

Five Years of Impact

Transforming Township Homeowners
Into Property Entrepreneurs

2023/24



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Mkhusele and Nolwethu Mapungu, Bitprop homeowners in Eersterivier, Cape Town.

Photo: Vunene Xiluvane, Bitprop Content Manager



Glossary

- **Agrément Certificate**

A certificate that provides reassurance of the suitability of construction products, systems, and materials not addressed by South African National Standards..

- **Apartheid**

A former policy of racial segregation, and political and economic discrimination against non-white groups in South Africa.

- **BNG**

Breaking New Ground is a South African Government policy that provides housing opportunities to low-income citizens.

- **CRDC SA**

The Center for Regenerative Design & Collaboration is a company that converts plastic waste into eco-aggregate for concrete mixes. Rensin8 is one of their products.

- **Council Submission**

The application made to the local municipality in which formal architectural plans are submitted for approval.

- **Funeral Cover Policy**

Insurance policy specifically designed to cover the costs associated with a funeral. It is very common for township residents to own at least one of these policies.

- **Homeowner Relationship Manager**

A Bitprop employee responsible for working hand-in-hand with homeowners, helping them to find tenants, manage leases and deal with other property-related duties.

- **Informal Economy**

Economic activities that are not visible to the government (nor the banking sector often).

- **Informal Structures**

Buildings that have not had municipal plans approved and which are often built without formal engineering or architectural expertise. These may often be made out of corrugated iron and

other loose materials, but can also be unregulated concrete buildings.

- **NBR**

National Building Regulations- regulations in South Africa related to the design, building standards and construction of buildings.

- **NHBRC**

National Home Builders Registration Council - a regulatory body in South Africa for the home building industry. Construction companies secure certification of various levels from NHBRC based on the size of projects they are able to complete.

- **Natives Land Act of 1913**

Pre-apartheid legislation in South Africa that restricted land ownership by non-white South Africans.

- **Open House**

A real estate practice where a house is made available for viewing by potential buyers or tenants without an appointment. It is open for the public to enter and view.

- **RDP**

Reconstruction and Development Programme - a South African socio-economic policy framework implemented by the post-apartheid government in 1994

- **Shacks**

Informal and often makeshift dwellings, typically of a temporary nature and usually built with wood, corrugated iron and other materials commonly found in scrapyards.

- **Social Grants**

Financial assistance provided by the government to individuals or families in need based on certain criteria such as age, employment and disability.

- **SABS**

South African Bureau of Standards - an organisation responsible for the standardisation and quality assurance of all products sold

commercially in the country according to the South African National Standards (SANS).

- **Title Deed**

A legal document that confirms an individual's ownership of a property and how they came into possession of the property.

- **Township**

While other countries have different definitions for the word, a township in South Africa was originally a designated residential area for non-white South Africans during the apartheid era. These areas are less developed and have a much higher degree of informality than suburbs or cities, and often include large informal housing settlements. Some countries use the term 'shantytown' to define the same sort of environment.

- **Unregulated Lending**

Lending activities that are not subject to official regulations or oversight. Such lending is illegal, as it does not comply with the National Credit Act (NCA). Where the credit provider is not registered with the National Credit Regulator in terms of the NCA.

- **Western Cape**

The Western Cape province., one of the nine provinces in South Africa, with Cape Town as its capital.

All statistics as of 31 December 2023
All values are in ZAR; USD conversions given for convenience at an exchange rate of ZAR 19 = USD 1
(accurate as of 31 December 2023)



Foreword by Temba A Nolutshungu

I spent much of my earlier years in the struggle against the apartheid system in South Africa, primarily because of its all-encompassing control of individuals and society. For 78 years, people of colour had no freedom of choice nor the right of property ownership, as a consequence of policies such as the Natives' Land Act of 1913.¹ I fought for the freedom of every South African individual to own property or land according to free market principles. In more recent years, I have continued to fight for this through the Khaya Lam project ('My Home')², which is a flagship initiative of the Free Market Foundation. The Khaya Lam project uses donor funding to help township residents convert their tenancy situation into legally titled home ownership for the homes their families have been living in for generations. This project involves extensive collaboration with municipalities, conveyancing firms and donors, and requires the education of residents about the importance of property ownership.

In South Africa, the size of the informal economy is 28.8% that of the formal economy;³ meaning another entire 5th of the economy is off the books. 20% of the population is supported solely by that informal segment.⁴ It is estimated that almost half of sub-Saharan

Africa's GDP⁵ comes from informal trade, but despite this, the informal sector lacks infrastructure, services and opportunities.

Bitprop has demonstrated that there are significant opportunities here. Its work shows that there is massive potential for investors and businesses to help individuals make use of their property to create sustainable wealth which, at scale, can catalyse broader socio-economic empowerment as people become part of the national economy.



Vunene Somo, Jon Fisher, Ellen Lindén Urnes, Ellen Kvarby, Temba Nolutshungu, Maja Strandberg, Dylan Walls, Eric Malotana and Carl Fredrik Sammeli at a presentation given by Temba about the importance of land rights in townships.

1. South African History Online, 2013

2. Anon, n.d.

3. Jackson, 2017

4. Masuku and Nzewi, 2021

5. World Economics, 2021

This wealth and job creation process is being expedited by Bitprop in concrete terms, and I am now seeing the spectacular results. As successful homeowners catch the attention of other residents in the areas in which Bitprop operates, with the freedom to choose and with options to choose from, they too can make decisions that turn their lives around.

Though the size of the informal economy in South Africa is significant, its volatility, indiscriminate nature and lack of protection from rogue players and economic shocks scare most investors and businesses. Bitprop has shown that there are ways of bridging the gap between the formal and informal to make the informal economy investable, and even to earn economic returns in a controlled, sustainable way. Bitprop's revolutionary approach to entrepreneurship, asset enhancement and the exploration of the informal property market has created compelling growth. With 372 flats and 69 homeowners in their ecosystem, their model provides the makings of a contemporary, relevant solution that will give South Africans, Africans and global citizens the tools they need to build themselves a stable and sustainable future.



Temba Nolutshungu, Langa community leader and Carl Fredrik Sammelli, co-founder of Bitprop.

Beyond that, it can show communities, businesses and the public sector that it is possible to invest in townships in sustainable ways to achieve both commercial and impact goals. I am honoured to have formed a part of Bitprop's beginnings, and I am confident in their success in the years to come.

Temba A Nolutshungu
A former director at Victoria & Alfred Waterfront, Langeburg holdings, and currently a director at the Free Market Foundation. He serves in other corporate entities and is also a community leader. Temba was born in Langa, the oldest township in Cape Town. Being familiar with the Bitprop project, he has introduced it to residents and is now neighbour to a Bitprop homeowner.

What Bitprop Does

Bitprop partners with township homeowners to develop 4 or 6 rental flats on their property. The homeowner leases Bitprop their land, and Bitprop provides its expertise and support to enable construction in 3 months. The rent generated by these rental flats is distributed from the first month, with the homeowner receiving 15% of the gross monthly rental collected during the 10-year partnership. After 10 years, Bitprop steps out of the picture and 100% of the rental income goes to the homeowner. The homeowner always retains full ownership of the property and the flats.

During the partnership period, Bitprop uses its share of the rental income to recoup invested capital and provide a market-related return to investors, creating a sustainable investment model. Rental flat maintenance, insurance and technology-based rental management is provided by Bitprop. The homeowner, working closely with Bitprop, develops the necessary management skills to run a successful property rental business.

Bitprop is, in a sense, a 'one-stop shop' for the homeowner, who only has to deal with Bitprop, allowing Bitprop to manage the experience for all stakeholders and ensure an appropriate

return is generated on the investment.

At its core, Bitprop is an ecosystem that uses entrepreneurship and innovation to empower people to develop sustainable income and asset value for themselves and their families. Focusing on the existing but unutilised property where the value potential is the greatest, Bitprop's commercial model provides a way for capital to be used efficiently to develop individuals into sustainable entrepreneurs.



Sizwe Mila, a Bitprop homeowner, his wife, Mandisa and their daughter, Zimi in iLitha Park, Cape Town.

Photo: Vunene Xiluvane, Bitprop Content Manager



2019

"An exciting time when we were trying to figure out what Bitprop was all about."

Dylan Walls
COO/CMO

18 Flats
4 Homeowners
3 Townships
5 Team members

18

2020

"COVID lockdown put the brakes on growth, but we focused on developing our design, systems, and relationships with our homeowners and tenants."

Jonathan Fisher
CFO

34 Flats
6 Homeowners
3 Townships
6 Team members

34

2021

"2021 was a turning point. The introduction of a construction manager and an increase in quality control and systems through all parts of the business made all the difference."

Tashriq Abrahams
Architect

50 Flats
10 Homeowners
3 Townships
7 Team members

50

2022

"The organisation grew in leaps and bounds. This was one of the most amazing years, as our team grew and we operated in an integrated manner."

Zandile Nkompela,
Homeowner Relationship
Manager

184 Flats
32 Homeowners
6 Townships
15 Team members

184

2023

"A very busy year with lots of excitement and many successful stories. Bitprop is slowly closing the housing gap in the Western Cape."

Nolitha Vanda,
Homeowner Relationship
Manager

372 Flats
69 Homeowners
7 Townships
15 Team members

*all data is cumulative

372



Xoliswa and Phiko Sidinile, Bitprop homeowners in Khayelitsha, Cape Town.
Photo: Siphelo Guwa



Tashriq Abrahams and Carl Fredrik Sammel leading a site visit in Ilitha Park, Cape Town.
Photo: Abongile Mvukuzo



Tashriq Abrahams with Abraham Avenant, CEO of CRDC SA, reviewing recycled plastic.
Photo: Reece Wakefield



Candidates at Bitprop's recruitment day in September 2022 at Innovation City, Cape Town.
Photo: Reece Wakefield



Ziyanda Mjoko and Buhle Gqola at an Open House in Langa, Cape Town.
Photo: Tashriq Abrahams, Bitprop Architect

2023/24

in summary



372
flats



102%
2023 portfolio growth



69
homeowners



209%
Average property
value increase

Homeowners

**Average
age** **50**
years old



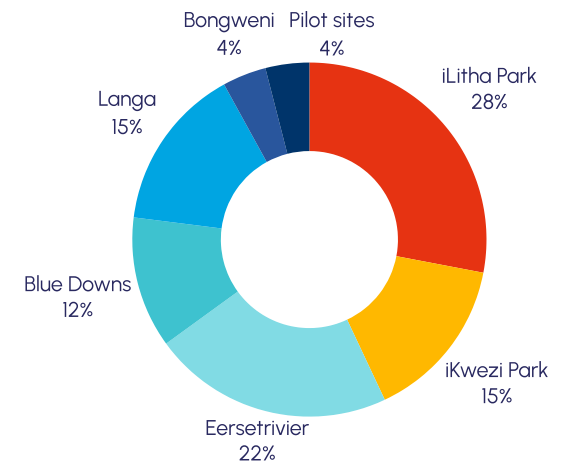
Gender division: 62% female | 38% male

Bitprop built the equivalent of

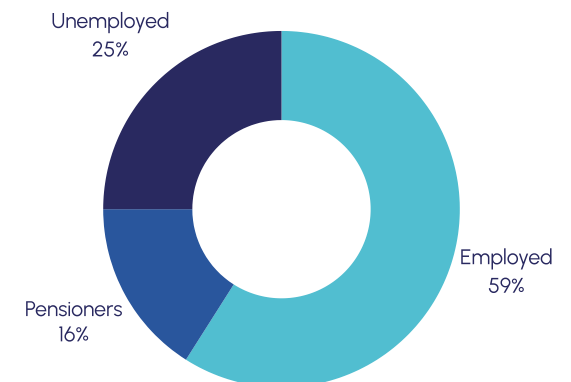
3.5%

of the housing opportunities created
by the Western Cape province

Bitprop flats by township in Cape Town



Employment status of homeowners





Average monthly rental
ZAR 3 450
USD 184



Monthly income increase per
household during partnership
63%



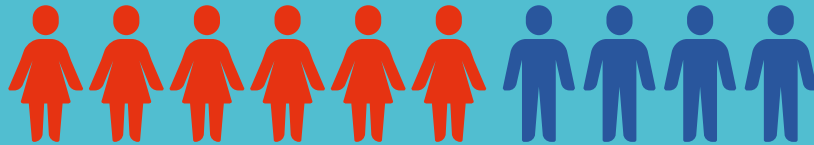
Monthly income increase per
household after 10-year partnership
414%

Tenants

Average
age **31**
years old

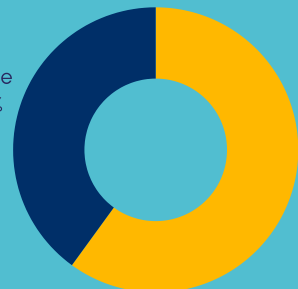
Rolling 12-
month
occupancy
96%

Gender division: 57% female | 43% male



1,5
Average
household size

Single
40%



Couples
60%

Longest tenant lease: 4 years, 2 months



232 tonnes
of waste recycled to date



Contractors

2950
est.
Construction jobs
created in 2023

Most common uses
of rental income by
homeowners

- 1 Education
(school fees, transport, school uniform, university fees)
- 2 Groceries
- 3 Municipal bills
- 4 House refurbishment
- 5 Savings
- 6 Debt repayment
- 7 Funeral cover and life insurance policies

Impact Model



In Bitprop's five years of operations, its impact has reached across five broad themes.

1. The creation of sustainable, meaningful monthly income streams for low-income homeowners
2. The creation and formalisation of asset value for those homeowners
3. The research, testing and use of environmentally responsible construction materials
4. The direct and indirect creation of jobs for township residents
5. The provision of high-quality, affordable residential rental flats

To assess each theme accurately and identify its impact on our stakeholders, we have referred to Impact Frontiers' 'Five Dimensions of Impact', a model that measures positive or negative impact according to five criteria:¹

- What the impact activity is and how important it is to the stakeholder,
- Who the stakeholder is and why they need the impact,
- How Much impact is felt by the stakeholder as a result of the impact activity,
- The Contribution of the impact activity towards the problem and to what degree the outcome was better than what might otherwise have been without the impact activity,
- and the Risk that the outcome might be different than expected. This is assessed according to Impact Frontiers' 9 types of impact risks (addendum A).

Impact Frontiers has worked with the support of the Rockefeller Foundation, Macarthur Foundation, Metanoia Fund and Omidyar Network.² This model was developed by and for investors and relies on evidence of efficient, and reality-based impact to direct funding towards organisations that directly solve urgent social and environmental challenges. This outcomes-based model charts growth, responsibility and most importantly lives changed.

¹ Firdaus, 2022

² Cohort Participants & Alumni | Impact Frontiers 2022

Impact Themes



Sustainable income creation

Immediate homeowner rental income has created an average monthly household income increase of 63%



Asset value formalisation and growth

Our homeowners see an average property value increase of 209% without contributing any capital



Environmental sustainability in township construction

Our flats have incorporated 195 tonnes of recycled plastic across the portfolio since inception



Township job creation

In 2023, an estimated 2 950 jobs have supported 9 900 people in the community



Affordable housing for tenants

In 2023, Bitprop provided the equivalent of 3.5% of the Western Cape Government's 2022/23 housing delivery

Sustainable income creation

Immediate homeowner rental income has created an average monthly household income increase of 63%

Backyard residential rental development has become a phenomenon in low-income townships across South Africa as a source of income for those with property! While backyard flats provide valuable income and job opportunities in markets suffering from chronic unemployment, the uncontrolled manner in which they have spread in the last decade - without consideration of property law or municipal regulation - has resulted in sub-standard construction, poor living conditions and unfairly treated tenants being the norm.² When done correctly, however, this remains one of the most sustainable and significant sources of income for township residents and can be incredibly beneficial to all stakeholders involved.



Mpumelelo and Nomachina Pinyana, Bitprop homeowners in Bongweni, Cape Town.

Photo: Vunene Xiluvane, Bitprop Content Manager

Bitprop's homeowners receive 15% of the gross rental income collected monthly from the rental flats on their property; a completely new income stream that they can rely on without having invested any of their own capital. With the 15% rental payment, household income across our portfolio has increased by 63% on average.

For the 16% of our homeowners who are unemployed and the 25% who are pensioners, the immediate increase in income has been 159% and 87% respectively, supplementing their state social security income or state pension.

The rental income received by homeowners each month is, on average, 1.4x the South African state pension.³ At the end of the 10-year partnership, when each homeowner receives 100% of the rental income, they are projected to see an average household income increase of 414%*. Since our inception, we have distributed almost ZAR 2 million (USD 105 000) to our homeowners for their 15% of rental income; a number rapidly increasing as we expand.

We have partnered with 69 homeowners who have an average age of 50 years and of whom 62% are women. Their households have 3.5 members on average, translating into a direct

*compared with their monthly income prior to the partnership

1. Scheba, Turok and du Treu, 2022

2. Turok and Borel-Saladin, 2015

3. SGSC, 2023

monthly impact of the rental income on approximately 242 people.

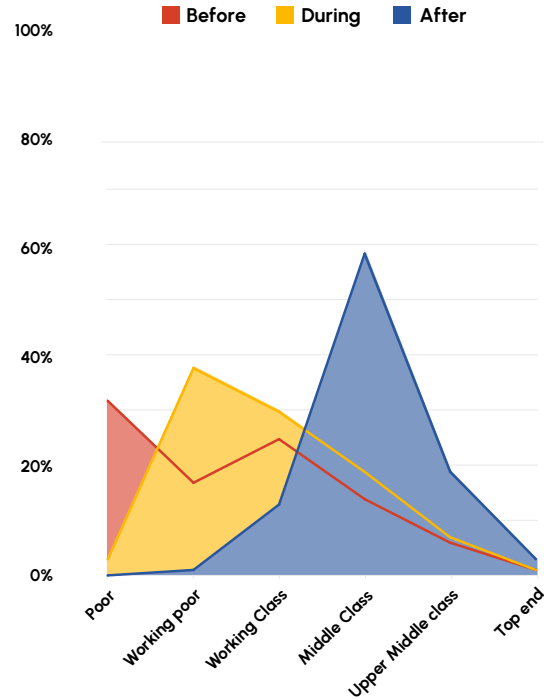
In 2023, 18 million South Africans relied on social grants as their key source of monthly income!¹ In the Western Cape where we have provided backyard rental flats, 14,3% of residents relied on social grants that amounted to a maximum monthly income of ZAR 2 090 (USD 110) per person.² With the national unemployment rate currently at 32,6%,² a large portion of the population is severely financially constrained, meaning the positive impact created by the 15% monthly rental income cannot be overstated.

According to the University of Cape Town's 'Open Access Monograph: Marketing to the South African Consumer'³, making use of their classifications, approximately 60% of our homeowners fall into the 'poor' and 'working poor' income categories. Half of them move up an income bracket immediately once they receive their 15% share of the monthly rental income. When they receive 100% of the monthly rental income after 10 years, another 39% move up one income bracket, 32% move up two income brackets and 17% move up three income brackets.

The primary use of the 15% rent earned per

Note: categories defined by University of Cape Town's 'Open Access Monograph: Marketing to the South African Consumer':

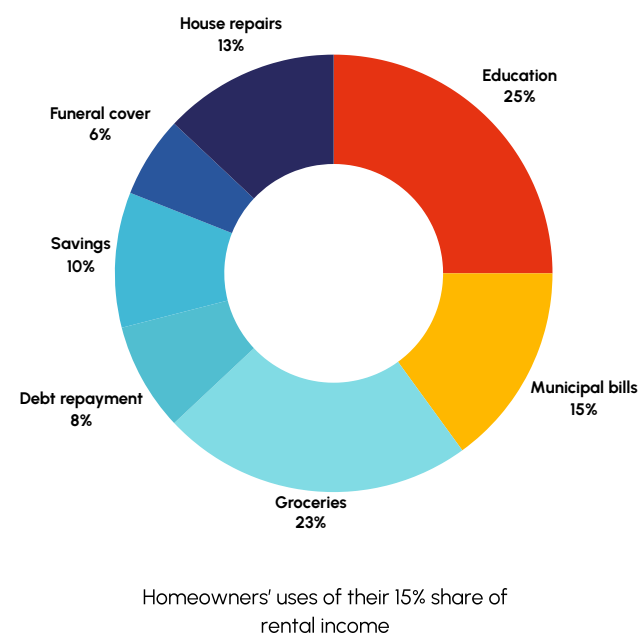
Homeowner income distribution before, during and after the partnership



Income Segmentation	ZAR	USD
Poor	< ZAR 3 500	< USD 184
Working Poor	ZAR 3 500 - 8 000	USD 184 - 421
Working Class	ZAR 8 000 - 22 000	USD 421 - 1 158
Middle Class	ZAR 22 000 - 40 000	USD 1 158 - 2 105
Upper Middle Class	ZAR 40 000 - 75 000	USD 2 105 - 3 947
Top End	> ZAR 75 000	> USD 3 947

¹Patel, 2023
²Department of Statistics of South Africa, 2022
³Lappeman et al., 2021

month by each homeowner, which is ZAR 2 814 (USD 148) on average, is towards their children's education, with the most common expenses being school fees, school uniforms and transport to and from school. Homeowners also use the 15% monthly rental income to purchase groceries, pay municipal rates and services accounts, cover debt repayments, complete minor household repairs and purchase funeral cover and life insurance premiums.



Earning an immediate new monthly income

stream is a tangible benefit, but the real value in the model lies in its sustainability. Key to this is enabling each homeowner to become a property entrepreneur so that after the 10-year partnership with Bitprop, they can continue to run a successful business. Throughout our time together, we work alongside each homeowner to equip them with the skills to run their property business. For some, entrepreneurial thinking comes easily, like a lady in Langa who is initially using her 15% monthly income to build a boundary wall on her property; a significant capital investment that increases the appeal, safety



Before and after: Six flats completed in July, 2022 in iLitha Park, Cape Town.




and value of her property asset. Others take guidance from our homeowner relationship managers, such as one of our earlier homeowners in iLitha Park who made a point of learning through observing how Bitprop resolves issues so that he can do the same once Bitprop has stepped away.

For homeowners with high debt levels, the 15% income is applied to reduce debt at times, making them less likely to resort to loans from expensive, unregulated lenders. Beyond each homeowner, the new income streams have knock-on effects in the community. 15% of our homeowners hire cleaners to take out their bins and clean them, diverting about 20% of their monthly rental income towards employing local individuals, stimulating further entrepreneurial micro-businesses.

Homeowners seeking alternative income solutions such as Bitprop vary in profile. Some are recent retirees looking to leave a sustainable inheritance to their children. Some are working parents looking to set up long-term retirement income streams. Others already have shacks in their backyard and would like formal, sturdy structures to generate income now and to pass onto their children in the future. For those looking to build rental flats,

financing is the biggest hurdle and for most homeowners, affordability and poor credit ratings prevent them from accessing formal, regulated funding. In South Africa, a good credit score is anything above 650 (on a scale of 1-720).¹ The average credit score of our homeowners is 523 – well below that required to obtain a home loan to develop flats. For a few others, savings and borrowing from relatives might be an option. For many, expensive illegal credit might be the only viable alternative.

Most of our homeowners fall into a category similar to one of these:

 <p>Retiree 74 years old Pensioner</p> <p>In retirement, he has discovered a gap between the cost of living and the pension income he receives.</p> <p>Reasons for seeking flats</p> <ul style="list-style-type: none"> • Receive additional income • Increase property value • Leave a sustainable income source and a generational asset for his children and grandchildren <p>Frustrations</p> <ul style="list-style-type: none"> • Cost of construction • No access to formal capital (home loan) • Lack of general know-how • Quality assurance difficulty 	 <p>Working Mom 52 years old Bakery Assistant</p> <p>Having acquired a property, she has started planning for her retirement and her family's financial future.</p> <p>Reasons for seeking flats</p> <ul style="list-style-type: none"> • Long term income into retirement • Develop a business which allows her to be flexible with her time • Growing number of dependants in her household, but reduced income to support them <p>Frustrations</p> <ul style="list-style-type: none"> • Limited additional income opportunities • No retirement plan with current employment 	 <p>Landlord 55 years old Unemployed</p> <p>She has previously set up 6 shacks in her backyard and her household's primary income was the rent collected monthly.</p> <p>Reasons for seeking flats</p> <ul style="list-style-type: none"> • Build permanent structures that are durable and earn more rent • Establish an asset that she can pass down as an inheritance to her children <p>Frustrations</p> <ul style="list-style-type: none"> • Cost of construction • No formal financing available • Lack of expertise • Limited knowledge of the rental act/industry norms
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*On a scale from 1 - 720 as measured by Experian credit bureau

Bitprop rental flats

Capital sources

Fully funded by Bitprop, therefore no capital needs to be sourced

Cost to homeowner

ZAR 0 (USD 0)

Beyond construction, cost of maintenance within the 10-year partnership is managed by Bitprop

Expertise needed

None from the homeowner – Bitprop provides end-to-end service which includes: maintenance, insurance for the flats, technology-based rental management and training

Timeline

3 months on average for construction
10-year partnership



Six flats completed in May, 2022 in Eersterivier, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

Alternative finance sources

Capital sources

Home loan: ZAR 550 000 (USD 28 947) – amount available based on the average homeowner's property value before partnering with Bitprop, but only enough for 2 flats

Unregulated lending | Personal savings | Loan from friends and family

Cost to homeowner

Estimated build cost for similar quality level:

ZAR 1 250 000 (USD 65 790)

Estimated architectural cost:

ZAR 93 750 (USD 4 934) – 7.5% of construction cost¹

Municipality submission:

ZAR 12 500 – ZAR 35 000 (USD 658 – USD 1 842)

Expertise needed

Architect | Quantity surveyor | Construction manager | Building contractor | Municipality/town planning submission | Legal framework | Rental management | Maintenance of flats | Insurance

Timeline

Varying construction period depending on cost, procurement and choice of contractor. The construction period is not controlled and is dependent on the homeowner's knowledge/cash available²



Informal, unregulated flats built in iLitha Park, Cape Town.

Photo: Sofia Lennhammer

Benefits

- High-quality flats at no cost to the homeowner
- Maintenance of flats is resolved at no cost to the homeowner (built into Bitprop's share of monthly rent)
- Insurance of flats provided at no cost to the homeowner (built into Bitprop's share of monthly rent)
- Rental management services including full-time tenant recruitment, leasing, deposit and rent collection

Challenges

- Limited input in the design process
- No input on the choice of contractor
- Limited to 15% of the rental income per month over 10 years

Benefits

- Possible shorter repayment period depending on the loan terms
- 100% of rental income earned from the first month
- Can use flats for other entrepreneurial businesses – not restricted to residential rental

Challenges

- Home loan: The average home loan available would be insufficient; it only covers a portion of the cost of construction
- Unregulated credit: Safety risks if unable to repay the loan and extremely high-interest rates (50% to 112% of the original borrowed amount)³
- Savings: Limited savings, unable to meet construction costs. Risky to invest life's savings in one project, putting all eggs in one basket
- Less capital available to build means lower quality flats that the homeowner must charge lower rent for and attract fewer tenants
- Higher likelihood of poor spatial planning (limited access to architects), leading to a lower quality product producing lower rent

¹procompare, n.d.

²Scheba and Turok, 2020

³Hippo, 2023



Overview

What

Low-income homeowners receive 15% of gross rent collected each month (average ZAR 2 814/USD 148). The most common uses of the extra income are for school fees, regular groceries, debt repayment and municipal rates. Through our homeowner relationship managers, our homeowners receive reliable guidance to run a sustainable rental business. Creating this sustainable income addresses numerous SDGs: No Poverty (1); Zero Hunger (2); Gender Equality (5); Decent Work and Economic Growth (8); Industry, Innovation and Infrastructure (9); Reduced Inequalities (10); Peace, Justice and Strong Institutions (16); and Partnerships for the Goals (17).

Who

Our 69 homeowners have an average age of 50 years. 62% are female, 16% are unemployed and 25% are retired and living off the South African state pension. All homeowners live in townships across Cape Town and the average household size is 3.5 members.

How Much

Our homeowners see a 63% household income increase on average with the new 15% rental income stream. With an average of 3.5 members per household across 69 properties, an estimated 242 people directly benefit from the rental income. More than half of our homeowners move up an income bracket immediately with the new income. As of December 2023, we have distributed almost ZAR 2 million (USD 105 000) in rental income to township families across Cape Town.

Contribution

Without Bitprop, most of our homeowners would have been unable to develop the quality of flats that earn significant rental income (and would still be reliant on their informal dwellings, if any). Design, material and quality affect the rent that can be charged. The consequence of lower quality flats is lower rent levels with unreliable tenants that do not guarantee rental income, and increased maintenance expenses.

Risk

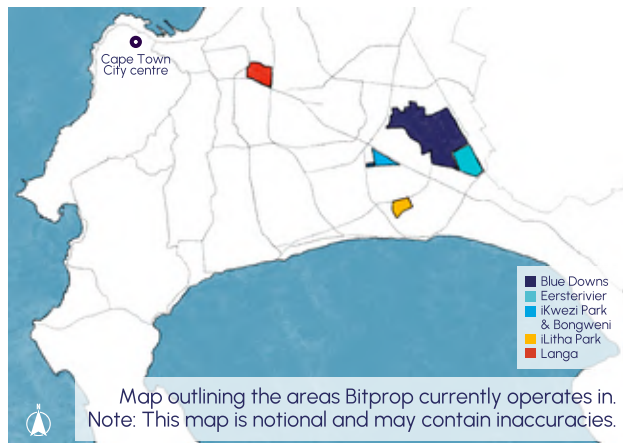
(refer to Addendum A)

Notably, Evidence risk is identified as medium, given the challenges posed by the under-researched informal rental sector. Stakeholder participation risk is deemed low, as although homeowners unfamiliar with property rental may be challenged by tenant management initially and dissociate from responsibilities, our homeowner relationship managers assist them to overcome these challenges. Execution risk is also deemed low. Tenant occupancy affects the value of the homeowner's 15%, but average occupancy is above 95% in reality and this is not a major hurdle for homeowners. Unexpected impact risk is assigned a medium rating, as the pioneering nature of this model leads to initial scepticism, but five years of data proves viability. Unexpected positive impact has been identified on some properties, e.g. the employment of refuse cleaners; an unintended entrepreneurial side-effect.

Asset value formalisation and growth

Our homeowners see an average property value increase of 209% without contributing any capital

For most township backyard rental flats, the primary intention is to sustainably generate income, as demonstrated under the 'Sustainable income creation' impact theme, but by partnering with Bitprop, significant enhancement to asset value can occur too, without any capital utilised by the homeowner. In the formal property market, this is normally where the main reward is experienced - driven by the demand for living space and a property market where asset value increases over time. In townships, this inherent aspect of property ownership is largely unrealised as there is a lack of formalisation of ownership and an inaccessible development process! Without accurate title deeds, one cannot formally obtain value from a property through sale or mortgaging, and without accurate building



1. Scheba and Turok, 2020

2. Scheba, Turok and du Treu, 2022



Neighbourhood residents at an Open House in Langa, Cape Town.

Photo: Tashriq Abrahams. Bitprop Architect

plans, one cannot sell or borrow against the value of new developments on the property.

Furthermore, although informal structures provide rental income, they can devalue the property due to the nature and quality of the structures. There is a risk of penalties being charged by the municipality on unapproved structures, and they reduce the value of the broader community through increased presence of informality and less safe living environments.² Informal backyard rental structures are thus seen as primarily monthly income assets - a valuable benefit, but one which misses out on the long-term value creation inherent in formal property ownership.



Six flats completed in December, 2023 in iLitha Park, Cape Town.

Photo: Sebastian Hitchcock



The addition of the rental flats has resulted in an average property value increase of 209%. Through this formalisation process, we have helped each homeowner participate in the formal property market. Property value in Cape Town has increased by 141% since 2010¹ and the demand for accommodation has driven the development of backyard rental flats both formally and informally. In 2016, 13.4% of urban households in South Africa lived in backyard dwellings (formal and informal structures), up from 8.9% in 2011². Rapid urbanisation driven by work-seeking migration to cities like Cape Town contributes to this trend.

Our flats are designed and built according to South African National Standards, following design and safety requirements in every aspect, and will provide our homeowners with a full spectrum of property ownership benefits. We also assist with the correction of or transfer of title deeds, helping them realise the total potential value of their properties.

Long-term wealth and financial well-being come from asset security and in property, title deeds and wills are the most important tools with which to achieve this. Tenure security, and access to valid wills that provide generational succession, have been important premises since Bitprop's inception, inspired by the work of the NGO, Khaya Lam,³ which uses donor funding to

1. Department of Statistics South African, 2023

2. Isandla Institute and Violence Prevention through Urban Upgrading and Development Action Group, 2020

3. Anon, n.d

help township residents secure formal title deeds to the land they live on. This is done with the belief that there is inherent value sitting dormant in properties that are locked up in the informality of the land ownership, as demonstrated by Peruvian economist, Hernando de Soto!¹ It is estimated that since 1995, at least 900 000 houses (35%)² subsidised by the government were delivered to their owners without title deeds, and that 1,1 - 1,4 million beneficiaries currently don't have the title deeds to their properties.² 43 of our 69 homeowners (62,3%) have required some form of assistance with transferring their titles to the correct title holder, removing deceased or divorced spouses from their title deeds, or removing already settled mortgage bonds from their title deeds. By correcting title deeds, our partners will now be able to access the full value of their properties in the future should they want to sell, borrow against, or transfer to beneficiaries.

Title deeds prove ownership and assign the rights of a property to the correct person, but a will is needed to ensure that in death, assets are passed down to the preferred recipient. According to the Master of the High Court of South Africa, less than 15% of black South Africans have wills in place when they die.³

This creates extremely complex situations regarding property ownership and estate succession; such as with our first property, for which the title deed was in the name of the homeowner's mother who had passed away. During our partnership period, the homeowner herself passed away too, verbally leaving the property to her grandchild, but not in writing. Despite the family agreeing who was to inherit the property, the High Court is required to approve the inheritance. Furthermore, in this case, the grandchild is a minor so transfer remains impossible. Despite a clear succession plan in the family, without a will in place, the late owner has not been able to pass on her most valuable asset.



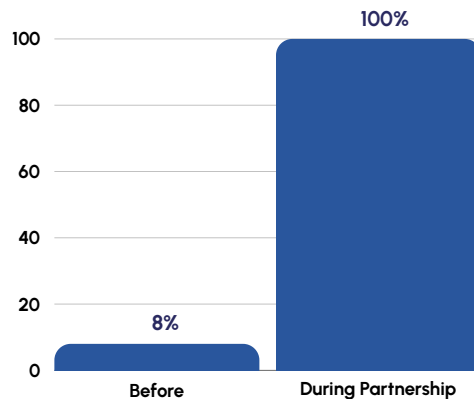
Tashriq Abrahams, Bitprop architect, chats with Brian Bango, one of our building contractors in iLitha Park, Cape Town.

Photo: Sofia Lennhammer

1. de Soto, 2001

2. Urban LandMark and Shisaka Development Management Services, 2011

3. PPS for Professionals, n.d.



Percentage of homeowners in possession of a will before and during partnership with Bitprop.

Only 8% of our homeowners had wills in place when they applied to Bitprop. Since 2021, it has been mandatory for all homeowners we partner with to have a valid will. We assist with drafting the will, explaining its implications where applicable and having the necessary conversations with the beneficiaries and executors.

By having a title deed and will in place, our homeowners' perspectives shift from short-term to decades-long. Our homeowners and their families now have the documentation in place and are trained over the 10-year partnership to manage a successful rental business that will ultimately benefit all of them. This provides the stability necessary to benefit

from participation in the property market and to develop intergenerational succession.

Beyond each property, tenure security has a positive impact on the community. When one manages a successful property rental business that will provide long term benefits to generations of beneficiaries, one takes better care of the property and its surroundings. At scale, this means a more vested interest in the well-being of the community. One of our newer homeowners in Langa, Cape Town, had community members approaching her saying her flats were 'bringing Parklands to Langa', referencing a much more modern, higher value suburb in Cape Town. Another homeowner saw a man looking at her flats for a long time, who when approached, said he was simply "admiring the flats". Such community pride cannot be overlooked and the benefits of this must not be underestimated. Those who have a stake in the community are more likely to look after it, keep it clean, tend to vegetation and take an active role in promoting safety and security. With formal property ownership, participation in the community becomes evident and the incentive to contribute increases significantly, a benefit to society.



Bitprop rental flats

Wills in place

100% of the homeowners who have partnered with Bitprop since 2021 have a will

Backyard dwellings that are formally constructed

100% of Bitprop flats are designed by architects, submitted to the local municipality and make use of quality materials that comply with National Building Regulations and SABS

Homeowners with formally-submitted backyard plans

100% of the rental flats have architectural drawings that are submitted to the municipality for approval

Average property value increase

209% across a portfolio of 69 properties

Informal structure replacement

40% of properties replaced informal structures with formal Bitprop rental flats



Six flats completed in December, 2023 in Eersterivier, Cape Town.

Photo: Anika Hanekom, Bitprop Architect

Typical backyard rental flats

Wills in place

According to a statistic from the Master of the High Court of South Africa, less than 15% of black South Africans have a will in place when they die¹

Backyard dwellings that are formally constructed

42% of South African backyard rental flats are formal structures made with brick and concrete²

Homeowners with formally-submitted backyard plans

Backyard rental flats seldom utilise formal building plans, especially in the case of informal structures, and therefore town planning submissions do not generally exist. Concrete data on this is difficult to find.

Average property value increase

7,4% in 2022³ in the Western Cape (average property value increase not taking rental flats into account due to their informality)

Informal structure replacement

Reliable data unavailable



Informal, unregulated flats built in iLitha Park, Cape Town.

Photo: Reece Wakefield

Benefits

- With an 209% average property value increase across a portfolio of 69 properties, homeowners experiences a property value increase by more than 2x on average, without investing any capital themselves in the construction of the rental flats
- For 40% of the homeowners who had informal structures, Bitprop replaced them with formal rental flats. An individual and collective community benefit is experienced as the flats follow town planning regulations and therefore positively affect the community
- 100% of the homeowners that have partnered with Bitprop since 2021 have wills in place that clearly state their intended succession

Challenges

- Property management requires more work as there are at least four and up to twelve new residents on the property
- Wear and tear of shared structures such as the paving and the gate is increased, although the cost of replacement can be covered through the new rental income

Benefits

- Backyard rental flats, whether formal or informal, allow for a sustainable monthly income through rent collection
- The backyard rental business can be passed down to beneficiaries in the event of a homeowner passing away, but with more than 85% of our demographic having no will in place, property succession is compromised

Challenges

- The homeowner has to manage and pay for maintenance out of their own pocket
- The homeowner is responsible for submitting plans to town planning department, if they do at all. If they do not submit municipal plans for any formal structures, the asset value increase cannot formally be recognised and therefore can't be leveraged
- Risk of unregulated and informal structures leads to compromised health and safety for tenants. When not following regulations set by the state, there is little guidance to ensure that the structure is liveable and safe
- Managing tenants alone might be a challenge for first-time landlords

1.PPS for Professionals, n.d.

2.Isandla Institute and Violence Prevention through Urban Upgrading and Development Action Group, 2020

3.Department of Statistics South African, 2023

Overview

What

Due to the addition of formal rental flats, property value increases immediately. Combined with formal submissions and our assistance with arranging their title deeds and implementing wills, the homeowners can access the full benefits of property ownership, such as being able to use the property as security against a loan within the regulated lending sector, sell, or ensure intergenerational succession. This asset value enhancement addresses numerous SDGs: No Poverty (1); Good Health and Well-Being (3); Quality Education (4); Gender Equality (5); Economic Growth (8); Industry, Innovation and Infrastructure (9); Reduced Inequalities (10); Peace, Justice and Strong Institutions (16); and Partnership for the Goals (17).

Who

Our 69 homeowners have an average age of 50 years. 62% are female, 16% are unemployed and 25% are retired and living off the South African state pension. All homeowners live in townships across Cape Town and the average household size is 3.5 members.

How much

Our homeowners see an average of a 209% increase in property value. 62% received assistance with administration on their title deeds. 40% of the properties had informal structures in place to earn extra income, but were receiving no long-term asset value from them. Only 8% had wills in place before the partnership, but 100% now do. Estate planning through valid wills sees most properties being left to children, and on 33% of our properties the children already manage day-to-day operations of the flats.

Contribution

While some homeowners might have built informal or lower quality flats, the key impact of Bitprop's intervention is the formality of the flats and the professionalisation of their property rental businesses. With formal submitted plans, the market value of the flats can be realised on the asset and the homeowner is able to borrow against their asset, which includes the flats and their rental income potential. Without this, accessible value would be restricted to that of the property without the flats.

Risk

(refer to Addendum A)

Evidence risk is low. Data on the informal property market is limited, transaction data is unrecorded and much of the infrastructure in place is not formally registered with the municipality. On our properties, however, all title deed data is registered with the Deeds Office, all plans are submitted to the town planning department and the relevant data can be tracked. Unexpected impact risk is medium, as this is a new model in this context. The uptake on future sales of properties and the impact on the homeowner and children cannot accurately be measured, given the long timeframe and lack of precedence. As we are still within the ten-year term in all partnerships, no data exists yet on the sale of a property.

Environmental sustainability in township construction

Our flats have incorporated 232 tonnes of waste recycled across our portfolio since inception

The construction industry as a whole is a major consumer of non-renewable resources and a significant creator of waste. 23% of air pollution, 40% of drinking water pollution and a staggering 50% of landfill waste are generated by the industry globally.¹ It accounts for 40%-50% of CO2 emissions globally, of which South Africa is the 13th largest contributor.² Evidently, the construction industry is one of the most unsustainable industries globally and in the low-cost and less formal township construction industry, this is even more apparent.

In the township environment in general, environmental issues aren't often a priority, given the number and scale of more immediate and sizeable issues such as food security, safety and economic wellbeing. In the affordable housing and backyard rental sector, economic limitations restrict the use of environmentally responsible construction methods or low energy-use solutions.

Construction budgets do not allow for extra expenditure on innovative materials and township construction companies usually work only with low-cost, traditional materials. Over the past 3 years, as innovative, cost-effective materials have become available locally, we have been able to improve our rental flat specifications to introduce environmentally responsible materials where possible.



Construction team installing the rafters for a roof in Eersterivier, Cape Town.

Photo: Anika Hanekom, Bitprop Architect

2019

Bitprop is founded: Pilot and testing of construction methods using conventional materials.

2022

First property built with environmentally responsible materials. Introduction of these materials as a standard.

2023

100% of new projects and more than 70% of total projects have been completed with environmentally responsible materials.

¹Dobrowolska, 2021
²Infrastructure news, 2022

The flats, which to the tenants and homeowners have the same aesthetic qualities as conventional flats, provide improved physical specifications at only a 3% increase in the cost of materials.

These improvements have largely been focused on replacing conventional aggregates used in the production of concrete and bricks for the foundations and walls with recycled eco-aggregate alternatives. Resin8, a plastic-recycled aggregate made with mixed plastic waste, is used in the mixture of concrete for our foundations and bricks.¹ Envirolite blocks, which incorporate recycled polystyrene that has been shredded in the concrete mixture, are used for our rib-block first floor slabs.²



A walkway leading to newly completed upstairs flats, looking out over Eersterivier in Cape Town

Photo: Anika Hanekom, Bitprop Architect

The use of these innovative, locally produced products removes plastic waste from the environment and reduces the amount of raw sand and stone used in the concrete and bricks.

Sand, the third most consumed resource globally,³ is in increasingly short supply and its removal from the environment has major consequences. In traditional construction, 0,75 m³ of sand is used in one cubic metre of concrete⁴ and for brickwork, the ratio of sand to cement is 6:1.⁵

In a typical Bitprop flat, taking into account the ratio of Resin8 and Envirolite used in the concrete mix, we have spared more than 513 m³, or 718 tonnes of sand and stone, in favour of 232 tonnes of recycled plastic and polystyrene.



**718
tonnes**

of sand and stone have been replaced with recycled waste across our projects.

Our latest innovation is the introduction of a locally produced, plastic-recycled roof tile that

1. CRDC Global, n.d.
2. Envirolite concrete, 2021
3. Kelly, 2020
4. Build it, n.d.
5. CivilSir, 2019



is made from 98% recycled material, and which is 70% lighter and four times stronger than conventional roof tiles. The Harvey Eco Roof Tile¹ has an Agrément Certificate and complies with National Building Regulations (NBR) and South African National Standards (SANS). It will be a standard part of our design in 2024.

With the environmentally responsible solutions we've standardised on our properties, we utilise 750 kg of recycled plastic and 143 kg of recycled polystyrene per flat. In total, 195 tonnes of plastic and 32 tonnes of polystyrene have been recycled across the portfolio, which equates to 232 tonnes of waste diverted from Cape Town landfills.

Our flats use efficient design and window placement to reduce energy consumption, bypassing the need for artificial ventilation, heating or cooling solutions. Energy-efficient water heaters, internal LED lights and outdoor solar security lights further reduce energy consumption, while water-efficient shower heads and dual flush toilets reduce water consumption, saving on costs for our tenants.

Our buildings use 64,3% less embodied energy (the total amount of energy used to produce a product) than traditional affordable housing of comparable nature, and 59,2% less embodied energy than our original, non-environmentally responsible designs (based on an EDGE² assessment of two of our properties).

The introduction of recycled materials has enhanced the structural quality of the flats and provided improved insulation and fire resistance, and reduced energy consumption. Less sand and stone is used during construction, and a reduced weight lowers the carbon footprint of transporting the materials and their impact on road infrastructure.

Two of these materials are significantly lighter than conventional materials, and because they are locally produced within 20 km of all sites, the

¹ Harvey Roof Products, 2021
² EDGE, 2015



tonnes of waste recycled to date

net impact on fuel consumption is also beneficial. Because these innovations require only conventional construction methodology to use, we've been able to minimise the training required and have introduced environmentally responsible materials to a part of the construction industry usually overlooked by such innovations. This has upskilled the construction teams we work with, providing them with knowledge they can use on other projects in the future.

From a user point of view, the flats are not perceived any differently from conventional buildings, a key reason we have been able to make such changes in the township environment. Continued recycling awareness has been created in our communities through our community recycling team, in which local unemployed residents have been trained on recycling principles. Recycling collected once a week from properties in the neighbourhoods in which we operate is sold to Resin8, providing

our recyclers with an income stream. The plastic sold to Resin8 is then used in the eco-aggregate that goes into the construction of our rental flats.

Our goal is to expand this to more areas and at a greater impact level. We are committed to taking the necessary steps to decrease the environmental impact of backyard rental flats by introducing standardised, large-scale environmentally responsible construction methodology to our flats across townships.



Bitprop's recycling team sorting recycling before taking it to a buyback centre.

Photo: Reece Wakefield

Bitprop rental flats

Plastic recycled per flat

750 kg

Polystyrene recycled per rental flat

143 kg

Sand and stone aggregate saved per rental flat

2,9 tonnes

Embodied energy conserved

64,3% less embodied energy than traditional builds
and 59,2% less embodied energy than our first flats

Cost increase with environmentally responsible
materials

3%

Total waste diverted from landfill

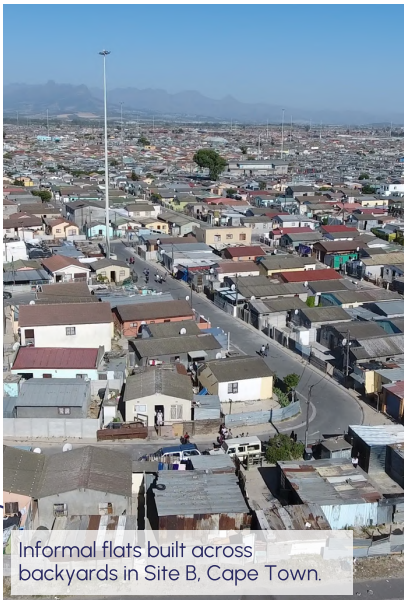
232 tonnes of waste



Six flats completed in September,
2023 in Blue Downs, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

Typical backyard rental flats



Informal flats built across
backyards in Site B, Cape Town.

Photo: Toby Selander

Plastic recycled per flat

N/A

Polystyrene recycled per flat

N/A

Sand and stone aggregate saved per rental flat

N/A

Embodied energy conserved

None - energy conservation is rarely accounted for in
township construction

Cost increase with environmentally responsible
material

N/A

Total waste diverted from landfill

N/A

Benefits

- Our environmentally responsible materials improve the structural quality of the flats, with improved insulation, acoustics, thermal and fire resistance properties in comparison to conventional materials
- Introduction of environmentally responsible materials to township contractors, which is a skill that can be transferred to other construction projects
- Eco-flats divert a large portion of waste away from landfills
- Energy efficient features such as low-flow taps, internal LED lights and outdoor solar-powered security lights save on water and electricity costs for tenants
- Access to well-researched, environmentally responsible materials that aren't typically available to residents of low-income areas

Challenges

- 3% increase in cost of materials replaced to develop eco-flats
- Minor learning curve for the construction teams to use environmentally responsible materials

Benefits

- Slightly reduced cost of materials to build rental flats
- No learning curve is needed to construct the rental flats (relative to conventional materials)

Challenges

- Lack of innovation with environmentally responsible materials could be detrimental in the long term as more institutions opt to be environmentally conscious - the risk of falling behind
- Relying on limited and rapidly declining natural resources such as sand could have negative ramifications in the event that they become scarce
- Not making use of energy-efficient features such as low-flow taps, internal LED lights and outdoor solar-powered security lights will have negative cost ramifications for tenants and the homeowner in the long-run

Overview

What

Our model improves the environmental impact of the rental flats with only a 3% increase in material costs, bringing environmentally responsible materials to the township construction industry. Our designs result in an improved product specification without visible changes. These practices address numerous SDGs: Clean Water and Sanitation (6); Affordable and Clean Energy (7); Industry, Innovation and Infrastructure (9); Sustainable Cities and Communities (11); Responsible Consumption and Production (12); and Climate Action (13).

Who

Improved environmental responsibility is critical to society as a whole. Beyond this, it specifically benefits our contractors, who are upskilled in new construction methods, allowing them to keep pace with developments in the formal construction industry.

How much

For each flat we enable the construction of, we incorporate 750kg of recycled plastic in the Resin8 aggregate mix and 143 kg of polystyrene waste in the Envirolite blocks. The new roof tiles will comprise of 98% recycled material. Our design uses 64.3% less embodied energy than a conventional affordable rental property. 2.9 tonnes of sand is replaced with environmentally sustainable materials per Bitprop rental flat. Over 5 years, we have saved 195 tonnes of plastic, 37 tonnes of polystyrene and 718 tonnes of sand.

Contribution

Given that the use of environmentally responsible materials in the township construction industry is virtually non-existent, without our construction specifications none of that plastic would be recycled. More conventional material would be required, meaning more sand extracted from the environment, increased use of fossil fuels and higher energy costs.

Risk

(refer to Addendum A)

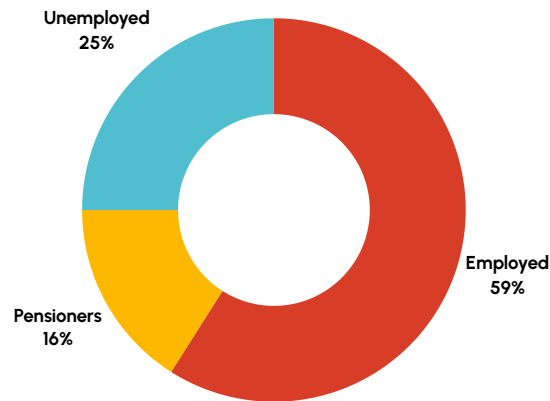
Evidence risk is low because we have concrete measurements from all suppliers and the quantitative impact of our interventions is easy to evaluate. External and endurance risk are both high, as all our sustainable materials are designed and produced by external suppliers and we are reliant on them to be able to use the materials. Our alignment risk is medium, as there is some risk that our sustainable material suppliers go out of business due to the nascency of the industry, but all three major suppliers have large existing contracts that are more significant than Bitprop. The stakeholder participation risk is low. Although there is low demand for sustainable development, it is due to ignorance rather than aversion. With pricing and building methods similar to conventional construction, our contractors are aligned, and because the end product looks the same and performs better than a traditional building, there are no issues from homeowners or tenants.

Township job creation

In 2023, an estimated 2 950 jobs have supported
9 900 people in the community

Given that the unemployment rate in South Africa is so high (32.6% in the third quarter of 2023)¹, enabling homeowners to become entrepreneurs is a key intervention, reducing their reliance on the job market and improving their chances of maintaining a sustainable monthly income. With our support during the 10-year partnership, each homeowner immediately becomes a fully self-sufficient, sustainable property entrepreneur.

Many of our 69 homeowners are first-time landlords and the task can be overwhelming in the beginning. Really understanding the complexities of rental management requires experience, and the first few months of tenant management can be challenging.



Employment status of Bitprop homeowners

¹Department of Statistics of South Africa, 2022



Giveth Mazibuko, Bitprop homeowner outside her flats in Eersterivier, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

Most homeowners have good relationships with their tenants. One homeowner has exemplified his commitment to being a good landlord by making his personal amenities available to his tenants at any time, such as his barbecue stand. The inherent value that comes from developing a sustainable rental business on one's property, combined with the comprehensive support Bitprop provides, makes the process possible at scale. For every homeowner and their family that benefits from the rental income generated, the strain on jobs and unemployment is lessened slightly. And beyond these stakeholders, those

hired by homeowners to do additional jobs benefit indirectly from the rental income. The hiring of cleaners alone by some homeowners (15%) for the upkeep of their properties diverts about 20% of their rental income to local, informal businesses; a true example of the multiplier effect in action.



Mohammad Abdul Haque,
a lead building contractor.

Photo: Vunene Xiluvane, Bitprop Content Manager

Another area of significant employment impact is in construction. The construction industry creates 3,85 million jobs in South Africa;¹ a significant number, but one which has fluctuated a lot in the last five years. The township construction industry in general is very underdeveloped, with most work carried out by informal construction companies. Levels of education and training differ, job sizes vary,

¹Afrimat Construction Index, 2023

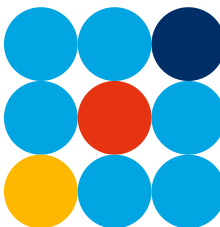


Brian Bango, a lead
building contractor.

Photo: Vunene Xiluvane, Bitprop Content Manager

and work is sporadic without much opportunity for consistent income or professional growth.

Bitprop partners with local contractors who form and run their own NHBRC-certified businesses. As such, they are fully independent entrepreneurs with whom we develop long-term partnerships. When starting with a new contractor, we spend significant time understanding their way of operating, helping them to adjust to our workflow and to achieve the level of professionalism required. Those that we partner with have the qualifications and experience to build our flats, but not much more than that. If a contractor is able to manage multiple projects simultaneously with us, their business becomes more sustainable and they are able to plan for growth rather than



just seeking work to put food on the table; a significant positive impact. Often, what most building contractors lack are good skills in administration, materials procurement, project management and planning, particularly regarding cashflow management. Our template process teaches contractors how to follow a strict construction schedule, work with project milestones and manage finances appropriately, receiving additional projects as they succeed.



Photo: Vunene Xiluvane, Bitprop Content Manager

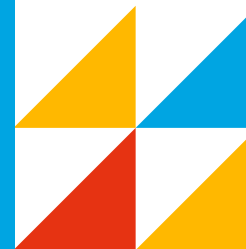
Bitprop's construction manager is constantly on site, interacting with the lead contractors and their teams, assisting them to stay on track and ensuring smooth, consistent communication amongst all stakeholders. Each contractor has a large team of workers and subcontractors participating on each project. Because we are

able to provide them with a constant work stream, the teams remain consistent and each individual is able to earn a stable income to support their family. Our main contractors each create approximately 80 jobs per project between their core team (brick layers, carpenters, metal workers, painters, plasterers etc.) and sub-contractors (electricians, plumbers, engineers etc.).



≈ 80 jobs created per project

This amounts to a total of approximately 2 950 temporary jobs created in 2023. At an average household size of 3,34 people¹ that takes the number of people supported by Bitprop's investment to almost 9 900 people through the contractors, their teams and their families.



During 2023, Bitprop injected ZAR 31 million (USD 1,7 million) into the local economy. This is significant in an industry which lost 118 000 jobs between 2017 and 2020¹. Approximately 40% of the investment is diverted towards labour costs, which amounted to ZAR 12,4 million (USD 0,7 million) in 2023. This income is spent in the community by the construction team and

¹Department of Statistics of South Africa, 2022

their families. Of the remaining 60% spent by Bitprop that goes to procurement, much went towards local businesses. In total, our contracting partners used 62 local SMEs to procure products and services in developing our rental flats in 2023, a significant impact for the local construction industry.

In the backyard rental industry, most developments do not go through a formal application process and are often not built to prescribed quality and safety standards.

Our model aligns the with City of Cape Town's vision for responsible densification for the future! Our properties are built according to SANS and NBR, and our contractors are upskilled in the development of formalised properties, making them eligible for larger contracts. We've also enabled the formalisation of the contractors' companies through arranging benefits like standardised training from established specialist plumbing suppliers.

Through our investment model, we've thus been able to connect informal construction businesses with formal construction opportunities and experience that will help them grow in the future.

¹Department of Statistics of South Africa, 2022



Brick layers making quick progress on a 6-unit build in iLitha Park, Cape Town.

Photo: Reece Wakefield

Bitprop's contracting partners

Consistency of work

Rolling projects create job security and allow longer-term planning

Team stability

Consistent projects means workers can be retained, leading to greater cohesiveness in team, and greater worker satisfaction

Standardised designs

Construction teams become experts at building our flats, reducing mistakes and saving money

Long-term partnership

The ongoing nature of our relationship allows for more openness, leading to a more productive and enjoyable construction process

Skills development

Workers learn about the benefits of and how to use environmentally responsible materials - knowledge that can be used elsewhere in the industry



Construction workers digging trenches for six flats.

Photo: Reece Wakefield

Township construction industry

Consistency of work

Work is ad hoc and different each time, often only requiring involvement in a certain aspect of the project

Team stability

Without consistent work, team members float around a lot more in search of jobs, meaning team cohesion is not very strong

Standardised designs

As projects are always different, there are few opportunities to benefit from reduced mistakes and specialisation

Long-term partnership

Projects are normally transactional, leaving little room for understanding each other. This makes mistakes more expensive and less trust is built

Skills development

Conventional construction materials and methods are used, meaning little opportunity for learning new skills that could lead to growth in the industry



A construction team preparing a site in iLitha Park, Cape Town.

Photo: Claire du Trevou

Benefits

- Consistent projects through partnership with Bitprop mean there is consistent income for the contractors, their teams and their families
- Contractors sourced from the township have been upskilled in the softer skills required to run a business
- Due to Bitprop's standard design, contractors and their teams have become specialised and face no learning curve when starting a new site, enabling a standardised timeframe and making scalability possible

Challenges

- High volume of work within specific timeframes can be challenging
- Lean budget per project means working on a single project is financially difficult - multiple projects simultaneously is financially rewarding, need to increase capacity fairly quickly

Benefits

- Greater variety of project type and size
- Possibility to earn more on one project through inflated fees and extras (but not likely on multiple projects)

Challenges

- Inconsistent work, as the process to secure a project is based on a bid system. The likelihood of township or contractors with low levels of experience winning a bid is low¹
- Reduced activity across the industry due to the pandemic in 2020 creates an unstable supply of employment and income²
- Few contractors have adopted environmentally responsible building practices into their operations, continuing to contribute towards the negative aspects of the construction industry, while also limiting themselves to projects that require traditional materials

1. Musonda and Rakolote, 2022
2. Dosumu and Aigbavboa, 2021



Overview

What

Homeowners and their families are upskilled to run rental businesses with the support of Bitprop's systems and expertise. Bitprop partners with lead building contractors from the township who run their own construction businesses, creating recurring employment across our projects. Through this reliable project stream, workers earn sustainable income and can support their families; a positive impact on the local township economy. This addresses numerous SDGs: No Poverty (1); Zero Hunger (2); Quality Education (4); Decent Work & Economic Growth (8); Industry, Innovation and Infrastructure (9); and Partnership for the Goals (17).

Who

Our lead contractors are local builders with small, informal construction businesses that typically survive project-to-project. All team members are local and support families from the same communities in which they build.

How much

Our 69 homeowners each have a small rental property business up and running. Our 4 building contractors created approximately 2 950 temporary jobs across projects in 2023. Our contractors work on between 3-7 projects simultaneously. They purchased the products and services of 62 local SMEs in the construction industry in 2023. Bitprop directly invested ZAR 31 million (USD 1.7 million) into the township construction industry in 2023 through these local contractors – almost ZAR 10 million (USD 523 000) a month when at maximum output.

Contribution

Property businesses created for homeowners are more sustainable than available job opportunities. The intervention has an important contribution towards creating sustainable employment alternatives for the 16% unemployed homeowners who receive a significant average increase in income (63% immediately, 414% after partnership). For our contractors, the consistency of projects maximises efficiency in terms of team organisation, skills development and cashflow.

Risk

(refer to Addendum A)

External risk is medium; our contractors are not part of Bitprop and management of their companies is out of our control. Problems they face do not necessarily impact us directly and we are able to onboard new contractors quickly. In the short-term, however, reduced output or quality concerns may arise. Drop-off risk is medium, given that contractors can stop working with us at any point. This only occurs if we are unable to maintain a consistent pipeline of projects, forcing them to look for other work. In the last 2 years this has not occurred, as we have been able to provide an average of 6 new projects a month.

Affordable housing for tenants

In 2023, Bitprop built the equivalent of 3.5% of the Western Cape Government's 2022/23 housing delivery

Access to safe, affordable housing remains one of the most significant challenges globally, and the scale of the challenge is only expanding as urbanisation and population growth rapidly accelerate! South Africa's unique history means cities are geographically segregated, with low-income, less safe areas on the periphery and safer, more established suburbs located closer to the city centre.² Large government housing programmes, including the Reconstruction and Development Programme (RDP)³ and the Breaking New Grounds (BNG) programme,⁴ have built 3.3 million houses as of 2018.⁵ Unfortunately, this will never achieve the scale needed to solve the housing crisis and because of financial constraints, progress has largely



Bongani, a Bitprop tenant that works from home in Eersterivier, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

halted in the last few years. Newer programmes have focused more on inner city developments, often through private or third party developers, but this comes with added challenges such as neglecting development in the peripheral townships. Multiple solutions across different spheres of the housing spectrum are needed to address the shortage, and one of those is the provision of affordable rental accommodation in township areas where people can live safely in good environments within the communities they grew up in, rather than moving elsewhere.

The township construction context is generally very informal, poorly managed and inefficient in use of resources. Given that most backyard rental flats do not go through municipal approval nor comply with minimum quality requirements, there is a high prevalence of fire safety issues, a lack of formal connection to sewerage and plumbing, limited legal electricity connections that result in a higher risk of electricity-related accidents, poor security, a lack of natural sunlight, and poor air quality. These factors affect the overall health and well-being of tenants.⁶

In the last decade, a large amount of planning has been focused on the development of affordable or social housing, usually near the city

1. Morrison, 2023

2. Strauss, 2019

3. Department of Human Settlement of the Republic of South Africa, 2023

4. City of Ekurhuleni, 2021

5. Pretorius, 2019

6. Scheba, Turok and du Treu, 2022

centres. In Cape Town, only 1 of 11 social housing projects announced 5 years ago have actually been completed¹ and with the City of Cape Town having a waiting list of 367,592 people as of January 2023, the City itself has estimated that at the current rate of progress it will take over 70 years to erase the backlog.² Only 6 500 social housing units are currently planned across 50 land parcels! Between 1994 and 2024, the City of Cape Town's population increased by 106% to 4,9 million people.³

76% of Cape Town's population, approximately 3,7 million residents, earns below ZAR 22 000 (USD 1 158) per month, yet only 34% of the housing market caters to this income range. More than 500 000 houses need to be built to meet this shortfall.¹

During the 2022/2023 financial year, the Western Cape Government provided 5 380⁴ housing units. Bitprop's 188 rental units completed in 2023 is equal to 3,5% of the provincial housing output. Bitprop's consistent output of affordable housing addresses a serious problem affecting South Africa and the world; an estimated 3 billion people will live in sub-standard housing by 2030.⁵

1. Human, 2022

2. City of Cape Town, 2023

3. Macrotrends, n.d.

4. Department of Human Settlement - Annual Report 2022/23, 2023

5. United Nations, 2023



Disa Maputo, Bitprop homeowner with Buhle Gqola and Eric Malotana in Langa, Cape Town.

Photo: Tashriq Abrahams. Bitprop Architect

Bitprop built the equivalent of

3,5%

of the housing opportunities created by the Western Cape province in the 2022/23 financial year

Our rental flats are studio apartments that are designed to incorporate a double bed, and include well-designed functional kitchen spaces, built-in cupboards and workstations in the lounge area with natural light and ventilation. The en-suite bathrooms have toilets, basins and showers connected to formal plumbing and sewerage, efficient water heaters as well as prepaid water and electricity meters.

Our rental flats are built according to National Building Regulations based on location, and align with the City of Cape Town's vision for responsible densification for the future.¹ The flats have superior physical properties compared to traditional backyard rental flats, such as greater strength, better thermal retention and improved acoustic qualities due to the environmentally responsible materials used. For the tenant looking for accommodation in the township, our flats compare favourably with other options. While there are many backyard rental flats available, given the high demand and the fact that most do not meet the required building standards, our flats are very popular. Our homeowners, together with our homeowner relationship managers, are able to fill vacant flats almost immediately and our vacancy rate is less than 5%.



Six flats completed in December, 2023 in Blue Downs, Cape Town.

The typical Bitprop tenant is a young professional such as a nurse, police worker, call centre agent or a student with an average age of 31 years old. They earn, on average, well below the upper limit of ZAR 22 000 (USD 1 158) defined as requiring affordable housing.² They are attracted to our flats because of the quality of design, the support provided and their location relative to major transport hubs and retail spaces. The features of our flats and the location provide additional benefits through reduced transport costs and lower energy expenses for tenants.

1. City of Cape Town, 2023b

2. City of Cape Town, 2023a



Four flats completed in December 2023 in Langa, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

Improved affordable housing can also have an indirect effect that creates huge value. A homeowner in iLitha Park mentioned that she regularly gathers recyclable materials from her tenants to pass on to a local recycler in the community. This neighbour sells it to buyback centres and the influx of Bitprop tenants has inadvertently provided her with a boost in income that supports her and her family.



Bitprop's typical tenant:



Photo: Tashriq Abrahams, Bitprop Architect

Asanda and Phiwe

Age:

33 years old / 35 years old

Employment:

Assistant Manager / Teacher

Family status:

Couple

Context-specific details:

Opted for Bitpop because

- The flats matched their style, aesthetically
- The flats are in a safe area
- The flats are close to their workplaces
- The flats are close to transport nodes

Bitprop rental flats

Average rent charged
ZAR 3 450 (USD 184) excluding water and electricity

Amenities

Parking

DSTV connection ready for tenant's account

Wi-Fi connection ready for tenant's account

Individual water and electricity meters per tenant

En-suite bathrooms with showers

Kitchen and bedroom cupboards

Average size

18 sqm

Deposit required

1 month's rent in advance

Submitted for municipal approval

100% of builds submitted to municipality for approval



Six flats completed in July, 2023
in iLitha Park, Cape Town.

Photo: Tashriq Abrahams, Bitprop Architect

Typical backyard rental flats

Average rent charged
ZAR 2 500 - 3 500 (USD 132 - 184)¹

Amenities

Stand-alone rooms have shared bathroom facilities, while studio flats usually have en-suite bathrooms. Often, flats share informal electricity connections and some have hot water available!

Average size

12 sqm - 18 sqm¹

Deposit required

The deposit amount varies from flat to flat. Some flats require no deposit, others require references and others require one month's deposit or more!

Submitted for council approval

Majority do not submit to municipality for approval



Informal, unregulated flats
built in iLitha Park, Cape Town.

Photo: Claire du Trevou

Benefits

- High quality rental flat at market-related cost
- Comprehensive leasing and maintenance service provided
- Homeowner supported by Bitprop in property management - better communication
- Working-from-home possible (WiFi, working desk, water and electricity available)
- Always located close to transport

Challenges

- Standardisation of flats caters to majority but doesn't address every tenant desire, e.g. space in flat for individual washing machines (communal connection installed in storeroom instead), no stove included in the kitchenette (tenants bring their own two-plate countertop stoves)

Benefits

- Possible to find flats for cheaper than market average
- Possible to find flats with certain features not available in Bitprop flats, such as built-in stove

Challenges

- Often poor quality, not built according to National Building Regulations
- Increased risk of safety issues
- Often no property management service - poor communication, difficult to get maintenance done
- Often no formal lease agreement, both tenants and landlords vulnerable to being taken advantage of¹

¹ McGaffin, Spiropoulos and Boyle, 2018

Overview

What

Bitprop develops rental flats in Cape Town in the affordable rental accommodation segment, addressing a part of the affordable housing shortage. Each apartment has key infrastructure installed, including hot and cold water, prepaid water and electricity meters, a sewerage connection, a satellite TV connection, Wi-Fi access conduits, burglar guards and a security gate. This affordable housing addresses numerous SDGs: No Poverty (1); Zero Hunger (2); Quality Education (4); Decent Work & Economic Growth (8); Industry, Innovation and Infrastructure (9); and Partnership for the Goals (17).

Who

76% of Cape Town's population earns below ZAR 22 000 (USD 1 158) per month, but only 34% of the current housing supply addresses this income bracket, which includes the majority of our tenants. Our flats are ideal for individuals or couples who are young professionals and who prefer to live in the township, either because it is where they grew up, or to save on rent costs. Access to transport, convenience of location and affordability are key factors.

How much

Bitprop has developed 372 backyard studio rental flats, addressing the affordable housing shortfall and assisting to meet the targets of the City of Cape Town, which has delivered on only 1 of 11 social housing projects planned 5 years ago. Bitprop's affordable housing delivery is equivalent to 3,5% of the City of Cape Town's total housing delivered in the 2022/2023 period

Contribution

Had our flats not been built, alternatives available would most likely have been in the same areas, but more informal and more likely to have safety and security issues, poorer health environments and be less conducive to economic wellbeing. Without Bitprop's 188 new flats in 2023, the competition for quality affordable housing in these areas for this segment of tenants would be greatly increased and more tenants would have to settle for lower quality living, or pay higher rent levels in other areas.

Risk

(refer to Addendum A)

Evidence risk is low because despite the general lack of data in the segments we work in, renting as a concept is fairly ubiquitous and behaves similarly across segments. Our tenants are young professionals who are familiar with most rental concepts, even if these aren't always followed by landlords in a township environment. We are thus able to analyse rental behaviour with the same models as in the formal sector, where there is a huge amount of research available. Unexpected impact risk is medium, given that we are operating in a data-scarce environment and because our model of co-management with the homeowner introduces some complexity to the relationship with the tenant. As a whole, it works very well, but there is some uncertainty as to how this might adapt in new areas or rental environments.

Sustainable Model for Investment

Most initiatives that address impact themes such as those discussed in this impact report are run by NGOs and rely on government or external funding to some extent. What sets this model apart from others is that it is commercially sustainable. By creating a model that is sustainable for an investor to contribute capital into and receive a risk-related return, it allows the impact across these five impact themes to be sustainable too. While the work on the ground is operationally intensive and has required a lot of input by our team to get right, much of the work over the last 5 years has been on the other side of the model, ensuring financial sustainability showing investors that significant impact can be achieved in townships while preserving capital. Part of the complexity has been that we have been operating in an unknown environment with very little data to work with, meaning we've had to invest our own time and resources to show that it is possible. Now, with our model proven and with multiple investors having put their capital to work, we've been able to expand the impact across Cape Town and properly lay the foundations for expansion beyond South Africa.

With a ZAR 68,3 million (USD 3,6 million) investment, we are on track to achieve a 15,4%

annual return over 10 years for our investors. Our model has provided access to an attractive market that previously went unrecognised by formal capital. And with the foundations we have laid, we have been able to attract investment from our first commercial funder, LEAD Impact, which believes in the power of



Buhle Gqola and Anika Hanekom with community residents at an Open House in Langa, Cape Town.

Photo: Tashriq Abrahams. Bitprop Architect

private social enterprises as a way to create sustainable solutions to systemic inequality.

"LEAD is an impact-linked responsible financial services provider. Our primary strategic goal is to channel affordable debt to underserved communities in the most direct, efficient and effective ways. Bitprop has an innovative and unique business model that very clearly translates its activities into measurable value in the hands of individuals, avoiding the typical involvement of intermediaries that may cloud attribution and dilute the ultimate impact. With Bitprop's leadership actively driving the collection and learning from real data, coupled with customised technology that enables control over cash flows used by the beneficiaries to pay off their builds, Bitprop is able to maintain its impact risk at a reduced level." - LEAD Impact¹



¹Lead Impact Capital, n.d.

By partnering with our homeowners and developing their 'non-investible' land assets, we've created a new, investment-worthy asset class that offers sustainable, formal investment opportunities for both individuals and organisations. A key consequence of this has been to bridge the gap between the formal and informal property markets, empowering township homeowners to tap into the inherent value in their properties and create entrepreneurial opportunities for themselves, while enabling good-willed investors to support these entrepreneurs. This is a powerful mechanism to ensure that the impact achieved through enabling these new township entrepreneurs is truly sustainable and scalable.



Buhle Gqola, Joel Sköld, Zandile Nkompela, Nolitha Vanda, Disa Mamputa (homeowner), Eric Malotana, Ziyanda Mjobo, Vunene Xiluvane, Anika Hanekom and Lindokuhle Dyantysi at an Open Day in Langa, Cape Town.



Five key lessons we have learned



It is possible to invest in a successful business in the township

To date, we have built 372 rental flats and are on track for a 15,4% annual return over 10 years on a ZAR 68,3 million (USD 3,6 million) investment, which demonstrates that our impact model works. This fundamentally commercial model with impact ambitions challenges conventional corporate beliefs about the value of township business and showcases a transformative approach to investment.



The township rental market is incredibly resilient

Township rental rates are steadily increasing due to strong demand, a trend that has been consistent over the last 5 years. Despite the formal rental market experiencing default rates of over 40% during the pandemic, our properties saw only a 7-8% downturn in payments and maintained a low vacancy rate throughout, with occupancy averaging 92% from April 2020 to March 2021. In 2023, our average occupancy was 96.4%.



Tenants pay before the 1st of the month

Despite initial concerns from financial advisors about tenants not paying rent, we have achieved a 96.4% average occupancy rate and an almost 100% on-time rent payment rate. In fact, our tenants pay 2 days before the due date on average (1st of the month). Much of this is due to strong homeowner-tenant relationships influenced by township social dynamics, the homeowner's constant presence on the property, and our comprehensive management support.



The social contract keeps everything running

Much of our success can be attributed to strong social relationships among homeowners, tenants and the community. Strong homeowner-tenant relationships are influenced by township social dynamics and the homeowner's constant presence living on the property, which fosters close connections and social accountability.



We can employ locally and create financial returns at the same time

We've exclusively employed local contractors for construction, upskilling where needed and forging long-term partnerships. This approach supports local builders, challenges stereotypes about township talent, and proves that impactful flats can be built affordably to required specifications. The approach has a positive multiplier effect.

1. Fezile and Ntombethemba Jilana, homeowners in iKwezi Park, Cape Town.
2. Thabang and Bulelwa Ramaeli, homeowners in Eersterivier, Cape Town.
3. Xolisa Mbombo, a homeowner in Eersterivier, Cape Town.
4. Nonkosi Klaas, a homeowner in Langa, Cape Town.
5. Wilson and Nolitha Gopane, a homeowner in iKwezi Park, Cape Town.

Photos: Vunene Xiluvane

FUTURE KHAYELITSHA

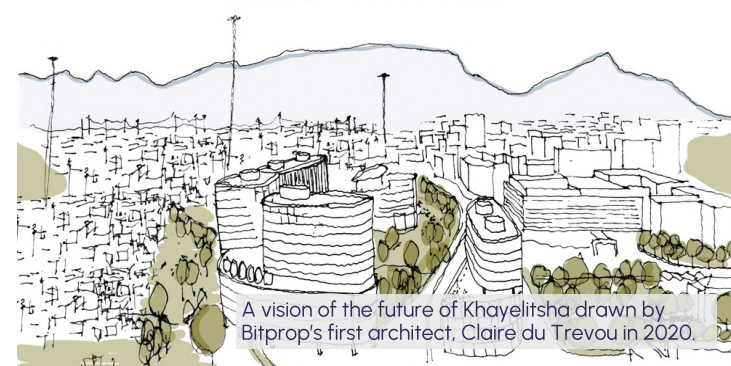


One of Bitprop's visions is to be a catalyst for other organisations to invest sustainably in the township. We've proven that it's possible with private capital, and there is potential for further models to be developed in different industries that bring impact beyond residential properties to different aspects of township communities.

The NowNow Competition was founded by one of Bitprop's first architects, Sebastian Hitchcock, and a Bitprop intern, Elohyem Da Costa, with the

aim of empowering a new generation of designers in an African context through bold and exciting problems that go beyond school or professional exposure. Bitprop has partnered with NowNow to bring innovative thinking like this to the townships. As we empower homeowners to start their property businesses and we stimulate the local construction economy, there is also significant potential for growth amongst the street traders, local shops and community organisations in the same areas.

FUTURE KHAYELITSHA



A vision of the future of Khayelitsha drawn by Bitprop's first architect, Claire du Treuou in 2020.

Launching in February 2024, this competition invites young creatives to think outside the box and asks them, "What is your 2030 vision for the future 'High Street' along one of Khayelitsha's most vibrant thoroughfares - Spine Road?"

Spine Road is less than a 5-minute walk from iLitha Park, which has Bitprop's biggest concentration of homeowners and tenants, and in the next 5 years we hope to be a catalyst for further private investment into vibrant communities like this one. The NowNow Competition is a vehicle to explore ways of doing this.

The competition aims to attract submissions from 100 teams of 2-3 designers each and will span across Africa. In February 2024, the competition will be launched in universities. As we complete our first 5 years, we look forward to being a part of this journey with NowNow and to envisioning what the next five years might look like in our 'Future Khayelitsha'.

THE NOW NOW ARCHITECTURE COMPETITION

Calling all architects, designers, urbanists, engineers, artists, makers and anyone with a passion for the future of our urban environments!

Participants can enter as teams consisting of 1 to 3 people, with only one team member required to register their team's details.

The deadline for applications is 30 June 2024 by 24:00 CAT

in partnership with **bitprop**

The Way Forward: A team that makes it possible

Over the last five years, we've ventured into uncharted territory and, as this impact report demonstrates, have developed a model that successfully addresses a number of societal challenges. Our greatest strength lies in our amazing team, which after expanding significantly in 2022, now has over a year of complex problem-solving experience and has developed a blueprint for growth in the future. The team's incredible drive was evident at our inaugural Open House in Langa, Cape Town. Conceived by our newest members on a Friday and executed the next day, this successful event exemplifies our internal drive for innovation and growth.

Where do we go next? We asked the team what motivates them to continue, why we are successful, and where Bitprop will be in 5 years.

Making impact a reality is important to everyone in the team, and our motivation is fueled by a collective understanding that there is a real need for it. "Government needs help from private sector players that are innovative, like Bitprop," says Nolitha. "With its scarce funding, Government would never be able to deliver enough houses to address the number of people that need it."

Anika finds motivation in "making life-long dreams a reality," and Tashriq is driven by the ability to "provide someone with the realisation of their dreams or goals" and that "to be able to play a part in bringing that to fruition is an intangible feeling that no one can take away."

Ziyanda values the job satisfaction that comes from positively changing lives, which Buhle agrees with, noting Bitprop's role in transforming individuals from township residents into property entrepreneurs.





While the need for housing remains constant, the team is under no illusions that it can predict the future. Brittany sees the model as being successful precisely because of the team's ability to adapt to the specific circumstances it finds itself in. "I think there's a lot of potential for the company to have a big impact outside of its current sector, and I want to help it get there because I truly believe in the impact Bitprop can have."

With that in mind, the future holds many possibilities. "In five years, I think Bitprop will have expanded into new territories in Africa and will be exploring new avenues through which to improve the socio-economic standard of the communities it works in," she concludes.

In a rapidly changing world, Bitprop recognises artificial intelligence as crucial for future growth. Jon sees AI's role in data analysis and trend projection helping to reduce costs and improve efficiencies in our financial model. AI could also identify behavioural patterns, connecting stakeholders with capital providers despite limited financial histories. The significant data we're collecting promises new, yet-to-be-realised opportunities for growth and impact.

"The need for affordable housing is irrefutably a



Jonathan Fisher,
CFO



Nolitha Vanda, Homeowner
Relationship Manager



Phumlani Tyali,
Maintenance Manager



Tashriq Abrahams,
Architect

global issue," says Jon. "The success of the Bitprop model lies in its culture and people. As long as we are able to remain true to our values and ethos, the model will continue to transform people's lives."

2024 will be about tweaking our processes with incremental improvements so that it can be applied at scale in many different environments where the impact is needed. As always, we are thankful for the input we've received from so many others around the world. To tackle such large social challenges and truly have an impact, many heads are needed and we welcome the help of others. If you have ideas, feedback or guidance to provide, please reach out! We'd love to chat. We look forward to a productive year that builds on the growth of 2023 and allows us to enable more homeowners to start their own property businesses.

info@bitprop.com



Vunene Xiluvane,
Content Manager



Zandile Nkompela,
Homeowner Relationship
Manager



Ziyanda Mjobo,
Construction Manager





Addendum A: Impact Frontier Risk Types

Noteworthy risk types are assigned in the 'Overview' of each impact section in this report, with a severity rating discussed (low, medium or high). The discussion is not exhaustive, but rather focuses on key risk factors for each theme.

1	Evidence risk	The probability that insufficient high-quality data exists to know what impact is occurring
2	External risk	The probability that external factors disrupt our ability to deliver the impact
3	Stakeholder participation risk	The probability that the expectations and/or experience of stakeholders are misunderstood or not considered
4	Drop-off risk	The probability that positive impact does not endure and/or that negative impact is no longer mitigated
5	Efficiency risk	The probability that the impact could have been achieved with fewer resources or at a lower cost
6	Execution risk	The probability that the activities are not delivered as planned and do not result in the desired outcomes
7	Alignment risk	The probability that impact is not locked into the enterprise model
8	Endurance risk	The probability that the required activities are not delivered for a long enough period
9	Unexpected impact risk	The probability that significant unexpected positive and/or negative impact is experienced by people or the planet

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