior walls and damaging the wooden furnishings. We have to treat the foundation soil when building the next houses.

13 | PUBLICITY & COMMUNICATION

13.1 The low cost eco housing project has gained a lot of national and international publicity. We have been able to effectively communicate the project's vision through various platforms. Within social media, our Vuvulane Orphans & Vulnerable Children's Outreach Foundation's Facebook page https://www.facebook.com/Vuvulane-Orphans-And-Vulnerable-Childrens-Outreach-Foundation-381858572187581/ has offered a visual update of the project. My art residency trips to Belgium, USA, South Africa and Italy have offered me the opportunity to share about the project to an international audience.

13.2 The following media platforms have featured the project:

1. Times of Eswatini

2. Eswatini Observer

3. Eswatini Property Review

4. Eswatini TV

Broadcasting Corporation (SABC) channels on their package.

Entertainment News ... Culture Religion and Lifestyle.

Khulekani completes eco-friendly house for underprivileged

BY PHUMELELE MKHONTA

MBABANE - Humanitarians are God-sent!

Eswatini's renowned fine and sculpture artist Khulekani Msweli has completed a project of building house for the less privileged families of the Vuvulane community at Mgidza.

The artist, who has toured the world, exploring artistry, has targeted building 25 houses and so far, he has completed the first house after two years of construction.

This initiative also portrays Msweli's creativity and eco-friendliness as he is using environmentally friendly material to build the houses. Msweli, in a brief interview with this publication, said he used hydroform machine to make the mud bricks which are durable and could be laid easily.

Seeing

"After seeing the dire situation of children and families who bare-

This is the eco-friendly house that was recently completed in Vuvulane. (Courtesy Pic)

"The next step is to officially launch the project to the commu-

"We have to make affordable housing that is not just function-

Allia ... of amazingly beautiful affordable housing solutions. He urged all

Page 14 Saturday June 30, 2018

ONE-ON-ONE WITH KHULEKANI MSWELI :

Eco-friendly continuous investment

TOURISM:

The home modification is very related to tourism and income generation in that I had to find the best possible way to attract tourists and general visitors to my home area.

Bonsile Makhubu

AT the age of 35, designer, artist and entrepreneur Khulekani Mswell has ventured into converting homes into eco houses, thus developing a larger part of the small town of Vuvulane.

The eco houses do not only look pretty, but they save the environment and also generate income for the owner.

When asked when and how he started modifying his home, he said about a year and a half ago, adding that, "Besides making sure that the structure of the house is of great quality, I then invested in adorning the walls of every room with contemporary art and sculptures, mainly by African artists.

The furniture consists of well considered hand crafted pieces from my JEREMPAUL home range and collected from my travels.

"The bathroom and kitchen are key areas which have been given great attention by making them luxurious living spaces. The garden of the home has also been well designed, with various 'rooms' of relaxation and wellness.

"It is all about having a home that is an expression of your character, in the best possible way."

Mswell said this move was prompted by his wish to create himself a beautiful home, nine

Multi-talented artist Khulekani Mswell sitting inside his stylish home. Mswell's lounge consists of well considered hand crafted pieces from his JEREMPAUL home range.

(LEFT AND CENTRE) The interior in Mswell's house could easily make it into international deco magazine pages. The exterior of Mswell's eco-friendly home.

Tindvuna, Bocopho qu

BENEFITS:

It was after we had complained about it and we even engaged a lawyer to address the medical aid issue that we were included.

Melisa Mswell

MBABANE-*TINDVUNA and Bocopho cry foul over seats given to them by* MOPADO.

MOPADO is an acronym for Members of Parliament and Designated Office is a fund that consists of parliamentarians and other regional politicians' pension fund.

In an interview with Lobamba Constituency Abraham Rhembe, it was said that the regional politicians were introduced in MOPADO in 2013, which means that before then, they were not represented in the Board for five years.

Rhembe said the lack of representation made them unaware of a lot of things that were happening within the fund until they found out that they were also eligible for medical aid among other benefits.

"It was after we had complained about it and we even engaged a lawyer to address the medical aid issue that we were included."

This is not fair to us as we had asked for a minimum of four seats to represent the four regions of the country.

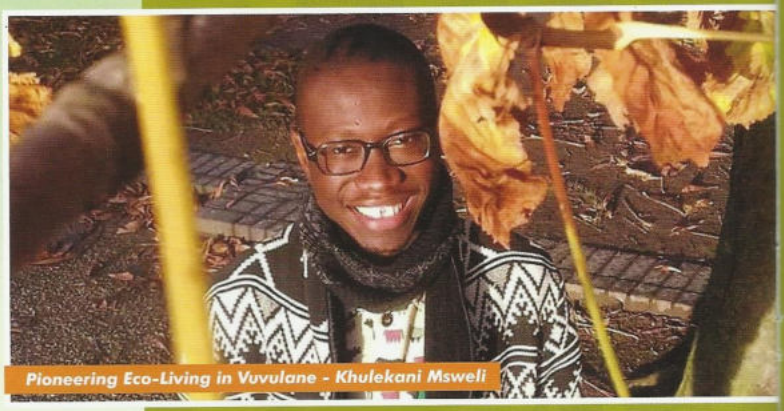
Some of the social media messag

They claimed that after that, they felt the need to be represented in the scheme in order for them to remain updated, considering that they were left out in the spending of their money, only to find out from a certain newspaper article.

"That included the news that

Legislators share views on Wha

MBABANE *Tindvuna and Bocopho* expressed their concerns on social media where they invited this reporter to view their grievances on the MO-



Pioneering Eco-Living in Vuvulane - Khulekani Msweli

Using ART to CREATE Affordable Housing

Local art and design entrepreneur Khulekani Msweli unpacks his latest initiative which aims at ensuring that impoverished communities can afford to live in quality housing.

INTERVIEW BY **NTOKOZO NKAMBULE** | IMAGES **KHULEKANI MSWELI**

Imagine building and completing a house in 8 weeks, and not just any house but a low cost quality house which is environmentally centric. Well, only entreprenuers and creatives can do that. Khulekani Msweli fits that narrative as he has managed to come up with a way of providing affordable housing to impoverished communities such as his own Vuvulane.

Q: Firstly, tell us a little about Khulekani Msweli?

I am a simple rural guy that is passionate about the arts, gardening and the development of Vuvulane.

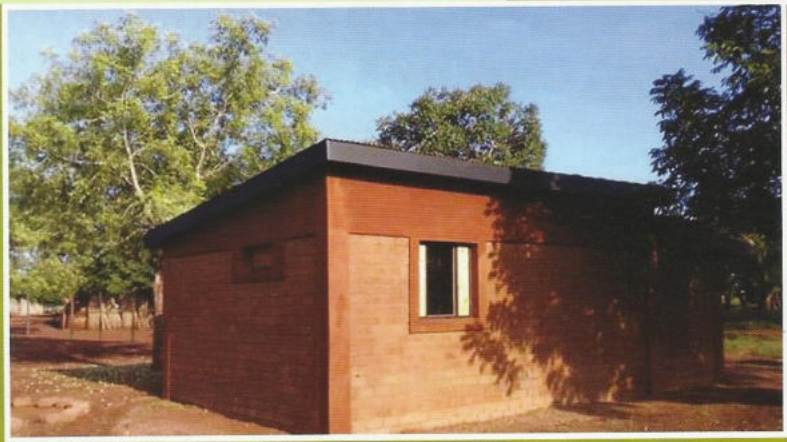
Q: You are well known in the art and design space yet your latest venture is in the property space through an 'eco-friendly' housing project at Vuvulane, could you tell us more about that?

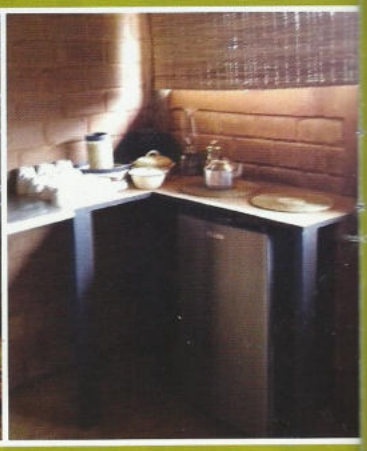
The project is about providing high quality, eco conscious yet low cost houses for the highly impoverished community of Mgidza, Vuvulane.

Q: You could have done a number of things as an artist, what motivated you to do this project?

Witnessing the desperation for adequate housing for the most vulnerable in my community, which are mostly children. My ability as a creative person had to be put to use in a very meaningful way.

Q: There are media reports that you aim at completing 25 houses, last year you had completed one house. How far is the project and what are your projections in as far as completing the whole project?





Yes, it is true, we are hoping to complete 25 houses. The first demo house has been completed. We are currently preparing for the official opening of the demo house and then preparing an international fund raising campaign to build the rest of the houses. As much as we, the community, are hands on in the building process we still need a lot of financial help with some of the building material.

Q: According to you, what does 'Eco-Friendly' mean and why Vuvulane?

Eco-Friendly, to me, means that the building is in harmony with the ecology around it. It is a building that works with nature, thus using the most minimum carbon emmitting components. I chose Vuvulane because that is my home, where I live and work everyday. I have to develop the area that has made me who I am.

Q: What is the material used when constructing the houses and what are the costs, as compared to the construction of a normal house?

The key material consists of Hydraform Interlocking mud bricks (www.hydraform.com) which we make ourselves using the Hydraform machine and red earth sand that is dug in the area. The roof is a combination of grass thatching and zinc corrugated sheets. The window frames are hand made from upcycled wooden pallets. The costs are minimal and variable.

Q: How is the response so far from the public and residents of Vuvulane? And do you see this kind of project being implemented in other regions of the country?

The response has been very positive, both from the public and the residents. They are amazed about the simplicity of the idea yet with such beautiful results. Yes, I see the project reaching many areas of the country. Already, there is a community that I am assisting in designing their spaces, incorporating the techniques that we have been using for our Vuvulane housing project.

Q: This is a new concept, what can you say about its durability and benefit to the environment?

I have to clarify that being eco-conscious or building in an eco conscious way is not at all new. Africa has always built in harmony with nature, we were disrupted by Capitalist factors and colonial imperialism. The building is durable and benefits the environment in several ways. The fact that it has a low carbon footprint, in its building process is one aspect but what is great about the Hydraform brick is that of offers great thermal properties, staying cool in the Summer and warm in winter. Using grass window blinds and wooden window shutters also adds great thermal control. Using a compost toilet, within the house, reduces unnecessary water waste which is a common factor with the flush system toilet.

Q: How long does one house take to complete, and where do you get the material for constructing these houses?

If you have all the necessary marterial it can take 6-8 weeks to complete. That time frame includes the 3 week process of curing the mud bricks.

Q: Has this project been rolled out in other countries or you have pioneered it in ESwatini?

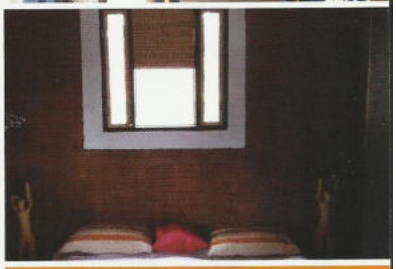
The use of Hydraform mud bricks or regular mud bricks has been done in various parts of the continent. What I think is pioneering for this particular project is actually building beautiful eco-homes that will benefit the most vulnerable members of our society, instead of it being being a housing project that will benefit an elite 'Eco Housing Estate'.

Q: In terms of weather, what are the dynamics involved in eco housing, for example, would the project apply in a weather pattern like that of Hhohho for instance where it is rainy?

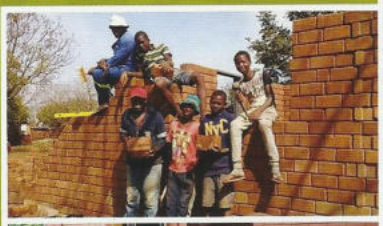
Weather and region of building is always something that one has to consider when undertaking ano eco project. The key to it is to always work with elements that are easily available in that area and then enhance the materials that need to withstand the various areas of drastic weather patterns. There really is no excuse for not building in an environmentally conscious way.

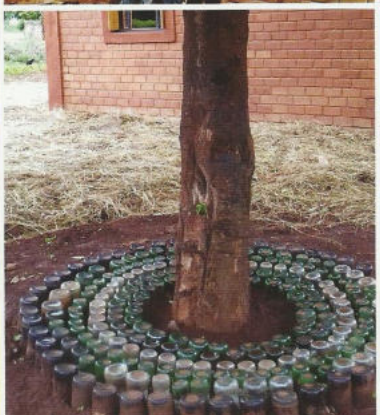
Q: What has been your source of funding for the project?

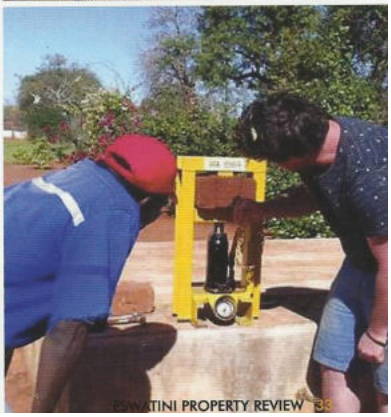
It has come from various local and international donors, friends, family and from my own business, JEREMPAUL.



"The building is durable and benefits the environment in several ways. The fact that it has a low carbon footprint, in its building process is one aspect but what is great about the Hydraform brick is that of offers great thermal properties, staying cool in the Summer and warm in winter."







14 | CONCLUSION

"It always seems impossible until it is done." Nelson Mandela.

"There shall be houses, security and comfort" Winnie Mandela Support Committee in Conjunction with the Release Mandela Committee.

14.1 Our dream came true on the 18th of July 2019 as the low cost eco demo house was unveiled to the community and our partners.

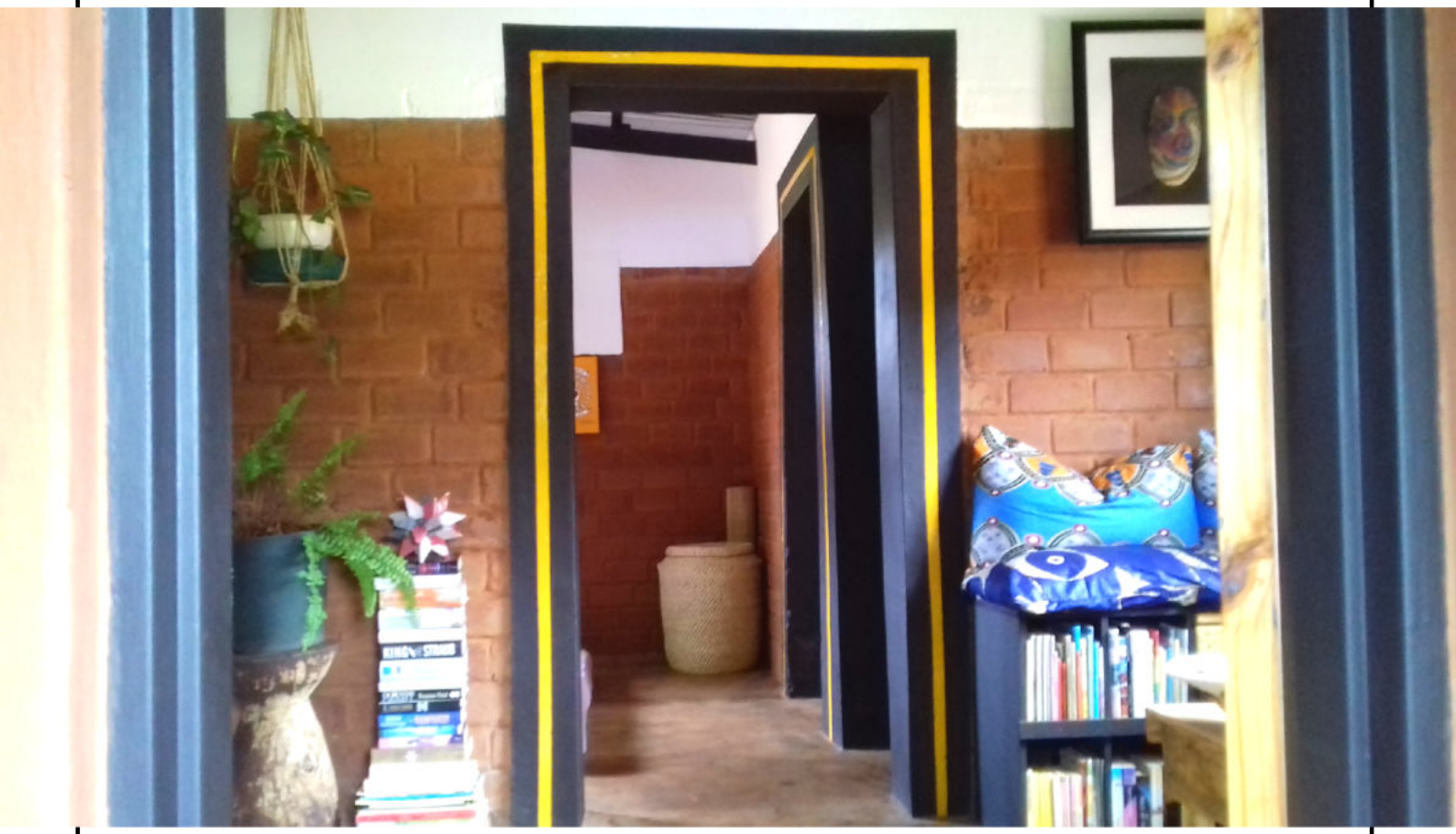
14.2 It is possible to bring about meaningful change that is ecologically friendly and restores dignity to our most vulnerable community members. What we have achieved and will be achieving will, hopefully, become a blueprint for more communities to adopt. It is gratifying to know that our Vuvulane development projects have inspired the Mcolo Pre-School (supported by LinksWay Foundation), in Herefords, Eswatini, who came to tour our developments, to promote environmentally conscious development by investing in a Hydraform mud brick machine and building a preschool/soup kitchen.

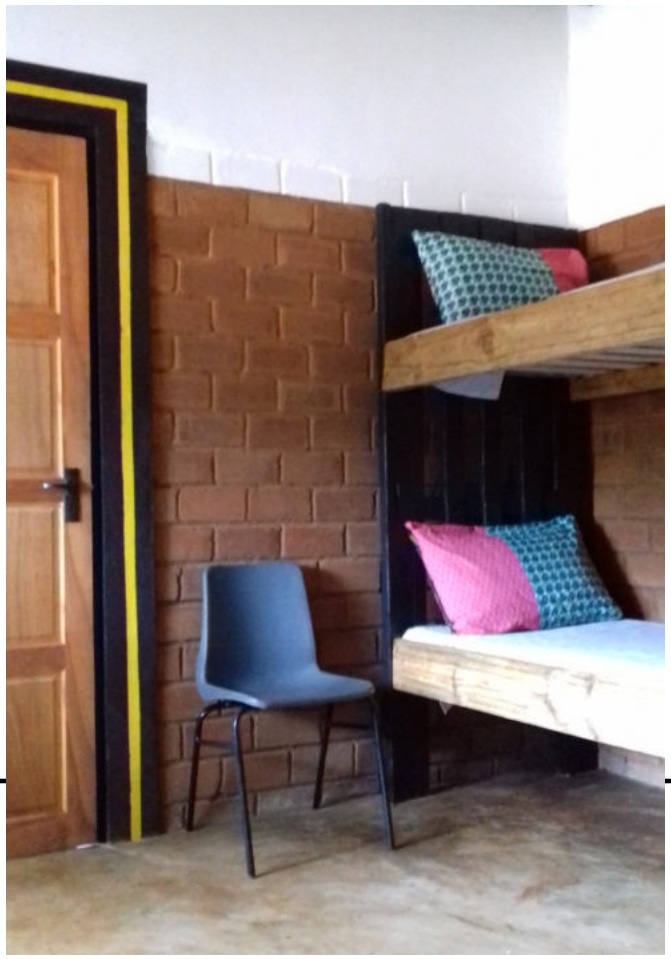
Imagine Scholar students, from South Africa, visit site.

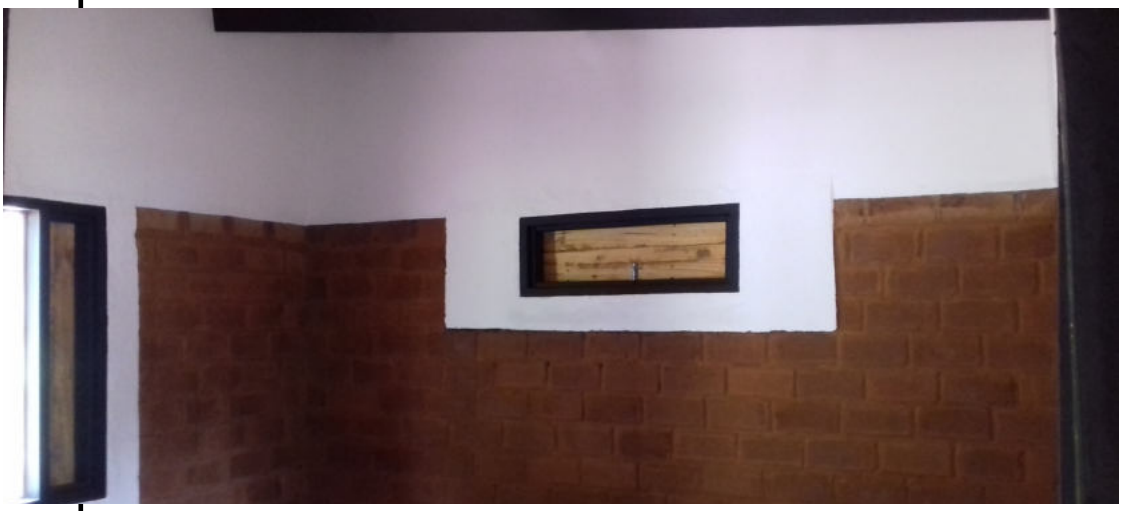
14.3 We have had local and international school groups and tourists visit the demo house, to see and experience the beauty and comfort of a low cost eco house.

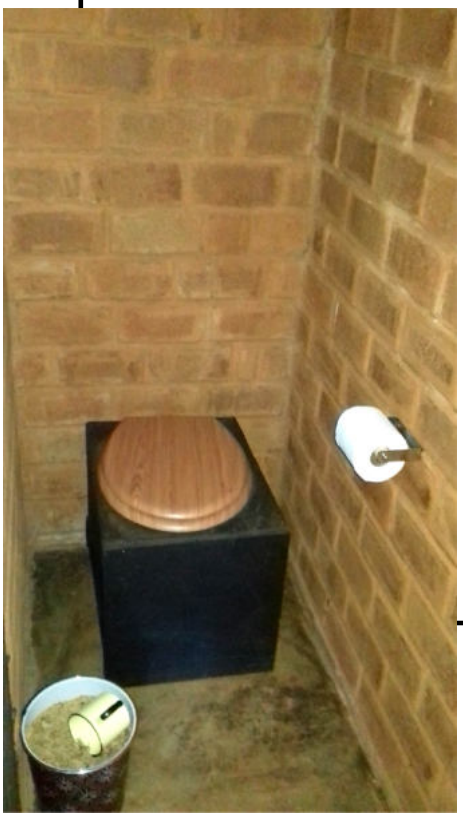
14.4 Poverty and homelessness are man-made issues which can be eradicated. Our environment is at a tipping point due to our recklessness but if we act now and follow some of the ecological steps that we have taken, in Vuvulane, there can be a future that is filled with hope.

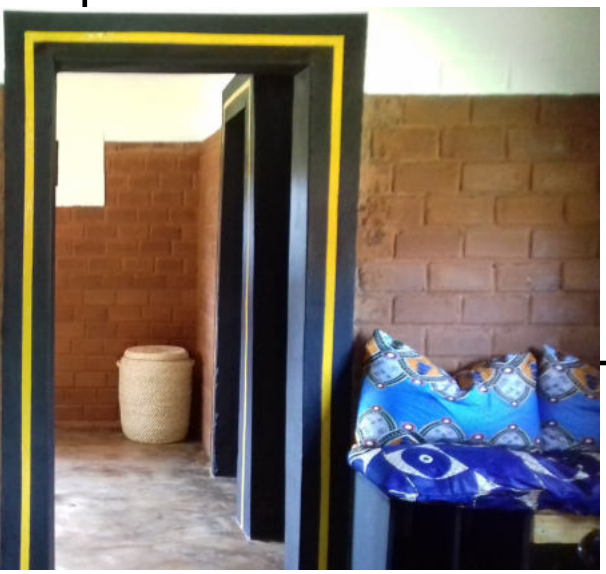

Cashbuild











Community, friends and project partners during the house opening

13.4 Thank you to everyone that has supported our vision:

Art Aid AIDAN O'NEILL Keith Maher NICOLA BELLOMO Claudia Beretta Bellomo BEPS INTERNATIONAL SCHOOL OPEN EARTH FOUNDATION Angel Carro GONE RURAL Ines Servulo Correia BERNARD WOLMARANS Guba ZANDILE NKALA MTHEMBU Mduduzi Mthembu Georgina-Kate Adams BELINDA DUNN Troy Dunn WENDY GREEN Gregg Green AMY NEWCOMB Emily Motu DARTMOUTH COLLEGE – JOHN SLOAN DICKEY CENTRE FOR INTERNATIONAL UNDERSTANDING Namene Solar Frieda Shapopi Lagrange YAEL TIDHAR Nelisa Lawton PROSPER TAKAWIRA Jeanne Coppens ALI RESTING HELENE DE ZAGON Doo Aphane SHARON RESTING Aleta Armstrong PETER ARMSTRONG Dane Armstrong Mike Zulu SANDZISILE MAGWAZA Archie Magwaza Siphesihle Nkwanyane KAREN FERREIRA-MEYERS SIGNHILD BROSVIK THORNE Roland Thorne Fanele Chester Fakudze MVUSELELO FAKUDZE LASALETTE DUART Phendvuka Calvary Worship Centre VUVULANE COMMUNITY Phila Motsa ANTONIO MUIANGA Bhekisisa Dlamini MAFA MHLANGA TIMES OF ESWATINI Eswatini TV ESWATINI OBSERVER Eswatini Property Review PHUMZILE MSWELI Paul Msweli MANDLA MSWELI Angel Msweli MOSES MSWELI Mbongeni Dlamini JABU MYENI David Myeni Bonga Dlamini US EMBASSY Expressions Architects Ray Berman HELEN BERMAN Judy Irwin JEREMPAUL

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Pioneering an environmentally friendly & low cost way of building. Built by the community for the community. Every child deserves a beautiful & safe home.