Illovo Sugar Africa (Pty) Ltd

Zambia Sugar Plc social, economic & environmental impact assessment

FY2020/2021

Table of contents

Introduction

Illovo Sugar Africa (Pty) Ltd (Illovo Sugar Africa), a wholly owned subsidiary of Associated British Foods plc, is a Pan-African, consumer-centric agri-business with over 130 years in operation that has roots in growing and making sugar and related products, sustainably. The company is Africa's leading and most diversified sugar Group with operations in Eswatini, South Africa, Mozambique, Malawi, Tanzania, Zambia and most recently, Rwanda.

The Group employs 44,000 people across its six locations, excluding Rwanda. As a significant employer, producer of sugar distributed to principally domestic markets, and purchaser of agricultural raw materials, Illovo Sugar Africa can positively shape the socio-economic fabric of the economies and communities of which it is part.

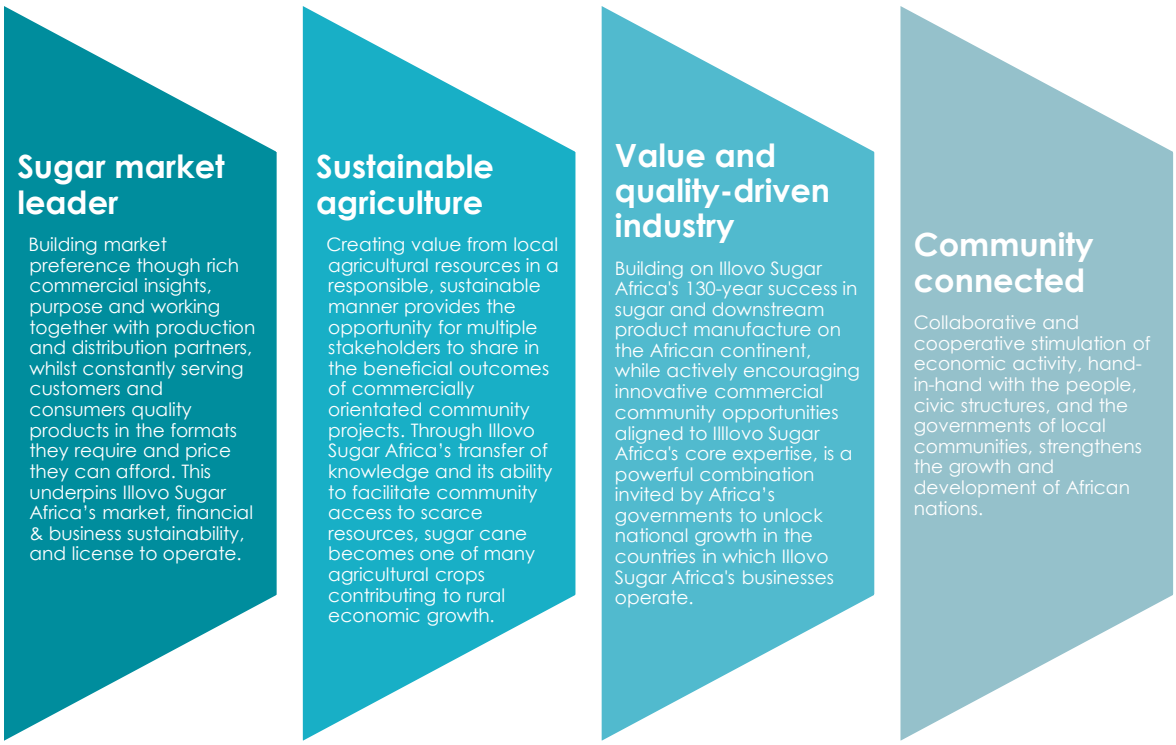
About this report

> "We recognize that a successful business on the continent is one that evolves alongside its host markets, whilst creating shared economic value in the countries where we operate and the communities surrounding our operations. This is the essence of our Illovo Sugar Africa purpose."
> - Illovo Sugar Africa

This report is an update of the socio-economic impact assessments carried out for Illovo Sugar Africa and its subsidiaries in 2013 and 2017. These reports are available on Illovo Sugar Africa's website. Illovo Sugar Africa commissioned Corporate Citizenship, an independent sustainability consultancy, to undertake these assessments to form a deeper understanding of the company's impact on its communities and use the insights to enhance the value it brings and achieve its self-identified company purpose to create thriving communities.

Illovo Sugar Africa's purpose is entrenched through its four key pillars:

Figure 1: Illovo Sugar Africa's sustainability pillars



This report is from the 2020/21 fiscal year (FY), which for Illovo Sugar Africa and its subsidiaries runs from September 1st to August 31st. Data from FYs 2016/17, 2017/18, 2018/19, and 2019/20 has also been provided in some sections for trend analysis purposes. All years cited in this report refer to fiscal years.

Due to its recent establishment in 2019, Illovo Sugar Kigali (ISK) in Rwanda has not been assessed in the updated impact assessments.

Expanding on previous reports that focused on Zambia Sugar's socio-economic impacts, the 2022 assessment has been broadened to include additional information on Illovo Sugar Africa's direct and indirect environmental impacts. Key findings from the assessment are structured against Illovo Sugar Africa's four key pillars. Further information about this report including details on the methodology can be found in Annex I on Illovo Sugar Africa's website.

Illovo Sugar Africa in Zambia

In Zambia, Illovo Sugar Africa operates through its subsidiary, Zambia Sugar Plc, which has the single-largest cane sugar factory on the African continent with a total annual sugar production capacity of around 445 000 tonnes. Zambia Sugar accounted for 25% of the Group's total sugar production in 2020/21. Zambia Sugar was the second company ever to be listed on the Lusaka Securities Exchange (LuSE) in 1998 and currently has over 4 100 minority shareholders. As one of only 22 companies on the LuSE, Zambia Sugar's participation plays a role in developing this source of wealth within Zambia.

Table 1: Zambia demographic data

Zambia country data[1]	
Economic indicators	
Gross domestic product (GDP) at purchasing power parity (PPP)[2] (2021)	$21.2 billion
GDP per capita (PPP) (2021)	$1 120.6
Annual GDP growth rate (2021)	3.60%
Labour market Indicators	
Population (2021)	18.9 million
Labour force (2021)	7.84 million
By occupation (2019)	Agriculture 49.6% Industry 10.6% Services 39.8%
Population location (2021)	Rural 55.0% Urban 45.0%
Unemployment rate	13.00%
Poverty indicators	
Population living below $2.15 per day (2015)	61.4%
Population living below national poverty line (2015)	54.4%
Adult literacy rate (2018)	87%
Life expectancy at birth (2020)	64 years

Zambia Sugar's primary focus is on domestic and regional markets, producing a wide range of sugar products under its Whitespoon brand, including Vitamin-A enriched direct consumption sugar for local consumer markets and non-fortified refined sugar for industrial customers.

Zambia Sugar's corporate offices are in Lusaka and its agricultural and factory operations are in the town of Mazabuka, 120 kilometres south-west of the capital. Since Zambia Sugar was established in 1964, Mazabuka has grown in parallel, becoming home to the people, businesses, infrastructure, and industry required to support Zambia Sugar's operations. Through our engagement, we found that the operating context has created a communicative relationship between Zambia Sugar and the surrounding community. Zambia Sugar recognises that to maintain its social licence to operate it must act in the interest of sustaining Mazabuka's growth and prosperity.

[1] World Bank Open Data
[2] Eurostat The purchasing power parity is the exchange rate that removes price level differences between countries.

Summary of findings

Zambia Sugar operates the single-largest cane sugar factory on the African continent with the capacity to produce around 445 000 tonnes of sugar per annum and is a significant contributor to Zambia's economy. The company has an important societal role, supporting significant direct and indirect employment, meeting the demand for affordable sugar, building the capacity of small-scale growers, and supporting the Zambian government's development agenda. Zambia Sugar also plays a large role in developing and disseminating sustainable agricultural practices and promoting responsible resource stewardship, particularly water.

The main findings for the fiscal year 2020/21 are summarised in the table below.

Table 2: Key quantitative impact findings by pillar

In 2020/21, Zambia Sugar's quantitative social, economic and environmental impacts in Zambia included the following:	
Sugar market leader	• 397 032 tonnes of sugar produced with 67% supplied to the domestic market • Total economic impact is estimated at K 8.17 billion, including K 2.2 billion direct impact (gross value added) and the remainder in indirect & induced impact through multiplier effects in the supply chain and wider economy • K 277.5 million direct tax contribution and K 658.2 million indirect tax contribution (collected on behalf of the Government) • 6 179 directly employed including 1 511 permanent and 4 668 non-permanent roles. Through direct jobs only, Zambia Sugar contributes to supporting an estimated 31 513 livelihoods once families and dependents are taken into account (based on an average household size of 5.1) • Estimated total employment impact of 13 782, including direct, indirect and induced employment supported in grower communities and the wider economy
Sustainable agriculture	• 15 952 ha of Zambia Sugar-owned cropland, which produced 1.7 million tonnes of sugar cane output • 12 967 ha of grower cropland, working with 18 commercial farmers and 404 small-scale farmers who supplied 1.6 million tonnes of sugar cane (48% of Zambia Sugar's total sugar cane)
Value and quality-driven industry	• 96% of energy production from renewable sources • 118 866 MWh of renewable energy generated • 8% decrease in Scope 1 & 2 emissions (2019/20 - 2020/21) • K 165,000 invested in safety training and a Lost Time Accident Frequency rate of 0.06 • K 1.19 million invested in training, with 1 112 employees trained • K 2.2 billion spent on procurement with K 1.9 billion (84%) going to local suppliers
Community connected	• K 22 million spent on the community through education, infrastructure and healthcare projects • 633 COVID-19 vaccinations • 17% women in Zambia Sugar's total permanent workforce with 18% at the management level

Sugar market leader

Building market preference through rich commercial insights, purpose and working with production and distribution partners, whilst constantly serving customers and consumers quality products in the formats they require and at a price they can afford. This underpins Illovo Sugar Africa's market, financial & business sustainability, and license to operate.

Key pillar findings:
Zambia Sugar is a significant contributor to the economy and employment in Zambia. The company's operations and wider value-chain activities have enabled other connected domestic economic and employment activities contributing to the growth of the district of Mazabuka and Zambia as a whole. Zambia Sugar's total economic impact has increased by nearly 50% since our last report, driven largely by its improved financial position. Its employment impact has also increased, extending its total reach by over 8 000 people since 2016/2017. This has been mainly driven by the rise in indirect employment through growers which has more than doubled.

397k
tonnes of sugar produced in 2020/21

K 2.3 billion
Zambia Sugar's direct economic impact

K 8.17 billion
Zambia Sugar's total economic impact

K 935.7 million
total tax contribution

6 179
people directly employed

13 782
total employment impact

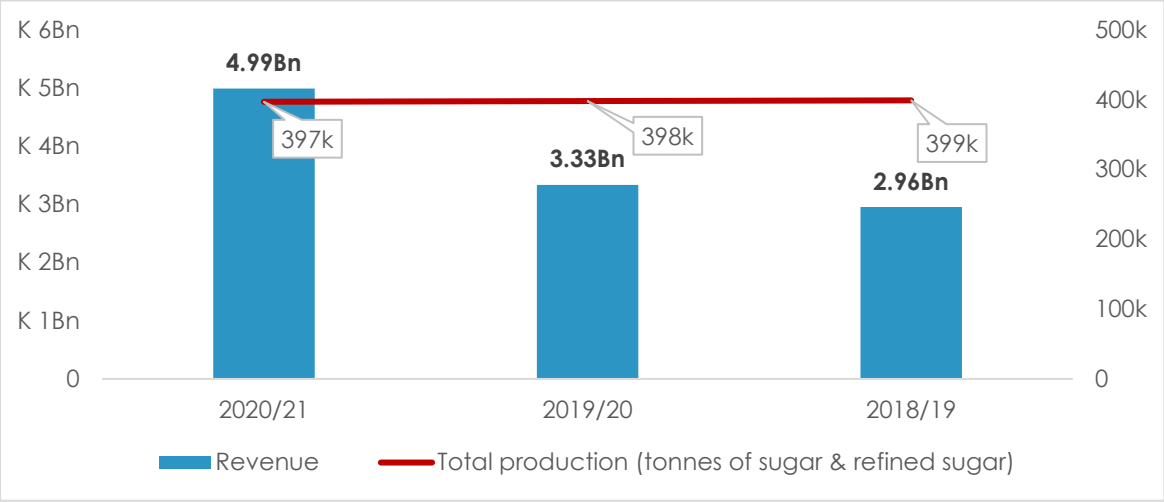
K 63.3 million
spent on capex

Note: *Definitions for direct economic impact, indirect economic impact, induced impact, total impact, and employment impact are provided on pgs. 8-9 and 11.*

Meeting demand & beyond

As the largest single mill sugar producer on the continent, Zambia Sugar plays an intrinsic role in meeting domestic and regional demand for sugar. Despite demand from foreign markets being suppressed by factors such as the COVID-19 pandemic and sugar production being negatively impacted by factors like reduced cane quantity, Zambia Sugar was able to meet the increased needs of the local market, as shown by its consistent sales growth.

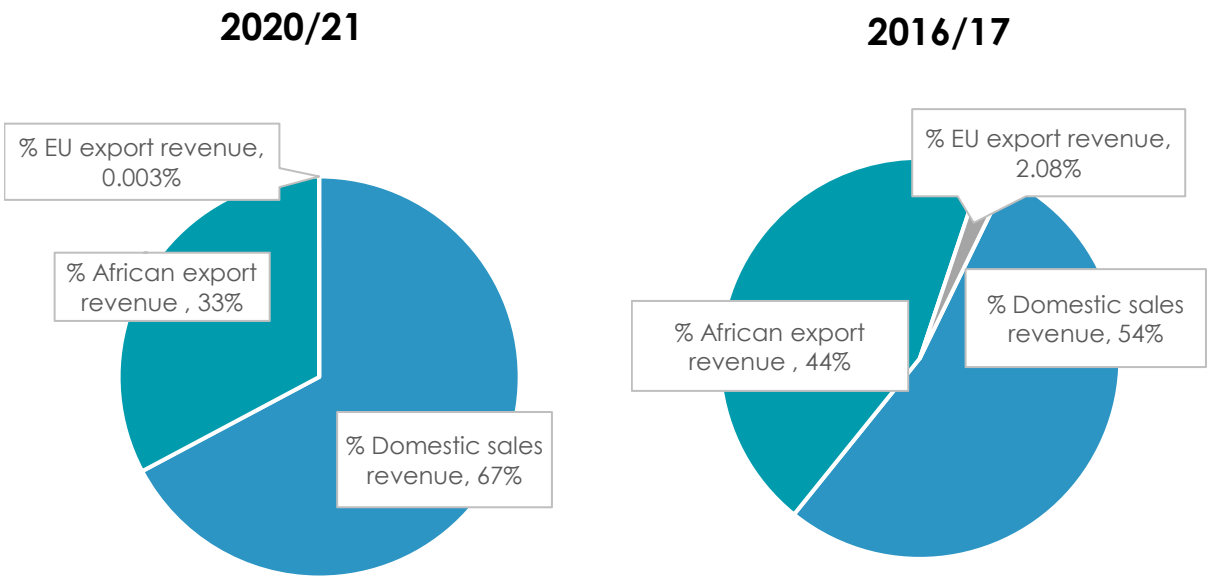
Figure 2: Zambia Sugar's sales & production volume, 2018/19 – 2020/21



Sales by segment

In 2020/21, 67% of sales were in the domestic market, with other African markets accounting for the remaining 33%. Zambia's new Republican President, His Excellency Mr. Hakainde Hichilema, who entered office in August 2021, had pledged to create jobs and restore Zambia's economy in light of COVID-19, climate change and a large national debt.[3] Zambia Sugar's focus on sales has shifted to the domestic market, with its share of revenue increasing by 13% since 2016/17.

Figure 3: Zambia Sugar's sales revenue by market segment, 2016/17 and 2020/21

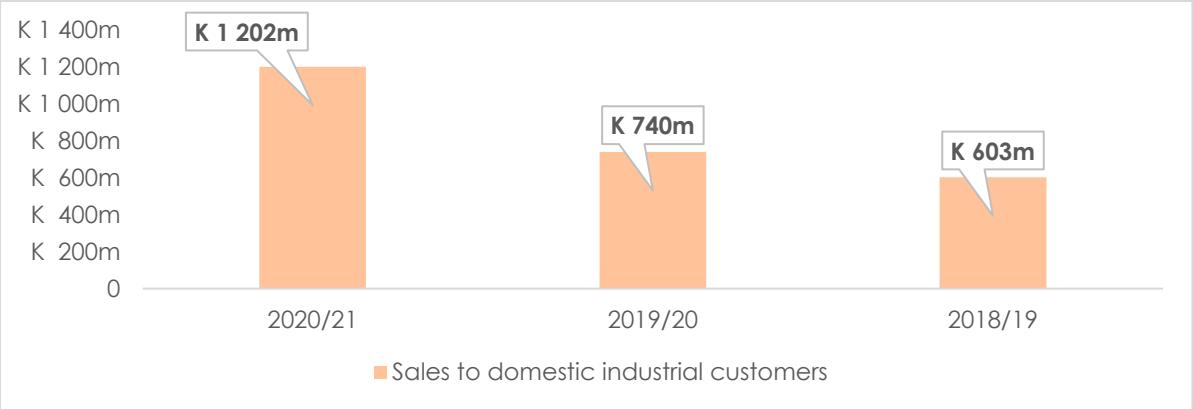


Zambia Sugar has the only sugar refinery in the country and produced 80 320 tonnes of refined sugar in 2020/21 for industrial customers, generating K 1.2 billion. Notably, the refinery provides input into the Zambian beverage and confectionary industries, promoting ease of access for local suppliers to procure ingredients who, in turn, create jobs and contribute to national

[3] S&P Global (2021), *Zambia's new president a boon for mining sector reform | S&P Global Commodity Insights*

production and economic growth. This also creates growth through foreign exchange and the export of products.

Figure 4: Zambia Sugar's domestic industrial sales, 2018/19 – 2020/21



Economic contributions

Zambia Sugar continues to lead the national sugar sub-sector and is a considerable employer of both permanent and non-permanent staff, including seasonal agricultural workers (see pg12). Together with more than 400 independent small and large-scale growers who deliver their cane to Zambia Sugar, a further 4 800 seasonal agricultural workers are annually employed by these growers. A positive feature is that many small-scale growers are themselves members of grower schemes or co-operatives, such as the KASCOL Grower Organisation. This puts the company in a position of national responsibility as research continues to show that grower schemes can accelerate rural development and alleviate poverty.[4] This in turn means that the rural populations who grow and harvest the sugar cane, as well as the supporting industries that supply to Zambia Sugar and small local businesses that have grown around the sugar estates (e.g., transportation, banks. Insurance, real estate retail and food), stand to benefit from Zambia Sugar's economic multiplier effects:

1. **Direct impacts**, through Zambia Sugar's direct employment of workers on farms and in the factories, as well as tax payments, interest spending, shareholder dividends, investments and other payments.

2. **Indirect impacts** in the value chain. A significant contributor to indirect economic impact is the large number of independent growers in Illovo's supply chain who deliver and are paid for their cane via cane supply agreements with Illovo's mills. Other indirect impacts include payments to other suppliers and distributors, as well as impacts on those selling Illovo Sugar Africa products or using them in their businesses;

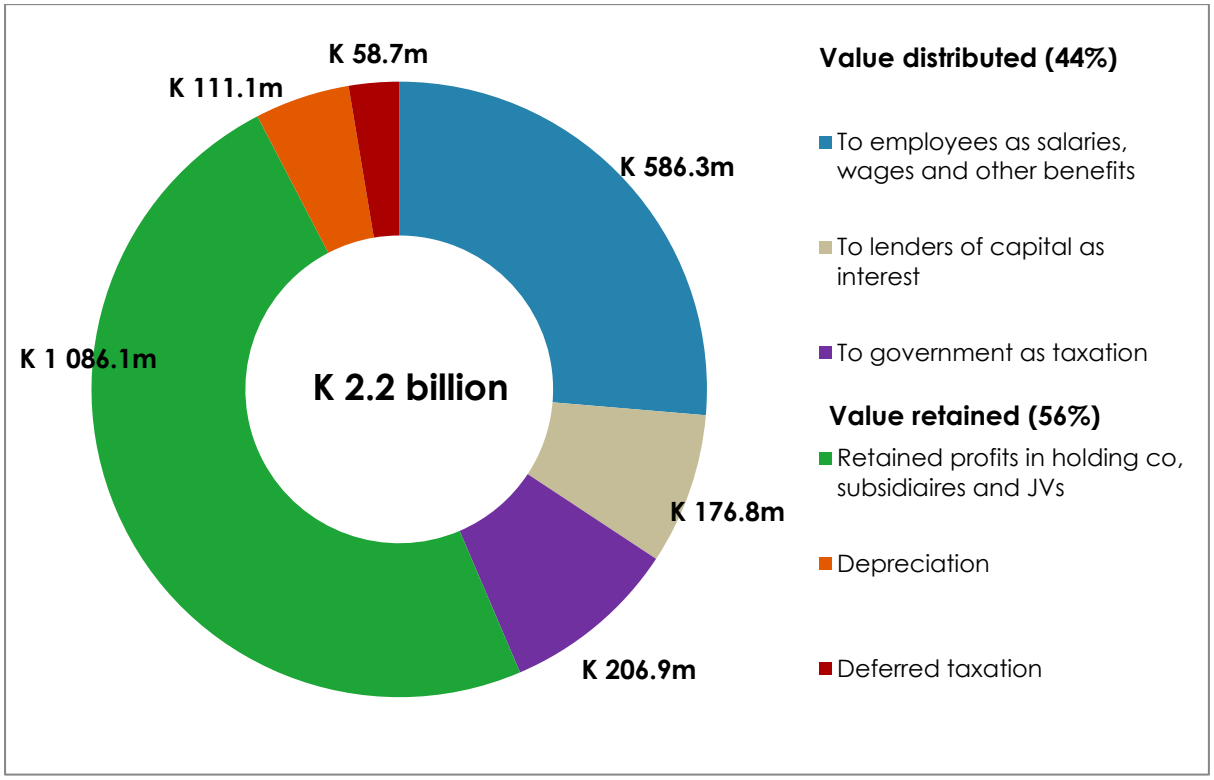
3. **Induced impacts**, through spending by direct and indirect employees, leading to increased consumption and employment elsewhere in the economy. This also includes the employment and additional service providers operating on grower farms, which exist in the rural economy as an indirect result of the Illovo value chain and include the creation of Small to Medium-sized (SME) service providers, themselves also rural employers.

Direct economic impact

[4] Manda, S. et al. (2020) 'Outgrower schemes and sugar value-chains in Zambia: Rethinking determinants of rural inclusion and exclusion', *World Development 129*, Elsevier.

Zambia Sugar's direct contribution to the economy of Zambia, measured in terms of gross value added, was K 2.2 billion in 2020/21. This number is calculated as the difference between revenues and outgoings and is a measure of the company's contribution to GDP. Of this, 44% was distributed to stakeholders, namely employees, shareholders, and the government in the form of dividends, remuneration and taxes. The other 56% was retained in the business, a notable increase from the 1% retained in 2017 due to a strengthened financial position and lower finance costs.

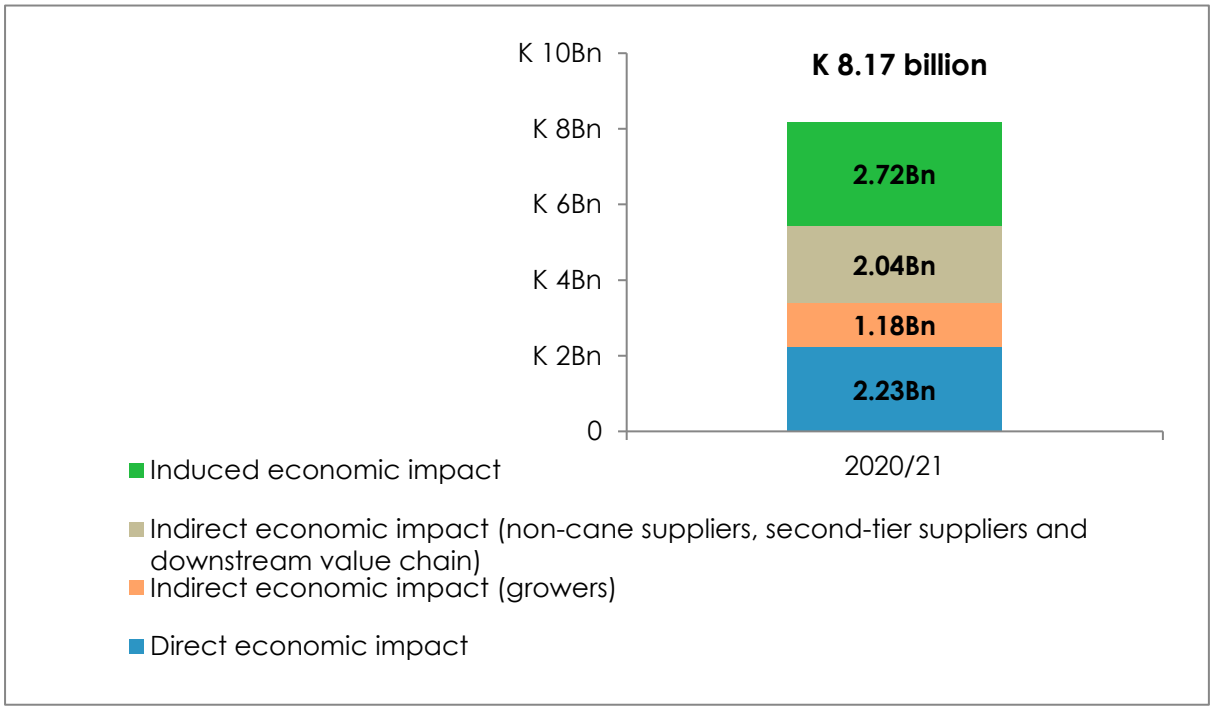
Figure 5: Zambia Sugar's direct economic impact, 2020/21 (distribution of gross value added)



Total economic impact

Zambia Sugar's total economic impact, including direct, indirect and induced impacts, is estimated at K 8.17 billion for 2020/21.

Figure 6: Zambia Sugar's total economic impacts in Zambia (estimated), 2020/21



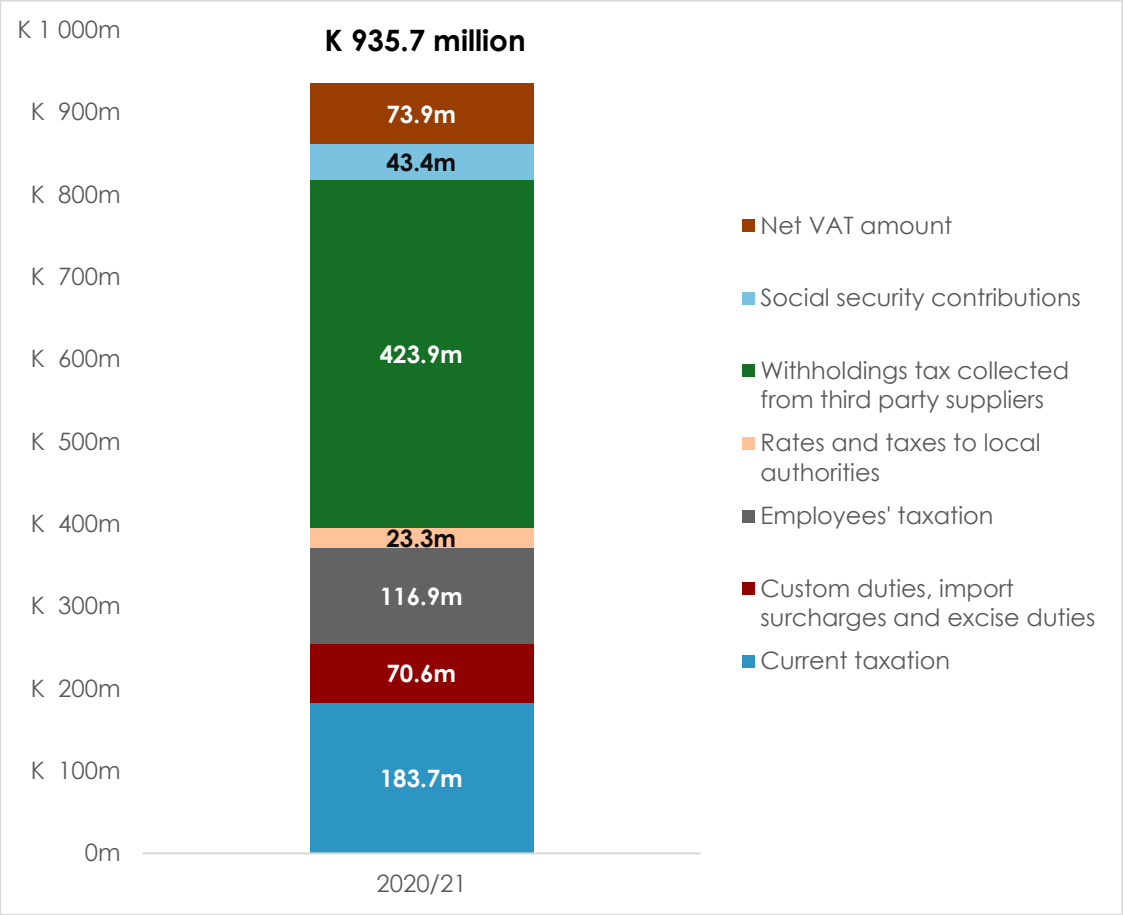
This K 8.17 billion total economic impact, when converted to ZAR for comparison with our previous report, comes to R 7.33 billion, a 38% increase on the R 5.3 billion total impact reported in 2016/2017. The largest part of this change is due to Zambia Sugar's increased revenue, contributing to a larger direct economic impact. However, the change in indirect economic impact between the two reports was also significant, at a combined R 2 billion in 2017 and R 2.9 billion in 2020/21, a difference of 41%.

Tax contributions

As the largest single mill sugar producer in Africa and the largest company in the Mazabuka District, Zambia Sugar is an important contributor to Zambia and Mazabuka's tax revenues. In 2020/21, Zambia Sugar's direct tax payments amounted to K 277.5 million while indirect taxes (which are collected on behalf of the government) totalled K 658.2 million.

Indirect taxation includes employee tax, withholdings tax, VAT, and forms of social security contributions withheld from employees' salaries. The total represents a 156% increase in total tax payments over the last four years, reflecting growing revenues and profits.

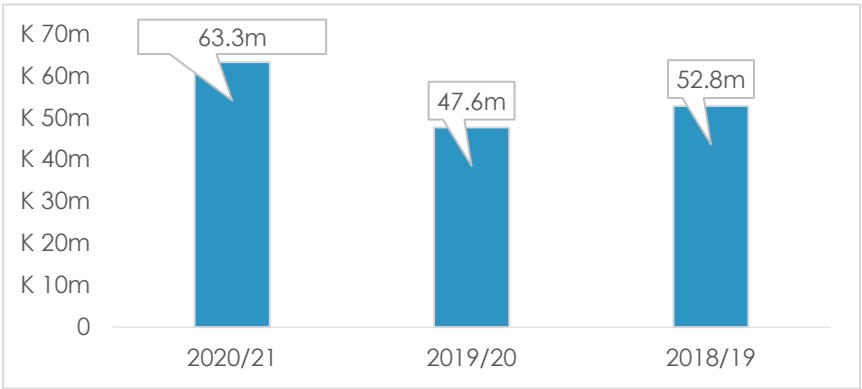
Figure 7: Zambia Sugar's tax payments, 2020/21



Capital expenditure

Since the last assessment, Zambia Sugar has spent more than K 190 million on capital investments. This is a significant reduction from the K 1.24 billion invested between 2015/16 and 2017/18 when the development of a new sugar refinery and a factory capacity upgrade was funded.

Figure 8: Zambia Sugar's capital expenditure, 2018/19 – 2020/21



Employment

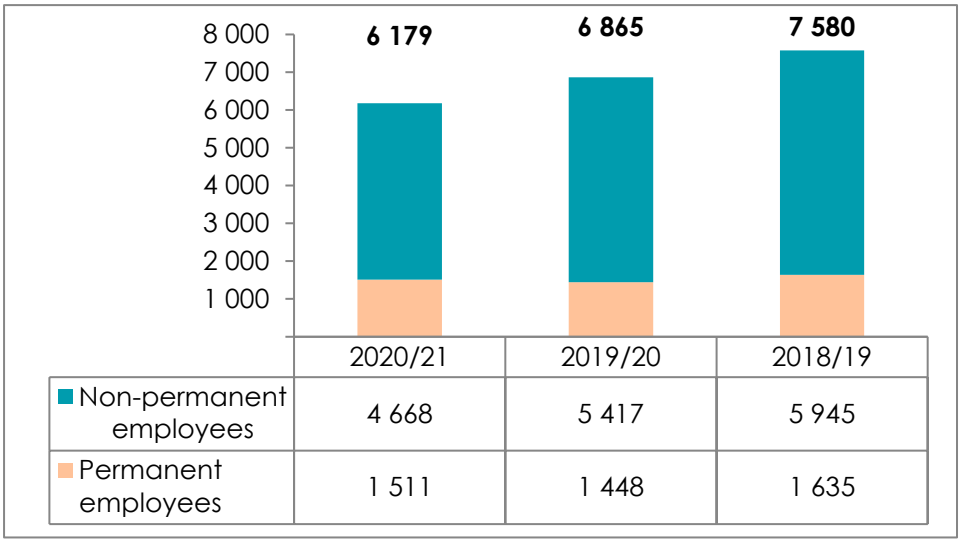
As Zambia's national policy on reviving the domestic Zambian economy is expedited by the new President His Excellency Mr. Hakainde Hichilema, our engagement revealed that Zambia Sugar continues to be praised by local leaders in Mazabuka for its substantial impact on the community and the employment opportunities it has created.

"Zambia Sugar is the biggest company in the district of Mazabuka. It is also the biggest sugar production company in the country. We are very proud to have Zambia Sugar in the district of Mazabuka."

- Oliver Mulomba

District Commissioner

Figure 9: Zambia Sugar direct employment, 2018/19 - 2020/21



	2020/21	2019/20	2018/19
Non-permanent employees	4 668	5 417	5 945
Permanent employees	1 511	1 448	1 635

"Arguably our biggest social contribution is our role as an employer.... Almost every single type of profession from farmer to HR to engineer works in our business."

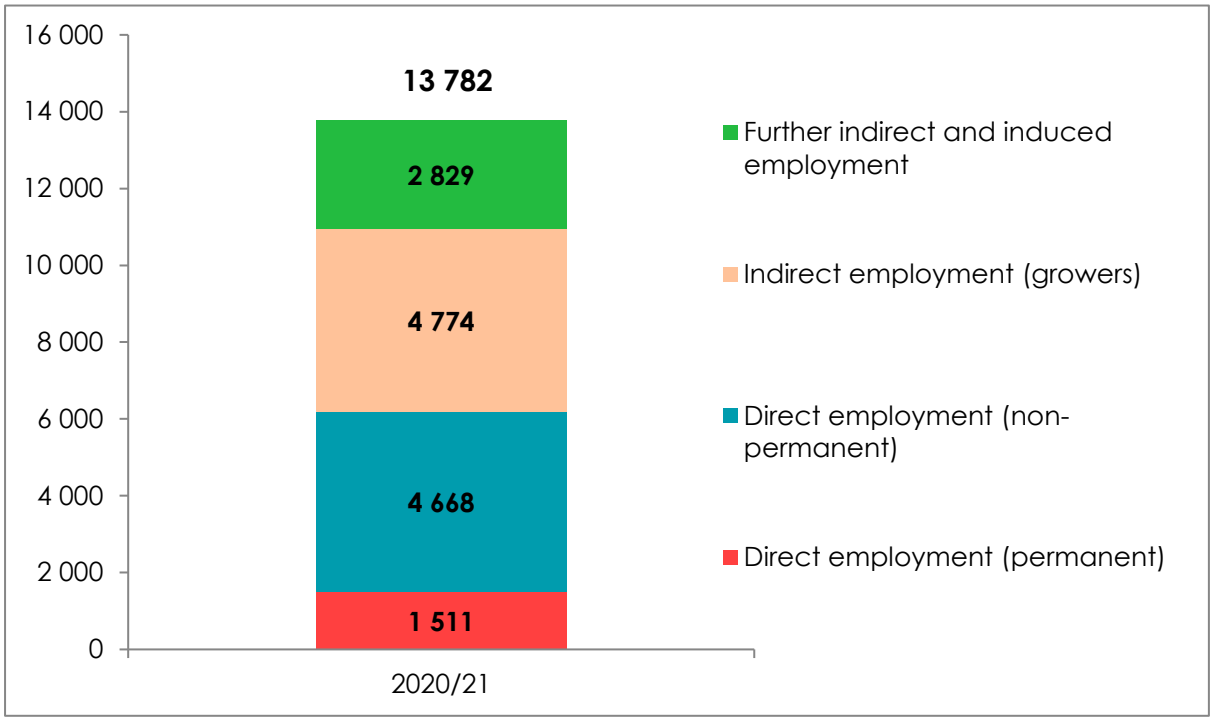
- Oswald Magwenzi, Managing Director Zambia Sugar

In 2020/21, Zambia Sugar directly employed 1 511 permanent employees and 4 668 peak non-permanent employees. We have noted that since our previous study in 2016/17, the number of permanent employees has decreased by 468, while non-permanent employees have increased by 337. Zambia Sugar indicated that the decrease in permanent employees was largely driven by many of them taking advantage of voluntary retrenchment packages resulting from the recent reset of the company's operating model, which shifted to focus more on accountability. The increase in non-permanent employees can be attributed to the agricultural operations' need for a larger workforce to harvest the growth in crops resulting from recent expansions.

Zambia Sugar paid a total of K 586.3 million to employees in 2020/21, across direct salaries, wages and other benefits, an increase of 28% on the K 456.5 million spent in 2016/17.

In addition to direct employees, 422 independent growers deliver their cane to Zambia Sugar, thereby contributing significantly to indirect economic impacts within Illovo's value chain. The business also contributes to further indirect and induced employment in Zambia. We estimate Zambia Sugar is supporting the employment of at least 13 782 people in total in Zambia, based on a conservative multiplier for the sugar industry. This means that for every direct employee of Zambia Sugar, at least 0.8 other workers are supported through grower communities and in the wider economy.

Figure 10: Zambia Sugar's total employment impacts in Zambia, 2020/21



We estimate these direct jobs provided by Zambia Sugar also contribute to supporting the livelihoods of 31 513 people once families and dependents are considered. This is based on an average household size of 5.1 people in Zambia's Southern Province.[5] Zambia Sugar's level of support will vary between households – for some, such as direct employees and seasonal workers, Zambia Sugar may well be the main contributor to household income, while in others Zambia Sugar's support will be a factor among many.

The total employment impact in 2021 increased from an estimated 11 474 jobs in 2016/17, with the biggest contributing factor being the 47% rise in the number of growers, which was then compounded further by an increase in the employment of non-permanent employees.

Accessibility & affordability

In 2020, Zambia Sugar implemented a new commercial operating model to engender a more communicative relationship with customers and consumers. One result of this we discovered was a wider variety of sugar-pack sizes and a segmented pricing approach, which should make products accessible to customers across a wider range of disposable income. This strategy may also help in unlocking new channels of distribution and new business opportunities for local workers, in turn promoting local infrastructure development. This may also have contributed to the increase of 46% in domestic sales volume between 2018/19 and 2020/21.

[5] United Nations (2013), *Average Household Size (Number of Members)*

FUTURE FACING CHALLENGES

Zambia Sugar's wide-reaching economic impacts do present challenges, as efforts to combat climate change and decrease operational emissions in the industrial sector call for changes in labour and other industrial practices. This leaves Mazabuka and further communities threatened by unemployment over the medium to longer-term. To meet this challenge Zambia Sugar is pro-actively considering potential interventions and is making changes to their employment and agricultural practices as detailed in the Sustainable agriculture section of this report. However, the company is mindful that this presents a risk to its social licence to operate and is taking all necessary and practical measures to mitigate this risk in the long-term.

As part of its mitigation efforts Zambia Sugar will need to consider taking additional steps to leverage product diversification and training programmes to ensure their employees and wider communities have the skills to maintain employment in the transition.

"Mechanisation presents a big conflict to our social licence to operate. Every job we provide is important to the community."

- Anthony Domleo, Agriculture Head

Options include partnering with the Government for diversified crops and opening market channels for domestic and regional export opportunities. Financial and training opportunities need to be provided to a wider range of potential growers. Zambia Sugar will also need to consider upskilling current workers to learn how to operate and maintain new sustainable technology.

Sustainable agriculture

Creating value from local agricultural resources in a responsible, sustainable manner provides the opportunity for multiple stakeholders to share in the beneficial outcomes of commercially orientated community projects. Through Illovo Sugar Africa's transfer of knowledge and its ability to facilitate community access to scarce resources, sugar cane becomes one of many agricultural crops contributing to rural economic growth.

Key pillar findings:
Zambia Sugar develops and promotes best practices in sustainable farming techniques, on their own cropland and in collaboration with their growers. Zambia Sugar is committed to continual improvement of best practices in sustainable farming techniques on their own cropland.

One potential long-term challenge for the company is a future shift towards mechanised green-cane harvesting, which offers several environmental benefits such as improved soil health and reduced air pollution but could present risks around employment for seasonal cane cutters. However, this transition is not likely to take place for at least 5 years, and the company is already planning to generate additional, high-quality jobs to offset this risk, as part of broader environmental initiatives such as shifting to a replant system to improve soil health.

Other key risks include challenges of farming in response to climate change, and price volatility for sugar cane potentially disincentivising continued supply from external growers. Zambia Sugar has several opportunities to address these risks and to continually improve sustainable agriculture throughout its value chain, by planning a gradual transition to green-cane harvesting, re-invigorating its grower extension support programme, continuing to explore climate-resilient cane varieties, and increasing water efficiency through transitioning to drip irrigation.

15 952 ha of Illovo-owned cropland

12 967 ha of grower cropland

422 independent growers in the supply chain

1 683 344 tonnes sugarcane produced (Illovo-owned)

1 557 587 tonnes sugarcane produced (growers)

Zambia Sugar's agricultural practices

Zambia Sugar has influence not only over the practices of the land it manages but also over the growers whom they work with. Many of the potential environmental and social impacts from sugar cane farming relate to land-use change, in particular to the conversion of land that might have been used for other purposes (such as subsistence farming, or biodiverse wild habitats) to sugar cane farming. For this reason, much of Zambia Sugar's overall approach to improving farming sustainability is to focus on increasing vertical growth, that is, achieving higher yields per hectare (ha) of existing cropland (held both by Zambia Sugar and growers). This drives the positive social and economic impacts of sugar cane production while minimising additional environmental impacts from expanding land conversion. Furthermore, if vertical growth achieves yields at a level which exceeds Zambia Sugar's mill capacity, then this could enable some land to be cycled out of cane production for a period to grow alternative food crops such as wheat, as needed.

Water use and crop irrigation

Our engagement with the agricultural team highlighted that increasing climate variability and concerns over water usage make water-use efficiency a priority for the company, and crop irrigation methods a key concern. Zambia Sugar's current goal is to decrease its end-to-end supply chain water footprint by 30% by 2030, from a 2018 base year, which will require a combination of moving to drip irrigation and green-cane harvesting.

Currently, 100% of Zambia Sugar's cropland is irrigated by various methods, making water security a prominent issue in light of future climate concerns, whereby droughts may increase in frequency and intensity and rainfall decrease in parts of the country[6]. As of 2020/21, furrow irrigation is the most used by hectare (10 300 ha), followed by pivot irrigation (5 800 ha), sprinkler/floppy irrigation and drip irrigation (1 200ha). Table 3 highlights the benefits of the various irrigation methods.

Drip irrigation offers significant opportunities for reduced water usage compared to other irrigation methods such as pivot or furrow irrigation while increasing yields. Chemical inputs such as fertilizers can also be applied through drip irrigation, and smart technologies allow these to be tracked and adjusted, thus minimising usage and costs. However, interviews demonstrated that high installation costs are a major barrier to implementation. To address this, a 14-year plan is in place to shift all sites from existing furrow irrigation to drip or pivot irrigation, with an initial pilot planned for around 600 ha. In addition to drip irrigation, Zambia Sugar is also planning to implement other water-saving upgrades to irrigation systems, including low-pressure pivots and low-energy and high-efficiency irrigation systems known as synergistic surface irrigation and drainage (SSID). Planned system upgrades during the multi-year implementation will also include surface and subsurface drainage interventions, which are important to ensure soil health is maintained long into the future.

Table 3: Comparison between different irrigation methods

	Definition	Benefits	Limitations
Furrow irrigation[7]	Establish long surface trenches, making use of gravity to let water run down between crops on the ground	• Low-cost, low-tech method • Well suited to broad-acre row crops such as sugar cane • Low energy use	• Risk of high evaporation losses • Can distribute water unevenly across row crops • Can be labour-intensive
Pivot irrigation[8]	Movable pipe structure rotating around a centre pivot, with water dripping from the top of the cane to the roots	• High efficiency • High uniformity • Ability to irrigate uneven terrain • Low capital, maintenance and management costs	• Risk of relatively high evaporation losses • Can achieve uneven application of water to crops • Wind interference
Sprinkler irrigation[9][10]	Distribution of water through the pipe system, spraying the water into the air through sprinklers	• Easy to set up • Water efficient • Less land loss • High and frequent application • Automation	• Risk of relatively high evaporation losses • High operating costs • Wind interference

[6] World Bank (2017), *Climate-Smart Agriculture in Zambia*
[7] Greenmatters (2020), *Furrow irrigation can help save water, but is it worth the labor?*
[8] Waller & Yitayew (2016), *Center Pivot Irrigation Systems*
[9] FAO (2022), *Sprinkler irrigation*
[10] Artificial Plants (2018), *10 advantages and disadvantages of sprinkler irrigation system*

Drip irrigation[11]	Development of pipe system, running along with the soil to apply water on the roots of the crops	• No evaporation, highly efficient • Directs water and nutrients directly to plant root system • Precise and controlled application possible • Soil erosion and weed growth are reduced • No labour cost after development	• Double the cost per acre compared to pivot irrigation • Can require disruptive/labour-intensive installation • Clogging of tubes can occur

Spotlight on Kafue Flats Joint Action Group

The Kafue Flats floodplain is known as the 'economic engine of Zambia', and provides a range of ecosystem services, including generating 50% of Zambia's electricity via hydropower, purifying water contaminated by mining activities on the country's Copperbelt area, and supporting one of Zambia's most productive fisheries. The Flats are also a key water source for Zambia Sugar's activities. However, this water resource is becoming over-utilised and degraded by economic activities.

To contribute to the preservation and restoration of this critical water source, Zambia Sugar has joined the Kafue Flats Joint Action Group (KFJAG), a multi-stakeholder organisation with private, governmental, and non-governmental representatives, including the World Wildlife Fund (WWF). In 2020, Zambia Sugar signed a memorandum of understanding to formalise its commitments within the partnership, including contributing to sustainable water management and responsible stewardship of water leaving its operations, participating in the KFJAG's governance, and participating in advocacy to protect the body of water.

Crop harvesting and the move to green-cane

Currently, Zambia Sugar harvests 100% of its own sugar cane using cane-burning methods followed by manual harvesting. Cane crops are burned to remove brownleaf from the crop without damaging any of the inner sugar content. Burning the cane enables cane cutters to harvest the cane stalks using cane knives. Without pre-burning, the cane must be stripped of its leaves and other plant material (called trashing) in order to facilitate infield loading and transport operations, and optimal processing of the cane in the factory. While efficient, the burning process creates air pollution that could be eliminated via mechanised green-cane harvesting. Whilst the cane-burning process emits some greenhouse gases, these may be seen to be balanced out as a result of carbon sequestration by the cane as it grows. It is recommended that Zambia Sugar explores measuring and reporting the impact of these biogenic cycles in more detail in future, with reference to a methodology such as the Greenhouse Gas Protocol's emerging guidance specifically for land sector and removals[12].

Mechanised green-cane harvesting can offer various environmental benefits, primarily the reduction of air pollution from burning, and the improvement of soil health through increased crop residues being left to decompose and return to the soil. While the shift to mechanised

[11] Sharaf, B. (2022), *Advantages and disadvantages of drip irrigation*
[12] Greenhouse Gas Protocol (2022), *Land Sector and Removals Initiative*

harvesting may present a long-term risk around shifting employment patterns for seasonal cane cutters employed by the company, Zambia Sugar is aware of the risk and managing such a transition carefully in future has been highlighted as a priority for the company. While completing a transition to mechanised harvesting is not yet within the company's 5-year strategic plan, the company's Agriculture team has nonetheless begun implementing some preparatory works to gradually transform their cropland to accommodate mechanised harvesting. Preparations include all new fields replanted being landformed, and cane planted on beds using Global Positioning System (GPS) guidance to enable fields to be mechanised harvesting-ready. These efforts, together with further plans to transition to a replanting system to develop green manure crops (more details under "Soil Health" below), should generate additional employment to help offset the risk presented by mechanised harvesting, in addition to the quality of jobs improving as part of these processes.

Chemical inputs: pesticides and fertilizers

Zambia Sugar currently uses selected chemical inputs for sugar cane farming. The use of chemical inputs must be balanced between the need to increase yields without expanding land conversion and minimising negative impacts on the soil and runoff.

Our engagement in the country indicated that a number of processes are in place to reduce and monitor chemical inputs. For example, at each harvest, a soil sample is taken to check nitrogen content and the quantity of fertilizer needed. Sun hemp is planted as a cover crop between harvests, to help recycle plant nutrients in the soil and to replenish organic matter content. Additionally, irrigation cut-off points prevent excess application and water runoff into rivers. Zambia Sugar's move towards increased drip irrigation will also allow more precise application of fertilizer through the drip system. However, Zambia Sugar could do more to reduce the need for chemical inputs, especially as prices continue to rise for these products. More could be invested in alternative methods of pest control, such as natural control methods or alternative cane varieties. Furthermore, Zambia Sugar can take advantage of recent government approval for drone usage to allow for more precise application of pesticides in future.

Soil health

Soil health is important for long-term productivity and biodiversity. Through our engagement, we found Zambia Sugar uses a combination of natural fertilization methods alongside changes to harvesting, tillage and the use of complementary species to improve and maintain soil health. One project of note is that Zambia Sugar is transitioning into a replanting system over the next three seasons whereby every replant field will eventually have a green manure crop. The purpose of this generally leguminous crop is three-fold: namely, breaking pest and disease cycles by breaking the monocrop; introducing organic matter into the soil, which increases water- and nutrient-holding capacity; and naturally fixing nitrogen in the soil (up to 60kg nitrogen per hectare).

Biodiversity

Zambia Sugar's operations in the Nakambala estate fall within the Kafue Flats wetland area, which is a listed Ramsar site of international importance for high biodiversity. The area is home to many bird species including cattle egret, wattled crane, and several fish species. The company's internal environmental policies aim to mitigate operational risks to nearby wildlife, through measures such as driving slowly to reduce dust emissions and avoid collisions with animals.

Sustainable farming innovation

During our engagement, it was apparent that Zambia Sugar often implements sugar cane farming sustainable best practices on its own cropland, with a number of ongoing and future planned initiatives identified.

Diversifying cane varieties has been a particular focus as this helps to increase tolerance to various conditions such as pests and diseases. We learned that the company is partnering with WWF to identify and develop drought-tolerant cane varieties, to prepare for the impacts of climate change. Zambia Sugar farms currently grow 12 varieties of cane, with three main types.

Farm employees are also encouraged to come up with new ideas to be more sustainable. For example, one farmer suggested capturing water runoff, which normally returned to the river, and using this to irrigate the crops. This was implemented and resulted in a yield improvement from 115 tonnes to 130 tonnes per hectare in the affected area. Zambia Sugar incentivises successful ideas such as these, with staff rewards.

> *"Previously, Zambia Sugar had a 'do as I say' approach, with no input from farmers. However now they want to get input and ideas from farmers, with multiple successful projects resulting from this new approach."*
> - Farm agriculture team member

Grower livelihoods and agricultural practices

Grower livelihoods

Some of Zambia Sugar's most significant economic and social impacts are made through the agricultural supply chain. More than 48% of Zambia Sugar's supply comes from independent growers, with the remainder coming from the company's own land. These independent growers include co-operatives and other commercial growers (18), as well as small-scale growers (404). Altogether, these different farming groups employed 4 774 seasonal workers during the reporting year.

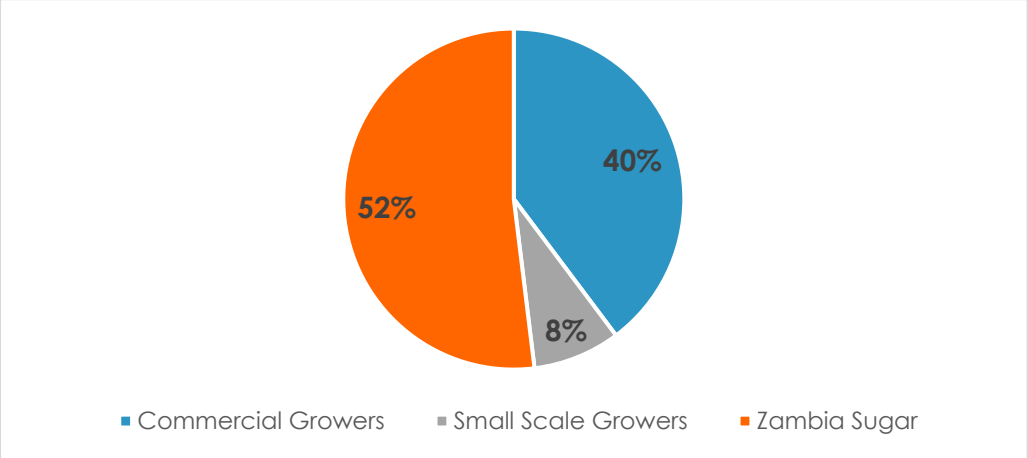
> *"Zambia Sugar employs around ~6 200 people, many with high-skilled jobs. If you take out Zambia Sugar, **the town of Mazabuka would struggle to exist**."*
> - Oswald Magwenzi, Managing Director

These small-scale growers are independent farmers within the areas surrounding the company mills. Zambia Sugar purchasing from these growers provides income in rural areas, where 82% of Zambia's poor reside. Rural poverty continues to be an issue in Zambia, where this poverty is increasing as opposed to the situation in urban areas where poverty is decreasing.[13]

Zambia Sugar's business model relies on growers being able to continue farming high-yield sugar cane for the long-term, to ensure a stable supply of cane to meet its factory capacity and production demand. It is therefore in Zambia Sugar's direct interests to promote high-yield, sustainable agricultural practices among growers. During the engagement, it was noted by some growers that Zambia Sugar should engage regularly with growers to share sustainable best practices and knowledge from the Illovo Group's SUSFARMS® environmental management programme. Zambia Sugar should leverage this programme of support to increase the resilience and yields of its supply chain partners in the long-term. Through such engagement, the company has an opportunity to optimise sustainable farming practices across the 12 967 ha of land currently managed by growers.

[13] World Bank (2020), *Poverty & Equity Brief: Zambia*

Figure 11: Contribution of different producers to total sugar cane production (%)



Spotlight: Rolling Thunder International Ltd (RTI)

Rolling Thunder International Ltd (RTI) is a Zambian family business that offers diversified products and services across the agricultural value chain. These include cane cutting, haulage, transportation, grain storage, milling, feed lotting, and abattoir management, in addition to producing diversified crops including sugar cane. Zambia Sugar is RTI's biggest customer. RTI has provided sugar cane to Zambia Sugar for 25 years, as well as services of cane haulage, transportation, and employing cutters. During cane cutting season, RTI can employ more than 1 600 people, and 400-500 during off-season.

"A lot of Rolling Thunder's success and growth is a result of Zambia Sugar. We are conscious that we are responsible for the employment of many people, and we rely on Zambia Sugar to achieve and sustain that."

- Chucky D Cantlay, Rolling Thunder, Director of Operations

Figure 12: Volume of sugar cane from company and grower land, 2018/19 - 2020/21

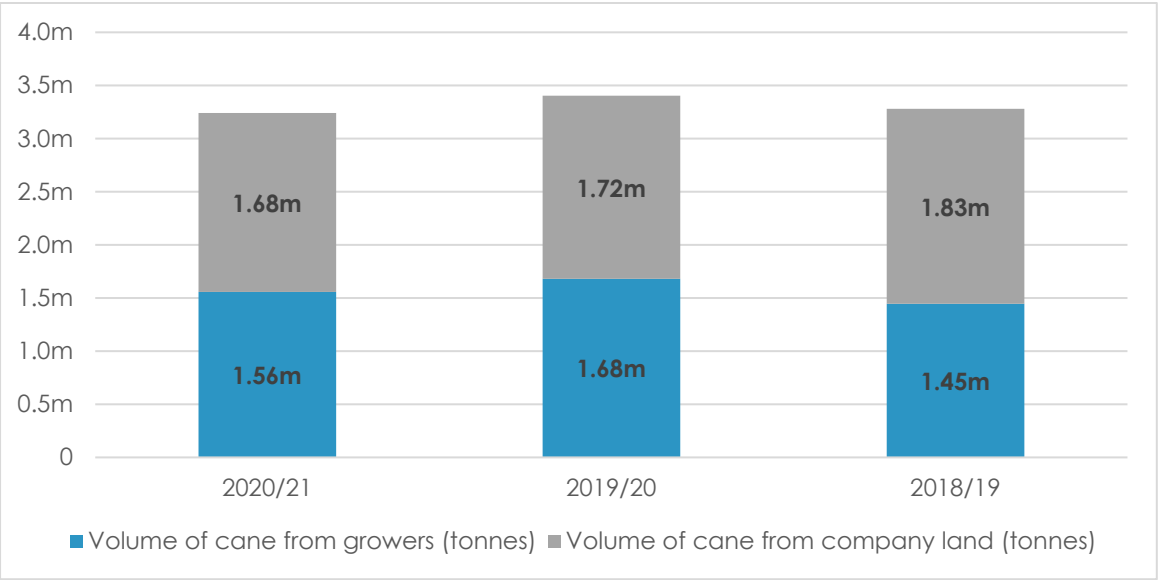
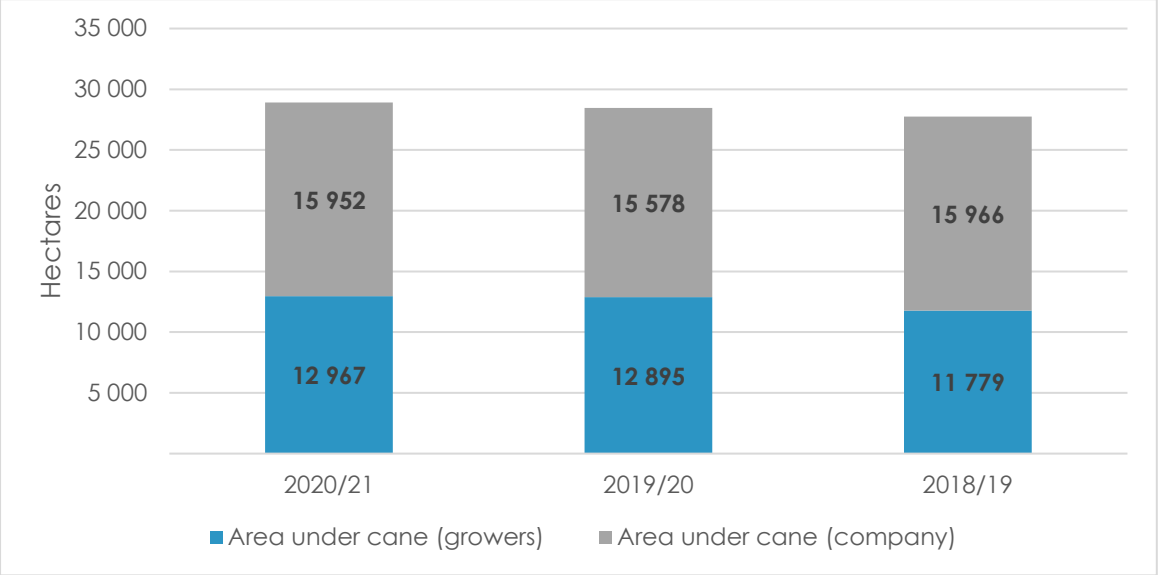


Figure 13: Area of land under cane for both growers and company land, 2018/19 - 2020/21



Grower agricultural practices

Current grower agricultural practices & key challenges

Irrigation: Most growers supplying Zambia Sugar currently use furrow irrigation, however many are initiating drip irrigation trial plots. For example, the KASCOL Grower Organisation currently have 150 ha of drip irrigated crops, with plans to double this area over the next year. Most of Rolling Thunder's crops are under pivot irrigation, and in future looking to move to drip irrigation. Climate change is often cited by growers as a major motivation for changes in irrigation as concerns rise over increasing temperatures and water shortages. Moving towards drip irrigation also supports reduced usage of chemical inputs as fertilisers, pesticides, and herbicides can be applied more precisely via the irrigation system. Applying chemicals through drip irrigation will help to reduce health-and-safety risks through employee contact with chemical inputs. Rolling Thunder is also planning to start using soil probes to maximise the efficient application of irrigation and chemical inputs.

Harvesting: Some larger corporate growers use mechanised harvesting, but most small growers and co-operatives use cane-burning methods. Some growers expressed interest in moving to green-cane harvesting but note the barrier of financing equipment. RTI pointed out the risks to cane-cutter employment posed by the transition to mechanisation.

Chemical inputs: Growers noted that Zambia Sugar has access to more sophisticated pesticides than themselves, and subsequently they are at a comparative disadvantage when protecting crops against pests. There may be an opportunity for Zambia Sugar to offer more support around sharing access to pesticides. Other growers, notably RTI, noted the increasing cost of fertilizer was driving incentives to lower its use, either by more precise application or by complementing chemical fertilizer use with alternative methods.

FUTURE FACING CHALLENGES

Zambia Sugar's plans in the field of sustainable agriculture are ambitious but come with challenges.

Zambia Sugar has plans in place to make aspects of agricultural production more sustainable, including moving to drip irrigation, shifting to a replanting system to improve soil health, and in the long-term, preparing for a gradual transition to mechanised green-cane harvesting. However, the capital investment required for these is a major barrier to quick implementation. Zambia Sugar is also aware of the potential risks to shifting employment within the local community resulting from the long-term shift to mechanised harvesting and are actively planning how new and high-quality jobs may be developed as part of these broader transitions.

A key challenge is supporting growers in the transition to more sustainable methods in light of increasing weather and temperature variability driven by climate change. Climate impacts will be felt in both Zambia Sugar's own estate and by growers, potentially affecting sugarcane production and livelihoods. Growers noted that financial and training assistance was needed to create access to chemical inputs to protect against pests and for changes in irrigation methods such as drip irrigation. Continuous and positive engagement is needed with growers to ensure they can keep pace with upcoming shifts and continue to benefit from Zambia Sugar's success.

Value and quality-driven industry

Building on Illovo Sugar Africa's 130-year success in sugar and downstream product manufacture on the African continent, while actively encouraging innovative commercial community opportunities aligned to Illovo Sugar Africa's core expertise, is a powerful combination invited by Africa's governments to unlock national growth in the countries in which Illovo Sugar Africa's businesses operate.

Key pillar findings: Zambia Sugar provide consistent demand for external growers to sustain sugar production and cultivate dependable livelihoods and promote circular economy principles through operation of their own facilities, notably by generating renewable electricity through sugar processing operations.

Zambia Sugar also continues to set and enforce stringent safety standards. Key drivers are the health, safety and quality of jobs for its employees and product quality. Of particular note is Zambia Sugar's minimum wage, which has consistently been well above the national Zambian average and continues to increase year-on-year.

Environmental impact of operations

96% of energy production from renewable sources (2020/21)

8% reduction in scope 1 & 2 emissions (2019/20 to 2020/21)

118 866 MWh renewable energy generated (2020/21)

Energy consumption and production

In 2020/21 more than 96% of Zambia Sugar's energy consumption came from renewable sources, primarily generating electricity from burning bagasse, a fibrous residue from sugar cane crushing, and <1% of renewable electricity generation from wood fuel. Non-renewable sources include electricity from the national grid, petrol and diesel. Zambia Sugar's total scope 1 & 2 greenhouse gas (GHG) emissions for 2020/21 were 832 512 tonnes of carbon dioxide equivalent (tCO2e).

All of Illovo Sugar Africa's sugar factories, including Zambia Sugar's, generate renewable electricity as a by-product of processing the sugar cane into commercial sugar. Electricity is generated primarily from using bagasse as a fuel. During 2020/21, Zambia Sugar's factory, with sugar production capacity of 445 000 tonnes and an electricity generation capacity of 40 MW, generated 118 866 MWh of renewable electricity. In future, Zambia Sugar plans to expand the generation capacity by an additional 18 MW. By producing its own renewable energy, Zambia Sugar is cutting costs and reducing reliance on the national grid, while helping to mitigate the impacts of climate change through reduced greenhouse gas emissions. Moreover, new government policy allows companies to sell excess electricity back to the grid, increasing motivation for improved energy production.

Operational emissions

Zambia Sugar currently measures its GHG emissions from scope 1, 2, and some scope 3 activities. In 2020/21, 97% of Zambia Sugar's carbon footprint comes from scope 1 activities, and this category is dominated by emissions from burning bagasse (90% of the overall scope 1, 2 and 3 combined footprint), a renewable fuel burned as part of the sugar cane production process. While emissions from bagasse are here reported as the majority of Zambia Sugar's overall footprint, research suggests that bagasse can be considered a "greenhouse gas neutral" renewable fuel, due to the carbon that is sequestered in the cane as it grows.[14] The potential impacts of this greenhouse gas sequestration are not yet measured or reflected in Zambia Sugar's emissions reporting. It is recommended that the company explores how to measure these impacts, for example using the Greenhouse Gas Protocol's Agricultural Guidance[15], or emerging guidance for land sector activities and carbon dioxide removals[16].

Other emission sources include emissions from reared cattle as part of the Nanga Farms business, diesel and petrol fuel, and emissions from burning biomass materials such as sugar cane and wood (scope 1); emissions from imported electricity (scope 2); and some fuel emissions from 3rd party transport and distribution (scope 3). Zambia Sugar's total measured scope 1, 2 and 3 greenhouse gas emissions for 2020/21 were 845 842 tCO2e. This was equivalent to 18% of Illovo Sugar Africa Group's total greenhouse gas emissions in 2020/21.

Currently, Zambia Sugar only measures emissions from selected scope 3 activities, including third-party transportation and distribution services. In future, it is recommended that Zambia Sugar assesses its full scope 3 emissions in accordance with the GHG Protocol's 15 categories[17], to understand the full climate impacts of its value chain, and associated climate-related risks and opportunities.

[14] O'Hara & Mundree (2015), *Cogeneration of sugarcane bagasse for renewable energy production*
[15] Greenhouse Gas Protocol (2022), *GHG Protocol Agricultural Guidance*
[16] Greenhouse Gas Protocol (2021), *Update on GHG Protocol Carbon Removals and Land Sector Initiative*
[17] Greenhouse Gas Protocol (2022), *Corporate Value Chain (Scope 3) Standard*

Figure15: Zambia GHG emissions by source over time (tCO2e), 2018/19 - 2020/21

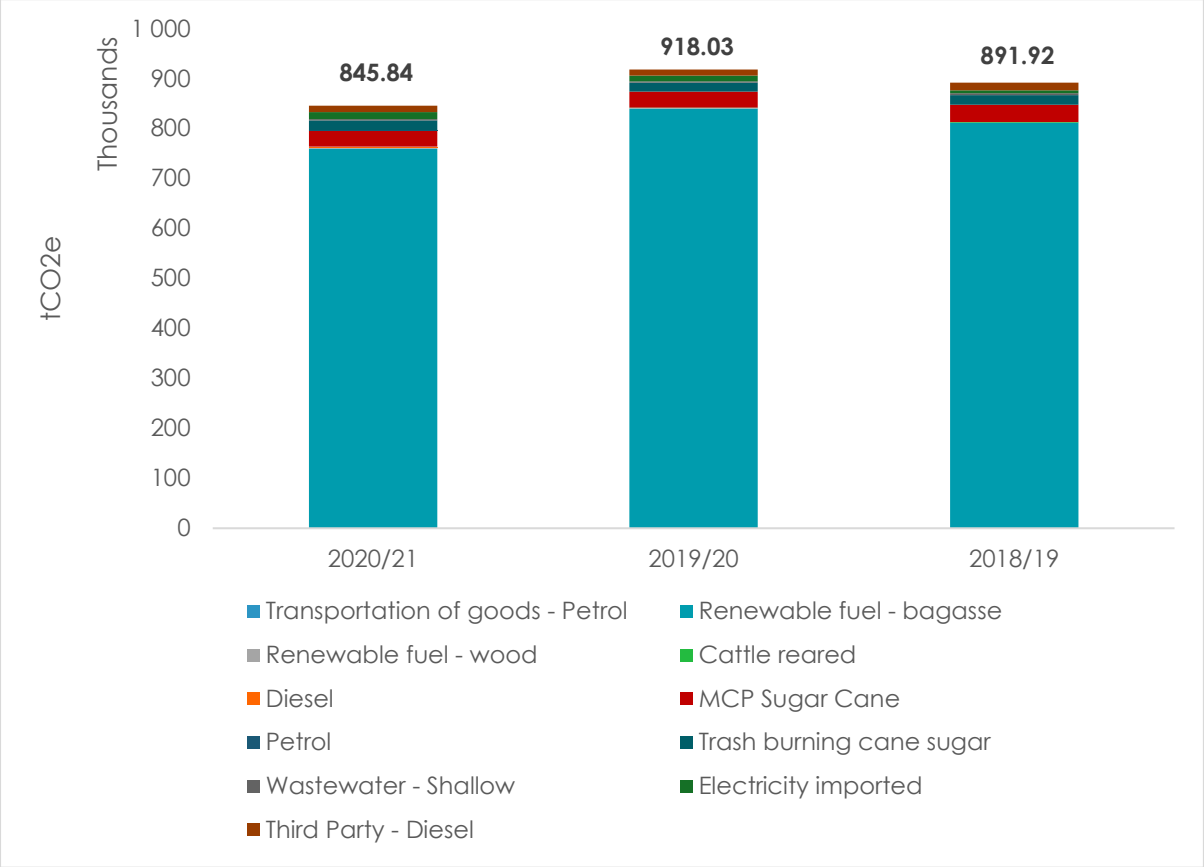
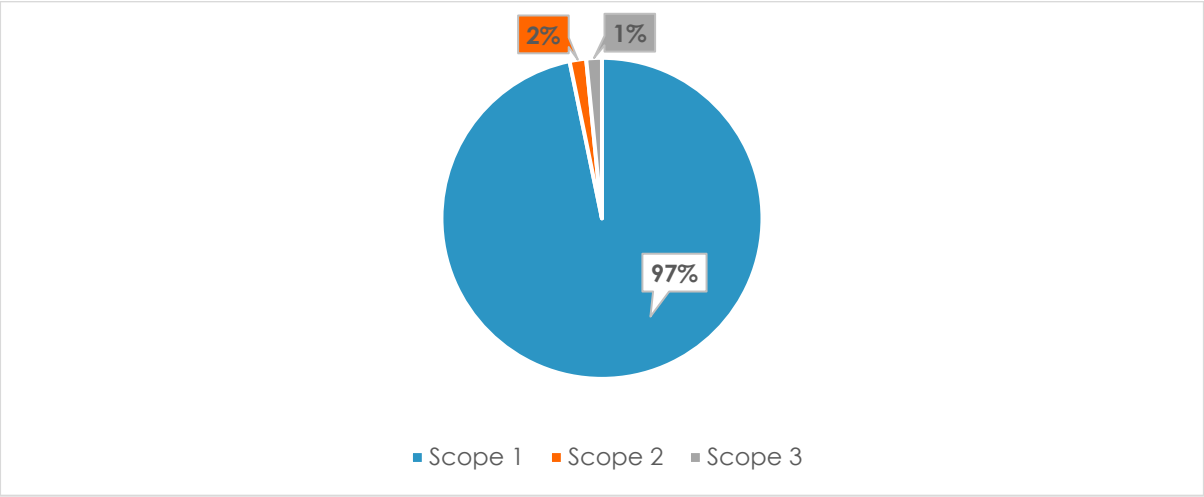


Figure16: Zambia Sugar's GHG emissions by scope (tCO2e), 2020/21



Zambia Sugar has plans to increase its generation of renewable energy from existing raw materials, along with increasing production efficiency. These plans are supported by the transition to green-cane harvesting, as this would capture more fibre during harvesting which could be used for electricity generation. At the same time, new high-pressure boilers are being considered which would allow for the recycling of steam for increased energy generation. These plans would further reduce Zambia Sugar's operational emissions.

Water use and discharge

In addition to crop irrigation, Zambia Sugar requires water for factory processes such as heating, cooling, and cleaning. A total of 216 718 megalitres were abstracted over 2020/21. Of this 99% came from surface water sources, primarily the Kafue River, with the remainder sourced from groundwater. While the company draws water from the Kafue River, it also captures water used by the factory and recycles it in one of six water treatment plants on the Nakambala estate, to reduce overall abstraction. Any remaining wastewater is returned to the source and the company monitors contamination levels of water leaving its estate, to comply with regulatory limits set by the Zambia Environmental Management Agency (ZEMA) and Water Resources Management Authority (WARMA). Zambia Sugar also reports to the Alliance for Water Stewardship (AWS) standard and has gained AWS accreditation.

At the time of reporting, Zambia Sugar was also working on a number of initiatives to further increase operational water efficiency. These include ongoing maintenance to reduce leaks and improve durability in bulk water infrastructure, as well as exploring water harvesting at two sites where water runoff can be captured and returned into bulk water infrastructure to be re-used.

Operational waste

Many aspects of Illovo Sugar Africa's factory operations embody circular economy principles. By-products are re-purposed as part of various other operations. By-products of the sugar-production process that are created along with renewable electricity include fly ash molasses, potable ethanol, and carbon dioxide. Ash is captured and mixed with filter cakes to reuse as fertilizer on Zambia Sugar's crops. Currently, molasses is either sent to ethanol producers, used in animal feed or applied to roads as a method to reduce road dust. During the COVID-19 pandemic, the molasses by-product was also re-purposed to make sanitiser. Zambia Sugar is looking at the prospects of setting up a local ethanol plant to meet the potential demand for local distribution as well as exporting to the Democratic Republic of Congo (DRC). Finally, the company has also identified the potential to capture the excess carbon dioxide from processing and divert these to greenhouses to expedite the growth of tomatoes.

Zambia Sugar also has waste collection and recycling separation infrastructure on site. Although general waste disposal and recycling infrastructure are limited within Zambia, the company aims to stimulate this industry by offering low-priced recyclables to recycling companies.

Decent work and quality of jobs

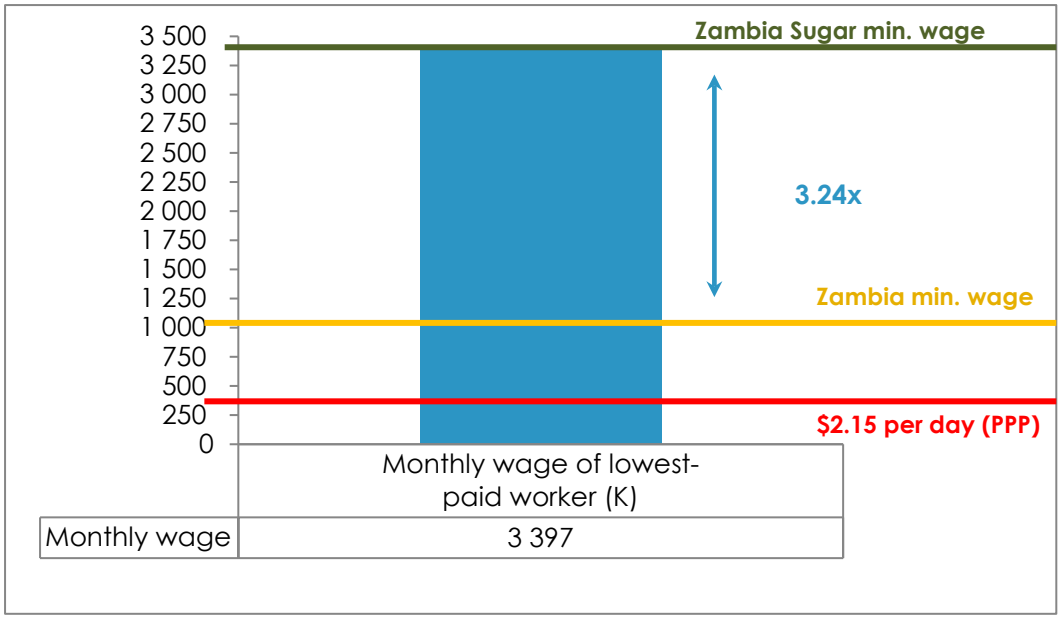
As a direct employer of 6 179 people in Zambia, Zambia Sugar needs to ensure it is driving best practices to create high-quality jobs that attract and retain staff. The nature of the industry means there is a need for seasonal and contract workers alongside higher-skills roles such as engineers, technicians and business management professionals.

K 3 397 Zambia Sugar monthly minimum wage	**3.24x** higher than Zambian minimum wage	**K 165,000** invested in safety training
K 1.07 billion spent with non-sugar suppliers	**0** Fatalities recorded 2018/19 - 2020/21	**K 1.2 million** spent on training

Minimum wage

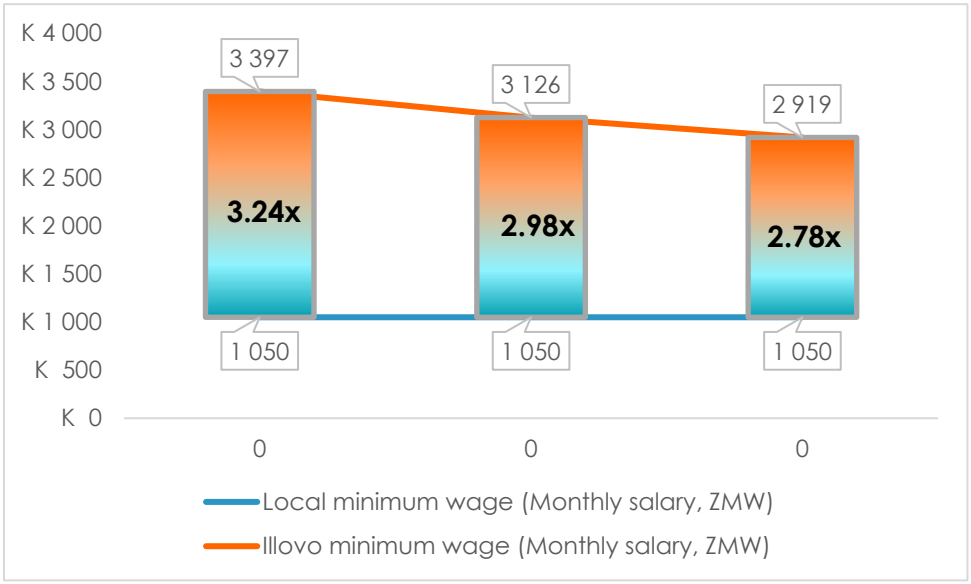
Zambia Sugar monitors salary levels to ensure that they are compliant with in-country legislative requirements, and the company's salary levels substantially exceed both Zambia's legislative requirements and the World Bank poverty line of $ 2.15 PPP per day.[18]

Figure17: Zambia Sugar's lowest monthly wage against the national monthly minimum wage



[18] World Bank (2022), *Measuring Poverty*

Figure 148: Rate of growth between Zambia Sugar's minimum monthly wage against the national minimum wage, 2018/19 - 2020/21



s

In 2020/21 Zambia Sugar paid their employees 3.24 times more than the national minimum wage. And despite the minimum wage remaining flat over the last three years, Zambia Sugar has maintained a steadily growing difference between this and what they pay their employees.

Employees can raise grievances through the formal means of collective bargaining agreements with unions and in-house country dispute-resolution mechanisms. Seventy-six percent of Zambia Sugar's employees are covered by collective bargaining agreements, down from 76% in 2016/17. This may be a relative decline, following the merging of roles following Zambia Sugar's operating model's reset, leading to the elevation of some roles.

Occupational health, safety & development

During our site visit, we observed that employee safety remains a priority for Zambia Sugar. The "4 steps to Safety" plan was evident in every entry point of Zambia Sugar's estate, factory, and individual buildings. In addition, a new safety slogan and "9 critical life-saving rules" were introduced via training and signage and targeted toolbox topic talks in all operational areas in Nakambala, Lusaka and Ndola.

> **"SAFETY, MY RESPONSIBILITY, OUR WAY OF LIFE"**
>
> -Zambia Sugar Safety Slogan

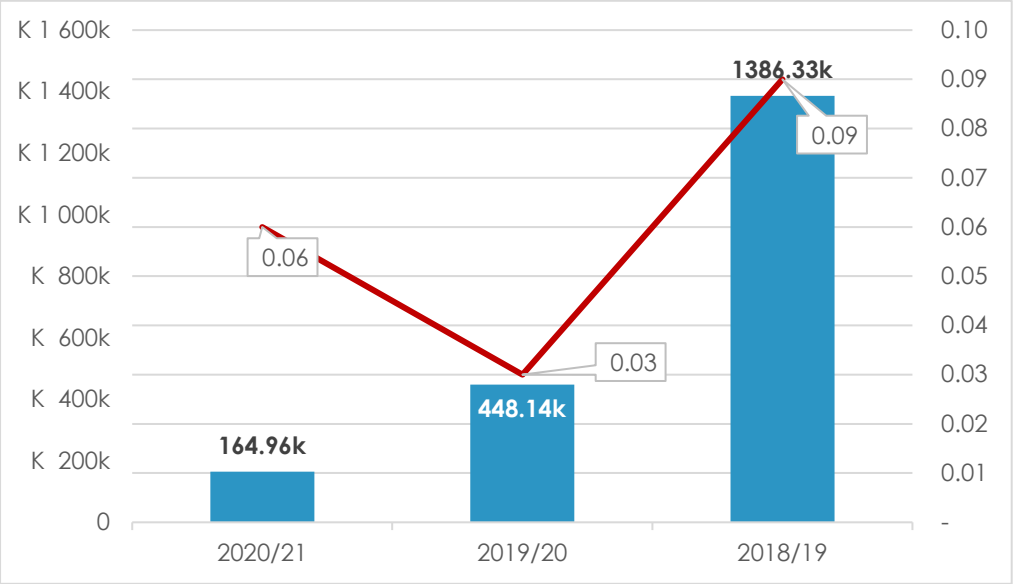
To encourage employee participation and transparency, suggestion boxes for safety, health environment, risk & quality (SHERQ) have been placed at strategic operating locations to gather employee feedback on their working conditions. There have been no fatalities over the past three years, although the lost time injury frequency rate (LTIFR) has slightly increased from 0.04 hours lost due to injury per 200 000 hours worked in 2016/17 to 0.06 in 2020/21. It should be noted, however, that this remains low and beneath the company's annual target of 0.09.

Safety training

Investment in safety training has decreased by 88% since 2018/19 from K 1.4 million to K 165 000 due to the impact of COVID-19 which resulted in limiting training to mostly online training and

that which involved limited physical contact. Zambia Sugar emphasised the great focus it places on safety, and that investment in safety is always considered meaningful regardless of the cost. As of 2020/21, fatalities remain at 0 and the LTIFR remains low. Our assessment indicates the company's work to instil a culture of safety and implement reliable safety infrastructure may have also reduced the investments in safety training during this period.

Figure 159: Zambia Sugar's total investment in safety training (K) and LTIFR, 2018/19 - 2020/21

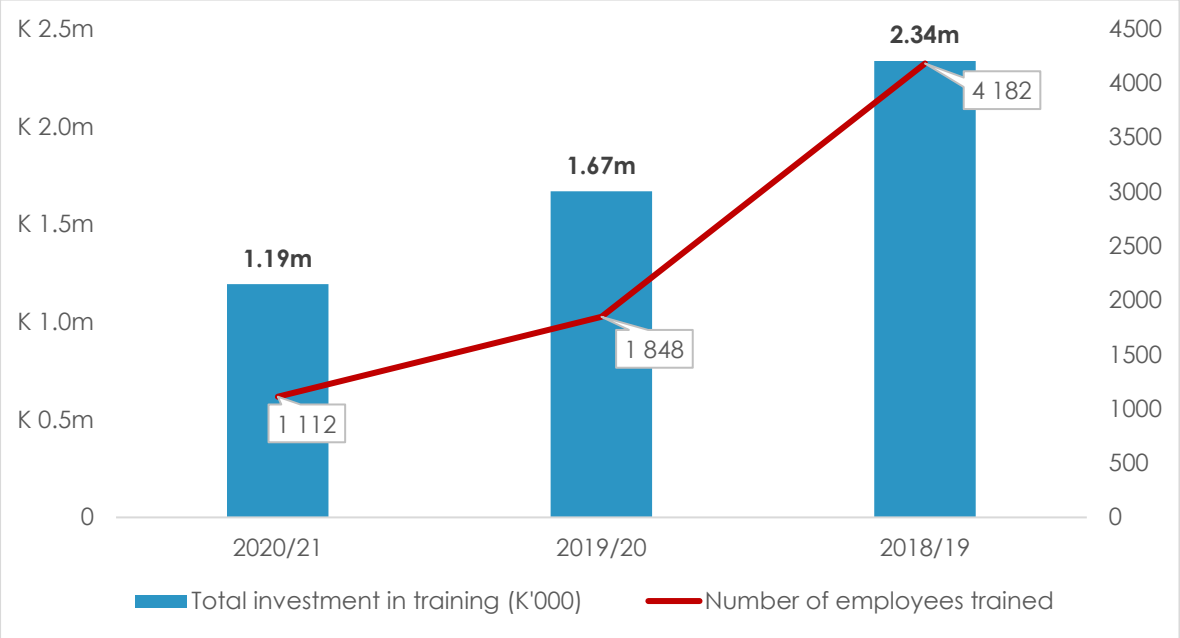


Other training & job opportunities

The company also invests in technical training for factory and agricultural employees to align them with technological changes and provides Internship training from various training institutions as a contribution to natural skills development and a commitment to provide quality jobs. Zambia Sugar invested K 1.19 million in training and development in 2020/21, involving 1 112 employees.

Both the number of employees trained and the amount invested in training fell year-on-year from 2018/19. This may be due to the winding down of a successful programme by SHERQ for agricultural workers and a turn towards providing IT training for the less numerous workers in business operations.

Figure 20: Zambia Sugar's total investment in training (K)and number of employees trained, 2018/19 - 2020/21



Product Safety

Zambia Sugar implements food safety and quality management system policies to assess manufacturers, aiming to hold them accountable for satisfying the needs and expectations of customers and other stakeholders, whilst producing and supplying safe and consistent quality sugar and cane-sugar products.

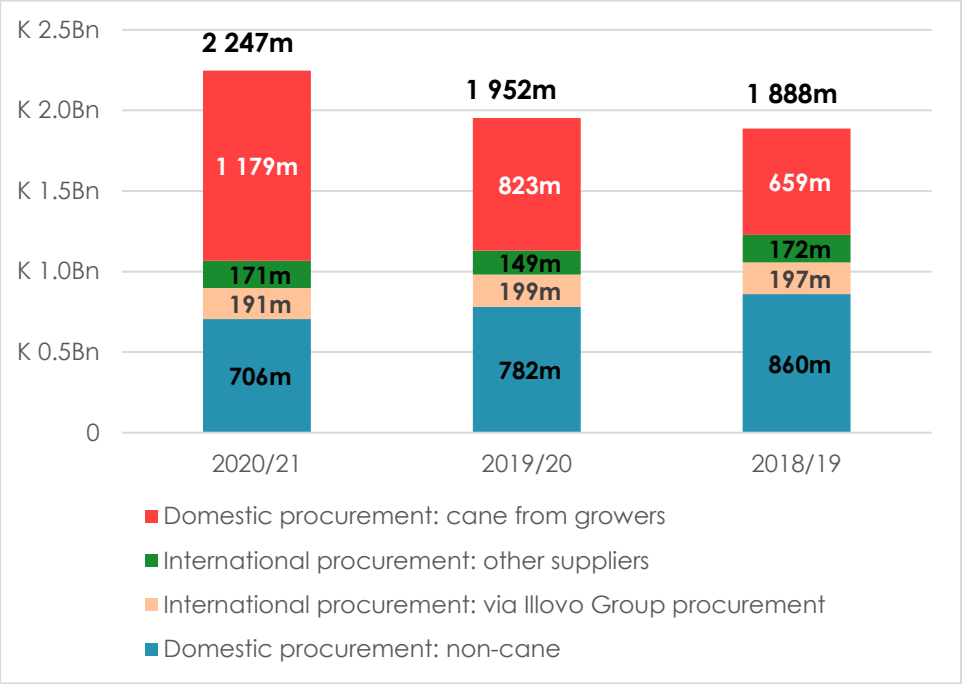
In addition, in 2020/21 the company introduced centralised customer service. In 2020/21 Zambia Sugar maintained and/or passed six external food-quality audits and certifications including Supplier Guiding Principles (SGP), South African Bureau of Standards FSSC 22000 Certification, KOSHER, and the Kenya Bureau of Standards Diamond Mark of Quality.

Value chain impacts

Procurement

Zambia Sugar's procurement spending has created opportunities for economic diversification and resource creation, particularly amongst local businesses. In 2020/21 Zambia Sugar spent K 1.2 billion with domestic cane suppliers and K 706 million on domestic non-cane procurement resulting in total domestic procurement falling 41% less than that spent with domestic Zambian suppliers in 2016/17. The company attributed this to the supply chain disruptions caused by the impact of the COVID-19 pandemic.

Figure 1621: Zambia Sugar's supplier spending, 2018/19 – 2020/21



Retail and distribution

Since 2017, our assessment found that Zambia Sugar has implemented a new operating model with a focus on creating sustainable customer relationships and fostering supplier development. This is coupled with the route-to-consumer strategy, focused on the creation of sustainable customer service by building relationships with everyone involved in the distribution channels, financial capability development for resellers and a supplier development programme.

Some emphasis has been placed on reseller capacity-building initiatives. These include the Whitespoon Reseller Loyalty Club which includes prizes such as paid trips. The initiative has resulted in a year-on-year reseller retention rate of almost 100%. Building reseller capacity brings multiple benefits to the wider community, such as greater access to products, job opportunities, and more dependable income streams for resellers, which in turn strengthen local economies.

FUTURE FACING CHALLENGES

There will always be challenges and room for improvement when it comes to employee safety, success and product quality. In the case of Zambia Sugar, the key area we have identified to focus on for the future investment in training.

Training is fundamental to employee success, and a key ingredient of a value-driven industry. It supports career development, essential skills, and contributes to a happy and safe workforce. Over the past three years, Zambia Sugar has seen a substantial rise in net profit but a decline in training. The SHERQ training programmes were indeed a success for agricultural and factory workers, but it remains important to keep evolving and adding training programmes.

Community connected

Collaborative and cooperative stimulation of economic activity, hand-in-hand with the people, civic structures, and the governments of local communities, strengthens the growth and development of African nations.

Key pillar findings:

Zambia Sugar's community impacts take multiple forms including economic opportunities for local players via the value chain as well as supporting its estate and the wider communities in areas such as health, education, and infrastructure. However, with the rapid growth of the community, utilities and services provided by Zambia Sugar, such as water supply to communities, waste management (including refuse collection) and health care provision, are being put under pressure. Zambia Sugar should work with the local government to understand their respective roles and identify any areas where Zambia Sugar could be most useful, versus those areas where the government is best placed to serve the community and build internal capacity more clearly.

In addition, while the company has started to create policies that make it easier for women to participate in the workforce, it should consider creating more targeted programmes to hire and train women, particularly at the management level.

5 759
employees receiving medical check-ups

633
COVID-19 vaccinations

17%
women in overall permanent workforce

K 21.96 million
spent on the community

76%
of Zambia Sugar's employees are unionised

There are many elements to creating thriving communities. Zambia Sugar's impacts range from how the business provides support to its employees and families on its estates such as medical treatment, to how it addresses challenges such as human rights, child labour and gender diversity within its own operations and in the value chain. Zambia Sugar must also play an active role within the wider communities around its estates, including community investment expenditure and regular stakeholder engagement to understand local concerns and challenges, along with working with partners to address these.

Human rights and labour standards

Land rights

Illovo Sugar Africa's Group Code of Conduct and Business Ethics states that it is committed to respecting internationally recognised human rights and has adopted policies and practices

to protect against human rights abuses, including land rights, in line with the United Nations Global Compact (UNGC) and the United Nations Guiding Principles on Business and Human Rights (UNGP). All suppliers and Group operations are required to follow both the Code of Conduct and the Group Guidelines on Land and Land Rights that specifically commits to a zero-tolerance approach to land grabs. This is monitored through impact assessments, stakeholder engagement through local authorities, providing technical and financial support to local partners, and participating in programmes to redistribute land to the appropriate communities. During our engagement with stakeholders in Zambia, we did not observe or hear of any issues associated with land usage and rights.

Child labour

Given the rural nature and range of informal work settings that make up the sugar supply chain, it is challenging to gain insight into the working conditions of workers. This poses a particular risk on small farms where children may work as unpaid family helpers on their family land.[19] Zambia Sugar takes a multi-pronged approach to ensuring the highest level of human-rights compliance in their supply chain including training, quarterly audits of high-risk suppliers, and community collaboration.

Spotlight: preventing child labour

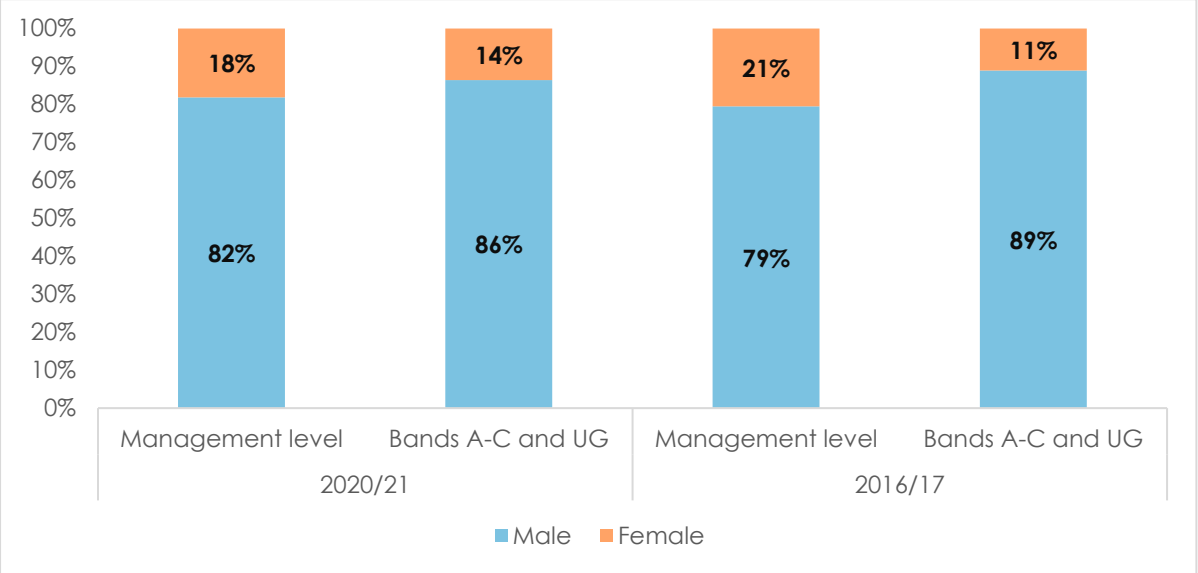
According to the International Labour Organization (ILO), many children are still working in sugar cane cultivation facing hazardous conditions. Zambia Sugar has found success in preventing child labour amongst grower communities by promoting Fairtrade Certification amongst growers and leveraging stringent Fairtrade child-labour standards to foster community accountability. Zambia Sugar's extension officers frequently visit communities and educate growers on the benefits of Fairtrade Certification (funding, premium price offers) and the risks of losing those benefits by using child labour. This approach has been successful, as proven by informal audits conducted by extension officers as well as formal Fairtrade audits. During our engagement with both growers and Zambia Sugar staff, many noted that growers and community members do not tolerate any child labour within their communities as they understand the risks associated with losing Fairtrade membership.

Employee diversity & inclusion

Zambia Sugar is an equal opportunity employer; however, women only represent 17% of total permanent employees. Women make up 18% of management positions, down from 21% in 2016/17.

[19] ILO (2017), *Child Labour in the Primary Production of Sugar Cane*

Figure 172: Zambia Sugar's permanent employees by gender, 2020/21



"The factory has many skilled jobs, which include laboratory technicians, artisans, chemists, statisticians, accountants and engineers. The factory offers a good profile of different jobs and we continue to provide good training opportunities for local employment.

- Oswald Magwenzi
Managing Director
Zambia Sugar

Gender diversity policy

Zambia Sugar has put policies in place to try and make employment more accessible for women. For example, pregnant women are offered different tasks if their regular job is too strenuous to do while pregnant. There is a zero-tolerance policy for sexual harassment and training is provided to encourage tolerance and respect in the workplace. Speaking to human resource representatives, we noted that despite these efforts, Zambia Sugar recognises that further actions are required to encourage women to apply for positions and overcome the notion that the sector is only for men. Currently, there are no female-specific hiring or career-development programmes. However, Zambia Sugar has shared that in some cases consideration of suitably qualified women is done and we recommend that this is developed further and formalised via policy.

Affordable training

To encourage further diversity in hiring, Zambia Sugar has implemented management/engineer trainee and apprenticeship training programmes for all its fields of operation. This will allow individuals, particularly in Mazabuka, the opportunity to access good quality jobs and education that would typically otherwise be too expensive.

Community resources and services

The Zambia Sugar estate

Zambia Sugar has created a sugar estate with six townships where their permanent employees can live with their families. The company provides housing, schools, community centres, security, and utilities. When the last census was conducted 16,000 people resided on the estate. Temporary employees such as cane cutters are also provided housing on the estate for the duration of their employment.

Women in the community

Interviews with a local women's group highlighted that Zambia Sugar's support had been highly beneficial for the women in the community. This group has been running since 1969 when it was originally created to build vegetable gardens to combat malnutrition among children on the estate. The company has provided essential resources and expert support, including specialised community outreach coordinators who connect local women with capacity-building services for setting up businesses such as chickens, vegetable patches, and food vending. The company has also begun to coordinate food-and-goods fairs with the women's groups to market their goods and showcase their cooking skills. Zambia Sugar has therefore contributed to women's economic development within the community. However, interviewees indicated that further support is needed for women in the community, in particular education for meeting future workplace needs.

There is also a group of local women counsellors referred to as "the motherboard" who offer support to local women who are victims of gender-based violence. In addition to this, Zambia Sugar has a positive approach towards antenatal and postnatal care, offering 4 458 and 1 508 cases of this respectively between 2017/18 and 2020/21. Sessions are also run that raise awareness of issues such as drug abuse and gender-based violence (GBV). Stakeholders stated that women had been "lifted up" through the "motherboard" and that additional development of these structures to support both women and youths would further benefit the community.

Spotlight: Women's croup producing COVID-19 masks

During 2020/21 the company provided logistical and market support to a women's group who made COVID-19 masks that Zambia Sugar purchased for the company, estate, and wider municipality.

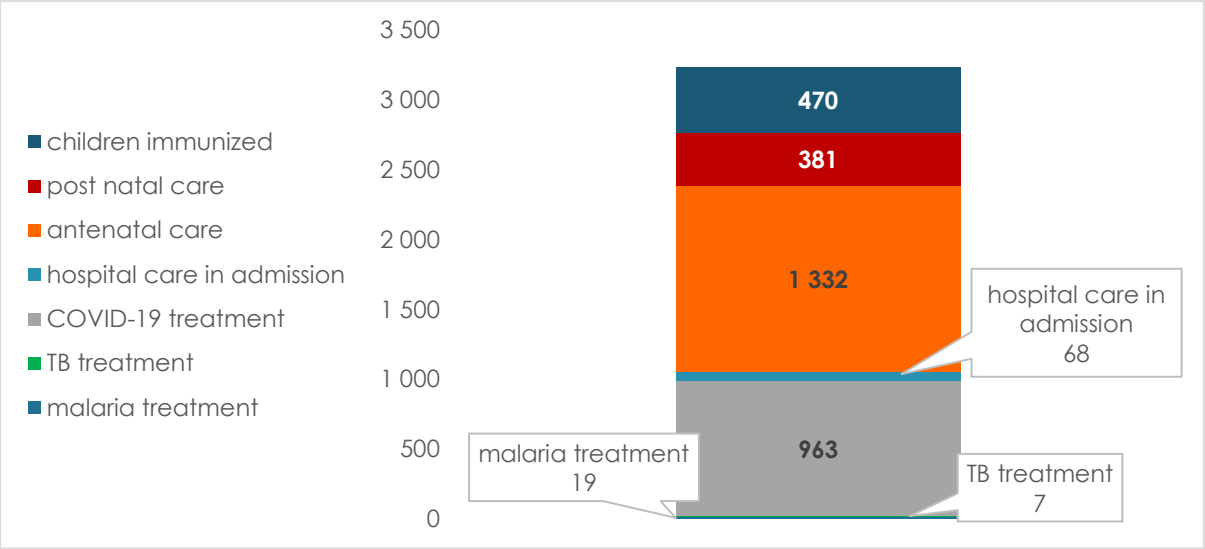
Healthcare facilities

Zambia Sugar provides essential healthcare facilities to both its staff and the local community. The company's estate features four health facilities: three health clinics and one hospital. These facilities are available free to employees and their dependents, while those outside the estate can access care from the facilities at a cost. Employees contribute a small percentage of their earnings proportional to their salary to a health fund that helps finance ongoing investments into hospitals and facilities. Most recently, an ambulance was purchased with the fund. This system not only allows the further development of essential services but also promotes community involvement and ownership over healthcare services.

In Zambia, sugar is an important source of dietary calories for the less privileged. To help eliminate micronutrient malnutrition, particularly in children, the Government launched a supplementation programme that includes administering vitamin A in children. According to the World Health Organisation, Vitamin A deficiency "is associated with significant morbidity and mortality from common childhood infections, and is the world's leading preventable cause of childhood blindness.[20]" Subsequently a requirement for the fortification of sugar with Vitamin A was introduced in 2012. Zambia Sugar participates in the programme at its own cost.

[20] *Vitamin A deficiency (who.int)*

Figure 183: Zambia Sugar's healthcare services, 2020/21



Spotlight: The estate model

The estate model has been adopted by some of Zambia Sugar's large suppliers such as Rolling Thunder and the KASCOL growers' cooperation who permanently employee 1 300 people and 700 people respectively. Both suppliers provide housing, healthcare, and food for their employees.

The healthcare facilities provide more than 95% of services that are required on the estate, meaning that employees can access almost all of their healthcare needs on-site, and outpatient services were provided to 20 165 people in 2021. Zambia Sugar's medical facilities have made particularly large impacts on malaria, HIV, and COVID-19 prevention and treatment.

Employees at Zambia Sugar have access to HIV/AIDs counselling and voluntary testing in their clinics. In 2020/21, 2 931 employees received this support, and 439 were treated for the disease. This past year, the key priority was combatting COVID-19. Of the 700 COVID-19 cases reported on the Estate, only 8 people needed oxygen. Zambia Sugar is directly responsible for vaccinating close to 100% of the individuals on the estate amounting to 633 people, including employees, contractors and dependents. This further solidifies their role as a key regional stakeholder, not only economically, but socially as they provide essential healthcare services to the community.

Inclusive stakeholder engagement

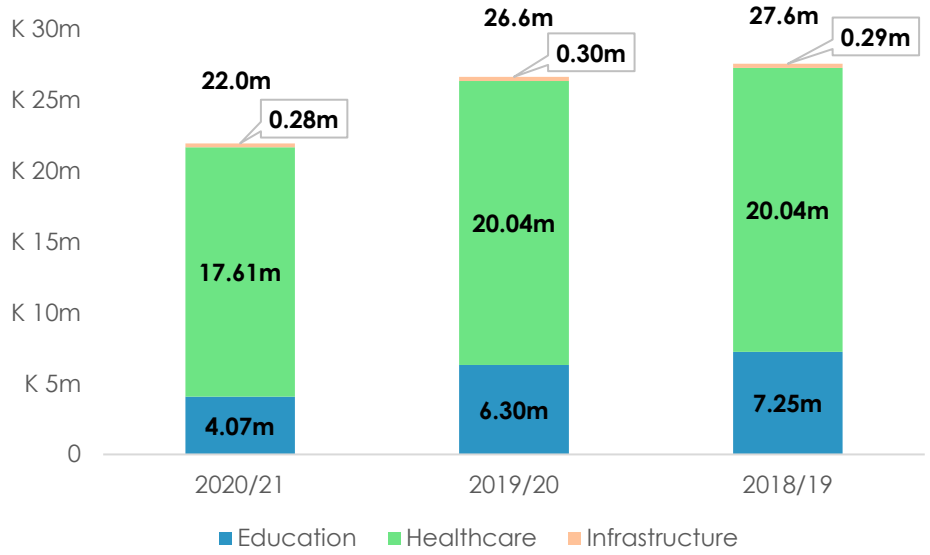
The company's communicative and collaborative relationship with the community extends to the local government officials and traditional leaders. The estate sits across three chiefdoms, and as the company has grown and Mazabuka has grown with it, Zambia Sugar has been sure to engage with the three local chiefs as key stakeholders. Zambia Sugar prioritises hiring from the local population and engages in frequent dialogue with leaders to provide community support and resources where needed. The company also works closely with the local government, and Mazabuka's Mayor highlighted that Zambia Sugar is often consulted when there are local governance issues.

"Wherever you go in Mazabuka, and even beyond Mazabuka, Zambia Sugar will be recognised for its contribution to the community."

- Vincent Lilanda, Mayor of Mazabuka

This is notably evident in Zambia Sugar's community investment beyond the confines of its estate, totalling K 22 million from the data we received, split between education, infrastructure and healthcare.

Figure 194: Community investment in infrastructure, education and healthcare, 2018/19 - 2020/21



However, stakeholder engagement carried out in the country has highlighted that, while the company does play a positive role, its success has also led to further challenges as increasing populations place a strain on available resources and existing infrastructure.

Stakeholders indicated that the rapid growth in wider communities has put pressure on utilities and services such as water, solid waste management, and crime management. It was clear that the company often steps in to provide services when needed, such as transportation, waste management, road upgrades, equipment for community events, and crisis assistance such as clearing dams and rebuilding bridges when washed away by floods.

Despite this, our discussions with local stakeholders led us to identify the risk that Zambia Sugar's close relationship with the community can make it difficult for them to identify where their responsibility ends, and the local government's responsibility begins.

FUTURE FACING CHALLENGES

The most critical issue facing Zambia Sugar is the risk of greater dependency on it by the wider community, outside its estate. While we have seen clear evidence that it contributes substantially to its local community, and does provide support to the wider region, its success has created the problems detailed above, such as pressure on utilities and increased crime, which it has yet to resolve. This is in part due to the wider community's reliance upon it, meaning Zambia Sugar's responsibility in fact extends beyond the estate. By broadening its support policies to include stakeholders affected in further locations, Zambia Sugar can expedite their recovery.

Zambia Sugar also realises that change is required to shift the notion that sugar is a sector for men, but with just 17% of permanent employees being women, current efforts will need amplifying. In addition to measures ensuring the wellbeing of existing women employees, policies such as female-specific hiring, and even communications efforts should be introduced to encourage women applicants. Zambia Sugar should note, however, that it will take years of continued positive hiring practice to truly make a difference.

Additionally, there are still challenges to resolve on the estate, most notably the issues of future employment, malnutrition, and climate-related resilience. Elements of these issues are also gender-based, with women we spoke to requesting more HIV support and resources for community events. A thorough risk-mapping process would allow Zambia Sugar to identify critical areas for them to address.

Recommendations

Recommendation 1

Gender diversity in the workplace

While Zambia Sugar is an equal opportunity employer, we found they have not made substantive policy or process changes in response to our 2014 and 2017 recommendations to develop a more strategic approach to gender diversity in the workplace. Given the consistently low representation of women in the workforce, particularly in management, we maintain that Zambia Sugar should prioritise the delivery of social investment programmes focusing on women's empowerment, invest in specific education and training for female employees, suppliers and business partners and build partnerships with local organisations.

Recommendation 2

A just transition strategic roadmap

As Zambia Sugar transitions towards more sustainable processes and automation within factories, the risks of negative social aspects including unemployment and potential loss of the company's social licence to operate should be considered. A just transition strategic roadmap outlining the way forward is needed. This should consider elements such as:

- transition to green-cane harvesting;
- employee training for more high-skilled positions;
- diversification of crops and products (working with key stakeholders, e.g., governments, NGOs); and
- ensuring financial resilience, as the upfront investment in green-cane harvesting and automation is significant.

Recommendation 3

Evolved training across the business

SHERQ's training for agricultural and factory workers to handle new technical developments demonstrated the effectiveness of a good programme although investment over the last three years has dropped substantially. Zambia Sugar should place a stronger focus on training and investing in programmes to improve skills for both direct and indirect employees: This will benefit not only the employees but the wider company itself helping with attraction, retention and remaining competitive in the long-term.

Annex 1: Methodological note

Overview of methodology

Corporate Citizenship's process for this project involved analysing financial and management information provided by each Illovo Sugar Africa (ISA) country team. This also included site visits to Tanzania and Zambia, to visit the operations and their surrounding communities, as well as interview senior management and key stakeholders affected by the business. The stakeholders interviewed varied by country but included sugar cane farmers, small-holder association representatives, employees, local suppliers, doctors, community groups and other beneficiaries of ISA's social investment spend. Corporate Citizenship also conducted its own desk-based research and analysis. Case studies and quotes are based on site visits and interviews. The data presented within this report is based on internal financial and management information provided by key personnel within ISA and has not been audited by Corporate Citizenship.

Exchange rates used

Data for each country are reported in local currency, while the group report uses only the South African Rand (ZAR). We have used exchange rates provided by ISA's group finance for each year where conversion is required.

	ABF Budget Rates FY21	ABF Budget Rates FY20	ABF Budget Rates FY19	ABF Budget Rates FY17
MWK / Rand	47.87	59.2	61.44	51.05
ZMW / Rand	1.115	0.942	0.831	0.708
TZS / Rand	151.83	159.85	174.77	172.58
MZN / Rand	3.99	4.43	4.79	4.86
Rand / USD	16.16	15.36	13.01	7.82

Estimating wider impacts

ISA has significant impacts on the economy and employment, not only through its direct operations but also through its value chain and the wider community. Its total impact falls under the following main categories[21]:

[21] Note that in each case, "impact" refers to ISA's gross rather than net impact, and therefore does not take into account displacement (i.e., labour, land and capital are used by ISA which would otherwise have been used by other companies) or leakage (i.e. some indirect and induced spending will "leak" overseas). While both of these effects are important, they are not readily quantified, and are not usually included in impact assessments of this nature.

- **Direct** impacts, through ISA's direct employment of workers on farms and in factories, as well as investments, tax payments, interest spending, shareholder dividends and other payments;
- **Indirect** impacts in the value chain in Africa, through purchasing sugar cane from farmers, payments to suppliers and distributors, as well as impacts on those selling ISA products or using them in their businesses. Re-spending of the money paid by ISA generates further economic activity and employment;
- **Induced** impacts, through spending by direct and indirect employees leading to increased consumption and employment throughout the economy;
- **Secondary** effects, through infrastructure and other benefits provided by ISA to its local communities, such as building infrastructure, schooling and healthcare.

The scale and extent of these impacts mean that they can only be estimated. As far as possible, Corporate Citizenship has collected data directly from ISA, including specific information on local employment and spending with local suppliers. Secondary effects have been described qualitatively but have not been estimated, due to the large number of assumptions required.

Impact measurement

To estimate ISA's full macroeconomic impacts in each country, Corporate Citizenship conducted a thorough landscape review to identify new research and studies conducted since our last assessment. This was to gather information from various academic studies into the economic impacts of the sugar industry in southern Africa, including "multipliers" which estimate, for example, the amount of indirect and induced employment created per direct employee in the sugar industry.

The various multipliers referred to in this report are outlined below. While multipliers are useful tools, it should be stressed that their reliability depends heavily on the quality of the data available. They may also be context-specific, varying across countries and even within an industry in a specific country.[22] The studies published to date on multipliers in southern Africa have not covered every country considered in this report, and so some assumptions have had to be made regarding the other countries in which ISA operates.

In all cases, a range of multipliers from different sources has been used to inform calculations, in line with the recommendations of the International Finance Corporation.[23]

The range of studies referred to is as follows:

- Conningarth Economists (2013), 'Growing the Sugar Industry in South Africa', *National Agricultural Marketing Council.*
- Department of Agriculture, Forestry and Fisheries (South Africa) (2011), 'A Profile of The South African Sugar Market Value Chain'.
- Hess et al. (2016), 'A sweet deal? Sugar cane, water and agricultural transformation in Sub-Saharan Africa'.
- Imani-Capricorn (2001), *The Socio-Economic Contribution Of The South African Sugar Industry: A report prepared for the South African Sugar Association.*

[22] IFC (2013), IFC Jobs Study: Assessing Private Sector Contributions to Job Creation and Poverty Reduction
[23] ibid.

- Chikuba, Z. et al. (2013) 'A 2007 Social Accounting Matrix (SAM) for Zambia', *Zambia Institute for Policy Analysis and Research (ZIPAR)*.
- Cruz A. S. et al. (2018) 'A 2015 Social Accounting Matrix (SAM) for Mozambique', *WIDER Working Paper 2018/20*.
- Kaliba, A. R et al. (2008), 'Economic multipliers for Tanzania: implications on developing poverty reduction programs', *Global Trade Analysis Project (GTAP)*.
- Lea and Hanmer (2009), 'Constraints to Growth in Malawi', *The World Bank (Southern Africa Poverty Reduction and Economic Management Unit)*.
- Levin and Mhamba (2007), 'Economic growth, sectoral linkages and poverty reduction in Tanzania', *World Bank*.
- McCarthy and Owusu-Ampomah (2007), 'Study to assess the impact of sugar mills on the surrounding communities as well as the impact of the South African Sugar Association's social spend (Part 1: The Broader Socio-Economic Impacts Of The SA Sugar Industry – An Overview)'.
- National Department of Agriculture (South Africa) (2006), *Commodity Profile: Sugar*.
- Oxford Business Group (2012), *The Report: South Africa 2012*.
- South African Sugar Association (2016), *Industry Directory 2016-17*.
- Kavese, K. & A. Phiri, (2020), 'Micro-simulations of a dynamic supply and use tables economy-wide Leontief-based model for the South African economy', *South African Journal of Economic and Management Sciences*, vol 232(1).
- Mulanda. S. (2020), 'Structural Characteristics of Zambia's Agricultural Sector and the Role for Agricultural Policy: Insights from SAM based Modelling', Stellenbosch University, South Africa.
- Phoofolo, M. L. (2018), 'Analysis of the economic impact of a disaggregated agricultural sector in South Africa: A Social Accounting Matrix (SAM) multiplier approach', Stellenbosch University, South Africa.

Impacts on GDP

The main method of estimating economic multipliers is by using macro- and micro-economic data and technical procedures to create a Social Accounting Matrix (SAM). We have identified three main studies which have applied this method to the sugar industry in southern Africa, described below:

- Conningarth Economists (2013) used a SAM-based model for South Africa in 2010, estimating the sugar industry's direct impact on South African GDP at R2,191 million, its indirect impact at R1,316 million and its induced impact at R2,287 million. This implies an indirect multiplier of 0.60 and an induced multiplier of 1.04 giving an overall multiplier (including direct, indirect and induced impacts) of 2.64.
- Kaliba et al. (2008) created a 2004 SAM for Tanzania in order to estimate economic multipliers for a number of sectors. The study found that agro-processing industries had the highest economic multipliers (greater than 3), while sectors with the lowest multipliers (at or close to 1) included export-oriented agricultural sectors, such as coffee, cotton, tobacco and cashew nuts. The multiplier estimated for sugar cane growing is 1.51 (including an indirect multiplier of 0.22 and an induced multiplier of 0.29), while the multiplier for the processed food sector is 3.10 (indirect 0.88, induced 1.22). The overall multiplier for the sugar industry as a whole is therefore assumed to be somewhere between the two.

- Phoofolo (2018) built upon a SAM for South Africa conducted in 2014, a more recent model than that of Conningarth Economists. His study quantified the economic impact of the disaggregated agricultural sector within the South African economy using this SAM multiplier model, calculating a combined indirect and induced impact for financial stimulation in both the sugar crops (cane, beet, beet seeds etc.) and refined sugar sectors. These were 1.61 and 1.2 respectively, so when an average is taken between the two and aggregated with direct impact, the overall multiplier across both sectors is assumed to be around 2.4.
- Mulanda (2020) conducted a SAM-based multiplier analysis for Zambia, providing country-specific data not available for the previous impact assessment. His analysis produced a combined indirect and induced impact for the Zambian sugar cane sector of 1.4, making the overall multiplier (including direct impact), 2.4.

These multipliers, since they are based on the sugar industry on the whole, only account for forwards and backwards linkages with other industries, and so do not account for the multiplier effects of ISA's purchases of sugar cane from growers. In our reports, grower spending is therefore accounted for before the multipliers are applied.

The following table outlines the economic multipliers used in this report. These have been based conservatively on the findings of the studies outlined above. Looking at the most recent studies (2018, 2020), the average overall multiplier in the sugar sector is 2.4. Additionally, since the 2001 study by Imani-Capricorn referenced in the 2016/17 impact assessment, there has been a slightly decreasing trend in the induced multiplier across the countries analysed. We have therefore made a slight adjustment to the 2020/21 induced multiplier, reducing it by 0.1, bringing the overall multiplier to 2.4.

Direct multiplier	+	Indirect multiplier	+	Induced multiplier	=	Overall multiplier
1		0.6		0.8		2.4

While reliable studies for Malawi, Mozambique, or Eswatini are not available, the multipliers for these countries can be assumed to be roughly similar, but dependent on the proportion of domestic versus international procurement and sales in each country. Given that international procurement is often primarily in South Africa and other neighbouring countries, multipliers have not been adjusted. However, some leakage may not be accounted for.

Impacts on employment

As noted above, the sugar industry is relatively labour-intensive and creates significant opportunities for small-scale growers, meaning that it has high employment multipliers.

Levin and Mhamba (2007) use economic modelling in order to estimate the impact on employment and poverty of various industries in Tanzania. They find that overall, agriculture has the largest impact on employment of all sectors. Within the agricultural sector, sugar has the third-highest total employment multiplier, after cashew nuts and fishing. However, sugar also has the highest impact in terms of "pro-poor" (poverty-reducing) employment, and is also found to have one of the highest impacts of all industries on female employment.

We conducted additional desk-based research to identify any studies academia published after 2017 to supplement our analysis of employment multipliers in southern Africa. Several studies have estimated indirect and induced employment for the sugar industry, again mainly in South Africa, including an additional 2020 study. These are described below:

- Imani-Capricorn (2001) estimated direct employment in sugar cane farming, milling, refining and support institutions at 136,671, and indirect employment in upstream and downstream industries at 118,000 (using 2000 figures from the Board on Tariffs and Trade). This implies an indirect employment multiplier of 0.86.
- Conningarth Economists (2013) offer two alternative sets of figures:
    - Their own SAM-based model gives direct employment (including small- and large-scale farms; mills; and industry support organisations) of 93,990, indirect employment of 7,356 and induced employment of 11,663, giving an indirect employment multiplier of 0.08 and induced of 0.12 (giving a combined multiplier of 0.2).
    - Meanwhile, figures provided by the South African sugar industry put direct employment at 106,796 and indirect/induced employment at 21,915, giving a similar combined indirect/induced multiplier of 0.21.
    - The difference between these two sets of multipliers is due to the assumptions used to estimate farm employment. The industry used a figure of 0.23 jobs per hectare under cane, whereas Conningarth Economists assumed a more conservative figure of 0.17 per hectare.
- Kavese & Phiri (2020) offered a revised set of figures for the agricultural sector in South Africa as a whole, estimating the indirect multiplier to be 1.119 and the induced 0.345. While their analysis gave a regional breakdown of different employment multipliers, including KwaZulu-Natal, they were not specified to be agriculture and have not been considered.
- South Africa's National Department of Agriculture (2006) estimates that the sugar industry directly employs 85,000 people and indirectly employs a further 265,000, implying an indirect employment multiplier of about 3.12. The total figure of 350,000 jobs has been widely quoted, including in subsequent reports by the South African Sugar Association and Department of Agriculture, Forestry and Fisheries, as well as by McCarthy and Owusu-Ampomah (2007), Conningarth Economists (2013) and Hess et al. (2016). However, the methodology used to arrive at the figure is not made clear. McCarthy and Owusu-Ampomah (2007) state that it was calculated using the Imani-Capricorn (2001) GDP multiplier of 3.2, rather than an employment multiplier. It has therefore not been used in this report.

After reviewing the studies gathered from both our 2017 and 2021 reports, we noted that there was little change overall to employment multipliers in the southern African sugar sector. Our reports, therefore, continue to use the Conningarth Economists' (2013) SAM-based multipliers in order to give a conservative estimate of indirect and induced employment. As with the economic multipliers, these have been applied to ISA's own employment in each country, plus estimates of employment through growers.

Direct multiplier	+	Indirect multiplier	+	Induced multiplier	=	Overall multiplier
1		0.2		0.86		2.06

Impacts on dependents

The sugar industry's impact on livelihoods does not end with those whom it employs. The poor, rural areas in which the sugar industry is primarily based means that there is a significant impact on workers' dependents (i.e., immediate and extended family).

The following table shows data on average household sizes, taken from the national statistics of each country. Where possible, figures are for the region(s) in which ISA operates. In the case of Eswatini, no national data sources are available, so a figure has been taken from the World Health Organisation.

Country	Region	Average household size[24]
Malawi	Rural	4.3
Mozambique	Maputo City	4.4
South Africa	KwaZulu-Natal	3.3
Eswatini	National average	4.7
Tanzania	Morogoro Region	4.9
Zambia	Southern Province	5.1

[24] Sources for each country can be found in the corresponding country report.