



Figure 1: Adapted from Krichel (2018)

HLUMANI PACKSHED FEASIBILITY REPORT



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1.0 BRIEF BACKGROUND MOYA WEKHAYA – OWNERS OF ‘HLUMANI’

Since 2014, a group of elderly female farmers from the neighbourhood have been successfully growing vegetables there in self-organization. They call themselves Moya Wekhaya (Homely Aura), they organised themselves into a co-operative and secured a land lease, developed garden beds, fenced the site, drilled a borehole, and installed irrigation. They also set up an office, some shaded area for bunching, meeting, and resting, using shipping containers. The Moya Wekhaya micro-farmers also acquired 2 tunnels for mushroom production which is yet to take off, just as well as they are also persevering to complete shading on all the garden beds to curb wastage by protecting their crops from excessive heat.

The Moya we Khaya community garden is based in Khayelitsha and has 11 members... who produce a huge variety of vegetables looking for homes now. Masses of asian greens (pak choi and tsat soi, lettuces, sweet potatoes, potatoes, a variety of radishes, golden beets, sugar snap peas, table celery, fennel, red and green cabbages, carrots, turnips and kale. In winter - broccoli, cauliflower, and broad beans... They can do their own bunching and bulking... (Moya Wekhaya: 2018)

The current Moya Wekhaya micro-farm site started as sandy soil which contained a few nutrients. They had to import copious quantities of compost and manure to transform the land into a fertile garden at relatively high costs.

The cooperative's planting methods are based on mixed cropping and crop rotation where farmers plant more than two kinds of plant species at the same time. When farmers mix several crops, it doesn't only ensure food security, but also promotes genetic diversity on the farm. Crop rotation is defined as 'the growing of a more or less definite and regularly repeated sequence of crops on the same area (Makhura & Kinyeki as cited by Kraai 2018). The principal purposes are to utilize most efficiently the resources of the soil and to control insects and diseases.



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2.0 ABSTRACT

“Based on the wishes and ideas of the farmers for the Hlumani Community Centre project, a first draft was carried out as a study project from 2018-2019 by an architecture student, Jennifer Krichel from the Faculty of Architecture at RWTH Aachen University. The results of the study work are based on the analysis of comparable centres in Cape Town, the location, the surroundings, and the existing structures / organizations as well as two workshops that were carried out with the participation of the farmers concerned in March 2019. The thesis developed a sustainability, design and room concept, as well as instructions for self-construction.” (Krichel: 2018)

3.0 EXECUTIVE SUMMARY

Moya Wekhaya as the owners of Hlumani, are the second largest and second most productive, but a leading township micro-farm in the Khayelitsha area, second only to Lentegeur Market who already have a packshed, transportation and an administrative system. Moya, the grower for the future Hlumani, had been growing and are in a transformative trajectory as their administration is taking a structure with the new personnel acquired from Elsenberg College. Access to market efforts are accelerated through future collaborations prospected with various entities and that will remain a moving target. Horticulture is planned going forward and is further aided by the extra labour provided by fulltime interns provided by the Masibambane Program.

This growth further inspires Moya Wekhaya to investigate and evaluate the need for a community centre amongst other things, consisting mainly of an agricultural market supplied by their packshed, which is the main focus of this document; a packshed for Moya Wekhaya.

The name of the packshed would be called “**Hlumani**” meaning “grow”. Hlumani would benefit all the Moya Wekhaya micro-farmers to clean, bunch, package and even store or cool in cool rooms whilst waiting to be delivered to customers.



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A month into the commissioning of the study and after viability and plausibility assessments in different scenarios of operating a commercial packshed for profit by becoming a middleman for other micro-farmers in the Khayelitsha and surrounding area; the commercial packshed aspiration was quashed in its tracks due to not standing any reasonable chances of success or profitability in the initial stage. Without donor funding to fund its day-to-day operations in the short to medium term, the feasibility study had to focus inwards. The preliminary viability exploration exposed the complexity and a cost imbalance in a cost-benefit ratio comparing the price expected by farmers versus the market price. The ambition of a commercial packshed had to be watered down in the short-term for Moya Wekhaya, especially after taking into consideration the numerous required administrative inputs that Moya is only starting to build for its small operation. The logistical inputs required like transportation to collect & deliver; overheads like labour, constant marketing, water & electricity; also became a deterrent. Hlumani would be required to have a market for their suppliers' or feeder farmer's products, which Moya is simultaneously developing its own access to market strategies for their own current produce, over-production, and excess, while this feasibility investigation is underway. At best it would break-even after a while when the other farmers would accept the market prices and consider selling to informal traders for any excess produce, whilst having exerted a lot of effort without return. A commercial packshed aimed for profit whose growers are organic micro-farmers expecting a high return in prices is not feasible in the initial stage.

The Hlumani Packshed Feasibility Study then ended investigating the necessity, desirability and whether it is practical and/or implementable that a small packing shed be erected to complement the value chain of its owners, Moya Wekhaya Community Garden, only in the short term. Then Hlumani in the short to medium term would be earmarked to enable the Moya farmers to sell their affordable organic fresh produce directly to market and cut out the middlemen, thus improving their revenue yield. As Moya strives to improve their logistics efforts in an effort to contribute to food security, both in their immediate locality and the Cape Town area at large; could in the



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second phase expand the HlUMANI Packshed to accommodate neighbouring farmers for their post-harvest handling needs, when it becomes viable.

A Packshed simply explained can be likened to a kitchen in a homestead or restaurant and is an absolute necessity for Moya Wekhaya. It is where their produce from the garden to the market would be cleaned, bunched, dried, and packaged or packed. The number one priority of a packshed is hygiene because food passes through and is handled, as is the case in every food handling facility, regardless of size.

This working document seeks to both ensure that going forward, the coordination between HlUMANI Packshed, as a post-harvest handling facility and an access to market or sales interface point, its supply chain should be synchronised and in tandem with its grower Moya Wekhaya. This document seeks to expedite the much-needed HlUMANI Packshed to the organic production value chain of the micro-farms. HlUMANI should enjoy a steady and planned supply to do what it's required to do: clean, bunch, pack, cool and take to market in the shortest possible time and within budget.

4.0 INVESTIGATION

4.1 METHODOLOGY

This packshed feasibility study, as presented in this report is as a result of:

- Developed questionnaire and conducted a workshop with the Moya Team to assess needs and challenges
- Analysed the administrative and technical capabilities of Moya Wekhaya to run its current business and future 'HlUMANI Packshed'
- Conducted interviews and discussion with 2 recently closed packsheds:
 - Harvest of Hope:
 - Mr Rob Small &
 - Ms Grace Stead
 - Mthunzi Farming Community: Ms Emma
- A physical visit to a currently operating packshed.



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- Lentegeur Market: Xolani & Toni
- A visit and interview to a nearby micro-farm
 - SCAGA: Ms Alakhe Zodidi Langa
- Discussed with Department of Agriculture.
 - Khayelitsha Office: Mr Ayanda Obose
- Discussions with the City of Cape Town.
 - Mr Shelton Nhiwatiwa
- Discussion with a prospective off-taker from SAFFRICON for the rare and high net worth Saffron.
 - Mr Bennie Engelbrecht
- Investigated returns in both organic & non-organic produce.
- Consulted regional agricultural stakeholders randomly.
 - Informal fruit & veg traders
 - Consumers
- Considered institutional matters related to such a proposed development with particular focus on legislation, its requirements, and processes.

4.2 Project Study Area

Khayelitsha (/ˌkɑɪ.əˈliːtʃə/) is a township in Western Cape, South Africa, on the Cape Flats in the City of Cape Town. The name is Xhosa for New Home. It is reputed to be the largest and fastest-growing township in the Western Cape. According to Krigel (2018) More recent estimates of the population in 2020 was 2.4 million. The ethnic makeup of Khayelitsha is approximately 90.5% Black African, 8.5% Coloured and 0.5% White, with Xhosa being the predominant language of the residents. Khayelitsha has a very young population, with fewer than 7% of its residents being over 50 years old and over 40% of its residents being under 19. 62% of residents in Khayelitsha are rural to urban migrants, with most coming from the Eastern Cape. In the communities of Enkanini and Endlovini, over 85% of the residents were born in the Eastern Cape. About 75% of residents identify themselves as Christian, and about 20% follow traditional beliefs; a small minority of residents identify themselves as Muslim.



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Khayelitsha is one of the poorest areas of Cape Town, with a median average income per family of R20,000 (US\$1,872) a year, compared to the city median of R40,000 (US\$3,743). Roughly over half of the households live in informal dwellings. Area: 43.51 square kilometres (16.80 sq. mi). Population: 391 749: 7,561.99 inhabitants per square kilometre (19,585.5/sq. mi) Households: 118,809: 1,976.31 per square kilometre (5,118.6/sq. mi)

The Khayelitsha Garden sites that form the core of this study are illustrated in Figure 1 below. The project location and the specific area of concern includes all gardens that will utilise the services of the Hlumani Packshed in the second phase. These include amongst others: Ubuhle bendalo, Masikhanye, Siyazama Community Allotment Garden Association (SCAGA), Feed the Khaltsha, Thurisang; and Abathethi.

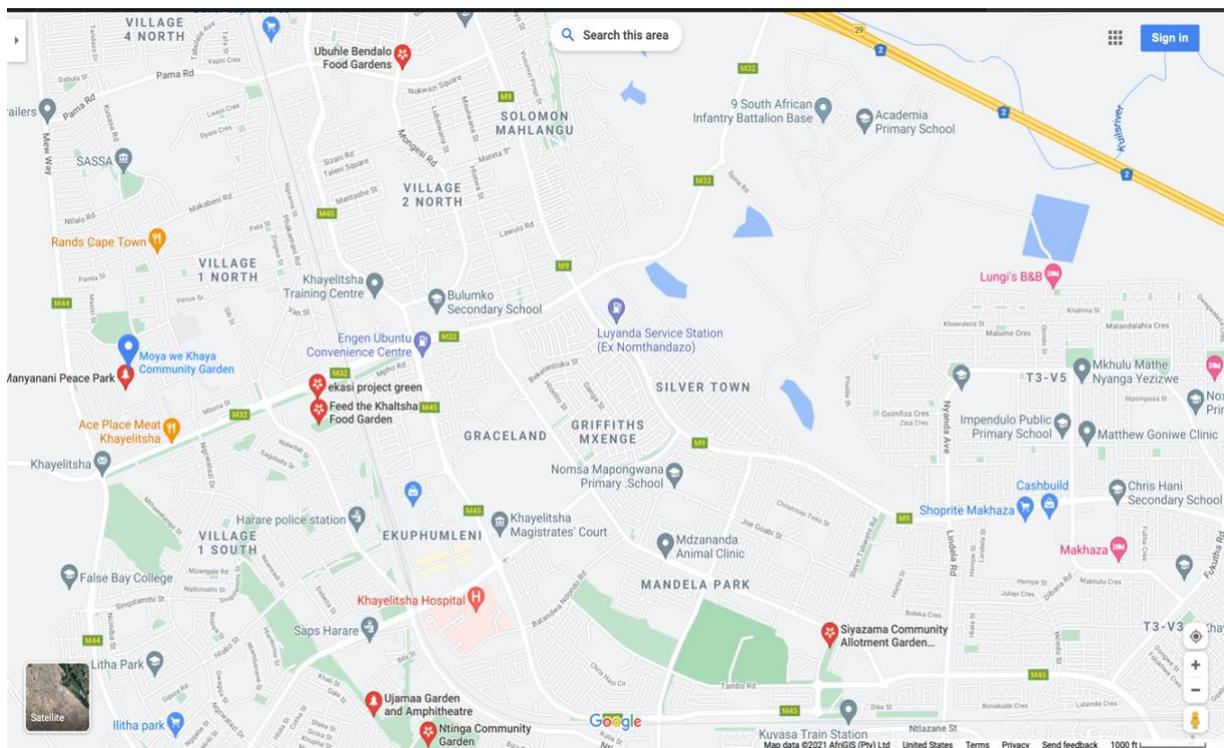


Figure 2: Map indicating location of Moya Wekhaya in the context of Khayelitsha (Image Source: www.google.com/maps/place/Moya+we+Khaya+Community+Garden)



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The heart of Khayelitsha is both identified as a Higher Order Civic and Regional Node as per the City of Cape Town's district plan, and is well serviced in terms of public transport, civic facilities, and commercial market opportunities. Several schools are present, supported by a library just south-east of the study area. A new library and e-learning centre as well as the upgrade and formalisation of various market facilities are planned adjacent to the government precinct next to the hospital, department of home affairs, magistrate's court, and other public amenities. This is part of the planned PTI (Public Transport Interchange) upgrade. The upgraded Khayelitsha interchange will then not only accommodate GABS (Golden Arrow Bus Services) and taxis, but also a MyCiti trunk route endpoint as part of the MyCiti trunk system running along. This route also presents some NMT (Non-Motorised Transport) upgrades (already completed)

4.3 Gardening Activity in the Area

The Garden sites are spread across with concentrated activity in Khayelitsha and Philippi.

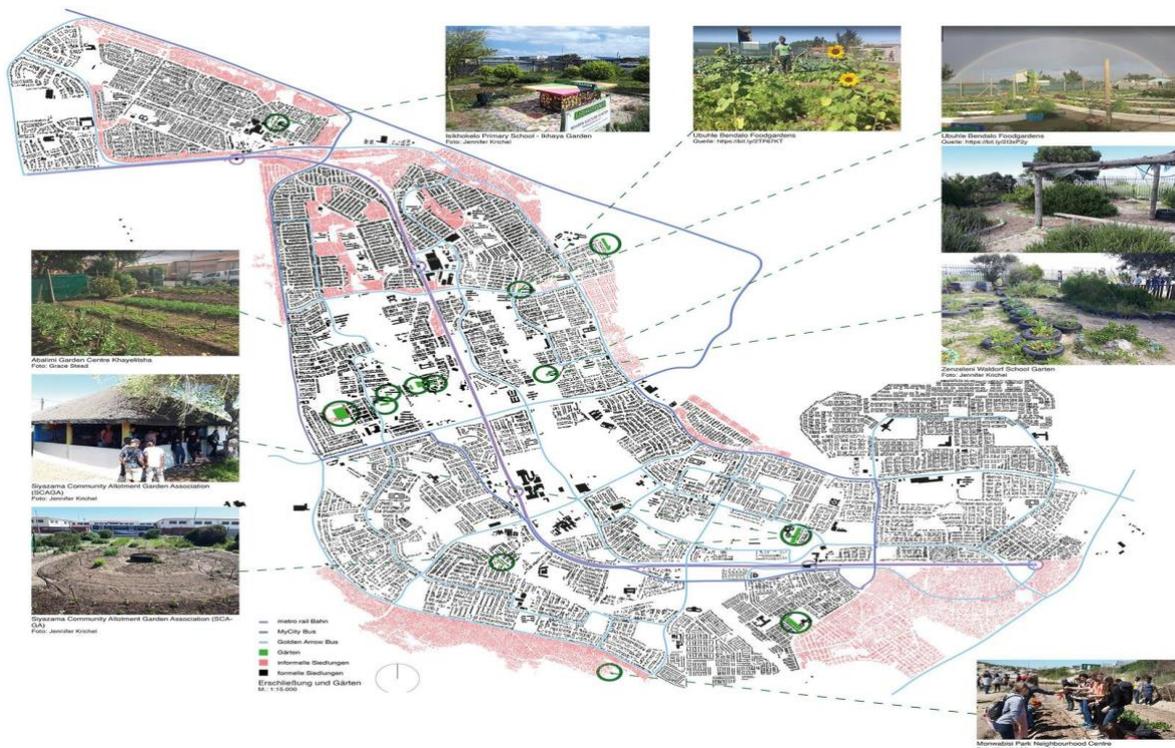


Figure 3: Map depicting proximity of Khayelitsha Gardens adapted from Krichel (2018)



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The rail stations running along the South edge of the Khayelitsha node is well connected to the Khayelitsha urban node via NMT routes, GABS, and taxis. This train line connects the city to a major transport interchange at Stock Road Station which mainly caters for inter-provincial travel to the Eastern Cape where an average of 10 busses and 20 taxis leaves on a slow day.

A very lively market and informal trading system is located on most of the key points along the major arteries. An extensive food market is located on corners adjacent and along urban nodes. Other shops, mostly located under informal market structures or within containers are present in strategic positions and along thoroughfares. Vegetable's vendors feature, but are not prominent, which is an opportunity.

5.0 HLUMANI - Project Site Information

5.1.1 Position, Context and Connectivity

The Hlumani Packshed will be on the Moya Wekhaya community garden land which is located on the South-Western edge of Khayelitsha in Section A's Kulani Park, one of the more urban residential areas of the township.

West of the site, it is serviced by good connectors such as the Mew Way Road which leads directly to the N2 Highway leading to the Cape Town city centre, Southern suburbs, and Strand, R300 freeway leading to the Northern suburbs. To the South of the site is Spine Road which grants Hlumani easy access to the other gardens or micro-farms as well as customers near and far, starting with Emfuleni, Khayelitsha, Mandalay, Mitchell's Plain Stellenbosch, and Somerset West.



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Figure 4: Aerial view of Hlumani & Moya Gardens adapted from Krichel (2018)



Figure 5: Map depicting proximity of Khayelitsha Gardens adapted from Krichel (2018)



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Figure 6: Pictures by MarkSampson© 2021| @marksampsonct

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5.1.2 Key Observations from Site Visits, Meetings and Interviews

5.1.2.1 SITE VISITS – CONTEXTUAL ENVIRONMENT SCANNING

Although not entirely necessary for Hlumani's phase 1, Moya Wekhaya's current administration and logistical challenges, and the required transactional environment scanning which would assist them to analyse both suppliers and the market for phase 2; some neighbourly visits and interviews were conducted as mentioned in 4.1. above, to fully understand in context the competitors and prospective suppliers or growers for Hlumani phase 2.

Moya had to be contrasted with other micro-farms and a nearby farm with an operating packshed for their own hygiene and efficacy purposes like Hlumani phase 1. The visits were for purposes of preparing for the urgently required Hlumani packshed so that the Moya farmers can maximise on revenues and become sustainable.

The packshed observed at Lentegour as well as online focus on standard hygiene principles and do not deviate from them, it is not even a compliance issue, except when people fall ill, and it is traced back to a packing shed they are in trouble.

Packsheds are configured according to the space available with a clear flow as illustrated in Appendix A, that produce comes in, it gets washed and depending on which crop, there are different methods for different types of crops, also illustrated in Appendix A, and continue to drying areas, followed by bunching, packing, packing, cooling and transported away to customers.

5.1.2.2 MEETINGS – KEY STAKEHOLDER ENGAGEMENT

There is also considerable eagerness of practitioners in the organic fresh produce marketplace to assist the Hlumani packshed once it is operational, regarding market penetration and value chain synchronisation. Some with smart and real-time market access with the latest 4IR innovations like mobile applications and free-open-source sales mechanisms which would assist Hlumani a great on churning inventory.



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5.1.2.3 INTERVIEWS – KEY STAKEHOLDER ENGAGEMENT

Harvest of Hope, Emma from Mthunzi and their employees as former middlemen and the Department of Agriculture, a SCAGA farmer, as well as Lentegour; are all in concert that most farmers including the ones mentioned in 4.2. above like Ubuhle bendalo, Masikhanye, Siyazama Community Allotment Garden Association (SCAGA), Feed the Khaltsha, Thurisang; and Abathethi, that:

- Micro-farmers average age is 60 years of age.
- Youth is not interested in farming, whether by lack of exposure or stereotype? That needs to be investigated further.
- Micro-farmers rely on grants and handouts.
- Very few farmers are organised in terms of administration and marketing.
- Only 1/3 of micro-farmers are Cooperatives and/or NGOs.
- 90% or more farmers are passionate and are very skilled with horticulture.
- All farmers are emotionally attached to their gardens.
- Very few of the farmers are business oriented.
- Most farmers would rather their produce rot in the ground if they won't get the price that they want.
- Most, if not all micro-farms follow organic production methods, with most being in the process of being certified as organic producers.
- All micro-farmers are struggling with access to market.
- All micro-farmers are struggling with administration, reporting and filing.
- There's a general mistrust between farmers and middlemen.
- Most farms struggle with logistics with no post-harvest facilities and transport.
- Middlemen who previously offered to provide post-harvest logistical services or support, claim that they ceased operating due affordability.
 - Farmers were never happy with prices offered by middlemen.
 - The cost of overheads couldn't be transferred to farmers and thus remained the burden of the intermediary.



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- There is a general feeling amongst the farmers that they were cheated by HOH and Mthunzi.
- There is still a general feeling that PEDI and ETHICAL are also cheating them.
- Farmers are satisfied with Oranjezicht City Farm prices as OZCF is direct access to market.
- Farmers are looking forward to the upcoming V&A organic market, which is a direct access to market opportunity.
- Most farmers' produce rots in the ground and go to waste due to lack of access to market, lack of production resulting over production and price disagreements.
- Farmers will cooperate with Hlumani's phase 2 commercial packshed if they are happy with pricing and Hlumani is transparent.

There's a general willingness to cooperate from other and neighbouring micro-farms/gardens for the second phase, as they eagerly await to be brought in confidence for their contractual buy-in, an opportunity to be further cultivated.

5.2 Feasibility Study Investigation & Compilation Challenges – Intended Schedule

The Project Implementation Programme for the Hlumani Packshed Feasibility Study planned timeline was sufficient to investigate whether the Hlumani Packshed is needed, desirable and feasible. There were no travel constraints due to COVID-19 Lockdown regulations. The collation of financial information continues as Moya speedily transforms. It had been a challenge before due to previous non-monitored administration diligence. Previous growers' production figures are also not included due to similar challenges and not having produced at full capacity, and or not harvested when there were no orders, thus not providing firm or consistent figures. In terms of the packshed, Hlumani is also a greenfield project with no track record in operating a post-harvest facility. The situation is continually being remedied even during the process of the feasibility investigations. This will aid the development of the packshed, and subsequent phases as live information will be available going forward.



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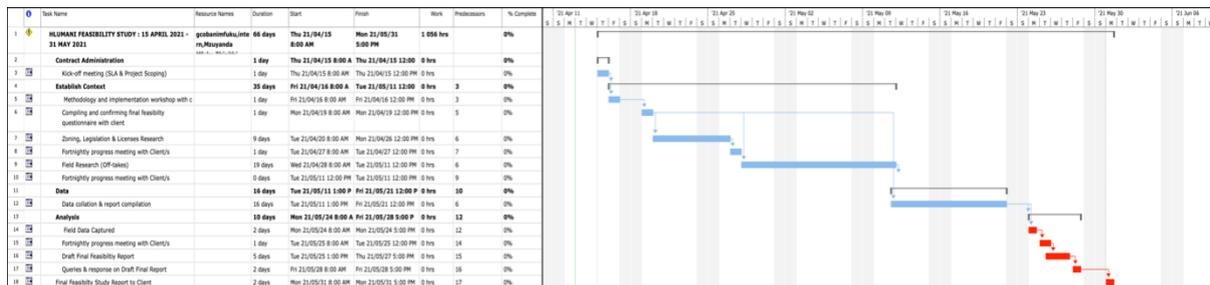


Figure 7: PROJECT IMPLEMENTATION PLAN

6.0 The Hlumani Packshed Feasibility Study

The feasibility analysis for the Hlumani Packshed is a projection and evaluation of the first phase for the Hlumani Community Centre project's potential for success, following and inspired by the thorough ground-breaking research in Jennifer Krichel's (2018) thesis. The perceived objectivity as an essential factor, forms the credibility of the study for potential investors and lending institutions. The technical feasibility assessment focused on the technical resources available to Moya Wekhaya, to which it was determined that their technical resources will meet capacity to run the Hlumani Packshed. The production, technical and business development teams will be sourced from the job market, they'll get trained for their specific and multiple tasks, so as to be capable of converting the idea of the Hlumani Packshed into a working packshed. They will be able to operate and evaluate the entire operations from receiving, washing, bunching, weighing, and packaging fresh produce.

The back-office personnel will operate and evaluate hardware like computers, software like 3rd party and free-open-source apps that would be used, other technical requirements, production planning, access to market and any other system that might be required in the future as they evolve.

Legal Feasibility - It was investigated whether any aspect of the proposed Hlumani project will conflict with legal requirements like by-laws zoning laws and health laws, to which effect all the applicable laws and requirements are attached herein in Appendix C. Moya is currently not in contravention of any laws. Hlumani would also not be in contravention if the packshed is only for the purposes of processing the crops and not a retail market for end consumers, but a pickup point for the customers.



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The City of Cape Town also provided guidance in terms of building permanent structures or installing permanent fixtures. After the building plans and costing are finalised, Hlumani will apply at City Connect, where the process is fairly simple and straight forward.

6.1 Operational Feasibility

Administration challenges, access to markets and logistics had been flagged as Moya's main challenges. A deep introspection undergone by the co-owners of the cooperative who are also individual gardeners, led them to a decision of hiring in capable and skilled personnel for administration, production planning and access to market; and let them do what they do best, gardening – producing crops.

For the next 24 months as of 01 June 2021, Moya will have an added capacity of 2 graduate interns from Elsenburg College. The interns bring with them the much-needed skills of horticulture and administration. The Elsenburg College has also made an undertaking to add more graduates as and when Moya needs them.

Moya will enlist the services of NGOs who have shown a keen interest to deal with capacity building in terms of scoping the technical expertise, skills needed, and all operational inputs required for the Hlumani Packshed. Therefore, the openness of Moya Wekhaya to attract the local youth to be capacitated to work at Hlumani should be actioned as a short to medium term objective. Furthermore, the willingness of NGOs; the cooperation of Department of Agriculture and the former Mthunzi, Ethical and others to come in to Hlumani to assist on a consultant basis 1 or 2 days in a calendar week in the beginning until they are sure that the Moya nominated or employed personnel; or even an outsourced outfit has the hang of running a packshed; as well as manage their own production planning, processes and relationships up and down their value chain to the end-consumer, and right back into their internal customers who are their labour/out-sourced-operator and/or the Hlumani personnel; right up to their inputs or produce suppliers.

As mentioned, the feasibility study is a working document that will be adapted to specifics when the final model is adopted whether to only pack for Moya in phase 1



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and then other farms in phase 2. The document will be constantly revisited even when plans have been finalised for the packshed (phase 1), or even when a decision could be reached to rollout and build the entire centre as per Jennifer Krichel's proposed architectural design in her thesis of 2018, from the onset.

6.2 Construction Scheduling

This assessment is very important for project Hlumani's success, as projects fail if not completed on time. The Hlumani scheduling feasibility analysis at a later stage will help identify any constraints the proposed project may face, including:

- Internal Project Constraints: Technical, Technology, Budget, Resource.
- Internal Corporate Constraints: Financial, Marketing, Export.
- External Constraints: Logistics, Environment, Laws, and Regulations.

The basic construction of a schedule revolves around a proper approach to Hlumani packshed development. The approach should be structured in a way that is simple to understand and yet provides enough detail for the experienced to glean the requirements used. This report should discuss tried and true approaches that have been developed through years of analysing and refining processes for schedule development. This approach will provide the structure to implement proven best practices to building an executable schedule. The step-by-step approach should be:

1. Developing the work breakdown structure (WBS)
2. Defining work packages
3. Defining activities
4. Defining logic
5. Defining resources and work
6. Defining timeframe
7. Analysing the schedule



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6.3 SWOT Analysis - Hlumani

Table 1: SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> ○ Farmers or growers are skilled in horticulture. ○ Farmers or growers are passionate about farming and production ○ Farmers adhere to the strict organic farming principles ○ Intern graduates – fulltime ○ Consistency & reliability ○ Good reputation & orderly ○ Willing to learn and innovate 	<p>Weaknesses</p> <ul style="list-style-type: none"> ○ Farming infrastructure <ul style="list-style-type: none"> ○ Bed garden netting (incomplete) ○ Farmers are too attached and subjective to horticulture ○ Farmers are challenged with administration ○ Farmers are not tech savvy ○ Current production planning ○ Logistics (currently) <ul style="list-style-type: none"> ○ Lack of packshed ○ No transport ○ Cooling facilities
<p>Opportunities</p> <ul style="list-style-type: none"> ○ Social media marketing ○ Production planning ○ Direct access to market <ul style="list-style-type: none"> ○ Mobile apps B2B ○ Mobile apps – end consumer ○ Box scheme ○ Future production planning ○ Scarce & High Yielding Crops: <ul style="list-style-type: none"> ○ Saffron ○ Crops on demand: <ul style="list-style-type: none"> ○ EGES* – Tomatoes ○ HGES* - Mushrooms ○ V&A Organic/Produce Market? 	<p>Threats</p> <ul style="list-style-type: none"> ○ Farmers are ageing ○ Farmers don't own the land ○ Crime/Safety <ul style="list-style-type: none"> ○ Fence ○ Caretaker/security ○ Hygiene ○ Health Inspectors ○ COVID-19 ○ Extreme Weather ○ Rodents ○ Domestic animals <ul style="list-style-type: none"> ○ Dogs & Cats

EGES = Easy to grow, easy to sell; HGES = Hard to grow, easy to sell;
? = not yet finalised



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SUMMATION

6.4 Conclusion

The Hlumani Packshed's position in the value-chain is inevitably a sales outpost as it interfaces with the market. Moya Wekhaya farmers then become growers for the Hlumani Packshed, which is long overdue. A typical cost effective and safe packshed as appended in Appendix A, would help the Moya Wekhaya micro-farmers to grow and sell all of their organic fresh produce. This would also mean that the local communities would have a fair access to organic food.

Moya as the growers for Hlumani are organic micro-farmers and are in the process of finalising their organic certification / authentication. Hlumani then should also continue advocating for fair farming and food policies, by building systems that organic family farms need to thrive. Hlumani should educate their neighbours and the community about local organic farming. More communities should create regional food systems that are good for consumers, good for farmers and farmworkers, and good for the land.

The Department of Agriculture in Khayelitsha has advised that since Moya has received two grants prior, they do qualify for a third one to develop the newly acquired 1 hectare. Since Hlumani is not yet registered, Moya Wekhaya as a Cooperative needs to apply for one last time for a grant, they ought to quantify and cost all the inputs required to develop or adapt the current space to a hygienic post-harvest facility and gardens that complements their current agricultural produce. An approved building plan fully specced with all the fittings should be submitted for the next funding cycle.

Temporarily or even permanently, for Hlumani Phase 1, one of the mushroom tunnels that is not utilised can be easily and cost effectively converted into a temporary packshed whose costing can be obtained effortlessly. This would expedite operations and get ready to sell to the immediate market through informal traders, who would consume all the excess or over-production.



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6.5 Recommendations

6.5.1 Access to Market

Micro-farmers should seek to access markets directly as a first prize. Farmers or growers must be workshopped to understand the cost of logistics and marketing and how it affects their bottom line. Similarly, the 3rd parties, middlemen or intermediaries should be able to either be transparent if they are operating on an NPO basis or a community outreach programme, of the costs to the farmers. When operating on a commercial basis be upfront with the bottom-line to the farmers with all costs of all inputs like logistics and marketing included and not surprise the farmers at the end. The disparity between the 3rd parties and the framers is repairable.

- Hlumani could scout for business development opportunities that would create access to markets, as well as accessing the local community market, that way Hlumani would do more post-harvest work and will yield better margins.
- Hlumani as an outpost should sell all Moya's excess produce to the informal traders in Khayelitsha for whatever price comparable to the conventional market.
- There are several mobile applications and platforms. Hlumani could source and provide e-commerce and digital platforms for ease of access to market.

6.5.2 FUTURE – Research and Development (R&D)

6.5.2.1 NEW, VIABLE & SCARCE CROPS FOR HLUMANI, BY THE GROWERS (MOYA WEKHAYA)

Further investigations by growers into crops like Saffron and other scarce and very high yielding crops which could improve revenue for the Hlumani Packshed and Moya Wekhaya by extension. Even before Hlumani being constructed, prospective off-takers like Saffricon would like to conduct soil suitability, after which, an off-take agreement could be signed. So, the research and development needs to continue into perpetuity so as to innovate, and adapt to trends and demands.



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The future of the micro-farms lie in high yielding crops as the farmers are not happy with the current status quo. Their cultivating spaces are very small for any of them to notice a difference. For instance, the amount of time it takes for 1 farmer to produce 100 cabbages in their limited space versus the return is chalk and cheese, too much effort & time – very little return.

6.5.2.2 SAFFRON - DESKTOP RESEARCH BY: PHINDISWA KOKISI; GRADUATE INTERN FROM ELSENBERG COLLEGE, STATIONED FULLTIME AT MOYA WEKHAYA



Description

Saffron is a spice derived from the stigmas of the fall-flowering plant *Crocus sativus*, a member of the iris family. It is native to Asia Minor, where it has been cultivated for thousands of years. Saffron has often been described as a spice that is worth more than its weight in gold and it is used in a variety of applications such as food, beverages, and medicines. At the moment, the majority of demand comes from herbal medicine, perfumery, textile dyeing, and cooking spices. Real saffron can cost you over R137 836,00 per kilo.



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Reasons for being costly and valuable

Climate - Growing saffron is a difficult task. It thrives in extreme temperatures, both cold and hot, so any change in the weather can have an impact on its growth. It flourishes in climates with cold winters and hot, dry summers.

Harvesting - Saffron grows inside crocus flowers and must be handpicked, which is a difficult and time-consuming task.

Scarcity - Almost 400 flowers are required to produce one gram of saffron. Long, deep-red threads also have the most flavour, so the chances of every flower producing a perfect product are slim. Because each flower only produces three stigmas, it will take approximately 75,000 crocus flowers to produce 0,453592 kilograms of saffron.

Saffron cultivation and its requirements

They are propagated from corms, a fleshy bulblike root that's planted in summer for an autumn harvest. Summers and autumns must be reasonably warm and dry, though a little rain is acceptable. Because saffron does not tolerate heavy or wet soils, the soil should ideally be light, sandy, and well-drained. It also requires full sun position.

To improve soil drainage - Make a hole that is at least 12 inches wide and 12 to 18 inches deep. For the test to work, it does not need to be precisely measured. Fill the hole halfway with water and allow it to drain completely. Fill the hole once more and record the depth of the water. For the next two or three hours, take depth measurements every hour. The water level in well-draining soil will fall at a rate of at least one inch per hour.

Requires full sun position - For example, your garden may receive three to four hours of direct sunlight in the morning, followed by a break in sunlight around lunchtime, and then full sun for the rest of the day. Full sun is defined as at least six or more hours of direct sunlight per day within a given area. However, the strength of the sun varies depending on the time of day as well as the season.

Conclusion

Saffron is the most expensive spice in the world, due mainly to the labour involved in cultivation, harvesting, and handling. The high price of saffron is due to production limits



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and increasing demand for the spice. Saffron crocus thrive in full sun, well-drained soil that is moderately rich in organic matter. In the summer, when the corms are dormant, the site should be generally dry. Because of its environmental requirements, Cape Town is the greatest area to produce this species.

The growers' extra mushroom tunnel that is yet to be utilised, except the one to be converted into a packshed, could also be very easily suited for tomato production, which was highly recommended by Mthunzi, Harvest of Hope and other stakeholders informally interviewed.

A further economic feasibility assessment would need to be conducted for the second phase, typically as a cost/benefits analysis of the project to help Moya to determine the viability, cost, and benefits associated with the project before financial resources are allocated. It should be an independent project assessment that will enhance project credibility and further aid the decision making and determining the positive economic benefits to Moya that the proposed Hluman phase 2 project could provide.

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 <p>Moya Wekhaya Community Garden</p>	<p>HLUMANI PACKSHED: FEASIBILITY STUDY</p>	<p>Doc Ref : HLMN-FS Rev : Final Page : 6-25 of 32</p>
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6.5.3 Applications & Websites suitable for Micro-Farmers

- <https://goodfoodnetwork.co.za/about/>

The Good Food Network:

- is a mapped platform that uses geolocating to connect the public with local organic and natural food places, skills, and services closest to them
- encourages personal relationships and direct transactions to build trust and accountability between small businesses and conscious consumers
- helps to reduce food miles, climate change and environmental impacts by promoting non-toxic, chemical-free food made locally
- helps ethical retailers, artisanal food makers, natural and organic farmers, service providers, get exposure to more customers
- helps small food producers shorten the supply chain, increase their profit margins, and operational efficiencies
- saves food entrepreneurs many thousands of rands in setting up their own website and e-commerce stores
- provides food entrepreneurs with efficient systems to take orders, take payments, generate invoices, track transactions, manage stock levels and communicate with customers
- promotes practices that pay fair wages and invest in community empowerment

Places listed on Good Food Network fulfill at least one of the GOOD definitions listed at the top of the page, being GOOD for people, earth, or local economies, and should be committed to always improving.

Honesty and transparency with customers about where they are on their journey is a platform requirement.

- <https://localfoodnodes.org/en/find-out-more>

“Who are creating local food nodes in order to connect local food producers to local food consumers as well as strengthening those relationships that already exist. We



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want to enable direct transactions, resilient communities and regain control over what we eat and how it is produced. A desire to make food local again.

The result of this desire is an open digital tool where food producers present their food, local consumers order what they like and payments go straight from consumer to producer. Deliveries and pick up of food takes place at a predetermined place and time, this is called a node, this is the physical location where the consumers and producers meet. This type of organization enables producers to deliver to multiple consumers at the same time while consumers can pick up food from many different producers.

With Local Food Nodes we also want to create an open and collaborative crowdfunding tool to enable increased future food production, a healthier agricultural system and to relocalize economic activity.

By using the platform and supporting the project you can help co-create and co-finance a new model for local food production and distribution. Yearly membership fees, that all consumers self-determine the size of, will help make it just as useful as we, together, choose it to be.”

- <http://ucangrow.earth>

“ U Can Grow Africa (Pty) Ltd provides a wholistic approach to establishing collectives of small-growers that together create economic scale to source primary inputs, involve experienced supporting farmers and thereby supply into the formal supply chains. This is underpinned by our technology. Our objective is to break the downward poverty cycle of rural communities through the creation of a shared value vertical supply chain for high value agricultural production systems. We use this supply chain to empower and enable rural subsistence farmers to become successful agripreneurs linked from “Seed to Label” into the mainstream local and export market. We focus on complimentary high value and rotational crops such as essential oils, pharmaceutical and medicinal crops, superfood crops, etc. Vegetable crops and animal husbandry are also introduced and organised to contribute to food security and childhood nutrition in



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these rural areas in order to create robust frameworks for sustainable livelihood creation.

The objective of this program is to unlock and harness the enormous untapped potential of food systems to drive rural agro-industrial development, boost small-scale farmers' productivity and incomes, and create additional employment in expanding segments of food supply and value chains. Our transformation agenda will address current structural deficits to create wealth for smallholder community agricultural co-operatives through the following mechanisms

Key Services Offered :

The business has three main areas of expertise for residential and business premises:

- A structured contract farming and beneficiation participation model that locks-in off-take agreements to power win-win market linkages that help de-risk and micro-finance smallholder farmers
- Bringing together of smallholder farmers into a larger program linked into out-grower programs with existing farms in the greater area unlocks bulk buying power, selling power and shared access to infrastructure
- Cutting-edge technological solutions that link individual farmers into a cooperative that works, making it easy to achieve quality gateways, link into markets, and receive capacity and skills development
- Hands-on training and provision of ongoing field agent farmer mentoring to build capacity and establish a self-sustaining and self-sufficient local economy
- Igniting the ability of communities to unlock economic benefit through micro-learning that teaches communities how to maximise the economic value of their assets, and how to save and grow their money
- Data driven impact monitoring that educates, motivates, and incentivises people to open their own road from poverty to prosperity
- Personal ownership and an empowered mindset, will help turn individuals, their families and communities into agri-preneurial assets to the country”



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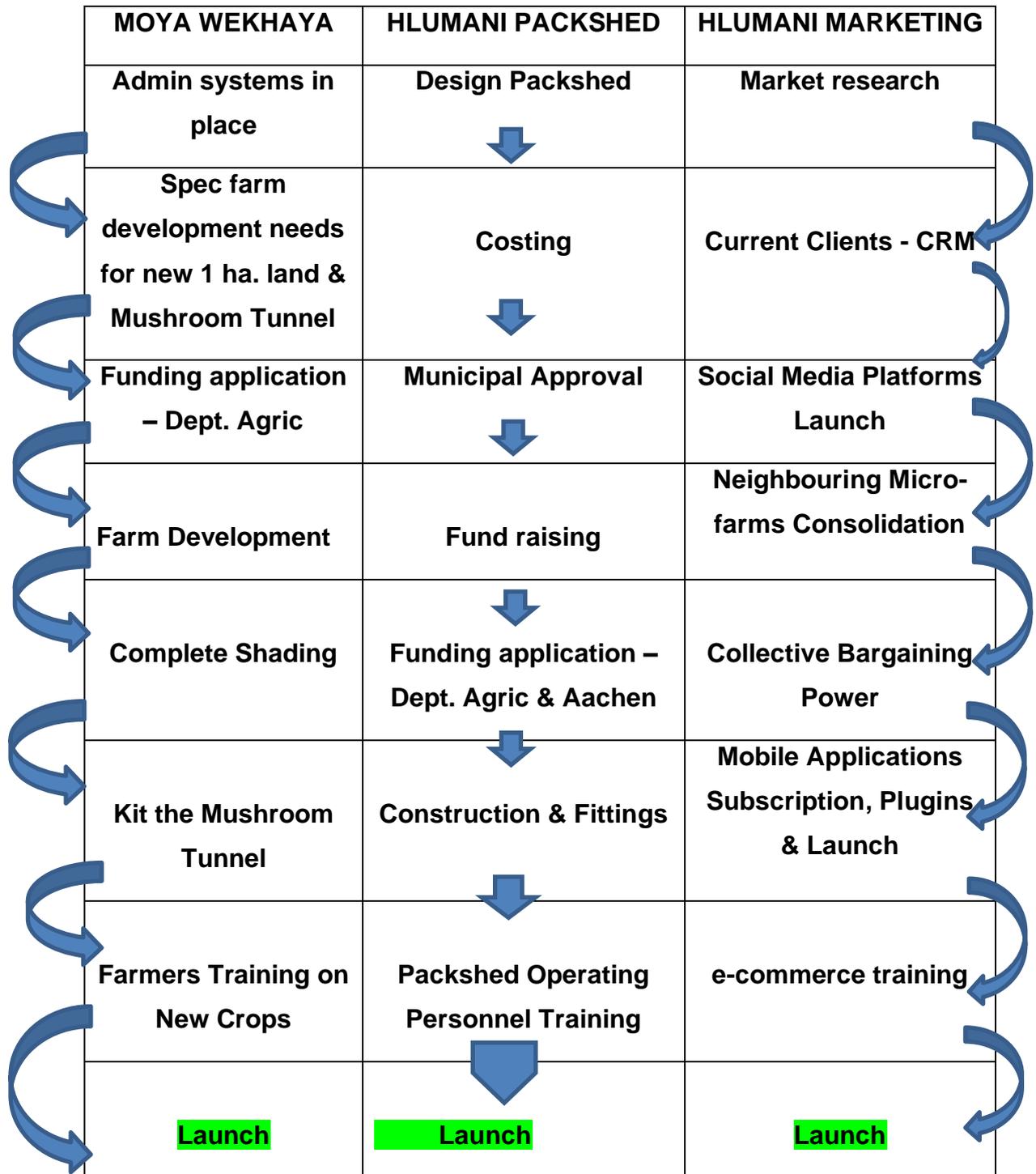
6.5.4 Developing the Hlumani Packshed

Table 2: Risks vs Economic & Social Impact

6.5.4.1 Risks identified:	6.5.4.2 Economic and Social Impact:
<ol style="list-style-type: none"> 1. Lack of buy-in from other micro-farmers. 2. Micro-farmers operating in silos. 3. Lack of funding. 4. No new markets. 5. Shrinking organic market. 6. Prices and demand for organic produce. 7. Lack of proper management & structure. 8. Lack of off-take agreements. 9. Sustainability. 10. Lack of promotion and market development. 11. Compliance: health and safety, certifications. 12. Environmental and seasonal limitations - climate change. 13. Extent and duration of production vs demand. 	<ol style="list-style-type: none"> 1. Healthy eating at affordable prices. 2. Centralisation of production management, therefore better bargaining power for inputs and selling prices. 3. Increase profitability and diversification of produce by farmers. 4. Create direct employment for the youth 5. Local community buy-in and support 6. Create new local fresh produce market. 7. Attract funding and investment for all farmers in Khayelitsha 8. Contribute to local economy 9. Scalability for Moya & collaborating farms to make it a success story 10. Create business opportunities in the value chain e.g., transport and logistics as well as tourism opportunities. 11. New partnerships and access to new markets i.e. retail market and support from their foundations e.g. Pick n Pay 12. Skills transfer for continuity. 13. Health and hygiene benefits from supply of produce.

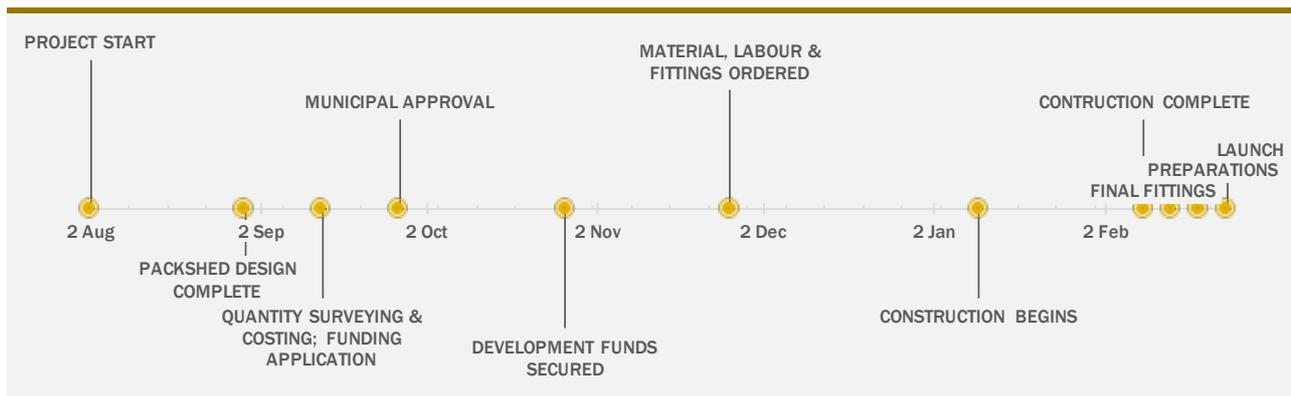
6.5.5 FLOW DIAGRAM - SIMULTANEOUSLY

Table 3: Simultaneous Flow Diagram



6.5.6 PROJECT TIMELINES

PROJECT TIMELINE



Hlumani Packshed Construction (HPC) - PROJECT DETAILS

DATE	MILESTONE	POSITION	BASELINE
2 Aug	Project Start	25	0
30 Aug	PACKSHED DESIGN COMPLETE	-10	0
13 Sep	Quantity Surveying & Costing; Funding Application	-15	0
27 Sep	Municipal Approval	15	0
27 Oct	Development Funds Secured	-15	0
26 Nov	Material, Labour & Fittings Ordered	15	0
10 Jan	CONSTRUCTION BEGINS	-20	0
9 Feb	Construction Complete	20	0
14 Feb	FINAL FITTINGS	-15	0
19 Feb	Preparations	15	0
24 Feb	LAUNCH		0

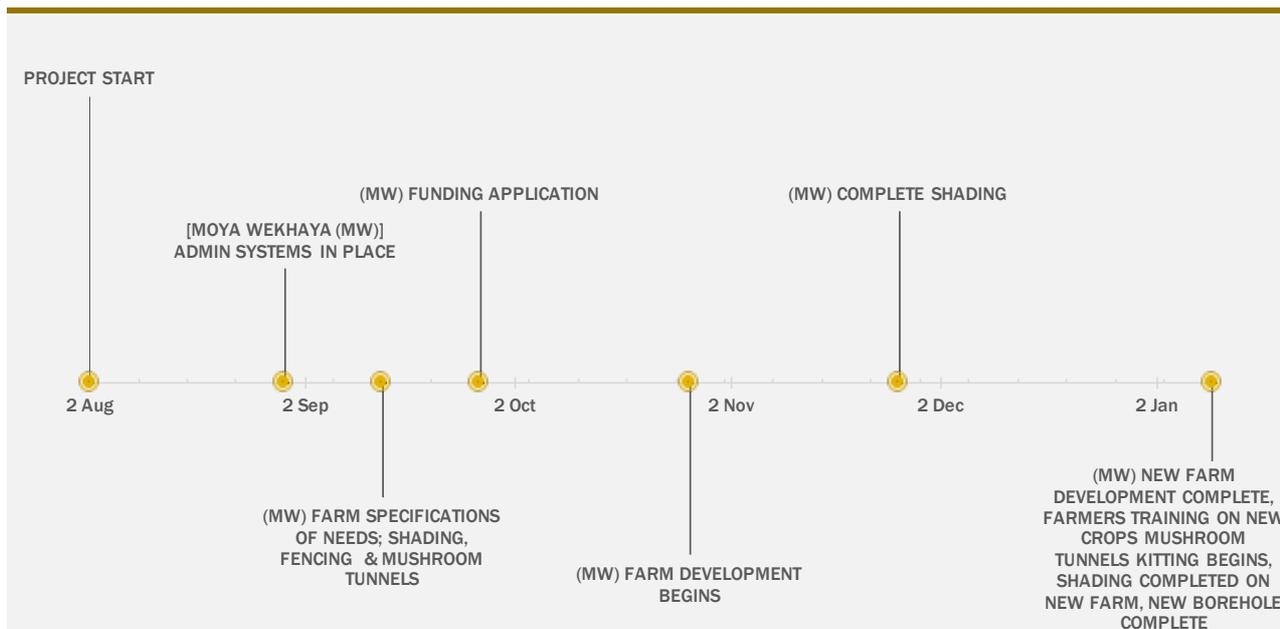
HLUMANI MARKETING PROJECT TIMELINE



PROJECT DETAILS - HLUMANI MARKETING

DATE	MILESTONE	POSITION	BASELINE
2 Aug	Project Start	25	0
2 Aug	[MARKET RESEARCH COMPLETE	15	0
16 Aug	(HM) CRM to existing clients and prospects	-15	0
30 Aug	(HM) Social Media Launch	15	0
29 Sep	(HM) Neighbouring Farms Heads of Agreement for Hlumani Packshed Utilisation	-15	0
29 Oct	(HM) Collective Bargaining Power, clubbing with other microfarms to access market as a collective.	15	0
13 Dec	(HM) Mobile Apps, Subscriptions & Plugins, E-Commerce Training	-20	0
12 Jan	(HM) New Off-Takes & Sales Missions Ongoing	20	0
17 Jan	(HM) Sales Ongoing	-15	0
22 Jan	Prep	15	0
27 Jan	(HM) Sales Ongoing		0

MOYA WEKHAYA PROJECT TIMELINE

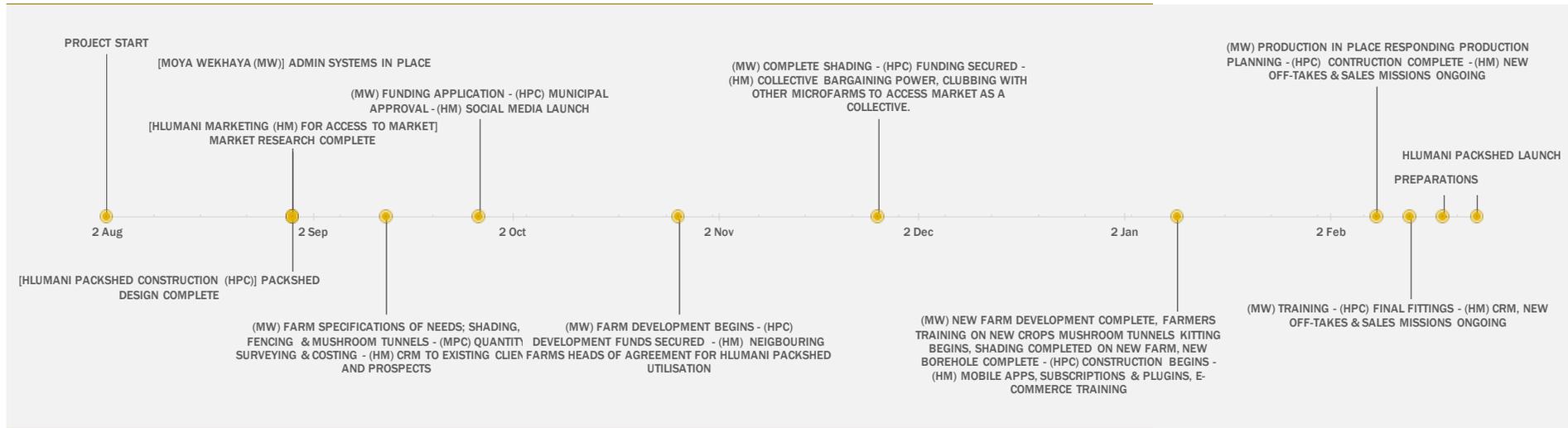


PROJECT DETAILS

DATE	MILESTONE	POSITION	BASELINE
2 Aug	Project Start	25	0
30 Aug	[Moya Wekhaya (MW)] ADMIN SYSTEMS IN PLACE	10	0
13 Sep	(MW) Farm Specifications of Needs; Shading, Fencing & Mushroom Tunnels	-10	0
27 Sep	(MW) Funding application	15	0
27 Oct	(MW) Farm Development Begins	-15	0
26 Nov	(MW) Complete Shading	15	0
10 Jan	(MW) New Farm Development Complete, Farmers Training on New Crops Mushroom Tunnels Kitting Begins, Shading Completed on New Farm, New Borehole Complete	-15	0

HLUMANI SIMULTANEOUS PROJECT TIMELINE

[MW = MOYA WEKHAYA; HPC = HLUMANI PACKSHED CONSTRUCTION ; HM = HLUMANI MARKETING]



PROJECT DETAILS [MW = MOYA WEKHAYA; HPC = HLUMANI PACKSHED CONSTRUCTION ; HM = HLUMANI MARKETING]

DATE	MILESTONE	POSITION	BASELINE
2 Aug	Project Start	25	0
30 Aug	[Moya Wekhaya (MW)] ADMIN SYSTEMS IN PLACE	10	0
30 Aug	[Hlumani Packshed Construction (HPC)] PACKSHED DESIGN COMPLETE	-10	0
30 Aug	[Hlumani Marketing (HM) for Access to Market] MARKET RESEARCH COMPLETE	15	0
13 Sep	(MW) Farm Specifications of Needs; Shading, Fencing & Mushroom Tunnels - (MPC) Quantity Surveying & Costing - (HM) CRM to existing clients and prospects	-15	0
27 Sep	(MW) Funding application - (HPC) Municipal Approval - (HM) Social Media Launch	15	0
27 Oct	(MW) Farm Development Begins - (HPC) Development Funds Secured - (HM) Neighbouring Farms Heads of Agreement for Hlumani Packshed Utilisation	-15	0
26 Nov	(MW) Complete Shading - (HPC) Funding Secured - (HM) Collective Bargaining Power, clubbing with other microfarms to access market as a collective.	15	0
10 Jan	(MW) New Farm Development Complete, Farmers Training on New Crops Mushroom Tunnels Kitting Begins, Shading Completed on New Farm, New Borehole Complete - (HPC) CONSTRUCTION BEGINS - (HM) Mobile Apps, Subscriptions & Plugins, E-Commerce Training	-20	0
9 Feb	(MW) Production in Place responding Production Planning - (HPC) Construction Complete - (HM) New Off-Takes & Sales Missions Ongoing	20	0
14 Feb	(MW) TRAINING - (HPC) FINAL FITTINGS - (HM) CRM, New Off-Takes & Sales Missions Ongoing	-15	0
19 Feb	Preparations		0
24 Feb	HLUMANI PACKSHED LAUNCH	15	0



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