THE CASU INITIATIVE

THE MAKING OF AN AFRICAN DEVELOPMENT SUCCESS STORY

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Executive Summary
Poverty is the leading challenge facing Sub-Saharan Africa. Agronomic practices and technologies remain infrequent in most regions, leaving small-scale farmers with substantially low crop yields and food insecurity. This is a reality in Rwanda, one of the fastest growing economies on the African continent.

Agriculture is Rwanda’s largest economic sector. It accounts for a third of GDP and employs 80% of the local workforce. Yet more than 60% of the population live on less than $1.25USD a day (World Economic Forum, 2019). The CASU (Controlled Air Storage Unit) initiative aims to alleviate food insecurity in rural communities through providing safe and accessible storage services. This project will be piloted in Rwanda’s Eastern Province where according to national statistics, over 45% of local households are food insecure (Nordic Development Fund, 2018).

This venture will require a capital investment of $10,000USD. This will fund the outfitting of rented shipping container units from African Shipping Logistics (ASL). CASU will partner with the national shipping and logistics services company to also transport containers between rural provinces and Kigali. Initial investment will further fund daily servicing of the climate-controlled units to maintain high crop quality before goods reach processing factories in Kigali. This will help sustain the growth of the CASU project and support the economic development of rural communities through higher prices for grown crops.

This low-cost venture has an estimated internal rate of return of 62% and is forecasted to make 40,933USD in profit in its 6th fiscal year.

Business Overview
The Opportunity
Rwanda is the most densely populated country in Sub-Saharan Africa. Approximately 90% of the population are engaged in subsistence farming, with the majority located outside Kigali (Forbes, 2012). Land scarcity and a lack of financial activity beyond Kigali has led to insufficient rural access to marketplaces and low levels of commercialisation. This has created a market gap in greater demand for local agricultural product. Cooperative initiatives have largely led the fight against food insecurity in rural provinces. However, the focus on local community improvement has neglected consideration of wider market needs. Knowledge deficits and inaccessibility to larger markets are contributing factors to the shortfall in poverty reduction and food insecurity in Rwanda (UNICEF, 2019).

CASU aims to solve this by providing market access to rural communities. Piloting the programme in Rwanda’s Eastern Province, CASU will base human resources and marketing operations in the provincial capital of Rwamagana. The project will service communities in this region as well as Ngoma, another rural district south of Rwamagana. Both areas host the largest proportion of Rwanda’s perennial crop farms growing namely maize, cassava, and beans. These are cultivated by over 50% of local agricultural households (Agroforestry Rwanda, 2010).

Business Objectives
CASU aims to provide greater food security and economic empowerment to rural communities. Rwanda’s national income of $550USD per capita reflects a rural poverty rate of 49%, rising to 76% for families reliant on agricultural activities in districts such as Rwamagana and Ngoma (The World Bank, 2013).

CASU’s vision on poverty reduction will be achieved through providing safe, temperature-controlled storage for rural farmers’ crops and accessibility to the wider market. CASU’s on-ground team members in Kigali and partnership with ASL will offer sustained livelihoods beyond subsistent farming.
Product Overview

Design

The climate-controlled storage space will be outfitted in a commercial shipping container. The containers (Figure 1) will be configured to protect stored items from Rwanda’s regional weather unpredictability. Variable temperate, rainfall patterns and limited irrigation infrastructure in Rwanda’s Eastern Provinces were considered in the conception of this design.

The container configuration will offer a HVAC unit, battery-powered lighting and ExtraFresh technology. This controlled climate technology allows for the long-distance transport of time-sensitive cargo. ExtraFresh allows maize, cassava, and beans to be stored for up to 10-15 days before quality begins to deteriorate (African Shipping Logistics, 2019). This ensures farmers receive higher market prices for crops when delivered on a weekly basis to Kigali.

Affordability

With no rail link to Kigali and few all-weather roads, CASU aims to limit transport costs. The partnership with African Shipping Logistics (ASL) transport services allows CASU to both rent the containers and outsource transportation. The conception of outfitting shipping containers significantly eases movement of storage units.

The availability of differing container sizes allows CASU to also pilot its initiative at different storage capacities. Affordability further extends to upkeep; lower temperature-control costs associated with containers make this an inexpensive option compared to other market alternatives.

Figure 1 Controlled air container concepts with modified storage spaces developed by Falcon Studios, 2019
Market Analysis

Socio-economic Development

Rwanda has largely maintained political stability following the 1994 Genocide, recently ranking as the most business-friendly country in East Africa (World Bank, 2019). Low rates of corruption and a national emphasis on innovation has accelerated economic development.

The current government of Rwanda has successfully carried out administrative reforms with the aim to transform the country into a regional technology and service hub. Diversification of the economy and private sector growth has seen GDP per capita increase from USD$228 in 1995 to USD$718 in 2014 (World Bank, 2019). The economy is projected to grow at 7.8% in 2019 and 8.0% in 2020, supported by an increase in exports resulting from the Made in Rwanda policy (African Development Bank Group, 2019).

Agricultural Sector Analysis

Coffee and tea are Rwanda’s main sources of foreign exchange. Yet traditional goods such as potatoes, cassava, maize and beans are the most productive crops (International Food Policy Research Institute, 2019). As of 2019, the Government of Rwanda (GoR) has increased investment in smallhold agriculture to support sector progression. Crop intensification through land consolidation is one of the leading strategies to create market value chains highlighted in Figure 2.

Operations Strategy

CASU will base operations in Rwamagana, the provincial capital of the Eastern Province. Rwamagana is a geographic hotspot supported by new business commercialisation and transportation infrastructure seen in Figure 2. The district is a popular freight hub due to its geographic location between Kigali and Tanzania. This will make CASU more accessible working in partnership with African Shipping Logistics (ASL).

The population of the Rwamagana district sat at 310,000 in 2012 (Rwanda Seasonal Agricultural Survey, 2019) with about 53% aged 19 years or younger. Similarly, the local population of the Ngoma region was recorded at 341,000. Assuming CASU reached 10% of each district’s population, that is a total of 65,100 serviced households. CASU will target the highest density rural communities in both districts, coordinating efforts with our on-ground team members in Kigali to raise greater awareness of our initiative. With approximately 1,910 active cooperatives in the Eastern Province (Rwanda Cooperative Agency, 2019), CASU will also engage with the largest local cooperatives to increase market penetration.

Implementation

Piloting the venture in Rwanda’s Eastern Province is a challenge that comes down to people. CASU’s on-ground team will execute marketing and build brand reputation in the region before launching our product. This will be synchronised with the outfitting of shipping containers in partnership with ASL. CASU aims to boost product delivery through anticipated demand. CASU will adopt a prospector marketing strategy for the first two years of business, emphasising product innovation, low cost and organisational flexibility. This will be a key selling point to our target market in the Eastern Province highlighted in Figure 2.
Market Overview

Target Market

The primary target market are rural communities in Rwanda’s Rwamagana and Ngoma districts. These are smallholder households living in extreme poverty with little disposable income. Households are highly food insecure with no external financial support. This market has limited access to land and grow perennial crops such as Maize, Cassava and Beans circled in Figure 3. They are influenced by non-traditional marketing mediums and informal communications. The secondary target market are cooperatives in these districts. Supported by developmental programmes, households have stronger knowledge and better agronomic practices. Families in these communities are food secure and have limited savings but are not market orientated. Similarly, this market is influenced by non-traditional marketing and informal communication.

Strategy

CASU is a new initiative in a high-density market. Saturated by cooperatives and foreign aid, providing market access will sustain the ventures success. The enterprise will use a marketing strategy developed from principles of Deb Gilbertson’s Social Epidemic Model (Gilbertson & Krisjanous, 2003).

Initial messages for target market segments will differ. Achieving economic empowerment through CASU’s low-cost product will saturate the initial message towards our primary market. Simplicity and engaging with local attitudes are key characteristics CASU will employ with its message. Conversely, the opportunity of greater sustained livelihoods will be the message targeting our secondary market. Cooperatives will be made aware of the market shortage and increasing agricultural product needs. Higher prices for harvested crops from processing plants will incentivise use of our product.

Key people will inspire the primary target market to take advantage of CASU’s benefits. The on-ground team will act as Information brokers, engaging with influencers in rural communities. Relationships with respected high-status figures in each district will result with greater awareness and willingness to try our product.

Early adopters within both target markets will facilitate community confidence in CASU. Influencing tools such as respected leaders and role models will encourage stronger participation through their sphere of authority. Rwanda’s hierarchal social structures will further enhance the growth of CASU in both the primary and secondary markets.

Marketing Channels

CASU aims to tailor our service offering to local needs and preferences through a message that embodies our goal to reduce poverty and transform livelihoods. With more than 70 percent of Rwandan women engaged in farming activities (UNICEF, 2019), CASU will raise awareness about its product at physical distribution centres. Specific locations such as the local vegetable market, pharmacy or community centre are hives of social activity. CASU will employ information brokers to raise awareness at these locations, directing attention towards women in smallholder households.

Considering Rwanda’s median age of 19.6 years, CASU will also employ a team of rural youth to access remote areas. Understanding of the mindset of the rural population, this team will know the area well and distribute product information through word of mouth. This facilitates stronger relationships with rural households through traditional means; local youth will help drive CASU’s brand and product. The identification of rural talent can further lead to development with marketing or regional managers. This ultimately is a means of gaining trust in rural districts, and is a cost effective strategy to ensure the success of our business.
**Financial Overview**

**Forecasted Sales and Costs**

In our first year of service, we aim to service 5% of the Rwamagana and Ngoma districts. The following section outlines the financial analysis for CASU and key figures for our initiative. Monetary values are in $USD and are estimated costs. Greater detail will be achieved through consolidation with on-ground team members in Kigali.

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estimated Revenue ($USD)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize $/Tonne</td>
<td>1515</td>
<td>3030</td>
<td>4545</td>
<td>9090</td>
<td>13635</td>
<td>27270</td>
<td>40905</td>
</tr>
<tr>
<td>Cassava $/Tonne</td>
<td>3400</td>
<td>6800</td>
<td>10200</td>
<td>20400</td>
<td>30600</td>
<td>61200</td>
<td>91800</td>
</tr>
<tr>
<td>Beans $/Tonne</td>
<td>2765</td>
<td>5530</td>
<td>8295</td>
<td>16590</td>
<td>24885</td>
<td>49770</td>
<td>74655</td>
</tr>
<tr>
<td>(Estimated tonnes utilised per crop)</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td><strong>REVENUE</strong></td>
<td>7680</td>
<td>15360</td>
<td>23040</td>
<td>46080</td>
<td>69120</td>
<td>138240</td>
<td>207360</td>
</tr>
<tr>
<td><strong>Profit Margin of 60%</strong></td>
<td>4608</td>
<td>9216</td>
<td>13824</td>
<td>27648</td>
<td>41472</td>
<td>82944</td>
<td>124416</td>
</tr>
</tbody>
</table>

| Variable Costs ($USD) | | | | | | | |
| Wages | 0 | 1,000 | 1,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Miscellaneous | 500 | 2,500 | 2,500 | 5,000 | 5,000 | 5,000 | 5,000 |
| Controlled-air servicing | 1,500 | 1,500 | 3,000 | 3,000 | 4,500 | 6,000 | 7,500 |
| **TOTAL VARIABLE COST** | 2,000 | 5,000 | 6,500 | 10,000 | 11,500 | 13,000 | 14,500 |

| Fixed Costs ($USD) | | | | | | | |
| 40-foot container rent | 3,600 | 3,600 | 7,200 | 7,200 | 10,800 | 14,400 | 18,000 |
| Transportation | 3,000 | 3,000 | 6,000 | 9,000 | 12,000 | 15,000 | 18,000 |
| Marketing | 400 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 |
| **TOTAL FIXED COST** | 7,000 | 7,000 | 13,800 | 17,000 | 23,800 | 30,600 | 37,400 |

| Sale of business (6 x net income) | 932760 |
| **Year** | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
| **NET CASH FLOW ($USD)** | -4,392 | -2,784 | -6,476 | 648 | 6,172 | 39,344 | 72,516 |
| Discount rate % | 10 |
| Discount rate + 1 | 1.1 |
| Discounted Net Cash Flow | -4392 | -2530.91 | -5352.07 | 486.852 | 4215.559 | 24429.53 | 40933.39 |
| **NET PRESENT VALUE ($USD)** | 57790.36 |
| Internal rate of return % | 62% |

| ESTIMATED HOUSEHOLD REACH (%) | 5% | 10% | 15% | 20% | 25% | 30% | 35% |
| RWAMAGANA (310,000) | 15,500 | 31,000 | 46,500 | 62,000 | 77,500 | 93,000 | 108,500 |
| NGOMA (341,000) | 17,050 | 34,100 | 51,150 | 68,200 | 85,250 | 102,300 | 119,350 |
| **TOTAL HOUSEHOLDS SERVED** | 32,550 | 65,100 | 97,650 | 130,200 | 162,750 | 195,300 | 227,850 |

In our first year of service, we aim to service 5% of households in the Rwamagana and Ngoma districts. Significant costs unrelated to the outfitting of containers include the weekly transportation between the Eastern Province and Kigali, as well as the controlled-air servicing. The former rises significantly over the years as more container units are expected to be deployed to rural communities in each district. Marketing costs increase slowly as the project gains traction and a stronger footing in both districts. With a discount figure of 10%, the net present value of the CASU Initiative sits at $57,790USD.

Our profit margin of 60% is estimated through partnership with local communities who provide their harvested crops to us for sale. Higher prices in volume from processing plants incentivise farmers to utilise our product and raises CASU’s profit margin.
CASU operating loss across 2020, 2021 and 2022 are covered through an initial investment of $10,000USD. Team members will further contribute a total of $3,000USD to cover initial costs over the first three years of business. The initiative is sustainable through greater market penetration and expected sales in the year ending 2023. Initial investment costs are expected to be highest with container rent and transportation for the first year (highlighted right).

<table>
<thead>
<tr>
<th>Discounted Net Cash Flow</th>
<th>-4,392</th>
<th>-2,530</th>
<th>-5,352</th>
<th>486</th>
<th>4,215</th>
<th>24,429</th>
<th>40,933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total profit after Tax (30%)</td>
<td>-1317.6</td>
<td>-759</td>
<td>-1605.6</td>
<td>145.8</td>
<td>1264.5</td>
<td>7328.7</td>
<td>12279.9</td>
</tr>
<tr>
<td>Total marginal profit</td>
<td>-5,710</td>
<td>-3,289</td>
<td>-6,958</td>
<td>632</td>
<td>5,480</td>
<td>31,758</td>
<td>53,213</td>
</tr>
</tbody>
</table>

**Initial Investment for ($USD)**

| Marketing | 400 |
| Outfitting container unit | 500 |
| Business set up | 1,000 |
| Transportation | 3,000 |
| Container rent | 3,600 |
| Controlled-air servicing | 1,500 |

**Total Investment Required**

10,000

**Taxation**

Rwanda has a corporate tax of 30%. Total marginal profit will generate funds which will be put towards CASU’s outlook (highlighted above). In the first three years of operation, CASU will see a negative return on investment. After 2023, there will be an increase, allowing CASU to pay back initial investment and generate profit.

**Outlook**

Rwanda’s economy is projected to grow at 7.8% in 2019 and 8.0% in 2020 supported by increased exports (World Bank, 2019). The government further aims to scale up consolidated land for crop production from the current 635,603 hectares to 980,000 hectares in 2024 (UNICEF, 2019). This combined with renewed private investment is expected to boost agricultural development, creating stronger market competitiveness and greater business opportunities for CASU.

Key risks to growth outlook are associated with weather-related events and market volatility with commodity prices. With 90% of domestic cropland on slopes and 441 inhabitants per square kilometre, land availability and population density are growing challenges facing the sector. CASU will maintain high market share through a mixed strategy focus on building rich relationships with rural communities, as well as increasing investment in our product to service new provinces. This will sustain competitiveness as commercialisation extends beyond Kigali, and the agricultural sector shifts towards a more market-orientated model.

Centralised operations in Rwamagana will enhance CASU’s future development in the greater Eastern Province which supports perennial crops with high yield productivity. This report does not consider the possibility of exporting due to the focus on the Rwandan market gap between subsistent farming and processing needs. Concentrated logistics in Rwamagana enables CASU to easily export to Tanzania and Burundi in the future through partner ASL.
References


