## Executive Summary

We analyzed the operations of the community trading centers (CTC's) at Lundazi and Mfuwe. James Phiri provided us with his projections for the Lundazi operation for this year, while Yolum provided us with information on the Mfuwe CTC. The information provided to us by James was detailed and thorough, while the information provided to us by Yolum was somewhat limited due to the start-up nature of the Mfuwe CTC. For Mfuwe, we were provided with information on the amounts and types of seeds provided to sponsored farmers over the last year, but the actual crop volume assumptions were somewhat unclear. We made cost assumptions for the operation based on information provided verbally to us by Yolum.

Overall, we feel that the CTC operations are moving in the right direction and have the potential to break even and generate profits if a number of assumptions are met, most importantly the crop volume projections and the ability to sell the packaged goods (rice, peanut butter, groundnuts, and honey) in the end markets at the prices assumed. We did not include soya beans in our analysis because these crops are currently not being sold for a profit and the ability to do so depends on acquiring the HEPS machine and defining end market for soy products. However, if the processing and sale of soy products proves to be successful, this will provide additional upside from the current CTC projections. The following discussion provides more detailed information on the information provided to us and the assumptions we made to create our own projections.

## Crop Volume Projections

Crop volumes are a significant input into the model since they ultimately determine the ability of the CTC's to sell value-added end products and cover the fixed expenses of the operations. Drought has been a recent problem, especially for groundnuts, and has the potential to significantly affect profitability of the CTC's in the future. However, it appears that both the Lundazi and Mfuwe CTC's are expecting good crop volumes this season as several years of farmer support and favorable weather this year are expected to pay off with a good harvest.

James provided us with the expected net processed volume of each end product for Lundazi, which we then grossed up by the processing losses of each crop to determine the gross volumes bought from the farmers. Estimating gross crop volumes for Mfuwe was more difficult, and we had to use a number of assumptions to determine these. Yolum provided us with seed volume dispersed to each chiefdom and the expected volume by each crop, which we reduced by the yield loss to account for crop damage. We then assumed (based on discussions with Yolum) that each sponsored farmer would sell 85% of his crops to COMACO, keeping the remaining 15% for seeds and to provide food for his family.

Yolum told us that the Mfuwe CTC is also expecting a significant amount of crops from independent farmers (44% of Mfuwe's volume), which we included in our analysis and are presented in the table below. However, the reliability of the projected crop volumes from independent farmers is unclear, and the quality of these crops (especially rice) may be questionable. If these crop volumes don't materialize or if the quality of the crops is inferior to those of the sponsored farmers, results of the Mfuwe CTC could be adversely affected. To arrive at our estimates for net processed volume of end products for Mfuwe, we used the same processing loss estimates that were used for Lundazi. Because the amount of peanut butter expected to be produced at Mfuwe is unclear, we assumed the same ratio of groundnuts being processed into peanut butter at Lundazi, which is 66%. The table below summarizes our current projections for gross volumes, processing losses, and net processed volumes for each crop at both CTC's.

| **Gross Volume (kg)** | **Lundazi** | **Mfuwe Sponsored** | **Mfuwe Independent** | **Mfuwe Total** | **Total COMACO** |
|---|---|---|---|---|---|
| Rice | 375,000 | 248,539 | 200,000 | 448,539 | 823,539 |
| Groundnuts | 272,574 | 16,788 | 10,000 | 26,788 | 299,362 |
| Honey | 20,000 | 5,587 | 2,500 | 8,087 | 28,087 |
| Total gross volume | 667,574 | 270,914 | 212,500 | 483,414 | 1,150,988 |

| **Processing Losses** | |
|---|---|
| Rice | 40% |
| Peanut butter | 15% |
| Groundnuts | 7% |
| Honey | 40% |

| **Net Processed Volume (kg)** | **Lundazi** | **Mfuwe Sponsored** | **Mfuwe Independent** | **Mfuwe Total** | **Total COMACO** |
|---|---|---|---|---|---|
| Rice | 225,000 | 149,124 | 120,000 | 269,124 | 494,124 |
| Peanut butter | 154,000 | 9,485 | 5,650 | 15,134 | 169,134 |
| Groundnuts | 85,000 | 5,235 | 3,118 | 8,353 | 93,353 |
| Honey | 12,000 | 3,352 | 1,500 | 4,852 | 16,852 |
| Total net processing volume | 476,000 | 167,195 | 130,268 | 297,464 | 773,464 |

## Retail and Wholesale Price Assumptions

The other significant inputs into the model for the CTC's are the retail and wholesale prices assumed for each end product. These prices were determined after discussions with James and are included in the table below. COMACO expects to sell its retail products (peanut butter, rice, groundnuts, and honey) at a wholesale price to a distributor who will supply these products to supermarkets in Lusaka. Retail prices for rice assume a 20% markup over wholesale, while all other products assume a 25% markup. Peanut butter will also be sold in 20kg buckets to Valid International while 50kg bags of rice are expected to be sold to institutional buyers such as schools.

| | **Retail Price (kw)** | **Wholesale Price (unit)** | **Retail Markup** |
|---|---|---|---|
| **Peanut Butter** | | | |
| 400g | 5,850 | 4,680 | 25% |
| 20kg - Valid Zambia | n/a | 164,000 | n/a |
| 20kg - Valid Mallawi | n/a | 99,200 | n/a |
| **Rice** | | | |
| 1 kg | 4,150 | 3,458 | 20% |
| 2 kg | 8,050 | 6,708 | 20% |
| 5 kg | 19,050 | 15,875 | 20% |
| 50 kg - Wholesale | n/a | 147,000 | n/a |
| **Groundnuts** | | | |
| 1 kg | 4,764 | 3,811 | 25% |
| 2 kg | 9,373 | 7,498 | 25% |
| 50 kg | 149,217 | 119,374 | 25% |
| **Honey** | | | |
| 500g | 8,709 | 6,967 | 25% |

## Lundazi CTC

James provided us with a detailed financial model for the Lundazi CTC, which we used to create our own model for the operation. We derived marginal cost for each of the end products and then used unit volume projections and fixed costs assumptions provided to us by James to assess the operations. Based on the current projections, peanut butter is expected to generated 46% of revenue, followed by rice at 34%, groundnuts at 12%, and honey at 8%. Peanut butter sold to Valid Malawi is projected to account for 25% of total revenue and 53% of peanut butter revenue. We are somewhat concerned with this concentration of revenue with Valid Malawi, especially since it is our understanding that the contract is currently not in place. COMACO currently sells about one ton of peanut butter to Valid Zambia, and James is confident that Valid Malawi will generate demand of about 11 tons of peanut butter per month based on his conversations with Valid International.

The projections also assume that the Lundazi CTC will be able to obtain the necessary equipment to increase its process throughput including a larger roaster, a second mixer, and a shrink wrap machine for peanut butter production. The shrink wrap machine is of special importance, because without it, COMACO will find it difficult to sell to wholesalers that require all products to be shrink wrapped before transport. If the Lundazi CTC is unable to obtain any of this necessary equipment, financial results will likely be adversely affected and the projections below will be difficult to achieve. The table below shows current volume, revenue, and variable cost projections for the Lundazi CTC.

| | Units | Processed Volume (kg) | Wholesale Price per Kg | Marginal Cost per Kg | Gross Margin | Revenue | Revenue Mix |
|---|---|---|---|---|---|---|---|
| **Peanut Butter** | | | | | | | |
| 400g - Retail | 82,500 | 33,000 | 11,700 | 4,842 | 58.6% | 386,100,000 | 18% |
| 20kg - Valid Zambia | 550 | 11,000 | 8,200 | 2,975 | 63.7% | 90,200,000 | 4% |
| 20kg - Valid Mallawi | 5,500 | 110,000 | 4,960 | 2,980 | 39.9% | 545,600,000 | 25% |
| Total peanut butter | | 154,000 | 6,636 | 3,379 | 49.1% | 1,021,900,000 | 46% |
| **Rice** | | | | | | | |
| 1 kg | 105,000 | 105,000 | 3,458 | 2,302 | 33.4% | 363,125,000 | 17% |
| 2 kg | 30,000 | 60,000 | 3,354 | 2,303 | 31.3% | 201,250,000 | 9% |
| 5 kg | 10,000 | 50,000 | 3,175 | 2,268 | 28.6% | 158,750,000 | 7% |
| 50 kg - Wholesale | 200 | 10,000 | 2,940 | 2,143 | 27.1% | 29,400,000 | 1% |
| Total rice | | 225,000 | 3,345 | 2,288 | 31.6% | 752,525,000 | 34% |
| **Groundnuts** | | | | | | | |
| 1 kg | 20,000 | 20,000 | 3,811 | 1,784 | 53.2% | 76,224,000 | 3% |
| 2 kg | 10,000 | 20,000 | 3,749 | 1,805 | 51.9% | 74,984,000 | 3% |
| 50 kg | 900 | 45,000 | 2,387 | 1,625 | 31.9% | 107,436,240 | 5% |
| Total groundnuts | | 85,000 | 3,043 | 1,705 | 44.0% | 258,644,240 | 12% |
| **Honey** | | | | | | | |
| 500g bottles | 24,000 | 12,000 | 13,934 | 8,246 | 40.8% | 167,212,800 | 8% |
| **Total** | | **476,000** | | | **41.9%** | **2,200,282,040** | **100%** |

## Breakeven Analysis – Lundazi CTC

We performed a breakeven analysis to determine the volume of crops that the Lundazi CTC needs to buy from farmers (gross volume) and sell to end markets (net volume) to cover the fixed costs of the operations (excluding depreciation, which is a non-cash expense). We assumed a fixed product mix (rice, peanut butter, honey, and groundnuts) consistent with the current volume projections and then varied the overall volume to determine the breakeven level. Based on our analysis, the Lundazi CTC needs to purchase 474,000kg of rice, groundnuts, and honey from sponsored farmers and then process and sell 338,000 kg of value-added products to end markets at the prices assumed above to generate breakeven EBITDA (operating income before depreciation expense). This compares to current gross and net volume projections of 668,000kg and 476,000kg, which provides a cushion of about 40% before the operations are unable to reach breakeven. The table below summarizes our breakeven analysis for the Lundazi CTC.

| | **Breakeven** | | **Projected** | |
|---|---|---|---|---|
| **Volume by Product** | **Gross Volume** | **Net Volume** | **Gross Volume** | **Net Volume** |
| Peanut butter | n/a | 109,423 | n/a | 154,000 |
| Groundnuts | 193,674 | 60,396 | 272,574 | 85,000 |
| Rice | 266,451 | 159,871 | 375,000 | 225,000 |
| Honey | 14,211 | 8,526 | 20,000 | 12,000 |
| Total volume | 474,336 | 338,215 | 667,574 | 476,000 |

| | **ZMK** | **USD** |
|---|---|---|
| **Revenue** | | |
| Peanut butter | 726,096,865 | 220,029 |
| Groundnuts | 183,776,076 | 55,690 |
| Rice | 534,696,197 | 162,029 |
| Honey | 118,810,735 | 36,003 |
| Total revenue | 1,563,379,873 | 473,751 |
| | | |
| **Cost of Goods Sold** | | |
| Peanut butter | 369,697,942 | 112,030 |
| Groundnuts | 102,983,405 | 31,207 |
| Rice | 365,774,113 | 110,841 |
| Honey | 70,312,414 | 21,307 |
| Total cost of goods sold | 908,767,873 | 275,384 |
| | | |
| **Gross Profit** | | |
| Peanut butter | 356,398,924 | 108,000 |
| Groundnuts | 80,792,671 | 24,483 |
| Rice | 168,922,084 | 51,189 |
| Honey | 48,498,321 | 14,696 |
| Total gross profit | 654,612,000 | 198,367 |
| | | |
| **Fixed Costs** | | |
| Maintenance | 120,000,000 | 36,364 |
| Depreciation | 154,035,714 | 46,677 |
| Indirect labor | 318,000,000 | 96,364 |
| Other fixed costs | 216,612,000 | 65,640 |
| Total fixed costs | 808,647,714 | 245,045 |
| | | |
| **Operating income** | (154,035,714) | (46,677) |
| Add: depreciation | 154,035,714 | 46,677 |
| **EBITDA** | 0 | 0 |

**Mfuwe CTC**

To analyze the Mfuwe operations, we had to make a number of assumptions since a detailed financial model has not yet been created due to the start-up nature of the CTC. Because the operation is very similar to Lundazi and the same end products (rice, groundnuts, peanut butter, and honey) will likely be processed in Mfuwe, we used many of the same revenue and cost assumptions that were provided to us for Lundazi. We made slight modifications to the marginal costs of products being processed at Mfuwe since transportation and other costs vary slightly from those in Lundazi. It is currently unclear how much of the groundnuts purchased in Mfuwe are going to be processed into peanut butter, while the volume distribution of peanut butter sold to end markets (retail vs. Valid International) is also unclear. Given these uncertainties, we assumed the same processing and volume breakdown as Lundazi: 66% of groundnuts purchased will be processed into peanut butter and 21% of peanut butter will be sold at retail, with the remaining going to Valid International. Obviously, results may prove to be quite different from these assumptions and may thus impact the financial performance in a positive or negative way (e.g. if less peanut butter is produced and sold at retail, this will adversely impact results since peanut butter has a higher gross margin than groundnuts). The table below illustrates our current volume, revenue, and variable costs projections for the Mfuwe CTC based on the above assumptions.

| | Units | Net Volume (kg) | Wholesale Price per Kg | Marginal Cost per Kg | Gross Margin | Revenue | Revenue Mix |
|---|---|---|---|---|---|---|---|
| **Peanut Butter** | | | | | | | |
| 400g - Retail | 8,108 | 3,243 | 11,700 | 4,896 | 58.2% | 37,944,344 | 3% |
| 20kg - Valid Zambia | 54 | 1,081 | 8,200 | 3,029 | 63.1% | 8,864,491 | 1% |
| 20kg - Valid Mallawi | 541 | 10,810 | 4,960 | 3,034 | 38.8% | 53,619,358 | 5% |
| Total peanut butter | | 15,134 | 6,636 | 3,433 | 48.3% | 100,428,192 | 9% |
| | | | | | | | |
| **Rice** | | | | | | | |
| 1 kg | 125,591 | 125,591 | 3,458 | 2,301 | 33.5% | 434,335,525 | 40% |
| 2 kg | 35,883 | 71,766 | 3,354 | 2,301 | 31.4% | 240,716,074 | 22% |
| 5 kg | 11,961 | 59,805 | 3,175 | 2,266 | 28.6% | 189,881,624 | 17% |
| 50 kg - Wholesale | 239 | 11,961 | 2,940 | 2,142 | 27.1% | 35,165,479 | 3% |
| Total rice | | 269,124 | 3,345 | 2,286 | 31.6% | 900,098,702 | 82% |
| | | | | | | | |
| **Groundnuts** | | | | | | | |
| 1 kg | 1,966 | 1,966 | 3,811 | 1,834 | 51.9% | 7,490,986 | 1% |
| 2 kg | 983 | 1,966 | 3,749 | 1,855 | 50.5% | 7,369,124 | 1% |
| 50 kg | 88 | 4,422 | 2,387 | 1,675 | 29.8% | 10,558,398 | 1% |
| Total groundnuts | | 8,353 | 3,043 | 1,755 | 42.3% | 25,418,508 | 2% |
| | | | | | | | |
| **Honey** | | | | | | | |
| 500g bottles | 9,704 | 4,852 | 13,934 | 8,084 | 42.0% | 67,612,914 | 6% |
| | | | | | | | |
| **Total** | | **297,464** | | | **34.1%** | **1,093,558,317** | **100%** |

**Breakeven Analysis – Mfuwe CTC**

To assess the viability of the Mfuwe CTC operations, we performed a breakeven analysis. To simplify the analysis, we assumed the same crop volume distribution in our gross volume forecast and then varied the total volume to determine the breakeven point. Based on our analysis, the Mfuwe CTC needs to purchase a gross volume of 378,000kg of crops from farmers to reach breakeven EBITDA, which will generate a net volume of 233,000kg of value-added products sold to end markets. These breakeven points compare to our current gross and net volume projections of 483,000kg and 297,000kg, providing a variability cushion of about 28% before breakeven is not met.

One caveat on our gross volume projections is that these forecasts include crops obtained from independent farmers that are not sponsored by COMACO. Crops from independent farmers account for 44% of our total gross volume projections for the Mfuwe CTC, making these farmers a significant source of projected crop volumes. We are somewhat concerned with this high concentration of crops coming from independent farmers because we are uncertain about the reliability of this supply and the quality of the crops. For example, we have heard from sources that rice obtained from independent farmers is of inferior quality to COMACO's chama rice. If crops obtained from independent farmers are excluded from our gross volume projections, the Mfuwe CTC will only be able to obtain 271,000kg of crops from sponsored farmers, which would result in the CTC operating at 30% below the breakeven point. The table below summarizes our breakeven analysis for the Mfuwe CTC.

| | **Breakeven** | | **Projected** | |
|---|---|---|---|---|
| **Volume by Product** | **Gross Volume** | **Net Volume** | **Gross Volume** | **Net Volume** |
| Peanut butter | n/a | 11,849 | n/a | 15,134 |
| Groundnuts | 20,971 | 6,540 | 26,788 | 8,353 |
| Rice | 351,153 | 210,692 | 448,539 | 269,124 |
| Honey | 6,331 | 3,799 | 8,087 | 4,852 |
| Total volume | 378,455 | 232,879 | 483,414 | 297,464 |

| | **ZMK** | **USD** |
|---|---|---|
| **Revenue** | | |
| Peanut butter | 78,623,313 | 23,825 |
| Groundnuts | 19,899,665 | 6,030 |
| Rice | 704,670,081 | 213,536 |
| Honey | 52,932,859 | 16,040 |
| Total revenue | 856,125,918 | 259,432 |
| **Cost of Goods Sold** | | |
| Peanut butter | 40,670,599 | 12,324 |
| Groundnuts | 11,475,700 | 3,477 |
| Rice | 481,712,117 | 145,973 |
| Honey | 30,707,502 | 9,305 |
| Total cost of goods sold | 564,565,918 | 171,081 |
| **Gross Profit** | | |
| Peanut butter | 37,952,715 | 11,501 |
| Groundnuts | 8,423,964 | 2,553 |
| Rice | 222,957,964 | 67,563 |
| Honey | 22,225,357 | 6,735 |
| Total gross profit | 291,560,000 | 88,352 |
| **Fixed Costs** | | |
| Indirect labor | 194,400,000 | 58,909 |
| Depreciation | 134,035,714 | 40,617 |
| Other fixed costs | 97,160,000 | 29,442 |
| Total fixed costs | 425,595,714 | 128,968 |
| **Operating income** | (134,035,714) | (40,617) |
| Add: depreciation | 134,035,714 | 40,617 |
| **EBITDA** | (0) | 0 |

**Conclusion**

Based on our analysis, we believe that the CTC's are moving in the right direction and have the potential of being self-sustainable and even profitable operations in the future. In Lundazi, several years of investing in sponsored farmers and favorable weather this year is likely to produce a large crop this season, which should positively impact results. While Mfuwe is less established than Lundazi, crop volumes at this CTC also look favorable this year, especially if high quality crops can be purchased from independent farmers. Soya beans have been excluded from our analysis but have the potential of providing additional upside in the future if COMACO can secure the appropriate processing equipment (HEPS machine) and if promising end markets for soy products are identified. Several key assumptions outline our analysis above, and we feel it is worthwhile to summarize these to stress their importance and to alert management to these sensitive areas. These assumptions include the following:

- COMACO is able to secure a contract with Valid Malawi for 11 tons of peanut butter per month, which accounts for 25% of Lundazi's projected revenue.
- The Lundazi CTC is able to obtain the necessary machinery to increase throughput including a larger roaster, an extra mixer, and a shrink wrap machine that is necessary to sell peanut butter at the retail level.
- The Mfuwe CTC is able to replicate the Lundazi model and produce value-added products at or near the same levels of Lundazi. This will require similar machinery and labor, some of which is currently not in place.
- Mfuwe is able to purchase large volumes of high quality crops from independent farmers, which account for 44% of Mfuwe's projected gross volumes.
- COMACO is able to obtain the assumed prices above for its products in end markets.