

# Technical and operational insights for businesses entering Namibian markets





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for businesses entering Namibian markets**

Satakunta University of Applied Sciences

Pori

2020

**Project:** SME Aisle – Exports of clusters of CB economic strengths shipbuilding, maritime, renewable energy, automation and ICT to Namibia as a stable point of entry to the Southern African markets

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Satakunnan ammattikorkeakoulu (SAMK) | Satakunta University of Applied Sciences  
Series B, Reports 9/2020  
ISSN 2323-8356 | ISBN 978-951-633-315-4

**Publisher:**

Satakunta University of Applied Sciences  
Satakunnankatu 23 | FI-28101 PORI  
[www.samk.fi](http://www.samk.fi)

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**Graphic design & layout:** Teija Järvenpää & Kristiina Kortelainen  
**Cover photo & photos:** Minna M. Keinänen-Toivola

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# 1 INTRODUCTION

This report describes some specific technical and operational requirements necessary to take into consideration when planning a business venture in the Southern African market. In this report, Namibia is used as an example. The report is written with a view to small and medium-sized businesses from the Central Baltic region which are interested in entering the Namibian market. It is made as a part of the SME Aisle project (CB662), which promotes export initiatives from the Central Baltic region to the Southern African markets by supporting especially the business ventures of small and medium-sized Central Baltic companies. The project is financed by the Central Baltic Interreg Programme. For more information about the project, visit the project's webpage: <https://sub.samk.fi/smeaisle/>.

The study for this paper was conducted in 2019 through extensive cooperation with the Namibian partners. The cooperation began already in 2012. This work has included participation in local workshops and conferences in Namibia and South Africa, delegation visits from Central Baltic to Southern Africa and vice versa, as well as actualization of several development projects presented in the Appendix 1 of this report.

External expertise work was also conducted as a part of this report. The report "*SME Aisle - Central Baltic Region Doing Business in SADC with Namibia as Stable Point of Entry*" was prepared by S. John, M. Sony, A. Shigwedha, E. Ngongo, N. Abiatar, V. Shipanga and R. Descande from the Namibia University of Science and Technology (NUST) in Windhoek. This non-public report on the important aspects of business in Namibia was prepared between September 2019 and February 2020. In this publication, we refer to this report with *italicized* markings in chapters 3.3 "ICT and automation" and 3.4 "Shipbuilding, maritime and logistics". We would also like to thank Jonna Ristolainen when working at Satakunta University of Applied Sciences for participating in the editing process of this report.

In the following chapters, the report sheds light on the prevailing natural, technical, legislative and societal conditions for Central Baltic innovations targeting the Namibian, and further the Southern African, markets. The report seeks to provide practical insights for businesses in renewable energy, automation and ICT, as well as shipbuilding, maritime technology and logistics. The focus in this report is to reveal some general challenges in the market which the companies might face in their business activities, but also the business opportunities characterizing the market and the aforementioned sectors, as well as their development needs.

## 2 BACKGROUND

The Southern African Development Community (SADC) is a regional economic community comprising 16 member states; Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini (former Swaziland), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe. Established in 1992, SADC is committed to Regional Integration and poverty eradication within Southern Africa through economic development and ensuring peace and security (Website of SADC, 2020).

Namibia joined SADC in 1992 as one of the founding members. Namibia is Africa's most sparsely populated country and has vast open space, with a total surface area of 824 269 km<sup>2</sup>. Namibia is situated favorably, in geographical terms, on the south-western coast of the African continent bordering Angola, Botswana, South Africa, Zambia and Zimbabwe. The port of Walvis Bay is in an ideal location for shipments to and from Europe and the Americas. Namibia is a politically stable country which has a well-maintained road infrastructure and other favorable conditions for business (Website of NamBizOne Portal, 2019a). Namibia is also known for its abundant amount of sunlight all year around and favorable conditions for wind power, especially on the coast. In practice, Namibia has had one ruling party since its independence in 1990: South West Africa People's Organization SWAPO. The country has enjoyed relative political stability as a multi-party democracy for 30 years.

Southern Africa is usually unfamiliar to small and medium-sized businesses operating in Central Baltic. Because Namibia is a stable and accessible African country, it serves as a firm entry point for businesses arriving to the new and foreign business area.

So far, the SME Aisle project has supported 43 SMEs from the Central Baltic area in their pursuit of establishing new business connections in the Southern African markets. Technologies and services offered by the SME Aisle companies within the project have been, for example, the following:



## **Renewable energy**

- solar panels and solar thermal systems
- wind turbines
- smart housing
- software that decreases energy consumption by 90 percent for lighting systems
- solutions for reducing diesel consumption
- eco-friendly fertilizers

## **ICT**

- cables and systems for the telecommunications and data networks industries
- broadband solutions especially in rural areas or where access to internet is unreliable
- smartphone lending/leasing
- IT infrastructure deployment, either cloud or any tier data center
- ERP and Bank integration software
- 360° virtual tours
- ICT platforms and security solutions
- digital signage solutions
- electricity monitoring solutions
- fuel monitoring solutions
- ICT project management and delivery, ICT consultation and software development quality control services
- training

## **Automation**

- designing and making tree planting machines and software
- system integration, software development for automation controllers, sales of automation hardware
- gate automation and access control solutions

## **Maritime**

- ship and yacht repair, spares and services
- naval architect
- training simulators for maritime schools and academies, technology and solutions for underwater surveillance activity
- recruitment service

The following chapters in this report introduce first a few common challenges when entering the Namibian market, after which it moves to more cluster-specific challenges. The report seeks to provide practical insights for businesses in renewable energy, automation and ICT, as well as shipbuilding, maritime technology and logistics.

## 3 TECHNICAL AND OPERATIONAL REQUIREMENTS IN NAMIBIA

Installing and developing business in a foreign market is demanding and even more so when the geographical and cultural distances are stretched. Consequently, companies coming from the Central Baltic countries face several challenges entering Namibia. Some of the challenges are common to all entrepreneurs, others concern specific business clusters. Also, based on years of experience in Namibia and its business environment, it is understandable that the goods and services need to be tailored for the local needs, which may vary significantly from a country to another. This is also the case in Namibia, which will be demonstrated through practical examples.

### 3.1 SOME GENERAL ASPECTS OF THE NAMIBIAN BUSINESS ENVIRONMENT

Namibia is a vast and arid country, which both create opportunities for and challenges to companies. For example, shortage of water is a prevailing issue in the country and affects businesses especially in the central part of Namibia, such as in the capital Windhoek area. (Savela, Salahub, & Keinänen-Toivola, 2018.) On the other hand, businesses are facing abundant amounts of sunlight and a relatively well-developed road infrastructure.

It should also be noted that local workforce may create challenges to foreign companies. Although there is no local participation requirement for foreign investments, except in the natural resource sectors (primarily mining and fishing), the government actively encourages partnerships with historically disadvantaged Namibians. Due to recent government's land reform efforts, foreigners are generally barred from purchasing agricultural land (Savela, Salahub, & Keinänen-Toivola, 2018; Export.gov, 2018). A company may also experience challenges in finding skilled workforce, even though the country is suffering from a high unemployment rate of 33,4 percent in 2018 (Website of Trading Economics, 2020). The high unemployment rate also creates pressure to job creation. In practice, this might translate in willingness to favor some solutions over others, e.g. a solution with a high employment effect over highly automated solutions.

Although the physical road infrastructure may be considered to be in good condition in most parts of the country, there is still a need to upgrade some parts of the transport infrastructure, e.g. rail infrastructure.

Implementing regulations is the main problem as the Namibian government does not lack plans or initiatives. Starting and registering a company is relatively easy in Namibia, but obtaining work permits etc. has been considered a bureaucratic process (Savela, Salahub, & Keinänen-Toivola, 2018; Export.gov, 2018). As for starting a business, regarding company registration, construction permits costs and time span etc. see the document “[Doing business 2019: Training for reform, economy profile Namibia](#)” (Website of World Bank Group, 2020).

There are certain restricted and prohibited imports and exports in and out of the country. For an extensive list of these imports and exports, visit: <https://www.sars.gov.za/ClientSegments/Customs-Excise/Pages/Prohibited-and-Restricted-goods.aspx>. Although the list is for South Africa, it is common to all SACU (Southern African Customs Union) countries, which include Botswana, Lesotho, Namibia, South Africa and Eswatini.

Next, the more in-depth aspects of technical and operational requirements are presented of the sectors of renewable energy, automation and ICT, as well as shipbuilding, maritime technology and logistics.

### **3.2 ENERGY SECTOR AND RENEWABLE ENERGY RESOURCES**

The energy sector in Namibia is based on the usage of petroleum products, imported electricity and local wood fuel supplies. Currently, domestic electricity production in Namibia does not meet the demand and the country imports more than half of its total electricity demand. The demand is expected to grow annually approximately 5 percent. Namibia’s production capacity is about 487 MW. The most important domestic electricity source in Namibia is hydropower, which is affected by hydrological conditions. Therefore, the amount of imported electricity varies depending on the hydropower situation, which in turn depends on rainfall and drought. (Website of NamBizOne Portal, 2019b.)

Production facilities and their generation capacities in Namibia:

- Ruacana Hydropower Station – 332 MW
- Van Eck Coal Power Station – 108 MW
- Paratus Diesel Power Station – 24 MW
- Anixas Power Station – 22,5 MW

(Website of NamBizOne Portal, 2019b.)

Petroleum products are imported since there are no gas or oil reserves nor refineries in use so far. There exists a natural offshore gas field, Kudu gas field, and Namibia is preparing to utilize the reserve. The project has been delayed, but the Kudu gas field is hoped to be the answer to the increasing electricity demand in the country.

Under the Harambee Prosperity Plan, the government plans to increase the rural electrification rate from 34 percent in 2015 to 50 percent by 2020 (Website of Government of Namibia, 2020). Moreover, the Fifth Development Plan (NDP5), states that the goal of the government is to increase its Local Electrification Capacity (MW) from 484 (baseline of 2016) to 755 by 2021/22 by creating a “sustainable mix of locally generated energy capacity” (The Republic of Namibia, 2017). Renewable energy offers an opportunity to decentralize the electricity distribution network and also diminish the dependence on imported electricity, both for Namibia as a country and for the residents as energy consumers.

The state-owned NamPower owns and operates the country’s generation and transmission assets. The city of Windhoek (the country’s largest distributor) undertakes the bulk of the distribution of electricity. The remaining is managed by the two regional electricity distribution companies (REDs), the Northern RED (Nored) and Erongo RED (Erongored), and by numerous small municipal distribution operations (Website of REEP, 2020). So far, the Namibian market has been operating on a Single Buyer Model, whereby the state parastatal NamPower has been the generator and the single buyer of electricity. However, the energy sector is opening up for Independent Power Producers (IPPs) (Savela, et al. 2020).

In the case of renewable energy projects, the project/procurement process may be established in several ways:

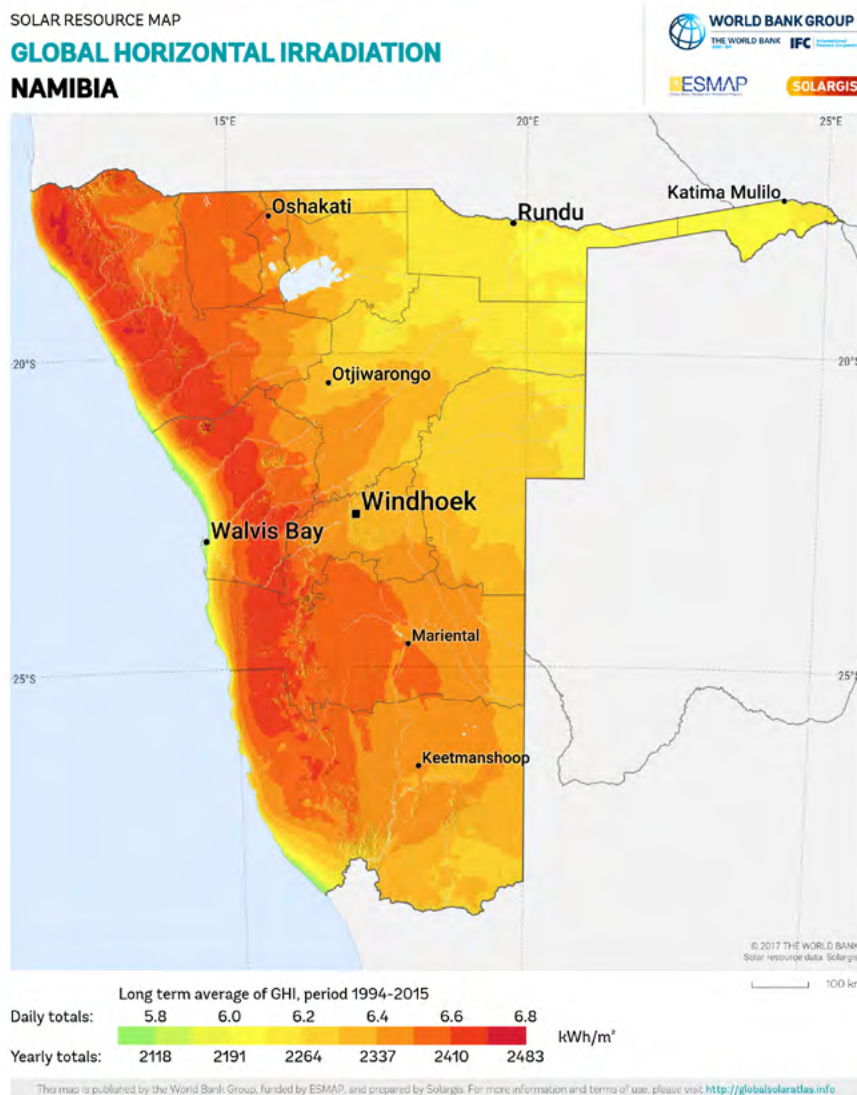
- **Renewable Feed-in Tariff (REFIT) scheme:** Includes renewable energy projects with capacities between 500 kW and 5 MW. The REFIT is for investors in the electricity generation business who want to own, procure and operate medium-scaled electricity production facilities. In the interim, 70 MW REFIT programme’s 27 participants are seeking 14 IPPs (solar PV, wind and biomass) of 5 MW generation licenses.
- **Net metering:** The net metering program is a private ownership model where “small-scale renewable projects can feed the excess energy into the national grid”. The program is only targeted at residential and commercial users with renewable energy technologies (solar, water, wind, geothermal, biomass, biofuel, biogas or fuel cell) with equal or less than 500 kVA installed capacity. The Net Metering Rules are under the promulgation process.
- **Competitive bidding system:** Projects under this scheme are more than 5 MW and are procured through a competitive bidding system. IPPs submit bids

for renewable energy projects with a pre-determined capacity. The least cost bidder that fulfils also the technical requirements is awarded and signs a PPA and a TCA with NamPower. The PPA guarantees a fixed price over a certain period of time and it is annually revised.

(Website of NamBizOne Portal, 2019b.)

### 3.2.1 SOLAR ENERGY

Namibia holds a great potential in utilizing solar energy because of the high level of solar radiation and minimal cloud cover. Moreover, Namibia has over 300 sunny days per year. There is a lot of unexploited solar energy capacity, and solar photovoltaic (PV) systems, solar water heaters (SWH) and concentrated solar power (CSP) offer opportunities in the country. The solar resource map estimates solar energy available for e.g. a power generation (Picture 1). Average annual solar radiation exceeds 6 kWh/m<sup>2</sup>/day, most of it being direct radiation (The World Bank, 2019).



Picture 1. Long-term average of yearly/daily sum of global horizontal irradiation (GHI) in Namibia (The World Bank, 2019).

Namibia is a country with diverse characteristics, from hot deserts to green areas and cool coastlines. The temperature might rise high during daytime and affect the efficiency of a PV panel. The negative effects of high temperatures should be considered in the planning phase of a PV system with e.g. design solutions and installation possibilities. As Namibia is a country with a vast desert area, desert sand tends to travel with the wind. This sand may diminish the power production of a PV panel. Regular cleaning of the panels must be taken into account when planning solar energy production. In order to accomplish a safe and stable installation, local weather conditions must be considered. On-grid and off-grid solutions have their own details which have to be taken into account, e.g. energy storage in off-grid systems and surplus energy feed to the grid. Reasonable loans and subsidies for clients are needed.

### 3.2.2 WIND ENERGY

A coastline of more than 1,600 km offers unexplored wind, wave and tidal energy potential in Namibia. The country's wind energy potential is high and especially the coastal areas, like Walvis Bay and Lüderitz, enjoy favorable conditions for the wind energy production. There is potential to invest in several wind farms along the coast. Small and micro wind energy installations, e.g. for water pumping, are relatively common in Namibia.

It should be noted that wind farms may possess a risk to the local wildlife. For example, there is a possible danger through wind parks to migratory and resident birds in certain areas, which is especially problematic in Walvis Bay (Website of Ministry of Mines and Energy, 2020).

### 3.2.3 OTHER RENEWABLE ENERGY SOURCES

Biogas and eco-friendly fertilizers have potential in Namibia. Walvis Bay, with its location on the coast of nutrient rich Benguela Current, acts as a key area for fish products. There are numerous fish factories, which also produce fish chum. The fish chum is used for feeding animals and fertilizing gardens, and it is also exported to other African countries. Additionally, fish chum could be used for biogas production. Biodegradable waste and side products can be turned into energy and fertilizers with biogas technology. The biogas plant must be the right size and suitable for the local circumstances in order to be successfully implemented (Järvenpää, 2017). In addition to the technology, there is a need for a comprehensive solution where the suitable product and service are taken into account.

Some challenges in fish waste utilization have been recognized. In order to have an efficient biogas production, fish waste should be blended with other organic waste



because a high lipid content in fish waste might inhibit the biogas process. However, the local industry utilizes the fish waste for fish meal production and there are no large unutilized waste streams available. (Rämä & Koponen, 2016.)

### 3.2.4 ELECTRICITY NETWORK AND POWER SUPPLY

The national electricity network in Namibia is rather well developed compared to other African countries, since Namibia has had to enable the import of large quantities of electricity into the country. However, from the Central Baltic point of view, the condition of the grid is not at the same level, and e.g. power outages occur. The electric current in Namibia is 220 VAC 50 Hz.

In general, sub-Saharan Africa is experiencing unreliable electricity supply and frequent power outages. However, in Namibia, power outages are less frequent than the average in sub-Saharan Africa (Table 1). In Namibia, 27 percent of companies reported power outages, compared with an average of 76 percent in the sub-Saharan Africa according to the World Bank Group data from 2017. Power outages in Namibia occur 0.6 times in a typical month, with an average power outage of 5.8 hours in the compared area. 18 percent of Namibian companies are prepared for power outages with their own or shared generator. 14 percent of Namibian companies identified the lack of electricity as a major constraint. (Website of World Bank Group, 2017.)

Table 1. Companies' experiences of power supply interruptions in Namibia and sub-Saharan Africa (Website of World Bank Group, 2017).

<b>Indicator</b>	<b>Namibia (2014)</b>	<b>Sub-Saharan Africa (2014)</b>
Percent of firms experiencing electrical outages	26.9	76.2
Number of electrical outages in a typical month	0.6	8.3
If there were outages, average duration of a typical electrical outage (hours)	5.8	6.4
If there were outages, average losses due to electrical outages (% of annual sales)	4.8	7.8
Percent of firms owning or sharing a generator	18.0	51.0
If a generator is used, average proportion of electricity from a generator (%)	25.5	26.9
Days to obtain an electrical connection (upon application)	20.3	35.4
Percent of firms identifying electricity as a major constraint	14.2	41.2
Percent of firms experiencing water insufficiencies	3.7	22.7
Number of water insufficiencies in a typical month	0.1	2.0
Proportion of products lost to breakage or spoilage during shipping to domestic markets (%)	0.1	1.9
Percent of firms identifying transportation as a major constraint	25.3	27.0

When planning electricity generation in Namibia, one should also consider permit issues. One example is the environmental clearance certificate, which is required for the facilities to be built for electricity generation (Van der Berg & Koep, 2016).

### **3.3 ICT AND AUTOMATION**

*Namibia's critical ICT infrastructure is constructed and it is constantly improving. However, many steps need to be taken in order to achieve digital transformation in its major economic sectors. Most of the business processes still rely on manual execution, with few exceptions in the banking sector. The opportunities for the companies in supporting the transformation include e-government solutions (in commerce, logistics, learning, licensing, passport processes), online customs and clearance, online business processes, mobile application development, contents development, internet marketing, micro/macro payment systems, mobile financial services, and many more.*

*The telecommunication operators, MTC and Telecom Namibia, were two major operators in the country until 2012. Today, because of new competition arisen from the companies, such as Paratus Telecom, MTN, and Demshi Investment, the mobile market penetration rates have improved, rising well above the regional average. The internet and broadband sectors have also risen significantly since 2011, mainly because of a direct connection to international submarine fibre optic cables (through WACS cable), an increased number of connections to international satellite links, increased rollouts of 3G, 4G and 4G LTE networks, and an improved national fiber backbone infrastructure. Roaming capabilities have equally improved and roaming tariffs decreased in the recent years. The Communication Regulatory Authority (CRAN) regulates the Namibian communications, broadcasting and postal services (Website of NamBizOne Portal, 2019c).*

*Namibia has emphasized the need for expansion and modernization of its telecommunication infrastructure through heavy investments. It is estimated that the mobile network coverage in Namibia is currently above 95 percent and it is increasing. Moreover, if the telecommunication operator MTC manages to realize its current development projects successfully, the mobile network coverage may reach the full coverage of 100 percent by 2021. The MTC's flagship project, launched in August 2017 and costing over N\$1.1 billion dollars over a three-year period, aims to expand its network footprints and infrastructure. A close to 100 percent coverage is achieved through the spread of 524 new base transceiver stations over 14 regions of Namibia. In the first phase, 111 new towers will be constructed, and the first 41 sites were commissioned by December 2018. The rest were commissioned by March 2019. Through the project, the MTC has been able to introduce 3G network to remote settlements and later unlock the technical avenue for 2G and 3G migration for customers in rural areas.*



*Telecom Namibia, under its TN Mobile brand, has also expanded its 3G and 4G network both in urban and rural areas across the country. As the high data requirements are on the increase, this sort of expansion pays a service to the company. The 4G network is still a more common feature in urban areas, whereas the 3G network has been expanded to various rural settlements.*

*Backbone fiber optic cables have also been installed by the telecommunication operators in the country. For example, the MTC announced that it would provide comprehensive fiber internet and digital cloud computing services to both major public and private customers. Other connections worth mentioning are the connection to a high capacity broadband undersea fiber optic cable system (WACS), domestic satellite communication linking extremely remote sites, and international satellite links via South Africa, the UK, the USA, Germany, Sweden, Switzerland and Angola. The West Africa Cable System (WACS) enables SADC countries to utilize data transmission of more than five terabytes per second. Likewise, ADLS, mobile 3G and 4G, 4.5 LTE and WiMAX technologies enable broadband access countrywide. Hence, great progress has already been made in Namibia despite its challenging demographic features, which make network deployment relatively costly and difficult.*

However, some challenges exist in the ICT sector. For example, many people lack basic ICT skills and not all people have access to computers. Additionally, spare parts originate usually from foreign countries. The University of Namibia (UNAM) and NUST offer study programs for information and communication technologies. At UNAM, it is possible to study computer engineering and computer sciences. At the Institute for Open Learning, there are some ICT courses and a possibility to study an international computer driving license (Keinänen-Toivola, et al., 2018).

Disposal of ICT devices in some city areas operates well, but in some areas hazardous substances still end up in the environment due to poor disposal and poor recycling of ICT devices. Unavailability of electricity infrastructure in semi-urban and remote rural areas hinders the provision and uptake of ICT services and limits internet access points in public facilities, especially in rural areas. (Keinänen-Toivola, et al., 2018).

In some cases, the gap between the ICT solutions offered by the Central Baltic companies and the local products, services and infrastructure has been too wide. Both the rapid development of the ICT infrastructure in Namibia as well as careful scaling of the products and services of the foreign companies are important steps to narrow this gap in the future.

*The impact of technology is already visible in ports and shipping industry and it will have a major role in port development in the future. In Namibia, Namport's current business plan acknowledges this development and has focused on process development through automation. In the airport industry, the plans include expansion of the international airport Hosea Kutako near Windhoek, whereas the airports in Walvis Bay and Ondangwa have recently been extended to allow larger planes to land at these airports. Direct airlinks include the links to Southern Africa, such as Cape Town, Johannesburg, Gaborone, Luanda, Lusaka and Harare. Connections are also offered regularly between Hosea Kutako and Frankfurt. Privately-owned domestic charter companies offer regional flights on a regular basis. The Namibia Airports Company (NAC) develops and manages Namibian airports. According to the National Development Plan number 5 (NDP5), the government has committed N\$ 164,2 billion over next five years to the upgrading and maintenance of airports, including expansion of runways, an additional apron for cargo, fire and fuel hydrants, a taxiway, control towers and aircraft parking.*

### **3.4 SHIPBUILDING, MARITIME AND LOGISTICS**

The maritime space of the Namibian coast belongs partly to the Benguela current ecosystem. The current features cold and nutrient-rich upwelling, relatively low species diversity and high production of rich marine resources. The marine resources also include a vast population of commercially exploitable species of fish. The fish stocks are supported by plankton production which is characterized by the current. (Robertson, et al., 2012; John, et al., 2020).

*There are two ports operated by the country: the Port of Walvis Bay, a major commercial port and the Port of Lüderitz, in the south of the country. The Walvis Bay port, situated in the midway of the Namibian coastline, is directly linked with international shipping routes. The recent port expansion has developed it to a natural gateway to the Southern Africa region and international key trading centers.*

*The well-established road connections enable such services as dry ports, operated within the Walvis Bay Port, for the landlocked countries of Zambia, Botswana and Zimbabwe. A dry port provides handling and temporary storage of container services before being moved to their final destination.*

*The throughput capacity of the existing Port of Walvis bay is 350,000 TEUs (twenty foot-equivalent unit) per annum. The new container terminal, valued at N\$ 4 Billion and of 40 hectares, increases the throughput capacity to 750,000 TEUs per annum. The syncro lift of Namport is capable of lifting vessels up to 2,000 tonnes. The Namport subsidiary, EBH Namibia, operates three Panamax floating docks with a combined lifting capacity of 29,500 metric tonnes. It will have 600 m of new quay*

*wall with a water depth of 16 m below chart datum. It will have a total of 1330 hectares of new port land, compared with only 105 hectares of land at the current port. The new 10,000 m of quay walls and jetties will yield approximately 30 large berths (current port = 1,700 m of quay walls). It includes a Ship and Rig Repair Yard, including an Oil and Gas Supply Base.*

The poor rural infrastructure, especially transport infrastructure, is one of the biggest obstacles decreasing productivity. In Namibia, logistical possibilities are affected by the vehicle costs, fuel prices and maintenance costs. However, the time required for the customs clearance process is shorter in Namibia than in many other African countries (Keinänen-Toivola, et al., 2018).

To transform Namibia into an international logistics hub for the SADC region, all elements related to transport and logistics (road, railway, maritime & port, and aviation), are aimed to fulfill the “international standards”. Therefore, the plans of developing a Master Plan for the International Logistics Hub for the SADC Countries in Namibia is expected to be completed by 2025 (Website of NamBizOne Portal, 2019c).

*Deep-water anchorage is available inside the Walvis Bay harbor. It is protected by the natural bay and actions taken by Namport. The Walvis Bay Port is compliant with the International Ship and Port Facility Security code (ISPS) (Namport, 2019; John, et al., 2020). It is improving its cargo-handling facilities and remains committed to infrastructure development. The Port of Lüderitz also offers logistical services and links to other towns in Namibia and South Africa. With a new 500 m quay, two recently acquired 60-tonne Haulers and a 45-tonne Reach Stacker, the port can provide cargo handling facilities for importers and exporters. Debmarine Namibia has a logistics base at the Port of Lüderitz. It supports local businesses with purchases of goods and services, and therefore boosts macro-economic activities in Lüderitz.*

Namport uses experts to revise the pricing strategies so that they are competitively well-placed. The huge dry bulk terminal (>100 million tons p.a.) has a Car Import Terminal, Liquid Bulk Terminal with VLCC berths, multipurpose and break bulk terminals, backup storage areas/dry ports, Small Craft harbour with Port Control Tower and new high capacity rail, road, pipeline and conveyor links to the municipal, heavy industrial area behind Dune 7 (Namport, 2019b; John, et al., 2020), as well as ship-to-shore (STS) cranes, which are used at the new container terminal. Two new tanker berths will replace the 60-year-old tanker berth in the existing Port of Walvis Bay. Namport has upgraded its processes and procedures to meet the new specifications of the ISO 45001:2018 standard. Namport is also moving towards e-procurement with its procurement portal. It is supporting operating efficiency with ICT tools, such as productivity dashboards and planning models.

*As mentioned above, road transport has four main corridors, the Trans-Cunene (1,551 km), the Trans-Kalahari (1,366 km), the Trans-Oranje (1,550 km) and the WBNLDC (2,690 km). Weigh stations are available at all four corridors to implement trucking regulations. There are two weigh stations along WBNLDC, TKC and TCC, whereas the TOC has four weigh bridges. A Geographic Information System (GIS) and a Road Referencing System (RRS) have been implemented throughout Namibia. An assessment of 499 Bridges, 953 Major Culverts (953) and 1303 Culverts was carried out as a part of the bridge management system. However, road transportation is very dangerous, as Namibia has statistically the highest number of road accidents per capita in the world.*

The railway network has over 2,682 km of track, 17 depots for permanent road maintenance teams, 178 bridges and 5801 culverts and about 723 level crossings. There are currently 1,533 wagons, 49 coaches and a total fleet of 79 locomotives (36 are staged, leaving 43 active locomotives) making up the TransNamib fleet. Information systems (The SAP ERP system is TransNamib's main information system) and modern signaling and communication systems are implemented. In 2018, TransNamib introduced six new Model C23 General Electric locomotives and 90 acid tankers wagons (TransNamib Holding Ltd, 2018; John, et al., 2020). *Despite the positive development in the local technology the railway sector could still benefit from financial support in order to update the equipment and methods used in the sector.*

*Despite the willingness to adopt new technologies, some old technologies are still present in shipbuilding/ship repairs today. Technologies involved in shipyards (shipbuilding and ship repairs) focus on activities, such as blasting and coatings, fabrication, propulsion and mechanics, electrics, valves and carpentry. With EHB Namibia as a case study, the current technologies in blasting and coatings include ultra-high pressure blasting and cleaning of hulls, decks, superstructures, tanks and holds, ultra-high pressure blasting at 2,800 bar pressure and high-pressure blasting at 1,000 bar pressure, grit blasting of hulls, decks, superstructures, holds, tanks and other steel structures, painting of conventional and epoxy paints by (68:1 ratio) spray, roller and brush.*

*In the fabrication workshop, the overhead crane is used extensively, CNC Machines (plasma and bending), heat treatment machine, hydraulic pipe bender, circular saw blade, rolling machine and welding machines. On the other hand, technology in the propulsion and mechanical workshops range from a radial arm drilling machine, pressure test equipment, hand hydraulic and pneumatic pumps, milling machine, center lathe, pedestal and surface grinders, hydraulic and manual press machine, horizontal bore machine, magnetic drills, micrometers and alignment gauges, laser alignment, and line boring equipment.*

*Most of these repair works are done manually, hence with an automation employment into this sector, the process could be drastically sped up. Namibia, and the SADC region in general, may not necessarily be able to develop new technologies, but its technical institutions play a crucial role in educating experts in the field of shipbuilding and ship repair. These institutions include Vocational Training Centers and, for example, the Namibia Institute of Mining and Technology.*

Development needs have also been identified as follows: local expertise in port operations, technology in ship repair yards, road and other infrastructure design, data-based design, 3D machine-controlled operations and safety practices. Infra design is still conducted using a traditional method based entirely on 2D drawing, in which materials, structures and construction methods are simple. There is no capacity in handling environmental risks including e.g. oil spillages (Keinänen-Toivola, 2016).

## 4 CONCLUSIONS

This report has revealed some general challenges in the Namibian, and further Southern African, market which the companies might face in their business activities. It has also shed light on the business opportunities characterizing the market and business sectors in renewable energy, automation and ICT, as well as shipbuilding, maritime technology and logistics, and on their development needs.

Through the years of experience in Namibia and its business environment, it has become apparent that goods and services need to be tailored to the local needs, which may vary significantly from a country to another. A trusted partnership with the locals might also, at its best, save the companies' valuable resources, time and money. All in all, Namibia serves as a great entry point to the Central Baltic companies to begin their business ventures, either in the local market or by expanding their business through the country and further into other countries in Southern Africa.



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## APPENDIX 1

List of SAMK's former projects in Southern Africa.

- **Mirabilis research vessel project 2012 in cooperation with STX Finland and the Ministry for Foreign Affairs of Finland.**
- **Maritime training and research programmes (such as MARINAM and MARIBIA).**
- **NAMHUB (Green, safe and smart transport and logistics hub to Namibia) 2015.**
- **NAMURBAN (Urban resource efficiency in developing countries using Namibia as a pilot country) 2015-2017.**

This report describes some specific technical and operational requirements necessary to take into consideration when planning a business venture in the Southern African markets. In this report, Namibia is used as a case example. The report is a part of the SME Aisle project that promotes export initiatives of SMEs to the Southern African markets from the Central Baltic region. The report provides practical insights for businesses in renewable energy, automation and ICT, as well as shipbuilding, maritime technology and logistics.

ISSN 2323-8356 | ISBN 978-951-633-315-4

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