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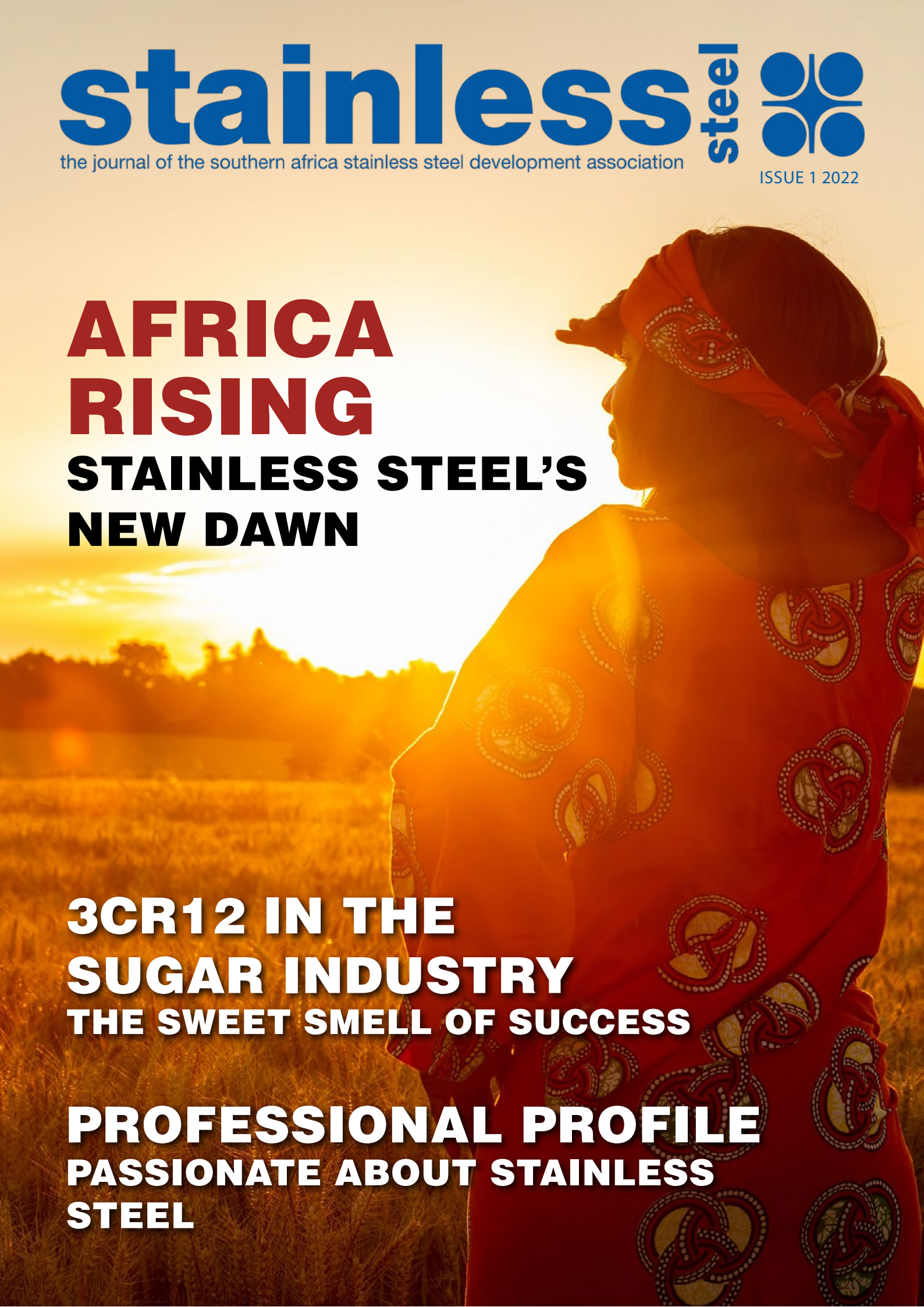

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GLIMMERS OF LOCAL HOPE DESPITE NEW GLOBAL CHALLENGES

When I reflected on our industry exactly twelve months ago, I mentioned that the industry was venturing into the unknown territory of 2021 and that it would be very easy to get distracted by the negative scenarios the media and all kinds of reports were exposing us to.

Fortunately, when writing this article now, it is clear that the health risks of the pandemic are subsiding and that, with some work, we can look forward to repairing the longer lasting effects. However, since then we have seen the situation in Europe change from stability to the prospect of a massive threat to global peace with the conflict in Ukraine. So once again, the clouds of difficulty are building for our industry with increasing nickel and fuel prices.

There is no denying that 2021 saw a continued trail of destruction with the stainless steel sector not excluded. Despite this, it is important to take a look at some of the positive news and try and build on it.

You might remember that the statistics for 2019 – 2020 showed a drop of 26% in the apparent consumption of stainless steel. This translated into more than a quarter of the stainless steel converted in 2019 having disappeared in a single year. During that time, it meant retrenchments with accompanying loss in: skills, the ability to transfer experience, and institutionalised memory.

This has changed in the last year, with the consumption figures showing a statistical increase of 36% compared to 2021. There are indications that, with some anomalies removed, this figure can be as much as 5% higher. This is encouraging since it means that the value chain is active again with potentially more jobs and, for some, less poverty.

The situation was dire, but as I predicted a year ago, historically our sector has proven itself to be resilient and has learnt the tricks for survival during tough times. The figures show this to be true.

It is also reported that some sectors within the stainless steel industry have excellent order books and the global forecast for stainless steel consumption and demand looks good. This is also reflected in our most recent membership confidence outlook that remains above 50%.

In this issue, we would therefore like to show you some of the positives that we see in our continent. We also discuss the benefits that can reside in Sassda membership. There is also an interesting technical article on 3CR12 in the sugar industry and more information on trade in Africa.

Enjoy the read!

STAINLESS STEEL SECTOR GEARS UP FOR GROWTH

Each year we ask Sassda Acting Executive Director Michel Basson to give us an overview of the sector's performance in the last 12-months as well as some key information and insights. Here is his outlook on a year like no other and the bright spots of potential on the horizon…

How would you categorise the performance of the South African stainless steel sector in the last two years with specific reference to the current performance where primary consumption levels have returned to 2018 levels? What has allowed that to occur?

The performance of the local stainless steel industry has been confirmation of what we have seen during similar times of global economic crisis. It has once again shown adaptivity, innovation and resilience.

Our sector was one of the first to be able to start up after the initial lockdown at 50% capacity compared to the 30% of most others. This was due to the sector's ability to cooperate and organise quickly and intelligently. The industry certainly didn't come through the past two years unscathed but it is showing pre-pandemic consumption levels.

Please can you give some other meaningful stats in terms of how the industry has performed over the last 12 months?

We pay attention to what our members tell us. Our members' monthly confidence index has, since the sharp decline to just over 20% during the hard lockdown in 2020, showing a steady increase to date. This "three-month outlook" indicator has shown confidence levels of more than 50% for the past six months whilst peaking at a record high of 64%. This has been the highest level since we have starting to measure in 2017.

The apparent consumption figures at the end of 2021 show

that the local industry consumes volumes of stainless steel last recorded in the period between 2015 and 2018.

Please elaborate on the Steel Master Plan's role in assisting industry growth despite the various challenges the industry has encountered?

The Steel Master Plan (SMP) is a focused set of practical steps which must be implemented consistently. The SMP should be regarded as a process, and it is important to understand that it is not a government-only intervention in the steel industry.
The emphasis in the Master Plan is on concrete commitments by each of the major stakeholders throughout the complete value chain such as investors, manufacturers, organised labour, supplier, and customer industries, as well as public sector entities.
The stainless steel industry has been assisted through this plan to open at higher levels of employment during the initial stages of the pandemic, through measures to give the industry a temporary breathing space.
Although the general industry is still in crisis, investments are taking place. It is the view of several investors that because of the significant excess capacity in both the upstream and downstream industries, the investment is limited and is likely to continue to be muted until demand increases and there is consolidation in the industry. It is now up to the stakeholders in the SMP to seize the opportunity offered by recent global disruptors by identifying and penetrating new markets.

What types of policies and implementation the government must introduce/ enforce to improve the socio-economic environment to ensure growth for the sector?

As it relates to the stainless steel industry, the objectives of government through the dtic are in line with that of the Association. To improve socio-economic conditions, jobs must be created. One of the vehicles for this in the stainless steel sector will be localisation or import replacement.
We know our industry is globally competitive and certain measures focussed on increasing local content in local projects can make a definite difference. The problem is not so much the policy or measure, but what the outcome will be. If localisation is done in a way that the specific industry remains and develops as globally competitive in terms of price and quality, then we can assume that the jobs created will be proper jobs and sustainable.

What are the key local demand sectors that have the greatest potential to drive demand for stainless steel. Please can you add a comment on how the renewed interest in the concept of localisation by government has a role to play here?

The fact that global supply routes are still under pressure and expected to remain that way for some time, opens a whole new perspective on potential

new supply and new markets. We foresee that the automotive industry (with all its sub-sectors) will be revived to a pre-pandemic level. We also believe that there would be growing potential for South African stainless steel, stainless steel products and stainless steel skillsets in African countries, especially in Eastern Africa. How the conflict in Ukraine will affect global conditions for stainless steel is still uncertain. It certainly has a further impact on global logistics and the financial uncertainty regarding future food and energy prices puts South Africa under further pressure in terms of future economic growth.
Stainless steel prices will be affected seeing that Russia is a major global producer and supplier of nickel. This will be a price driver for austenitic grades and, to some extent, the duplex grades. This offers the opportunity for our innovative sector to promote the use of the less costly ferritic alternatives in some applications.

> ***What are the biggest challenges facing the local stainless steel sector in the next 12-months?***

The biggest hurdles reside outside the sphere of influence of the industry. This entails aspects such as reliable and affordable electricity supply – now at even higher risk as mentioned earlier, improved efficiency of export nodes with a focus on ports; the level of political will to act against perpetrators of corruption and crime, and a clear national economic growth plan.
Issues such as productivity, reduction of waste, improved quality can be controlled within our industry. The local industry has a proven track record to be globally competitive. If the socio-economic environment wherein we function can be improved

through sound policies and implementation by the government, the South African stainless steel industry can compete with all global players.

> ***What are some of the key/projects/initiatives/programmes that Sassda will be championing in 2022 – please provide a brief description of each plus motivation for, and benefits of, each?***

As always, we will act to stimulate and increase the growth of stainless steel conversion in Southern Africa. This means increased tonnage used, but also, increased job creation. We will do this through our standard training products that have been enhanced for 2022; we will safeguard the industry by continuing gathering, measuring and acting on industry-specific statistics; we will find, investigate and introduce our members to new potential markets; we will create awareness to increase local consumption per capita, and we will empower people. There will be a special focus on the empowerment of women in our industry during 2022 as part of our commitment to the Steel Master Plan and WECONA (Women Economic Assembly).

> ***Discuss the opportunities opening up on a global and local scale that the local industry can take advantage of to facilitate industry growth?***

The opportunity staring us in the face is our home continent. Africa remains one of the most underutilised new markets for our industry. The government is facilitating African trade through various agreements with our neighbours to streamline the flow of products through the continent which is internationally regarded as a largely untapped market. Chinese subsidies and export rebates on stainless steel products are diminishing, making local products even more competitive on a much more even global playing field. Global logistics is expected to remain a fair mess for at least the next two years, and this offers the opportunity for new supply chains and collaboration, especially with cross-Atlantic entities and countries in South and North America. Europe can also offer new potential for South African products and skills.

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market intelligence

THE BEST OF THE GPS E-NEWSLETTER

Each month Sassda rounds up a selection of global and local market intelligence articles that are sent to our members in an easy to read package of content. They're designed to highlight pockets of potential growth in demand for stainless steel. Here are some of the best articles from the last few issues...

COAL FEET: LIMPOPO INDUSTRIAL PARK BACKED BY CHINA DITCHES PLANS TO BUILD POWER STATION

The company overseeing the development of a proposed Chinese-backed industrial park in Limpopo says it has ditched plans to build a coal power station and will instead use solar power.

At a business briefing in Polokwane MMSEZ CEO Lehlogonolo Masoga said plans to build a coal-fired power plant to provide electricity for the hub's proposed steel, coking and pig iron plants had been ditched. "Environmentalists said no. World leaders said no – [saying instead] let's reduce our carbon footprint and stop producing energy through coal," said Masoga. "We have abandoned that part of the project. We are now focusing on solar." READ MORE

GOOD PROSPECTS FOR STAINLESS STEEL SCRAP

So far this year has seen a mixed picture for the stainless steel and super-alloy scrap sector but, generally, recyclers continue to benefit from the global economic upturn as the pandemic eases. Even so, in Europe, according to industry insiders, the year started with lower order intakes for leading stainless steel flat producers, partly because of the continuing negative effect of the pandemic on the supply chain... READ MORE

SA'S MANUFACTURING OUTPUT UP 2.5% IN EARLY 2022

Stats SA reports that South Africa's manufacturing production increased by 2.9% in January 2022 compared with January 2021. The largest positive contributions were made by the following divisions: food and beverages (11.5% and contributing 2.5 percentage points); wood and wood products, paper, publishing and printing (6.8% and contributing 0.7 of a percentage point); and basic iron and steel, non-ferrous metal products, metal products and machinery (3.2% and contributing 0.6 of a percentage point).... READ MORE

DUPLEX STAINLESS STEEL MARKET SIZE ESTIMATED TO REACH $4.8 BILLION BY 2027

The global duplex stainless steel market size is estimated to reach US$4.8 billion by 2027. This is due to its excellent properties including stress-corrosion resistance, tensile strength, and yield strengths, which means the duplex stainless steel market is set to benefit from the boom in construction projects in the oil and gas industry which will include pipeline, valves, tubings and construction, all of which will drive growth in the market. READ MORE

EUROPEAN MILLS RAISE STEEL PRICES DUE TO SOARING ENERGY COST

The regional war between Ukraine and Russia has certainly caused the growth of energy prices in Europe, which made European steel mills have no choice other than to raise the price of their products. Meanwhile, buyers in the European market also stopped making purchases from the above mentioned two countries, as some of the buyers decided to withdraw their quotation and retard the transaction...
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LONDON METALS EXCHANGE SUSPENDS NICKEL TRADING AS PRICES EXPLODE

The London Metals Exchange paused trading and cancelled orders of nickel as prices rose more than 250% in one day in March 2022, pointing to a massive increase in the price of one of the most important ingredients in stainless steel. A notice by the exchange said that Russia's invasion of Ukraine "had affected the nickel market in particular". It also said it will "consider a multi-day closure, given the geopolitical situation which underlines recent price moves". It will be interesting to track the knock on effects of this increase on the price of stainless steel... READ MORE

MOZAMBIQUE GOVERNMENT ASSURES ROVUMA PRODUCTION OF LIQUEFIED GAS TO START IN OCTOBER

The Mozambican government has announced that the production of liquefied natural gas in the Rovuma basin by the Coral Sul floating platform (FLNG) moored off Cabo Delgado in northern Mozambique, will start by the fourth quarter of 2022.

Council of Ministers spokesperson Filimão Suaze stated. "In October of this year we will have the first results in terms of production". He also highlighted plans to train Mozambicans on board the infrastructure, one of the largest of its type in the world...
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STAINLESS STEEL VANISHES INTO THIN AIR

Imagine a sculpture whose shape shifts based on the viewer's position. Physicist-turned-sculptor Julian Voss-Andreae uses stainless steel to reflect insights from discoveries made in his former profession. His "disappearing" sculptures are a meditation on perception and reality, inspired by the study of quantum physics. Now molybdenum ensures they will never truly "disappear."
READ MORE

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ABOUT INNOV-X AFRICA

Stuart Bateman, as the Managing Member, with 35 years of experience in the XRF field, is the driving force behind the success of the company.

Today we have grown to be one of the leading XRF and XRD specialist companies in Africa. Situated in Bedfordview, Johannesburg, with a fully certified service centre, we pride ourselves on offering only the best sales, service, maintenance, calibration and repair. There is no need to send your equipment out of the country for repairs, saving both time and money. Backed by dedicated and highly skilled staff who are passionate about customer service and ensuring the customer receives the most suitable solution for their specific needs.

MEET THE SALES TEAM

Stuart Bateman's main focus is on the Mining and Exploration Industry. With 35 years' experience in the industry, he is well connected with specialists in this field such as Geologists and surveyors. Having travelled extensively within Africa Stuart is well aware of what is required in this market and can therefore offer the best suited XRF solution for your mining application.

Pieter du Preez's main focus is on the Alloy, Recycling and Precious Metals Industry. With 13 years' experience and coupled with the best quality XRF analyser, you can be rest assured that he will offer the best suited XRF analyser for your application.

MEET THE SERVICE TEAM

Cyril Mustard and Ingrid Lembke, together have a wealth of experience in the XRF field. Having received training from the Olympus factory in Waltham and access to a well-stocked service department, the team is able to perform not only routine maintenance, but also services repairs and calibrations at our offices in Bedfordview, Johannesburg. This equates to speedy turnaround time for customers as there is no longer a wait for the analyser to travel back and forth to Europe or America.

CONCLUSION

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africa focus

WHAT TO EXPECT OF BUSINESS IN AFRICA IN 2022

Sassda Market Intelligence Specialist Lesley Squires recently attended The Africa 2022 Conference hosted by Africa house. Here she reports on the information and insights shared at the event.

The African continent has massive potential for growth and expansion. With its fast population growth that creates excellent opportunities in the global business environment, businesses need to strive for improved innovation and greater investment to meet a shortfall in the demand for goods and services. In addition to this, more out of the box thinking is necessary for job creation, poverty reduction and to close the gaps in infrastructure. It is undeniable that the continent has incredible potential for growth, and that businesses can play an important transformative role that will contribute to addressing some of Africa's biggest challenges.

CHANGING DYNAMICS

South Africa is seen as the most productive and advanced economy in Africa. As a result, most international companies looking to enter the Sub-Saharan marketplace consider South Africa as a logical option. Although the South African economy has enjoyed relative macroeconomic stability coupled with a stronger foothold, South Africa's share of African trade is shrinking, and its global share has dropped from 8% to 6% over the past decade. There are a number of factors contributing to this decline.

- South Africa's reach and integration is limited due to very small pockets of influence in East and West Africa, and even less in North Africa;
- South Africa is only the 11th fastest growing exporter to Africa of the 25 largest export countries;
- In Sub-Saharan Africa over the last decade, South Africa ranked 17th in exports. This represents a drop in exports of 14% in dollar terms over that period and has resulted in it lagging behind global competitors such as Russia, Turkey, United Arab Emirates, Hong Kong, China, and Kenya.
- Businesses need a more sustainable and flexible approach to the region. The answer to this could lie in the creation of special economic zones. South Africa has already established the Industrial Development Zone (IDZ) programme in an attempt to reposition the country in the world economy. The market at large also expects major improvement as a result of the formation of the African Free Trade Area agreement along with other focused anchor projects.

GOVERNMENT PERSPECTIVE

There have been key developments in various areas between South Africa and the rest of Africa. South Africa and Kenya's longstanding strategic partnership and bilateral relations specifically in the areas of trade and security has been further enhanced by a new partnership between the countries and Wines of South Africa to distribute wine and for the supply of capital goods. Zambia has a deficit in capital goods in its copper mining sector. The country also needs assistance with the upgrading of its railway infrastructure. There are ongoing negotiations regarding agri-processing and food and beverage equipment. The dtic also noted that trade discussions between South Africa and Senegal are ongoing. Egypt is experiencing an overall shortage of steel, and has looked to South Africa for assistance in its automotive, textile and pharmaceutical sectors.

ONES TO WATCH IN 2022

Rumour has it that South Africa has a new deal in power infrastructure that's set to kick in, while the rest of the continent has some exciting developments, both politically and through economic transformation and reform. Angola, Zambia and Tanzania are looking at new reforms in the political sphere. A marked effort is being made to ramp up mining, power and general infrastructure in DRC while Mozambique is focused on the resumption of onshore LNG projects. Namibia is looking forward to the possibility of new oil, gas and green hydrogen frontiers. The Horn of Africa still faces tough times ahead with unresolved conflict in Ethiopia. Cameroon is the gateway of Central Africa but opportunities are emerging in other countries as well.

KEY PROJECTS

MOZAMBIQUE

Mozambique has a variety of key projects in the pipeline. The Coral-Sul FLNG which boasts an annual capacity of 3.4 million tonnes of LNG has arrived in Mozambique. Production is expected to begin in the second half of 2022 and will contribute tremendously to increasing gas availability in the country. This year will also see the return of the Matola LNG site, a project that is set to meet the energy demands of both Mozambique and South Africa. The industry also foresees the final investment decision regarding Matola's storage and regasification unit.

NAMIBIA

The recent and significant Graaf 1 discovery in the Orange Basin, offshore Namibia, with its oil and gas reserves is a marked success for the country. This is excellent news for both South Africa and Namibia who share the same geological sedimentary basin. The Orange Basin has emerged as a major hydrocarbon province, and the already advanced exploration on the Venus site is set to continue into 2022. Both the Graaf and Venus wells will have an incredible impact in terms of cost-saving and supply for Namibia.

OTHER IMPORTANT KEYNOTES

Invictus Energy is expected to drill exploration wells in Zimbabwe in the second quarter of 2022. While this is seemingly good news for Zimbabwe, a gas discovery could potentially present major implications for Zambia. Angola expects production to stabilise around

1 - 1.2m BPD following the injection of approximately $90 million for deferred Financial Investment Decisions in 2020. The industry also expects major developments as Uganda's FID is taken on upstream, and the EACOP pipeline. As exploration is set to begin, we may just see the first East African development of oil outside of Sudan. Tanzania is still in negotiations with Shell and Equinor, and if this turns out to be a lower CO2 emission project, its proximity to the MLNG site could imply future coastal ribbon development. Tullow Oil has submitted a revised FDP in December 2021 for the Lokichar-Lamu Oil Pipeline in Kenya. In addition to this, drilling of the ENI Mlima-1 exploration well is in progress.

Although the GDP slump has injured most African economies, many are bouncing back in 2022. Countries like Rwanda and Angola are already seeing improved risk ratings, and it is clear that debt restructuring is critical to get the content up to speed. The COVID-19 pandemic has reinforced the need for more intense intra-African trade and development that goes far beyond medical supplies to a more intricate focus on living conditions and the restructuring of markets. As populations become more modernised, there is a greater demand for reform and transformation in urban areas. This can be promoted by a regional increase in the manufacturing of building materials, FMCG products, and ramped up efforts in the areas of social services and infrastructure. However, a marked success will only be possible with the full support of the African Continental Free Trade Area pact.

DOING BUSINESS IN NAMIBIA

Namibia is strategically poised for stellar growth thanks to a substantial natural gas and oil discoveries off its coast. However, with a small population of approximately 2.6 million people, and a large land mass of 825 square kilometres and an immense distance to cover in terms of service and connectivity infrastructures, the country has its fair share of challenges...

The Namibian government has a strong focus on the pursuit of free market economic principles to promote commercial development and job creation. Although a large portion of the population engages in more traditional subsistence farming and herding activities, the country also has a more modern market sector that is the largest contributor to its economy. The Namibian dollar was introduced in 1993 and is closely linked to the South African Rand at an exchange rate of 1:1. This makes its economic trajectory very similar to that of South Africa.

AN EXTRACTION ECONOMY

The mining, agriculture and tourism sectors have always been the traditional backbones of the economy with the success of the country being largely dependent on the extraction and processing of minerals for export.

Almost 50% of the country's foreign exchange earnings are derived from mining which makes up approximately 13% of the gross domestic product (GDP), while overall, mining contributes to just below 30% of the GDP, which has remained constant for the last five years with just a slight dip in 2020, probably due to the COVID-19 pandemic. Belgium, China, South Africa and Botswana are Namibia's main export partners, and export commodities include diamonds, copper, gold and uranium, of which Namibia is the world's 5th largest producer.

Namibia's import partners are a little more limited, with just South Africa and Zambia being key players in the importing of copper, petroleum, diamonds, cars and delivery trucks. The Namibian economy is intricately integrated with South Africa, with the

bulk of its imports originating in South Africa.

Namibia's favourable location and impressive transportation and communication bases make the country a leader in economic integration. The country has membership in the Southern African Development Community (SADC). The SADC region is rich in diverse natural and mineral resources and shares a regional transport corridor that boosts economic growth through the import and export of commodities from and to landlocked countries.

When it comes to strategic locations, Namibia is in perfect view of the global nature of business. Situated on the south-west coast of Africa, surrounded by the Atlantic Ocean in the west, Zimbabwe, Angola and South Africa in the East, North and South respectively, there are immense opportunities for any investor looking to do business in the entire Southern African region. The country is linked by road to South Africa, Zambia, Angola, Botswana and Zimbabwe, giving it the ideal location to emerge as the logistics and trade hub of Southern Africa. Namibia is also a politically stable country with credit ratings above those of its African neighbours. With a well-defined judiciary, doing business in the country is simple.

OPPORTUNITY KNOCKS

Even with its SADC membership and ideal strategic location, Namibia has had its fair share of logistic challenges. Exports from the SADC region comprise mostly unprocessed goods and the region, in general, receives a low-value return. This has prevented it from achieving industrial development and structural transformation. There is huge potential to transform Namibia from a logistics hub into an economic corridor through economic and technological innovation and transformation. Bearing in mind the value of the entire region's natural resources, transformation is indeed necessary to move the country to an investment and efficiency hub. This hub will eventually mature into a thriving economy driven by business sophistication, knowledge and innovation.

GLOBAL OUTLOOK

Namibia's economy has struggled over the last few years due to high unemployment levels and ever increasing income disparity. This was exacerbated by the COVID-19 pandemic which saw the Namibian dollar fall by 7% against the US dollar. Global exports have also continued to decline as the economy struggles to recover with a slowdown in activity in the mining and construction sectors heavily impacting the economy.

WHAT DOES THE FUTURE HOLD?

With the recent Graaf and Venus Discoveries, the Namibian oil and gas industry has received a much needed injection. The Graaf 1 site alone is projected to produce 190 000 barrels of oil per day with the first flow expected in 2027. The $9-Billion Green Hydrogen project is set to produce 300 000 tons a year of green hydrogen and green ammonia for export from 2026.

Analysts also believe that the Venus well can produce a minimum of 120 million barrels. There are a variety of projects on the horizon including the Kudu Gas project, Nambots Mobile Refinery and Kavango Basin, and it's evident that Namibia is one country that we need to keep our eye on.

A PICTURE OF TANZANIA LOOKING FORWARD

The Tanzanian economy is experiencing rapid expansion with its GDP expected to grow from US$50-Billion in 2016 to $100-Billion in 2026, and this forecast may well be a conservative one as it excludes the recent oil and gas finds in Tanzania

It is projected that the Tanzanian GDP will grow from US$50 billion in 2016 to reach $100-Billion in 2026, but this excludes the recent oil and gas discoveries in Tanzania. Tanzania's economy is reliant on agriculture, a sector that employs at least 65% of the workforce and accounts for just under a quarter of the GDP.

As with most other countries, the COVID-19 pandemic stunted economic growth, resulting in a drop of 3% between 2020 and 2021. However, renewed focus on and reform in sectors such as agriculture, mining, manufacturing and construction will see the GDP bounce back to at least 6% in 2026. A stronger GDP is certainly needed in a population that is projected to grow from 58-million to at least 79-million by 2030.

PROJECT PROFILE

The East African Crude Oil Pipeline, at an estimated capital investment of $3.5-Billion, is a critical project between Tanzania and Uganda that is currently under construction. This project will unlock the development of Tanga and northern Tanzania, and is expected to attract investors and companies. The initial capital investment is projected to increase the FDI of both counties by 60%.

It is set to be the longest oil pipeline in the world once completed, spanning a total area of 1 450 kilometres, and will include eight or nine camp sites, with all the utilities, pump stations, oil storage and an export terminal at Tanga Port which is being upgraded for this purpose.

IN THE PIPELINE

Tanzania's Energy Minister, Medard Kalemani, has confirmed in a parliamentary presentation that the Lindi LNG project is due to commence in 2022, with completion expected in 2028. The plant is a collaborative effort between Equinor, Royal Dutch Shell, Exxon Mobil, Ophir Energy and Pavilion Energy. This project will add at least 2 percentage points to the country's current economic growth.

INDUSTRY

Mining is undoubtedly Tanzania's leading industrial sector and includes exports of a diverse range of natural and mineral resources including iron, ore, nickel, copper, golds, diamonds, tanzanite, limestone, coal and uranium. However, newer developments have seen the country stepping away from gold and coal to new energy minerals like graphite, nickel and uranium. With at least 12 hydroelectric power stations in Tanzania, the government has a strong focus on hydroelectric power generation and aims to increase transmission voltage at its Julius Nyerere Hydroelectric plant with the installation of additional transformers.

The Standard Gauge Railway is under construction and will link Tanzania directly to Rwanda and Uganda and also to Burundi and DRC through these countries. The project is in its second phase and will offer a total of 2 561 km of electrified rail as part of the East African Railway Master Plan.

ECONOMIC EMPOWERMENT

Import substitution is a central focal point of the Tanzanian government. Through this principle, the government aims to replace foreign imports with domestic production, and thereby create the opportunity for domestic investment. To this end, imports of basic commodities such as edible oil, flour and condiments have been banned. Producing these products locally will not only offer employment opportunities but also increase demand for storage drums and containers as well as other packaging materials.

Some key changes in Tanzania since Samia Suluhu Hassan was sworn-in in March 2021:

Tanzania has been looking forward to both democratic and financial reform, and this is the hope that its new president has brought. Her agenda is far more liberal than that of any of her predecessors, and she began her term with immediate efforts to reopen international relationships by showing a willingness to travel to meet foreign leaders.

She has also made marked progress in the reduction of aggressive tax tactics with the Revenue Services adopting a more streamlined ICT approach to improve tax collections. Under her leadership there has been renewed trust in government securities and stronger indications of investor and local participation as the demand for government bonds has led to over subscriptions in the past 12 months.

Tourism continues to grow with Zanzibar showing an increase in visitors amidst the pandemic while employing softer tax and immigration laws that investors see as a new opportunity. Tensions with mining and gas companies have been eased with a US$30-Billion injection into gas projects and developments in Southern Tanzania. China has also lost ground under the new Tanzanian regime due to the rejection of loan terms.

DOING BUSINESS IN TANZANIA

Tanzania has an extensive trade footprint with its import and export partners including South Africa, DRC, Switzerland, Kenya, China, Japan and the United Arab Emirates. Although the government still has a strong presence in a number of sectors, the country's transition to a market economy is almost complete. Dar-Es-Salaam is a key distribution point for the country with access to surrounding landlocked countries. The local manufacturing and distribution sectors are transitioning into hubs that are within reach of East Africa, and the middle income group in the country is experiencing growth. One of the biggest threats to the economy, however, is the smuggling of goods that remains problematic.

TAKING THE INDUSTRY BY STORM

The South African energy, manufacturing, fabrication and steel industries are more interdependent than we know. This smooth oiled wheel is driven by an 'engine' of passionate professionals who accomplish extraordinary things on an almost daily basis. To highlight just such an individual, in this issue, we speak to Air Liquide Commercial and Development Manager Bridget Zuma…

Why did you decide to study engineering and what is it about the discipline that attracted you to this field?

I have always been determined to succeed and to be impactful in whatever I do while making a difference, inspiring and motivating others. At school I knew that I didn't just want a career, I wanted to incorporate my love for science and make a contribution. I researched

"I love my job because it allows me to play my part in contributing to both the industry and transformation"

a variety of industries to find which of those would in future contribute to the GDP in South Africa.

I knew that I needed to use my capabilities positively, and my research led me to the University of Pretoria. I studied Metallurgy and acquired my Bachelor in Engineering (BEng). One of my first achievements was winning a SAIM award for Young Presenters, having placed first in Southern Africa. I followed my BEng up with my Masters of Science qualification through the University of the Witwatersrand where I won the Regional IOM3 Young Persons Lecture award in 2017.

I was also honoured with the Sassda Best Stainless Steel Student award in 2018 and the Golden Key Chapter award in 2019. My head was constantly in the game, and once in a corporate environment, I went on to complete a new Managers Development Programme in Business Management at Wits, followed by a Women in Leadership programme at Stellenbosch University in 2020.

How did the first years of your career build on what you had studied at university but in a more practical setting? What were the key lessons you learned during this time?

The first years of my career were focused on positioning myself as a contender in the industry by being a voice that needed to be heard. My academic achievements had prepared me for the transformation that I believe needed to take place in the manufacturing and mining sector, but the top-down style of management that was so common at that time, tended to overshadow growth and success. I realised that I needed to challenge the bias and that to make my mark, I would need to challenge the status quo so to speak and do things differently.

What motivated you to become a part of the industry and what is it that you love most about it? How long have you been in the field?

My deep love for science and my passion for the manufacturing and mining sectors were key players in my decision to study Metallurgy. My strong intellectual acumen and excellent leadership abilities were also great indicators that, as a previously disadvantaged woman, I can make a difference for women in general. I am extremely focused and I feel that I am auto-programmed to be an overachiever. Although I have been in the industry collectively for more than ten years, I continue to further my education and leadership abilities. I love this industry primarily because it allows me to play my part in contributing to both the industry and transformation. I mean, it has always traditionally been a male dominated field, and it's rare to find women that are both passionate about this sector and able to progress and make transformation possible in this uncharted territory.

As a woman in a previously male-dominated field, did you find it difficult to break into the industry?

It was extremely difficult to break into the industry. Academic qualifications are one thing but there does come a point where actions need to speak louder than words. There are obvious challenges that are indicative of this sector, and one of those is simply that "it's a man's job". It became my aim to represent two different demographics; women and the previously disadvantaged. I also realised that the mining and industrial sector has not boomed like the technical industry, and yet, the tools used by the technical industry are freely available to us all. This incredibly diverse and transformative thinking needs to be applied across the board in the mining, metallurgy, energy, manufacturing and fabrication industries, and the value of women in these sectors needs to be pronounced a little louder to encourage women across the country to take this leap. I started at Hulamin as an engineer in training and moved on to become a blending specialist on key projects to business sustainability in the

Metals Division. I then joined Air Liquide as a Metals and Energy Market Manager, and currently occupy the role of Commercial and Business Development Manager for Southern Africa.

How would you describe a typical day in your current position?

A typical day for me begins with taking care of family. I have two children under the age of four who are themselves, a full-time job. I manage a team of five business developers and sales representatives across Southern Africa. As you can imagine, this has its fair share of cultural and diverse challenges, but I work and operate from a point of integrity and respect. My Zulu culture teaches respect for all persons, regardless of liberality or position. My daily interactions which include reviewing performance, reporting to relevant boards, dealing with key customer needs and managing my team, are all driven by collaboration and respect. With my team so dispersed; collaboration and constant interaction removes the feeling of isolation and they rightfully feel like part of the bigger picture.

Why do you feel that gas production and stainless steel have such a significant role to play in getting South Africa's economy back on track following the COVID-19 pandemic?

Industrial gas supply plays a crucial role in stainless steel production in South Africa. Constant availability will facilitate stainless steel plant restart and recovery. Air Liquide has a strong commitment in and to Southern Africa. The business has been successful in procuring all the air separation units (ASU) from Sasol Secunda train 1 to 15. These ASUs produce industrial and speciality gasses that are used by Sasol. The staff from the Sasol trains were incorporated into the Air Liquide Business. This ensured stability during the pandemic, as well as assuring clients in the stainless steel industry of constant supply and support from experts in the industry.

Qlixbi has won a Red Dot Award in the innovative product Category in 2020 - why do you feel that this particular gas was so significant in the evolution and awareness of gas and stainless steel in the market and why is it so important to the growth of certain sectors now i.e. key applications where it's the ideal choice?

We have developed a packaged gas solution that turns the art of welding into a user-friendly experience by making it easier, faster and safer to weld, thanks to a mix of mechanical and digital innovations. This product offers the welding and fabrication industry insight to help optimise the operation and increase efficiency. Traditional stainless steel production houses and fabrication will be incredibly enhanced with a product that delivers a digital interface combined with an upgrade on control systems and amazing precision of mixtures. Qlixbi has been rolled out in Europe and we can expect it to hit local shores soon.

What do you consider the most exciting innovations/product developments happening in the industry right now and what sectors hold the greatest potential for the use of gas and steel in the future e.g,. aerospace etc.?

I can't say too much about this, but I will let you in on a major development in the gas sector that will have a strong impact on the future of stainless steel and fabrication. The buzz words on everyone's lips are CO2 emissions, and this has indeed become a sore topic with levies that are increasingly problematic. Air Liquid's new technology Cryocap, is a game changer. Cryocap focuses on reducing CO2 emissions for hard to abate sectors like stainless steel. CO2 has always been a key ingredient in traditional welding mixtures, but we have found that increasing the use of gasses like pure argon is beneficial not only to provide a better welding finish but also for the climate. Sectors that will benefit from this include the automotive and fabrication industries, but the manufacturing sector is also positioned to show great growth potential for stainless steel and industrial gas.

case study

3CR12 IN ACTION IN THE SUGAR INDUSTRY

The global sugar sector is an increasingly competitive industry where cost reduction and increased productivity is of the essence. The ISSF reports that an assessment of the performance of basic stainless steel grades in the European sugar industry has shown that the use of these grades has led to a 50% drop in plant maintenance costs.

Corrosion and rapid wear of factory equipment are widely recognised as the major contributors to production costs and quality problems in the sugar industry. The root cause of this is the fact that the processing of sugar cane is highly corrosive and/or abrasive. In the early years, producers of sugar almost exclusively used carbon steel in the plants.

This design was based on the perceived low costs of the material. This was ultimately the incorrect decision since carbon steel does not have high resistance to either mechanism. The processing environment is created by a mixture of abrasive particles, moisture, heat, and acidity creating a very hostile environment for regular materials. However, to the utility ferritic this is home.

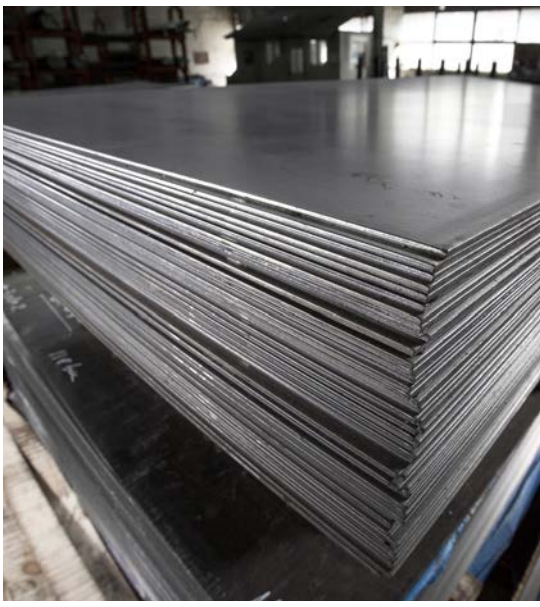
BACKGROUND TO 3CR12

For historical reasons, users and potential users of stainless steel believed only austenitic grades with higher levels of chrome and nickel would be suitable for these types of environments. This is based on the false perception that nickel contributes mainly to corrosion resistance.

The truth is that nickel enhances weldability and ductility but does not contribute to corrosion resistance. Nickel is also an expensive alloying element and contributes to the higher pricing of austenitic stainless steel (also known as the 300 series). However, although ferritic grades offer a lower and more stable costing structure, not all ferritics are weldable to the required level for the industry.

The locally developed utility ferritic known as 3CR12 would be the solution. 3CR12 is recognised as the original 12% chrome utility ferritic grade. Internationally 3CR12 is also designated as type 1.4003. Whilst ferritic grades are not readily weldable above 3mm gauge thickness, 3CR12 is a weldable ferritic utility stainless steel and is not normally prone to stress corrosion cracking as is the case with austenitic stainless steel. It is selected for its corrosion resistance, strength and toughness and is particularly suited to wet materials handling due to its ability to resist abrasion induced corrosion. 3CR12 was developed as a superior alternative to coated carbon steel, COR-TEN, and aluminium.

Atmospheric corrosion testing of



3CR12 has found that this utility grade offers up to 250 times the life span of unpainted carbon steel in certain environments. 3CR12 can be fabricated relatively easily and is weldable by conventional techniques. Where required it may be painted or powder coated with good results.

3CR12 is included in Part 4 of SABS 0162 (Code of practice for the structural use of steel) and of significant importance is its high strength and corrosion resistance. This characteristic allows for mass savings together with the long term advantage of reducing maintenance and replacement costs. Total Life Cycle comparisons with coated mild steel in various applications show that 3CR12 can be expected to yield total life cycle costs that would be around 50% of that of coated mild steel.

3CR12 IN THE SUGAR INDUSTRY

For many years corrosion and abrasion have posed serious and costly problems for the sugar industry throughout the sugar producing world. Since the early 1980s when 3CR12 was introduced to the South African sugar industry, it has proven itself in many applications in numerous countries in both cane and beet processing. With 3CR12's resistance to corrosion abrasion and relatively low cost, it has performed very well in most areas in sugar plants. Throughout the typical sugar mill, one finds 3CR12 used in applications such as:

- Cane carriers
- Juice troughs
- Donnelly chutes
- Bagasse handling
- Ducting
- Scrubbers
- Centrifugal separators
- Ash Handling

EXAMPLES OF 3CR12 IN THE SUGAR INDUSTRY:


FIGURE 1

Figure 1 shows components of the main cane carrier. Note the reflectivity of 3CR12 sides polished by service since 1985. Originally designed from 10mm thick material, these sides still measure thicker than 9mm after 18 years of service. Records show that carbon steel would last a maximum of ten years in this application. This also illustrates the self-cleaning ability of 3CR12 and stainless steel in general.


FIGURE 2

The cane carrier, often described as the cane conveyor, is the moving apron that conveys the cane to the factory and assures the feed to the mills by transporting the cane from the yard to the crusher. Figure 2 shows the exit from the cane carrier with 3CR12 visible on the inside of the opened lid. 3CR12 is also used on related equipment such as cane levellers.


FIGURE 3

The juice heater consists of an assembly of tubes; the sugar cane juice circulates through the tubes and the vapour outside them. Suitable headers force the juice to pass a certain number of times from bottom to top and from top to bottom of the heater by restricting the juice each time to a few of the tubes.

A visual comparison between 3CR12 and mild steel on scalding juice heater covers is shown in Figure 3. Note the corroded condition of the mild steel of the unit at the back and the good condition of the 3CR12 cover in front. Both units have a similar life span.

In the sugar industry, a major component of the extraction process is a device known as a diffuser. Crushed and shredded cane is repeatedly washed by warm water as it travels along a conveyor, leaching the sugar from the cane. Similar evidence can be found at the diffusers where lids made from 3CR12, and mild steel can be compared over a similar service life. The two images in Figure 4 show the difference between the two grades. The picture on the left shows a 3CR12 lid on a diffusor after several years in service. On the right, is a lid made from mild steel after similar service life.


FIGURE 4


FIGURE 5

Centrifugation is a mechanical process, which has the function of separating or clarifying a mixture, from different densities of its components. The centrifuges used in the production of sugar are designed for processing massecuite, a mixture of sugar crystals and molasses, which is produced by the crystallisation phase of sugar refining. The centrifugal spins the massecuite in a perforated basket at speeds of up to 1200 rpm. 3CR12 is used for the centrifugal exterior and interior. Figure 5 depicts the 3CR12 interior of the centrifugal.

Effluent and wastewater handling suit the use of 3CR12. The remarkable difference in corrosion resistance offered by the utility ferritic is illustrated in Figure 6 showing a 3CR12 frame with a carbon steel grid. The frame and grid are the same functional age and while the grid is for all practical reasons destroyed, the frame remains in very good condition and even shines. The two images in Figure 7 show in detail the different levels of corrosion for stainless steel (left) and carbon steel (right) grids installed at the same time and exposed to the same effluent.


FIGURE 6

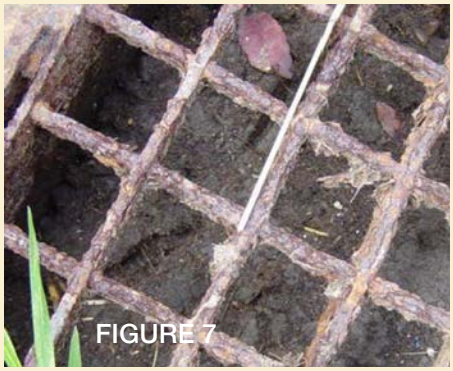


FIGURE 7

CONCLUSION:

Important lessons are to be learned through the experience of the sugar industry. It shows us the importance of having technical staff and process engineers aware and informed on proper grade selection, the mechanisms for corrosion and Life Cycle Costing. The informed person knows that stainless steel is unbeatable in virtually all applications and is Simply Brilliant!

SASSDA MEMBERSHIP BENEFITS 2022

It is important for any organisation to be in tune with the market or, in Sassda's case, its members. We have regular interaction with our members whether it be at sports days, training events or the meetings of our various structures.

In 2021, we endeavoured to try and understand in more detail what members think of our products and their delivery. This information gathering process ultimately led to a strategic event during November 2021 where together with members, we reviewed our offering to date and considered what we can do to enhance the current offering.

As background, it is important to appreciate that we have changed our funding model during 2019 and with this, a new range of product mixes was designed for the individual tiers. We were able to give members a 30% discount during 2020 when most of our members were heavily impacted by the hard lockdown. Most of our products are now delivered live and online and we wanted to get an idea of whether this new concept is working for members and adding value.

The results of the members feedback were extremely positive and encouraging. Our "stone" membership tiers with mostly fabricating members, responded by telling us that Sassda is on target with delivery and product quality. Whilst our "metal" tiers (mills and distributors mainly) were also satisfied with our offering. Sassda is now aiming to focus on adding more value to these tiers of membership.

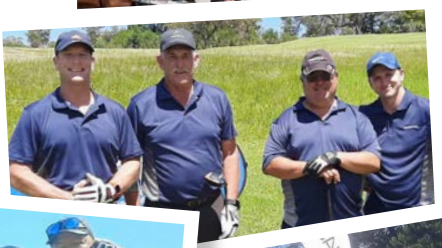
It was already decided by members at the 2021 AGM not to increase membership fees for 2022, but we are still driving the continuous improvement of what we do and how we do it. Membership benefits are broadly classified into four groups, namely:

- **General Benefits** includes the use of the logo, access to information, statistics, and training videos, free access to all "60 Minutes in Stainless Steel" webinars, free technical assistance, and a free referral service through incoming technical enquiries.
- **Training Benefits** includes free access to some training courses and a 25% discount on Sassda courses not covered by the membership, free attendance to CPD webinars and presentations and the like. Many of our presentations are now fully CPD accredited.
- **Networking and Marketing Benefits** includes free listing products and services in Sassda's "Find a Supplier" website tool, representation at the dtic trade shows and missions in Africa, free monthly report on Africa countries, free potential editorial in Stainless Steel magazine and press releases, and 15% discount on Stainless Steel magazine advertising rates and many more opportunities.
- **Strategic Benefits** gives all Sassda members the power to partake in guiding our industry by having a vote or a seat at our Main Committee or even at Board level.

These four pillars allow our members to be fully aware of the local and international stainless steel market. Trained as professional suppliers and users of stainless steel and empowered to guide the local industry, Sassda can boast that we do all these well! If you are not a current member, contact us to find out more and if you are a member, make sure you get the most out of it.

SASSDA'S EASTERN CAPE GOLF DAY A SPARKLING SUCCESS!

Sassda held its first Golf Day of 2022 in sparkling blue sunshine of a surprisingly wind-free Qheberha. 52 players relished the chance to get back to business in the real world and connect with industry colleagues in a productive and meaningful manner and in addition to some super shots, a number of key networking opportunities arose. Sassda would like to thank our sponsors Macsteel VRN, NDE, Columbus Stainless, SJM Flex and TÜV Rheinland without whom this stellar sporting event would not have been possible.



COLUMBUS STAINLESS HOSTS A ONE IN A MILLION GOLF DAY

Columbus Stainless recently hosted a successful charity golf day event to raise funds for 16 charity organisations in Middelburg and surrounding areas. The event forms part of its ongoing commitment to donate R1-million to these worthy institutions. The golf day was held at Middelburg Country Club and saw 180 players from different provinces around the country enjoying a day of long-anticipated business networking and sporting prowess.