



Building

Back

Better

FOSTERING COMMODITY-BASED
INDUSTRIALIZATION, MANUFACTURING
AND REGIONAL VALUE CHAINS IN
SOUTHERN AFRICA



United Nations
Economic Commission for Africa

Building Back Better: Fostering Commodity-based Industrialization, Manufacturing and Regional Value Chains in Southern Africa

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Acronyms

AEC	ASEAN Economic Community
AfCFTA	African Continental Free Trade Area
Afreximbank	African Export-Import Bank
AGOA	African Growth and Opportunity Act
AICO	ASEAN Industrial Cooperation
AIS	Automotive Investment Scheme
AMDC	African Minerals Development Centre
AMV	Africa Mining Vision
APDP	Automotive Production and Development Programme
APDP2	Automotive Production and Development Programme (2 nd iteration)
APTA	ASEAN Preferential Trade Area
ASEAN	Association of Southeast Asian Nations
BBB	Building Back Better
BBC	Brand-to-brand complementation
CET	Common external tariff
CBI	Commodity-based industrialization
COMESA	Common Market for Eastern and Southern Africa
CSP	Concentrating solar power
DFI	Development finance institution
DTIC dti	Department of Trade, Industry and Competition (The current DTIC was known as dti until 2001)
EAC	East African Community
EDB	Economic Development Board
EPB	Economic Planning Board

Acronyms

EPC	Energy procurement and construction
FDI	Foreign direct investment
GDP	Gross domestic product
GVC	Global value chain
GW	Gigawatt
IAIP	Integrated Agro-Industrial Parks
ICT	Information communications and technology
IMF	International Monetary Fund
IPAP	Industrial policy action plan
IPP	Import parity pricing
ITC	International Trade Centre
KRVC	Key regional value chains
ktpa	Kilotons per annum
kWh	Kilowatt hour
MBRP	Manufacture and Build to Recover Program
MINICOM	Ministry of Trade and Industry (Rwanda)
MW	Megawatt
NPK	Nitrogen (N), Phosphorus (P) and Potassium (K)
NTB	Non-tariff barrier
OECD	Organisation for Economic Co-operation and Development
PPP	Public-private partnership
PV	Photovoltaic (cell)
R&D	Research and development
RDI	Research development and innovation
REC	Regional Economic Community

REIPPPP	Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)
RMV	Regional mining vision
SADC	Southern African Development Community
SAMVADA	Southern African Mining Value Addition Development Agency
SDG	United Nations Sustainable Development Goals
SEZ	Special Economic Zones
SME	Small and medium-sized enterprises
SMME	Micro, small and medium enterprises
STEM	Science, technology, engineering and mathematics
tpa	Tons per annum
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNIDO	United Nations Industrial Development Organization
VCF	Venture Capital Fund
WHO	World Health Organization

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Executive summary

Southern Africa has borne the brunt of the impact of COVID-19 on Africa. To develop economic recovery strategies to counter the damage caused by the pandemic, efforts have been animated by the goal of building back better (BBB) to create economies that are resilient to external shocks. Fostering commodity-based industrialization (CBI), manufacturing and build out of regional value chains in Southern Africa are the core BBB strategy advocated in this report. All 11 Southern Africa states covered by the United Nations Economic Commission for Africa (UNECA) Subregional office for Southern Africa (SRO-SA) are members of the Southern African Development Community (SADC) which is the Regional Economic Community (REC) that this strategy targets. Regional markets are essential to both achieving economies of scale and competitive pricing as well as being the building blocks for accessing the massive continental market through the African Continental Free Trade Area (AfCFTA).

Building upon the region's comparative advantages in commodities production, an analysis of the linkages is discussed namely, forward or downstream, mainly to manufacturing agriculture and construction, backwards or upstream to inputs comprising capital equipment, consumables and services as well as side stream linkages—knowledge and lateral linkages—spillover of expertise into other sectors.

Six key regional value chains were derived from an analysis of common feedstocks, overlapping supply chains, high employment multipliers, global comparative advantages and preparations to transition to low carbon economies. Two are value chain agglomerators that bring together numerous value chains into the manufacture of original equipment manufacturer capital goods in automobiles and renewable energy equipment systems across wind, solar and hydropower. One value chain is the most important feedstock for manufacturing, namely, iron and steel. One value chain is based on the relatively large, in global terms, regional mining inputs market. which is in turn based on the region's exceptional mineral resources endowment. Two value chains address the region's huge agricultural potential via a discussion of the fertiliser and citrus value chains.

Policy levers to implement these strategies are the leveraging state assets, rights and purchases, complemented by creating a conducive environment for investing in the commodity backward, forward and knowledge linkages (value chains) within the regional SADC market context to both massify the potential market (economies of scale) for products and broaden the range of commodity feedstocks for manufacturing and industrialization competitiveness. Common external tariffs (CET) are needed to nurture regional value chains, so a compensatory mechanism is proposed that recognizes the variable geometry within SADC to assist economically weaker Member States to participate meaningfully.

Case studies examining regional value chains, industrialization and development policies pursued by Asian countries enriches the report with learnings for strategies at national and regional levels.

Executive summary

Strategy implementation requires coordinated action from key stakeholders with specific roles to play. It is recommended that iron and steel, fertiliser, citrus fruit and mining capital goods, which share commodity value chain similarities, be consolidated into an overarching, commodity based, industrialization strategy.

For the automotive value chain, an SADC strategy built on programmes to raise production to critical levels of scale is recommended.

To harness the regions abundant rare earth resources to decarbonize and simultaneously industrialize a localization of rare earth components is recommended.

I. Introduction

The main theme of this report is 'Building Back Better' from COVID-19, through fostering CBI, manufacturing and regional value chains in 11 Southern African states covered by UNECA SRO-SA, namely, Angola, Botswana, Eswatini, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, hereafter referred to as Southern Africa. All of the SRO-SA Southern African states are members of SADC and have assented to common trade, industrial and mining protocols, therefore it is the REC that this BBB strategy targets.

The COVID-19 pandemic has caused a global economic crisis, Africa's gross domestic product (GDP) contracted 2.1 per cent in 2020, triggering the continent's first recession in half a century and setting back progress to the attainment of the United Nations Sustainable Development Goals (SDG) and African Union Agenda 2063 goals. Around the world governments have focused on two broad goals: minimizing the public health crisis upon the citizens and developing an economic recovery strategy to counter the economic damage caused by the pandemic.

This report contributes to regional economic recovery strategies by analysing a set of value chains showing how to make the most of the region's comparative advantages in commodities production to achieve industrialization and manufacturing industry development.

Structured in nine main parts:

- Section II** A brief overview of the impact of COVID-19 on Southern Africa.
- Section III** The economic and policy context for resource-based manufacturing and economic development strategies. Building regional value chains is the central argument advanced to achieve industrialization and economic development.
- Section IV** *Why value chains?* is elaborated through a methodology for selecting key regional value chains (KRVC).
- Section V** Instruments that are required to build KRVCs are discussed which sets out the how-to role of value chains in development, alongside critical enabling factors such as trade facilitation and logistics.
- Section VI** Six selected KRVCs are described and quantified, highlighting obstacles and potential for expansion across the region. These are: ferrous (iron, steel, steel alloys, intermediates), fertilisers, citrus, commodity production backward linkages (capital goods, consumables and services), automotive and renewable energy value chains (wind, solar, hydro and storage).
- Section VII** Addresses themes of human capital development, lateral linkages and the servicification of manufacturing which are cross-cutting issues, affecting all value chains.

Section VIII Presentation of case studies of industrial development experiences using state power to achieve structural transformation drawing upon Asian country experiences.

Section IX Conclusions drawn from the evidence presented are summarized and followed by recommendations for action to enhance the developmental impact of commodity-based regional value chains and deepen industrialization and manufacturing activity across Southern Africa in this final section.

II. Impact of COVID-19 on Southern Africa

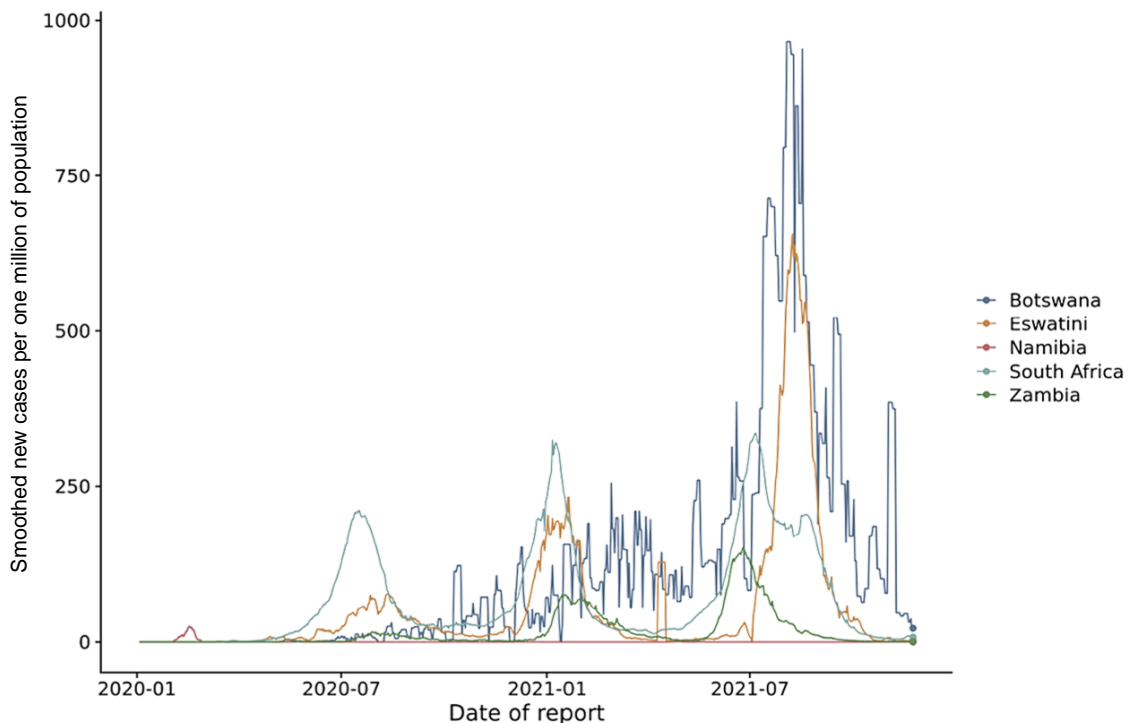
Africa's experience of the COVID-19 pandemic has been slighter and later than the rest of the world. Africa's share of global cases and global deaths, as at the end of November 2021, was 2.4 per cent and 2.9 per cent, respectively.

COVID-19 infections have been concentrated in the north and south of the continent. Southern Africa's share of global cases and global deaths is 1.7 per cent and 2.3 per cent, respectively; however, Southern Africa makes up 65.6 per cent of Africa's cases and 75.7 per cent of Africa's deaths (WHO, 2021).

The most severely affected states in terms of infections per capita have been Botswana, Namibia, South Africa and Eswatini and the least affected states have been Mozambique, Malawi and Angola.

Figure 1

COVID-19 cases per one million of population (higher infection rate states)



Data taken from COVID Intel database on 2021-11-25.

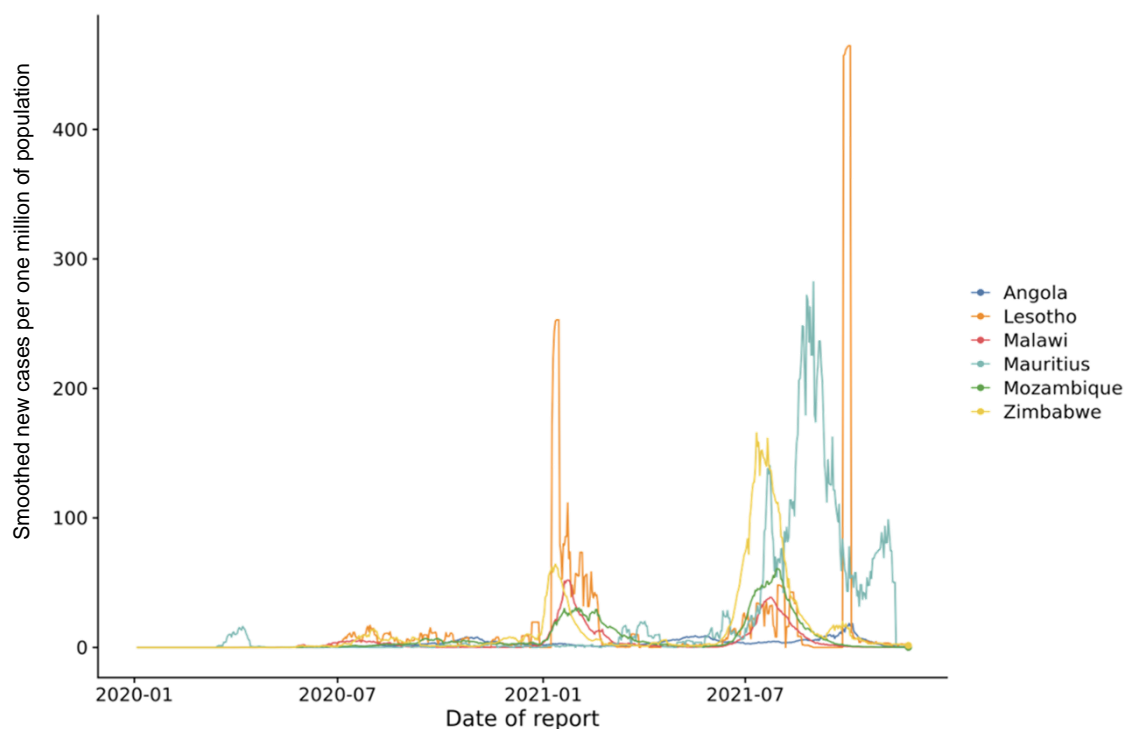
The lines and associated text show the trend in incidence of COVID-19 (WHO, 2021)

COVID-19 infections and the economic and social hardship caused take a unique pattern in each country. Overall, however, two infection patterns are evident in Southern Africa. Among the most severely affected states, three infection waves have occurred, each peaking mid-2020, January 2021 and July 2021. Infection rates climb with each wave.

Two infection waves have been experienced by Southern African states with overall lower infection rates that peaked in January 2021 and August 2021.

Figure 2

COVID-19 cases per one million of population (lower infection rate states)



Data taken from COVID Intel database on 2021-11-25.

The lines and associated text show the trend in incidence of COVID-19

Source: (WHO, 2021)

Further infection waves for the states shown in Figure 2 will be influenced by the rate at which populations are vaccinated and/or the emergence of more infectious COVID-19 variants.

It is increasingly evident that the public health risks posed by COVID-19 will continue to be a global problem that cannot be brought under control in the short term. For many Southern African states, limited access to vaccine stocks, combined with low rates of vaccination take-up, serves to maintain conditions to perpetuate the COVID-19 virus, requiring governments to keep public health measures in place to restrict social contact which acts as a brake on economic activity. Rising incidents of COVID-19 infection emerging in Europe in late 2021 show that the world will not be able to bounce back from the COVID-19

pandemic, despite the existence of vaccines that lower the mortality rate amongst persons infected with the virus.

On 26 November 2021, the World Health Organization classified Omicron (B.1.1.529): SARS-CoV-2 a variant of concern (WHO, 2021). This variant was first identified in South Africa, followed rapidly by confirmation that it had also been detected in Europe and in Asia. Named the Omicron variant, it triggered a fourth infection wave that peaked at the end of December 2021.

Two conditions—populations highly susceptible to infection or reinfection as well as proof that the virus is continuing to mutate provides evidence recovery from the COVID-19 pandemic—will be drawn out. Economic development strategies therefore need to adapt to the continuing influence of COVID-19 and should incorporate public health dimensions to make them relevant for the prevailing conditions.

Turning to the economic and social impacts of COVID-19, we see the accumulated human toll has set back development gains achieved over previous decades. Social distancing with remote working was an option limited to those service job workers with access to good Internet connections which exposed the stark digital divide between higher income households with good connectivity and lower income households without broadband services. Moreover, vulnerable groups such as youth, women and the least skilled have generally been the hardest hit, losing jobs, experiencing restrictions on their income earning activities and seeing a significant increase in household food insecurity (Benhura M., 2021).

Real GDP is estimated to have contracted by 3.3 per cent in 2020 and is projected to grow by 6 per cent in 2021 and 4.4 per cent in 2022 (WEO, April 2021). The International Monetary Fund (IMF) estimates that the average nominal percentage output loss over the period from 2020 to 2024 as a deviation from the pre-crisis trend to be -2.3 per cent in advanced economies, -4.7 per cent in emerging markets and -5.7 per cent in low-income developing countries (WEO, April 2021).

Africa experienced its worst economic recession in half a century, real GDP contracted by 2.1 per cent and is projected to grow by 3.4 per cent in 2021 (AEO, 2021). The economic impact of the pandemic varies across national economies depending upon their economic characteristics. Most affected are tourism-dependent economies, oil exporting economies and resource intensive economies.

Quarterly GDP per cent change data for the period July 2018 to March 2021 shows that Angola, Lesotho and Namibia experienced quarters of negative GDP growth prior to the crisis. For Botswana, Eswatini, Mauritius, South Africa and Zambia, economic growth was trending downwards prior to the crisis.

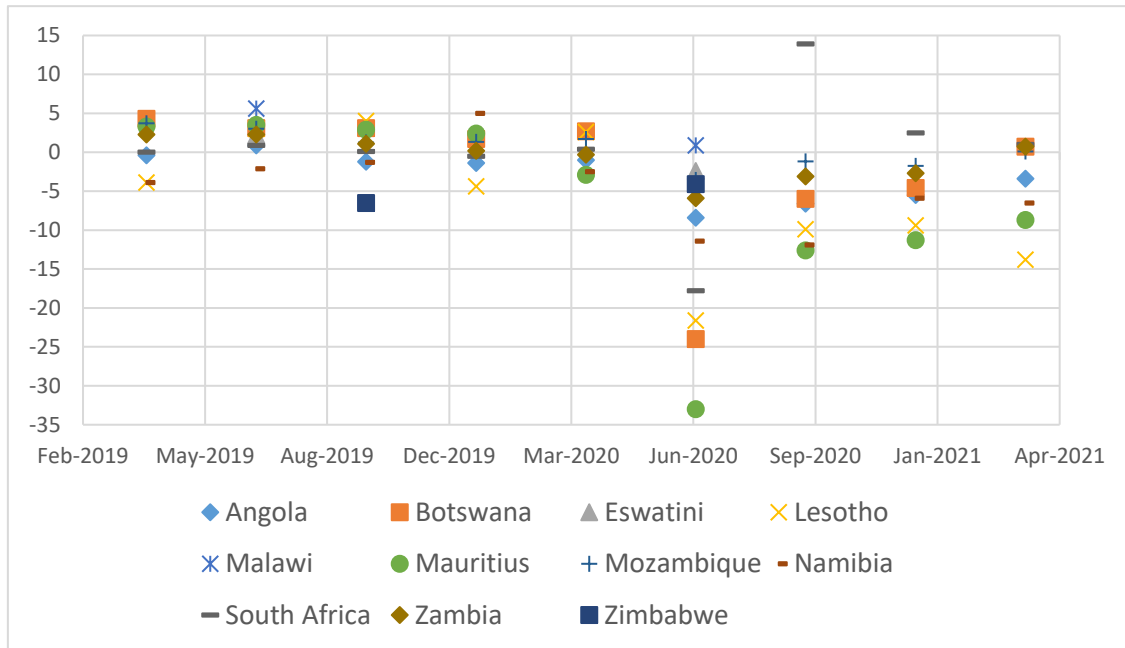
The most severe contraction occurred in the second quarter of 2020 when the impacts of measures to stop the spread of the virus were felt in abrupt reductions in travel and disruptions in regional and global trade.

The sharpest quarterly contractions and growth were experienced in Mauritius, Botswana—both severely impacted by the suspension of international tourism travel—and Lesotho. Eswatini and Malawi experienced the smallest contraction.

All states recorded slower rates of contraction through 2020. South Africa saw a dramatic recovery of 13.9 per cent in the third quarter and 2.5 per cent in the fourth quarter. Data for March 2021 show Botswana, Mozambique, South Africa and Zambia recording expanding GDP of 0.7 per cent, 0.12 per cent, 1.0 per cent and 0.7 per cent, respectively.

Figure 3

Quarterly GDP per cent change (annualized) March 2019 to March 2021



Source: National statistical authorities data aggregated by Tradingeconomics.com

Debt and fiscal sustainability

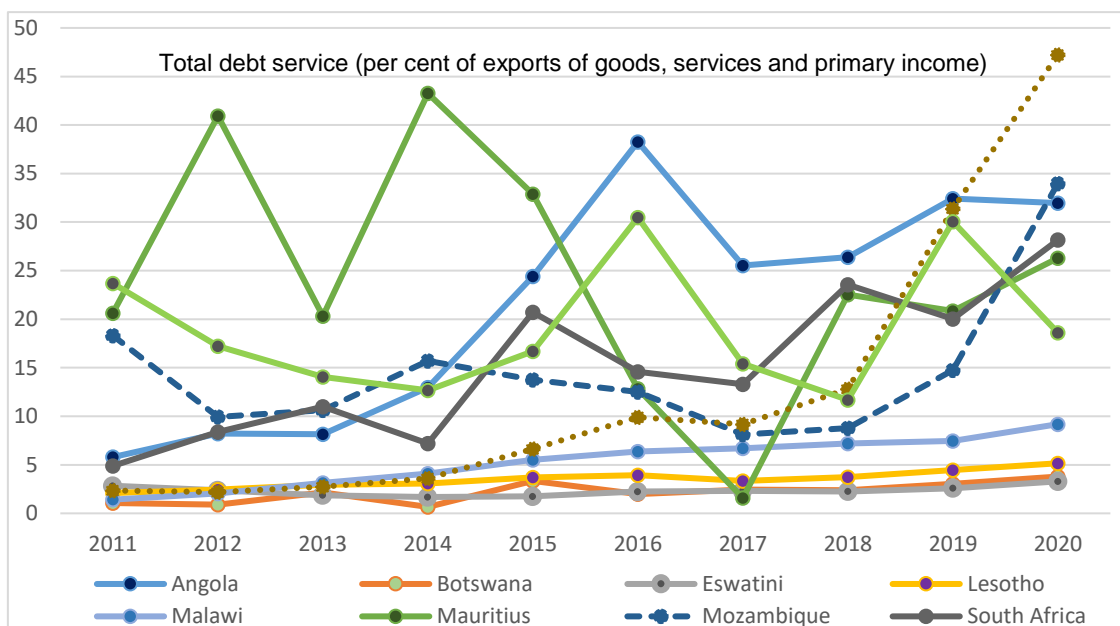
Interventions to alleviate the pandemic’s economic impact broadly fell into three areas:

- Expanded health systems spending.
- Social protection to vulnerable groups.
- Private sector support.

Fiscal deficits rose sharply in 2020 due to stimulus spending compounded by revenue shortfalls due to economic contraction. All countries displayed increased debt levels due to the pandemic, excluding Zimbabwe, whose already high relative debt servicing dropped from 30 per cent (of exports) in 2019 to 19 per cent in 2020. (See Figure 4, below). Debt service levels have risen, reducing the fiscal space for monetary and fiscal support underpin the economic recovery.

Figure 4

Total debt service (percentage exports of goods, services and primary income)



Note: No World Bank data on Namibia. Source: (World Bank, 2022)

Current state of commodity-based industrialization and non-resource based manufacturing in Southern Africa

Least developed economy countries catching up with developed economies is not a linear process. What is clear from the economic history of world development, however, is the central role played by industrialization, coupled with economic changes that provide scope for growth in productivity flowing from manufacturing and related economic diversification to structural economic change. It is therefore necessary to briefly take stock of the current state of industrialization in Southern Africa prior to the impact of the COVID-19 pandemic as these are departure points for value chain development discussion to come.

Manufacturing value added as a percentage of GDP means for five-year intervals for the period from 2000 to 2020 are shown in Table 1 on page 7. Southern Africa, in line with sub-Saharan Africa, shows premature deindustrialization over this period.

Angola and Namibia are the only Southern African states that have succeeded in expanding their manufacturing sectors, albeit off a low base. Services contribution to GDP has grown over this period, thus manufacturing value add in global GDP has declined by 18 per cent, by the same amount in the European Union, by 19 per cent for Latin America and the Caribbean, but by 22 per cent in sub-Saharan Africa (World Bank, 2021).

Relative productivity is a key factor explaining these trends. For the period from 2002 to 2019, industry value added per worker in constant United States dollars has increased in all states except Botswana (-25 per cent), Mozambique (-15 per cent) and Namibia (-11 per cent). The increases were in Angola (50 per cent), Lesotho (5 per cent), Malawi (104 per cent), Mauritius (79 per cent), South Africa (<1 per cent), Eswatini (41 per cent),

Zambia (22 per cent) and Zimbabwe (83 per cent). For comparison, over the same period this increased by 11 per cent globally, by 61 per cent in South Asia, by 14 per cent in the Organisation for Economic Co-operation and Development (OECD) member countries, by 53 per cent in East Asia and Pacific, but fell by 8 per cent in both sub-Saharan Africa and Latin America and the Caribbean. (World Bank, 2021; World Bank, 2022).

Table 1

Manufacturing, value added (per cent of GDP) five year means 2000 to 2020

Country	2000-2004	2005-2009	2010-2014	2015-2020
Angola*	3.8	3.9	4.5	5.9
Botswana	5.8	5.7	5.8	5.3
Eswatini	33.8	34.7	31.1	29.7
Lesotho	20.9	20.6	12.1	16.0
Malawi*	11.9	11.7	9.7	10.8
Mauritius	18.9	15.7	13.8	11.7
Mozambique*	13.7	12.7	8.9	8.5
Namibia	10.2	12.1	11.6	11.8
South Africa	17.4	14.7	12.1	14.2
Zambia	9.7	9.0	7.0	7.4
Zimbabwe#	12.9	14.9	11.6	10.0
Sub-Saharan Africa	12.0	10.2	9.6	10.6

Source: (World Bank, 2021) * to 2019 # to 2018

Premature deindustrialization is a key factor explaining the performance of many middle-income countries that exhibit poor growth alongside the hollowing out of their manufacturing sectors, often referred to as the middle-income trap. Reversing these trends by placing national and regional economies on a path of higher growth has been made more complex by the rate at which the global productivity frontier has been advancing.

New patterns of technology barriers and forms of the international division of labour are emerging in the shape of the diffusion of digital technologies into manufacturing and the rise of global value chains (GVC). While these create challenges for the economic development of Southern African states, particularly around exploiting digital technologies,

they simultaneously create opportunities for boosting growth by insertion into GVCs. The key purpose of this report is to highlight these opportunities and elaborate the strategies to pursue for Southern Africa to realize its potential, to drive growth through regional and GVCs.

The implications of COVID-19 for commodity-based industrialization and non-resource based manufacturing

Looking past the first round economic impacts of COVID–19, which saw a sharp growth contraction that forced sub-Saharan Africa into the first recession in a quarter-century, there have been clear short-term implications of the pandemic for CBI and manufacturing generally.

“Survive–Stabilize–Sustain: 3S Generalized Framework for the Manufacturing Industry”, a term proposed by Dar and others (Dar, et al., 2021), aptly sums up the priorities of industries and firms reacting to the first wave of COVID–19 impacts. Given the wide range of differing conditions among firms and country level responses, priority for survival involved attention to the health and safety of all stakeholders along with efforts to ensure survival and continuity of businesses. Across Southern Africa, fiscal capacity for direct transfers to firms and workers was limited, only the governments of South Africa and Mauritius put schemes in place.

Supply chain disruption was a short-term shock in the virtual freeze to global trade in the first quarter of 2020. Since then, the complexities of global supply chain have been revealed by further interruptions to production, triggered by blockages up and down raw material, intermediate and finished goods value chains in major global industries, notably automobile assembly and textiles. Generalized responses to supply chain disruption experienced by manufacturing firms show three distinct emerging trends (Deloitte, 2021) with steps to:

- Obtain greater upstream visibility by applying technology to monitor digital supply networks for early identification of risks.
- Simplify production requirements.
- Shorten supply chains.

For CBI and non-resource based manufacturing, the implications of COVID–19 are simultaneously supportive and obstructive. The pandemic has given new impetus to the policy imperative of industrialization.

A paradigm shift is needed in order to change the trade patterns of African countries within themselves and with the rest of world, particularly with China, Europe, the United States of America and other emerging countries. Africa should turn the current COVID-19 pandemic into an opportunity to translate the policy recommendations on productive transformation described in Africa’s Development Dynamics (AfDB): *Achieving Productive Transformation 2019* into a reality in order to create economies that are resilient to external shocks and achieve sustainable development (African Union, 2020).

It is essential that Southern African states capitalize on conditions that encourage the diversification of centres of production away from an overreliance on China and benefit from industries in the region acting to improve their resilience by shortening their own supply chains and looking for local and regional sources of supply. Strategies to achieve this end are elaborated in section IV and section V. The COVID-19 pandemic has also

accelerated long-term changes taking place in manufacturing technology and the future of work that raise barriers to entry and make it more challenging firms in developing country national economies to acquire the capabilities to be globally competitive. In manufacturing, these are changes arising from the pervasive digitization of processes as well as increased automation (McKinsey Global Institute, 2021).

Research carried out by McKinsey in developed economies, as well as China and India, found that the work arenas with high levels of human interaction are likely to see the greatest speed of adoption of automation and artificial intelligence.

Responses to these challenges and opportunities in Southern Africa require, at a minimum, the utmost priority to be given to securing reliable power supply and carrying out the necessary reforms to the electricity supply industry to sustainably energize the manufacturing sector and the digital economy. In parallel, digital infrastructure gaps that are both hard (network infrastructure) and soft (skills and capabilities ecosystems) need to be solved. The relative youth of Africa's population has an advantage that must be exploited to boost digital technology adoption and skills development with a young workforce.

Other means to respond to automation in manufacturing need to be tested, such as using lower-cost space for manufacturing facilities compared to developed economies, to run manufacturing operations where workers are safely spaced apart.

Building Back Better: the case for commodity-based industrialization in Southern Africa in the context of the AfCFTA

The imperative to industrialize has been given more urgency by the COVID-19 pandemic and is able to draw from coherent policy from the recent adoption of the African Commodity Strategy by the Specialized Technical Committee on Trade, Industry and Minerals in September 2021 (AU, 2021). The strategy is built upon the foundations of Africa's resource endowment and vision for how to harness that for all-round development. Mineral commodities make up 85 per cent of Africa's commodity exports (see Table 2 on page 10).

Despite Africa's large and varied mineral endowments, the continent is witness to widespread underdevelopment and grinding poverty. Precisely to overcome the apparent paradox between mineral wealth and evident poverty, African Heads of State adopted the Africa Mining Vision (AMV) at the 2009 Africa Union Summit.

The AMV seeks to be holistic by advocating development beyond mining into maximizing all of the seminal mining linkages to facilitate industrialization and the development of other sectors, particularly manufacturing, construction, power, agriculture and others, not only through downstream value addition to produce key feedstocks, but also through developing the knowledge linkages (skilling and technology development). The AMV calls for "Transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development" (see Box 1 on page 12) through the realization of all of the mineral linkages (downstream, upstream and side stream).

Table 2

Africa commodity trade 2018 (\$ millions)

	Africa exports	Commodity group % of commodity exports	Africa imports	Commodity group % of commodity imports	Commodity group imports % commodity exports	Trade balance	Intra-African trade	Commodity group % intra-Africa commodity trade	Group intra-African trade % group exports
Commodity group	Total 2018 \$ millions	% 2018	Total 2018 \$ millions	% 2018	% 2018		Total 2018 \$ millions	% 2018	% 2018
Agricultural commodities	56 327	15%	68 780	35%	122%	-12 453	9 599	26%	17%
Agricultural raw materials	9 341	2%	2 947	1%	32%	6 395	781	2%	8%
Food and beverages	38 334	10%	49 897	25%	130%	-11 563	6 317	17%	16%
Animal products	8 651	2%	15 936	8%	184%	-7 285	2 501	7%	29%
Mineral commodities	324 717	85%	129 168	65%	40%	195 550	27 463	74%	8%
Metals minerals (ex-precious)	47 216	12%	8 357	4%	18%	38 859	3 330	9%	7%
Precious metals and stones	52 386	14%	4 247	2%	8%	48 139	1 995	5%	4%
Industrial minerals and polymers	6 106	2%	17 641	9%	289%	-11 535	2 389	6%	39%
Fertiliser minerals	6 390	2%	3 850	2%	60%	2 540	1 405	4%	22%
Energy minerals	212 619	56%	95 072	48%	45%	117 547	18 344	49%	9%
Total commodities	381 044	100%	197 947	100%	52%	183 097	37 062	100%	10%

All products (exports, imports and intra-Africa trade)	497 267	573 529	69 383
Commodities: % Africa total	77%	35%	53%
Agricultural commodities: % Africa total	11%	12%	14%
Mineral commodities: % Africa total	65%	23%	40%

Source: (AU, 2021) and Trademap 2019

Box 1

Africa Mining Vision

“Transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development.”

This shared vision will comprise:

A **knowledge-driven** African mining sector that **catalyses and contributes** to the broad-based growth and development of, and is **fully integrated** into, a single African market through:

A **mining sector** that

- Downstream linkages into mineral beneficiation and manufacturing.
- Upstream linkages into mining capital goods, consumables and services industries.
- Side stream linkages into infrastructure: power, logistics, communications, water and skills and technology development, human resource development and research and development (R&D).
- Mutually beneficial partnerships between the state, the private sector, civil society, local communities and other stakeholders.
- A comprehensive knowledge of its mineral endowment.
- Is **sustainable and well-governed** that effectively garners and deploys resource rents and that is safe, healthy, gender and ethnically inclusive, environmentally friendly, socially responsible and **appreciated by surrounding communities**.
- Has become a **key component** of a diversified, **vibrant and globally competitive** industrializing African economy.
- Has **helped establish** a competitive African infrastructure platform, **through the maximization** of its propulsive local and regional economic **linkages**.
- **Optimizes and husbands** Africa’s finite mineral resource endowments and that is diversified, incorporating both high value metals and lower value industrial minerals **at both commercial and small-scale levels**.
- **Harnesses the potential** of artisanal and small-scale mining to **stimulate local/national** entrepreneurship, improve livelihoods and advance integrated rural social and economic development.
- Is a **major player** in vibrant and competitive national, continental and international capital and **commodity markets**.

(AU, 2009)

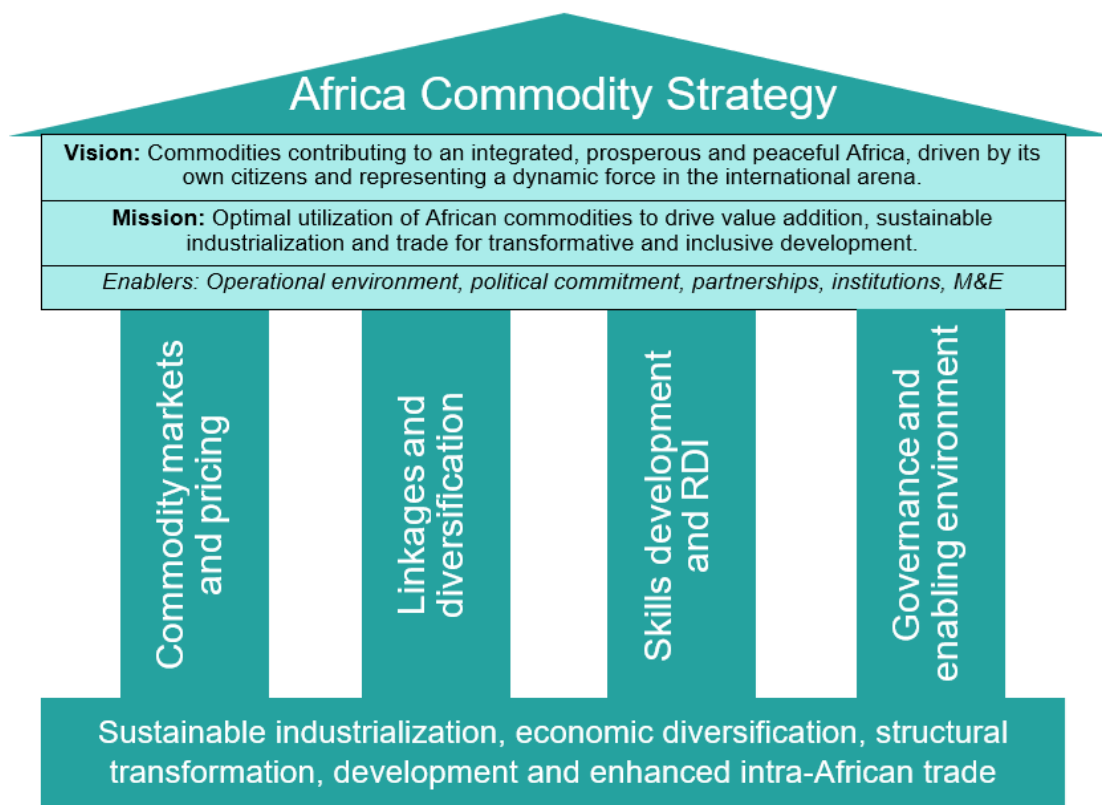
The other key African document is the UNECA Economic Report on Africa 2013, *Making the Most of Africa's Commodities: Industrializing for Growth, Jobs and Economic Transformation* which builds on the AMV's emphasis on developing the mineral (commodity) linkages for resource-based industrialization (see Figure 5 below) to advocate for commodity-based industrialization to advocate for CBI. "On top of offering short- to medium-term comparative advantages, CBI can, with the right industrial policies, serve as a launching pad for long-term diversification and competitiveness in new and non-commodity sectors" (UNECA, 2013 p. 9).

"African countries have a real opportunity to capitalize on their resource endowments ... to promote economic transformation through commodity-based industrialisation" (UNECA, 2013 p. 258).

The recent African Commodity Strategy resonates with this, with its overall mission statement: "Optimal utilisation of African commodities to drive value addition, sustainable industrialization and trade for transformative and inclusive development" (AU, 2021) and by building on commodity "linkages and diversification" as well as "skills development and research development and innovation (RDI)" as two of the strategy's key pillars, along with the equally important "commodity markets and pricing" as well as "governance and enabling environment".

Figure 5

African Commodity Strategy: vision, mission and pillars



Source: (AU, 2021)

The case for CBI is not restricted to Africa's mineral wealth alone because it has applicability to many other parts of Africa's resource endowment. Other key value chains are tourism (based on Africa's resources of fauna and flora, biomes, geomorphology, cultural diversity, etc.), telecommunications (based on its electromagnetic spectrum resource), airspace, etc. All these endowments could potentially be used to leverage the building of commodity and other value chain linkages and industrialization, particularly manufacturing, as per the AMV and the African Commodity Strategy. In addition to resources endowments, Southern African states could also potentially use other state rights to leverage economic linkages, such as the right licence for large-scale electricity generation and transmission, the right to large-scale water extraction and reticulation (agribusiness, industrial), state rights of way (transport, road, rail and ports concessions), etc.

The smart use of national endowments and rights that require a state licence, permission, lease or concession to leverage industrialization is at the centre of BBB. Further, all Southern African states could also use state purchases at all levels of government to leverage value chain linkages and industrialization, particularly backward linkages (local/regional content) and knowledge linkages (human resource development and RDI).

Appropriate regional manufacturing strategies to Building Back Better

These proposals to BBB through CBI, manufacturing and regional value chains by using the region's comparative advantage in commodity production through a delicate balance of carrots and sticks that are within the context of deepening regional economic integration to increase markets and to enhance the viability of the establishment of linkages:

- Business facilitation (carrots), infrastructure, skilling, incentives, access to finance, etc.)
- Leveraging state assets, rights and purchases to require linkages development conditionalities (local content sticks)

Our CBI model is shown in Figure 6 on page 17 wherein the relationships between the principal drivers, global challenges, opportunities and outputs is depicted.

Prescriptive use of state assets or rights to establish value chain linkages, however, needs to be handled judiciously as it could also increase costs through rent seeking, entitlement and monopoly pricing.

“Whilst policies to mandate highly prescriptive local content requirements may seem tempting, the risk of unintended consequences is high. Such policies are often economically inefficient and can create opportunities for rent-seeking and capture by special interests. Extractives companies view the costs they add as the equivalent of additional taxes and will seek other concessions to offset the cost, potentially lowering the revenues that will accrue to government through taxation, profit shares, or royalties.” (AfDB & BMGF, 2015 p. iv).

In summary, this BBB strategy proposes using Southern Africa’s considerable commodity production comparative advantages to build the commodity value chains (backward, forward and side stream linkages) by leveraging state rights and purchase power, together with creating a conducive environment to build commodity value chains, in the context of regional integration to enhance linkages industry viability and leverage scope through regional value chains in order to industrialize, grow manufacturing and create niche competitive advantages.

This is within the global context of challenges, particularly the COVID-19 and future pandemics (BBB for greater resilience) and climate change—the accelerating shift from fossil fuels to renewables, with threats and opportunities—and intracontinental trade opportunities such as the AfCFTA and the African Export-Import Bank (Afreximbank), the SADC Free Trade Area and CET and the Tripartite Free Trade Area. Further opportunities include green financing (funds), the Blue Economy, digitization (connectivity, leveraging the regional electromagnetic spectrum) and others.

At the same time, this strategy aligns with more than half of the 2030 Agenda SDGs and the African Union Agenda 2063: The Africa We Want (see Table 3 on page 16).

Other manufacturing and industrialization opportunities (not resource based)

Although this BBB strategy concentrates on leveraging the region’s comparative advantages in commodities production, there are also industries that could conceivably be based on low, unskilled labour costs (e.g., garments) in some states and possible niche skills in a few instances. Rising labour costs in the PRC has seen an exodus of low wage labour jobs elsewhere in South-East Asia that could be an opportunity for some Member States, particularly coastal states (Ethiopia has successfully attracted PRC companies based on low-wage labour). Many Southern African states applied forms of import substitution industrialization behind high tariff barriers after independence with limited success, but these were curtailed or abandoned during the Bretton Woods Institutions’ free market structural adjustment programmes of the 1990s and 2000s, though there has been some return to import substitution industrialization with the increasing favour of localization policies which this strategy adopts to some degree, but without high tariff barriers, thereby maintaining competitiveness for possible exports.

Table 3

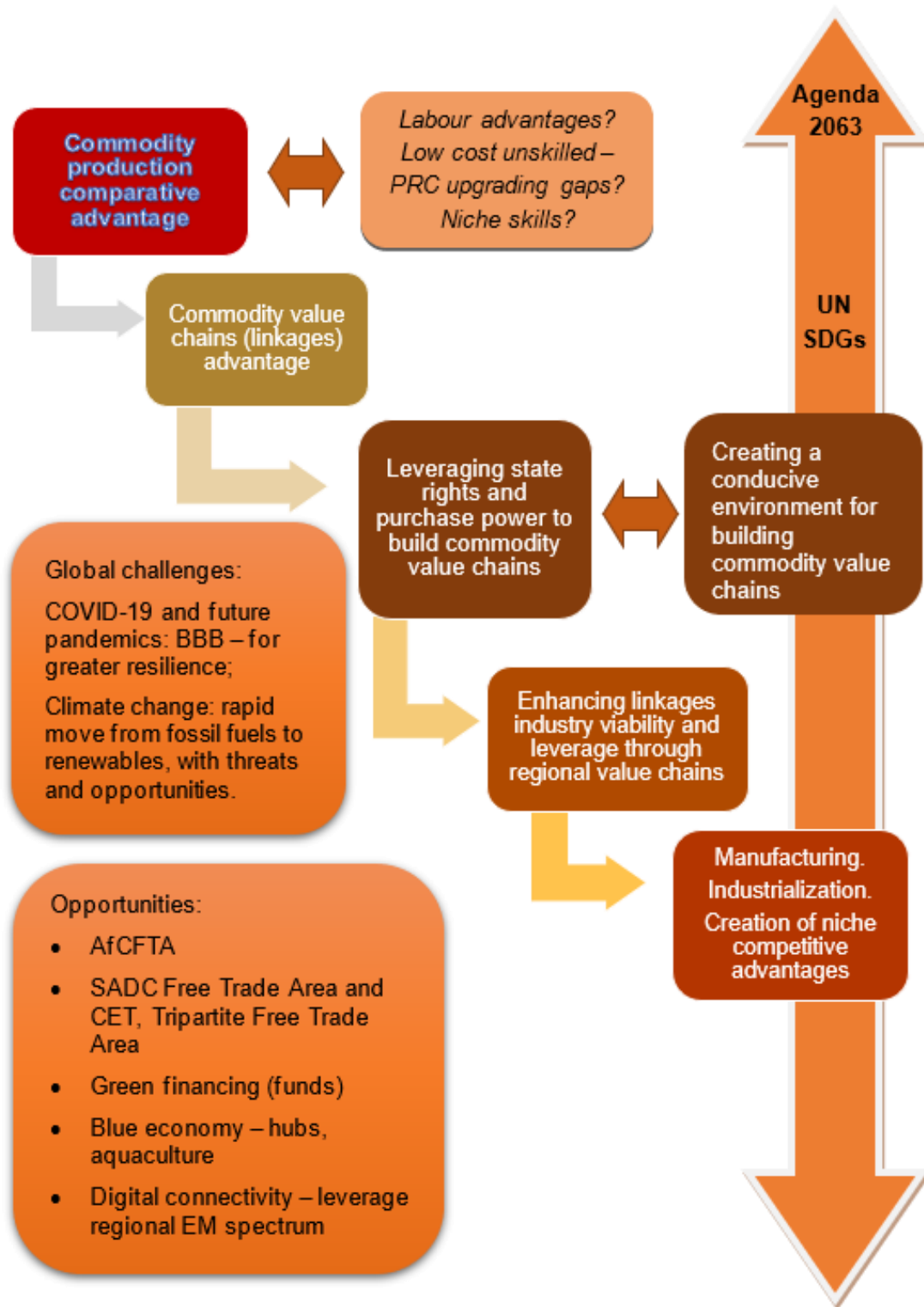
BBB alignment with the SDGs and the African Union Agenda 2063 goals

2030 Agenda SDG goals		African Union Agenda 2063 goals	
SDG 4	Quality Education	2	Well educated citizens and skills revolution underpinned by science, technology and innovation.
SDG 7	Affordable and Clean Energy	7	Environmentally sustainable climate resilient economies and communities.
SDG 8	Decent Work and Economic Growth	1	A high standard of living, quality of life and well-being for all citizens.
SDG 9	Industry, Innovation and Infrastructure	10	World class infrastructure crisscrosses Africa.
SDG 10	Reduced Inequalities	20	Africa takes full responsibility for financing her development.
SDG 11	Sustainable Cities and Communities	12	Capable institutions and transformative leadership in place.
SDG 13	Climate Action	7	Environmentally sustainable and climate resilient economies and communities.
SDG 15	Life on Land	7	Environmentally sustainable and climate resilient economies and communities.
SDG 16	Peace, Justice and Strong Institutions	11	Democratic values, practices, universal principles of human rights, justice and the rule of law entrenched.
SDG 17	Partnerships for the Goals	19	Africa as a major partner in global affairs and peaceful coexistence.

Source: (African Union, 2013) and (United Nations, 2015)

Figure 6

Commodity-based industrialization model



Source: Author

III. The importance of building regional value chains to realize the linkages

Due to economies of scale, which limit the viability of national backward and forward linkages, regional markets are essential. Even where domestic demand is sometimes adequate for economies of scale, the inevitability of import parity pricing (IPP) where there are only a limited number of players will lead to escalated prices, close to imports, negating the logistics advantages of having local production. Consequently, regional economic integration is essential to increase local demand (market scale) to augment the viability of establishing value chain linkages industries and to increase competitive pricing (to restrain IPP) in order to be able to reap greater benefits from leveraging national endowments and public purchases.

All ECA-SA Southern African states are members of SADC and have assented to common trade, industrial and mining protocols, therefore it is the REC that this BBB strategy targets. Five of the UNECA-SA Southern African states are also members of Common Market for Eastern and Southern Africa (COMESA), namely, Eswatini, Malawi, Mauritius, Zambia and Zimbabwe.

SADC already has a regional industrialization strategy (SADC, 2015), (SADC, 2017) and a regional mining vision (RMV) (SADC, 2019) based on the AMV (AU, 2009) with a raft of strategies to realize the potential mineral linkages into manufacturing, industrialization and regional value chains, as does COMESA with its Industrialisation Policy 2015-2030 (COMESA, 2015) and Industrialisation Strategy 2017-2026 (COMESA, 2017). Angola, Botswana, Namibia and Mozambique are members of SADC but not COMESA. RECs are particularly important institutions for states with small domestic markets because they provide access to larger regional markets (UNECA, 2013 p. 235).

Without bringing regional supply and demand into play, strategies for BBB through fostering CBI, manufacturing and regional value chains, will be significantly compromised. All of the commodity linkages would benefit from larger markets (backward, forward and knowledge linkages), particularly the mineral commodity value chains which, by value, dominate in Southern Africa.

“Regional markets may be initially less demanding and allow local firms to build the necessary production capabilities required to graduate into more demanding global chains, a point particularly important for countries without large domestic markets. The regional approach opens up space for ensuring that regional integration within Africa is fast-tracked and streamlined to provide local competitive advantage.” (UNECA, 2013 p. 11).

Notwithstanding the need for economies of scale for most of the commodity linkages, particularly the forward linkages, there are nevertheless abundant opportunities for micro, small and medium enterprises (SMME), especially in the backward linkages consumables and services (e.g., manufacture of wear parts, repair and maintenance of plant and machinery).

IV. Methodology for selecting key regional value chains for building back better regional commodity value chains, industrialization and manufacturing

The mineral commodity regional value chains from the SADC RMV (SADC, 2019) are presented in Table 4 on page 20 and Figure 7 on page 21. In general, the selection of the KRVCs involved five processes:

- 1 An analysis of strategic regional feedstocks into downstream economic activity, particularly manufacturing and agriculture.** This underpinned the selection of the ferrous KRVCs (iron/steel = ferrous metals), which are by value and volume the most important metal feedstocks into local industrialization KRVC 1: Ferrous and KRVC 2: Fertiliser commodities as the majority of Southern Africans are engaged in agriculture, either commercial or peasant farming, both directly and indirectly, and the most important commodity value chains for agriculture and yields are the fertiliser value chains based on the main elements of nitrogen, phosphorus and potassium (NPK).
- 2 The identification of common strings within the KRVCs.** The most important shared commodity value chain segments are the commodities production supply chains (inputs: backward linkages), particularly the mining supply chains which are broadly the same for all mineral value chains (see 'Mining and processing inputs' segment in Figure 7 on page 21). This drove the selection of KRVC4: Commodity production backward linkages, where the region has an exceptionally large market share—greater than the European Union for hard-rock mining inputs—and import displacement opportunity that can be leveraged through extraction licensing (see 0' on page 23). The high employment multipliers associated with the manufacture of commodity production capital goods, six to seven jobs, was also a factor in the selection of KRVC 4 (see point 3, below).
- 3 Regional value chains with high employment multipliers** were assessed and in this regard KRVC 5: Automotive, was selected due to its high tier 1, tier 2 and tier 3 job multipliers (about 3:1) and other jobs supported in other sectors such as services and retail (about 4:1) which is very similar to the mining capital goods job multiplier (6-7:1). Given that the region imports about one million vehicles per annum (~\$10 billion-15 billion), there is a huge import displacement and job

creation opportunity if the Member States can configure and agree on a regional automotive industry development strategy. Such a strategy is timely given the current necessary retooling due to the shift from internal combustion engines to electric vehicles, necessary to dramatically reduce greenhouse gas emissions.

- 4 Given **the importance of agriculture and agricultural commodity production to the region**, as well as the region’s huge agricultural potential, several agro-commodity value chains were considered, particularly ones where the region has a clear global comparative advantage. Given that a subset of Southern African states is the second largest global exporter of citrus fruit, agricultural KRVC 3: Citrus fruit was selected due to its known potential to be globally competitive and due to the availability of substantial further suitable acreage (biomes) across the region.
- 5 **The momentous implications of global warming and the urgent worldwide need to migrate to renewable energy sources**, together with the region’s substantial renewable energy generation, potential was assessed in terms of future blue-sky KRVCs; in this regard the nascent renewables (wind, solar, hydro) and storage KRVCs, KRVC 6: Renewables and storage was selected.

Table 4

Key strategic mineral feedstocks in Southern Africa

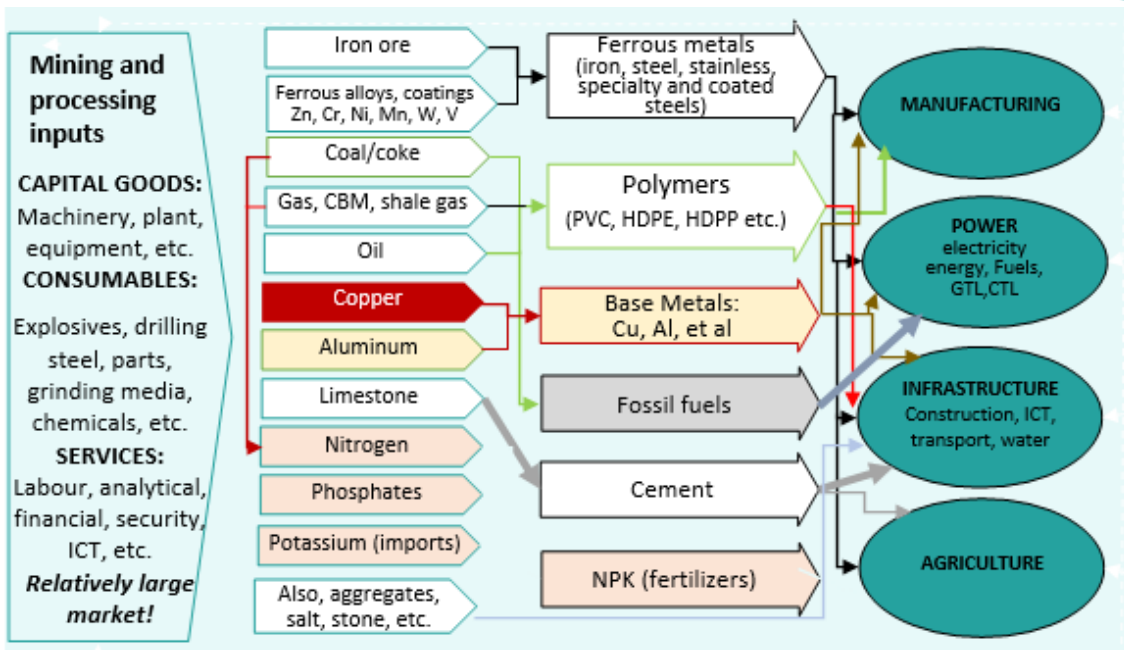
Sector	Key strategic mineral feedstocks (commodity forward linkages)
Manufacturing	Steel, polymers (from coal and hydrocarbons), base metals (copper, aluminium)
Power (electricity)	Oil, coal, natural gas (and coalbed methane, shale gas), limestone (emissions, sulphur removal), copper/aluminium (transmission). Fossil fuels face increasing climate change abatement constraints (greenhouse gases). Renewable energy (solar, wind, hydro, etc.), value chains (silicon, carbon, lithium, cobalt, copper, rare earth elements, etc.)
Construction	Steel, copper, cement (from limestone, gypsum, coal/gas), aggregate, copper/aluminium
Agriculture	Nitrogen (from coal, gas), phosphate, potassium, conditioners (e.g. limestone and sulphur), micronutrients (iron, manganese, boron, zinc, copper, molybdenum, etc.)
Producer power	Where Africa has potential producer power, there could be increased downstream (beneficiation) potential, e.g., platinum group metals, diamonds, cobalt.

Source: adapted from (SADC/AMDC, 2015/6)

Mineral feedstocks essential for industrialization that the region possesses are shown in Table 4 on page 20. Producer power derived from the region hosting a significant share of the global resource is considered a strategic factor. From these feedstocks forward linkages extend through mineral value chains shown in Figure 7 below.

Figure 7

Mineral value chains for manufacturing, power, construction and agriculture



Source: SADC/AMDC (2015/6)

Figure 7 is starting to reveal the processing capabilities required to mine feedstocks as well as the international trade dimensions involving the exports of metals such as copper, iron and manganese and also imports of feedstocks in aluminium (bauxite) and potassium, recognizing that these mineral value chains are integrated into GVCs.

Step three in Figure 8 on page 29 involves the dissection of the linkages created in mineral value chains and their categorization into backward/upstream linkages, forward/downstream linkages as well as knowledge (human resource development, RDI), infrastructure and lateral linkages. Given that these mineral value chains are globally integrated, these linkages also have dimensions related to the national, regional, continental and global economy.

Selected key regional value chains

Applying the above methodology for Southern Africa in the policy context summarized in section 'Building Back Better: the case for commodity-based industrialization in Southern Africa in the context of the AfCFTA' on page 9, six key regional value chains have been identified as the most propulsive to implement the BBB strategy, as follows:

- 1 Ferrous.** Iron and steel are by far the most important feedstock into manufacturing and industrialization are iron and steel, with global consumption at around 1.8 gigatons per annum, which is why most developmental states established steel plants to supply their manufacturing sectors with competitively priced steel. Globally, about half of the world's consumption is into infrastructure (construction) and half into manufacturing (WSA, 2021), but infrastructure consumption tends to be higher in developing states.
- 2 Fertiliser commodities (NPK).** Most of Southern Africa's citizens are involved in agricultural production, (commercial and peasant farming) and across the region there is generally a soil nutrients deficit, often leading to a vicious cycle of falling yields (van Straaten, 2002). The most important fertiliser inputs are nitrogen, phosphate and potassium (NPK). The availability of cost-competitive NPK fertilisers across the region could have a major beneficial impact on the majority of the region's people through higher yields, and NPK fertilisers feed into all of the regional agricultural commodity chains (hard commodity value chains) (UNECA, 2013).
- 3 Citrus fruit.** Citrus fruit is a highly competitive GVC in which South Africa, has a strong presence, along with production for export in Zimbabwe and Eswatini. South Africa is the second-ranked global exporter for oranges, the fourth-ranked for both soft citrus and lemons and the top exporter for grapefruit. SADC exports valued at \$1.72 billion were achieved in 2020 and there is huge potential for citrus production across the region. Consumer behaviour has shifted to preferences for fresh and healthy food as a consequence of the COVID-19 health crisis. Capitalizing on the regions strong market position in citrus production and export competitiveness, combined with global food trains favouring fresh produce, make the citrus value chain a key regional driver for the BBB strategy.
- 4 Commodity production** (mining inputs, backward linkages). The mining and mineral processing backward linkages (capital goods, consumables and services) are common for all the regional mineral value chains, noting minor differences between opencast and underground, or soft rock versus hard rock mining. Hence, the main mining sectors of ferrous, base metals, industrial minerals, precious minerals, etc. represent the most extensive commodity backward linkage opportunity in the region; this market is estimated to be larger than the European market for mining/processing capital goods (SADC, 2019) and (SADC/AMDC, 2015/6), and presents a unique opportunity anchored in Southern Africa's unique minerals endowment.
- 5 Automotive: towards carbon neutrality.** Although the Southern African automobile market is modest, and most vehicles are imported, this sector is beginning a profound transition to carbon neutrality, moving from fossil fuelled internal combustion engines to electric vehicles, fuel cells and hybrids which presents a range of BBB opportunities for the region. Outside South Africa, most states import second-hand fossil fuel vehicles (internal combustion engines) from the developed world, with almost zero manufacturing value addition in the region. The region has the world's largest resources of platinum group metals (for fuel

cells), cobalt (for electric vehicle batteries) and vanadium (V redox batteries) as well as other inputs into the automotive value chain such as steel and alloys (iron ore), polymers (oil and gas).

- 6 Renewables and storage.** The transition to renewable sources of energy (wind, solar, hydro) presents numerous opportunities for the region given its significant solar, onshore wind energy potential, as well as small hydro and the huge large-scale hydro potential in the Congo River basin (~200GW) and small-scale hydro.

KRVCs 1-5 above directly align with SADC identified regional value chains for agroprocessing, minerals beneficiation and related mining operations and for capital goods (SADC, 2017). Renewable energy is not explicitly mentioned in the SADC regional value chains, noting that its take-off at scale in Southern Africa is relatively recent. When national strategies for the implementation of AfCFTA that are in preparation by Member States—many with the assistance of UNECA—are finalized and published, it is expected these KRVCs will also be confirmed as priority sectors.

V. Requisite instruments to build the key regional value chains

Leveraging state natural resources, state rights and state purchasing to Building Back Better KRVCs

In order to transform Southern Africa's comparative advantages in the production of mineral and agricultural commodities into associated advantages in the upstream and downstream linkages (backward and forward value added), the Member States need to judiciously use their state ownership of assets or authorization rights to leverage the building of local content and value addition (beneficiation/processing) through linkages development conditionalities in all state leases/licences/concessions and purchases, maximized through developmental tendering. Table 5 on page 24 lists assets where the state has market access power it can leverage from control over access such to state resources and the market-making power it can leverage over procurement of goods and services by government entities.

Wherever feasible, state rights, licences or leases should be allocated through competitive tender. Member States should consider amending their laws to make the granting of state rights for commodity production only via competitive tender against the linkages development proposed by the tenderer (developmental tendering). All known state assets and state rights should only be disposed of through competitive tender to maximize the developmental impact of commodity production. The upstream and downstream value addition (commodity value chain development) commitments could then be a key bid evaluation element.

The whole system of state assets, rights or purchases tendering requires the development of robust, streamlined and transparent mechanisms with adequate monitoring and evaluation and training of those who will implement and monitor. Well-developed IT systems could greatly facilitate ease of use and transparency. Where possible, standardized tendering (auction) procedures could best be developed and implemented on a regional basis, avoiding the need for each country to develop its own mechanisms, or for businesses operating in different Member States to comply with diverging systems.

Table 5

State power over market access and market making power

Market access power from issuing rights to use national (state) endowments		Market making power from state purchases	
State assets requiring a licence, lease, permission, concession, authorization		State purchases (and contractors) from state structures on terms with potential backward linkages (local/regional content) requirements	
Leverage over access to resources	Mineral extraction rights	Leverage over purchasing goods and services	National government ministries/ departments/ agencies
	Natural fisheries harvesting rights		State-owned companies/entities
	State land use rights and user rights		Provincial government purchases
	Natural forests harvesting rights		Provincial government entities
	Energy generation and transmission rights		Municipal government purchases
	Electromagnetic spectrum (technology bandwidth) usage rights		Municipal entities
	Water extraction and distribution rights		Public-private partnerships (PPP)
	State domains (such as coastline and airspace) usage rights		Other public entities
	State rights of way (road, rail and ports concessions)		
	Other state assets/rights		

Source: Author

Southern African states are a major consumer—directly by government or state-owned companies and indirectly through state contracts—of imported goods and services, particularly for national infrastructure (construction and power: steel, cement, base metals, etc.) All Member States and their state-owned companies could introduce local content and value added minimums in all of their state and state-owned company purchases and contracts as well as purchases by their subcontractors.

South Africa has a local spend system (designated goods) under their Preferential Procurement Policy Framework Act in operation and their experience may be of use other Member States, particularly on pitfalls. However, the South Africa system excludes regionally sourced goods. Similar to the local-regional content proposal, Southern Africa could consider recognizing regional spend in local spend (content) obligations at a discounted rate inversely proportional to the GDP/capita of Member States in order to increase demand (regional market) and production economies of scale for backward and forward linkage industries. A mechanism to achieve this is set out below in 'Reciprocal recognition of regional value added (backward and forward commodity linkages development), science, technology, engineering and mathematics (STEM) skilling and RDI'.

Preferential local procurement is not sufficient on its own as local enterprises require a conducive operating environment to rise to the opportunities created. These include incentives, tax breaks and finance at preferential interest rates, reliable utilities, etc. The administration and funding of incentives can be complex and a significant burden on the state, and in this respect tax breaks may be a more effective mechanism.

Reciprocal recognition of regional value added (backward and forward commodity linkages development), science, technology, engineering and mathematics (STEM) skilling and RDI

The region offers a significant market for commodities production inputs (capital goods, consumables and services), and several Southern African states have or plan to introduce local content (localization: backward linkages) obligations (conditions), particularly for mineral commodities production (mining and processing). Examples include South Africa (Mining Charter III), Zambia (regulations under formulation), Mozambique (in the Mining Law, but require enabling regulations), Angola (hydrocarbons) and others. However, no Southern African states recognize local content created in other states in the region. For local content targets (obligations), all SADC Member States treat imports from their neighbours the same as imports from abroad (e.g., European Union, China, North America). Likewise, downstream value addition of commodities in other Member States is given no recognition.

Regional commodity value chain strategies need to recognize value addition in other Member States, even if discounted, in order to take advantage of regional economies of scale (regional inputs and markets for beneficiated commodities) and to access a

wider range of regional commodity feedstocks for local industrialization (forward linkages). Consequently, to realize this huge opportunity, the regional market needs to be realized through:

- The incorporation of local/regional content (localization) requirements, beneficiation (commodity processing) requirements and skilling and RDI (knowledge linkages) requirements into Member States mining laws (licences), land concessions, water rights and contracts covering the granting of other state rights or authorizations.
- These laws, regulations, licences, leases, contracts or authorizations need to cater for reciprocal recognition of regional value added (backward and forward linkages development), STEM skilling and RDI (forward linkages development). Skilling and technology development undertaken in other Member States should be recognized, but at discounted values (inverse of GDP/capita).
- Likewise, all Southern African states should introduce legislation that caters for local content (localization) requirements in state purchases and that recognizes regional content, albeit discounted, for these requirements (e.g., the South Africa Preferential Procurement Policy Framework Act needs to be amended to recognize local content created in other SADC Member States).

Regional content could be credited as local content at a discounted rate inversely proportional to the supplying Member State GDP/capita that is developmental, i.e. the greatest support for local content recognition is given to the least developed Member States. The principles for a regional local content recognition system could work as follows.

First, a range for the discount rate is set. In the example, shown in Table 6 on page 27 the range is set at 50 per cent to 90 per cent of the inverse of GDP/capita. Second, up-to-date national accounts are used to calculate recognition rates products in regional trade.

For example, in Zambia the local content value of a product supplied to its mines would be 100 per cent recognized towards Zambia's local content target, but the Botswana content of a product supplied to Zambia would only be recognized at 67 per cent of that local content.

Should this mechanism be adopted for products and services supplied from several Member States, it would allow for setting higher local content targets, say 80 per cent for services, 70 per cent for consumables and 60 per cent for capital goods (using the SADC Free Trade Area rules of origin definitions of national content). Likewise, if regional demand for key commodity-based feedstocks is in play, then the value added (beneficiation, processing) targets (obligations) could be set appreciably higher than those viable for any single Member State.

This would need to go together with a regional commodity value chains investment fund—(venture capital fund, possibly as a window in the proposed SADC Regional Development Fund), a commodity value chains common market (common external tariff), commodity value chain infant industry protection for least developed members and an intraregional trade infrastructure (transport) development facility to lower intraregional logistics costs—in order to contain industrial polarization (greater benefits to the already more industrialized Member States).

Table 6

Developmental regional local content recognition system

SADC Member State	GDP 2020 (\$ billion)	GDP/capita 2020 (\$)	Recognition 50%-90%
Angola	62.3	1 896	85%
Botswana	15.8	6 711	67%
Comoros (the)	1.2	1 403	87%
Democratic Republic of the Congo (the)	49.9	557	90%
Eswatini	4.0	3 415	79%
Lesotho	1.8	861	88%
Madagascar	13.7	495	90%
Malawi	12.0	625	89%
Mauritius	10.9	8 623	60%
Mozambique	14.0	449	90%
Namibia	10.7	4 211	76%
Seychelles	1.1	11 425	50%
South Africa	301.9	5 091	73%
United Republic of Tanzania (the)	62.4	1 076	88%
Zambia	19.3	1 051	88%
Zimbabwe	16.8	1 128	88%
Total	597.8		
Highest GDP/capita		11 425	50%
Lowest GDP/capita		449	90%

Source: Adapted from (SADC, 2019 p. 66), Table 6. Updated GDP/capita data from World Development Indicators (World Bank, 2022).

Reliable and cost-effective supply of strategic commodities into the regional economies (key feedstocks)

Ensuring the supply of strategic commodity feedstocks into local development could include a common commodities and semis (intermediates) outer import tariffs regime (common external tariff). In this regard, it is interesting to note that the European Union economic integration was preceded by the European Coal and Steel Agreement in 1951—a regional commodities agreement for steel and coal—before moving to more comprehensive economic integration. Southern Africa should assess a putative strategic commodities feedstocks agreement strategy to ensure that the region can access these critical feedstocks at competitive or developmental prices, as a quick win first step in regional economic integration.

A key element of such a strategy should be an SADC commodity feedstocks (minerals/metals, scrap, agricultural raw materials and intermediates/semis) common market with outer tariffs to realize the regional market economies of scale, but the strategy would need to incorporate equitable regional integration through concrete instruments that cater for the weaker regional economies (variable geometry) and industrial polarization where the benefits of integration mainly accrue to the stronger economies.

Given the tendency for monopoly pricing and collusion in commodity-based intermediates (cement, steel, polymers, fertilisers, etc.), particularly those with high economies of scale and a relatively low value-to-mass (allowing for plant logistics catchment pricing), the Southern Africa region needs to consider the establishment of regional regulation/competition authorities for applicable intermediates to curtail market dominance and elevated pricing (import parity pricing), particularly given the cross-border ownership patterns of some of these industries.

The most effective method of achieving competitive commodity feedstock prices (export parity prices) is to facilitate vibrant competition across the range of commodity value chain intermediate products and semis through the establishment of new players across the region within a customs union (common external tariff). A regional commodities/semis and inputs customs union would increase rivalry and competition due to the much larger market than individual Member States, permitting more producers at the requisite viable economies of scale, resulting in lower prices to the downstream regional manufacturing industries and their expansion.

Regional financing of the development of the KRVCs: pre-feasibility study funding, equity and debt

In order to facilitate the participation of less capacitated Member States in the diverse advantages of a regional commodities value addition strategy, a regional finance facility—a venture capital fund (VCF)—needs to be configured to overcome the lack of liquidity, the high cost of capital and high investment hurdle rates in most of the least developed Member States, to level the playing field. Finance from such a facility should be heavily biased in favour of the economically weaker Member States to facilitate an equitable distribution of the huge benefits of the regionalization of the commodity value chains.

A regional value chains development VCF could be configured for investment project (prefeasibility study) funding and debt funding (0-90 per cent) and equity participation (minority VCF equity: <50 per cent), depending on the inverse of the GDP/capita of the participating Member State, with a possible multiplier for indigenous-owned projects.

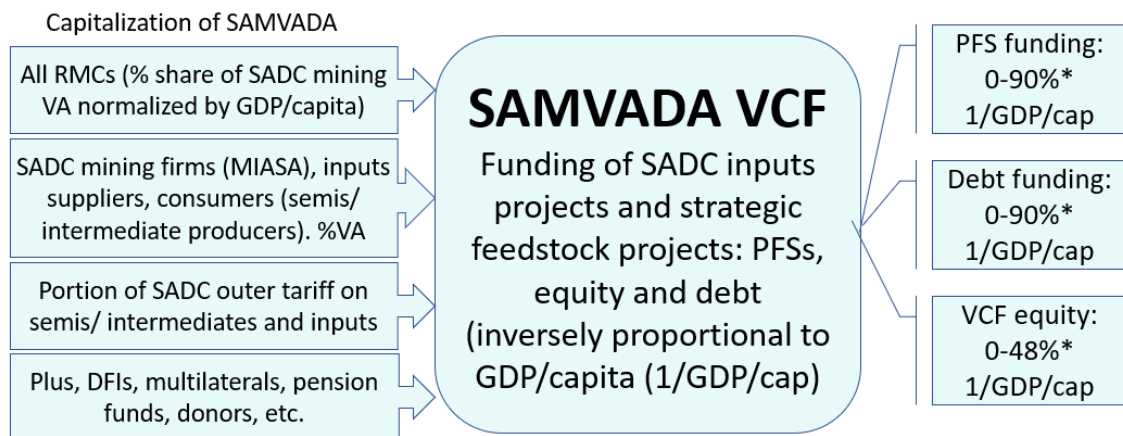
The VCF could be established as a PPP between the participating Member State governments and the private sector (commodity producers, suppliers and beneficiaries-consumers), or as a window in the proposed SADC Regional Development Fund, and capitalized by SADC development finance institutions (DFI), pension funds, multilateral DFIs, partner DFIs, donors, commodity-producing companies (e.g. mining companies), Member States, a portion of a common SADC outer intermediates and semis and inputs tariffs (CET: 5-10 per cent), as well as development funds and commercial banks (SADC, 2019). Initially, such a VCF could be piloted by two to three willing Member States.

Figure 8

Concept for a regional commodity production linkages development fund and VCF

Proposed Southern African Mining Value Added Development Agency (SAMVADA) PPP

Objective: Equitable regional MVC development (combat Bambazonke effect)



Debt at LIBOR plus; equity return target ≥ 10%

* Enhanced 20% of > 50% indigenous-owned projects

Source: (SADC, 2019 p. 68)

Box 2

Southern African Mining Value Addition Development Agency (SAMVADA)

SAMVADA could be set up as a public-private partnership between SADC participating RMC governments and the private sector (miners, suppliers and beneficiators) and be capitalized by the RMCs (per cent share of SADC mining value addition normalized by GDP/capita through their DFIs and treasuries), SADC mining companies (through both equity and debt guarantees) and a portion of the common SADC outer intermediates and semis and inputs tariffs (5-10 per cent) for non-earning SAMVADA funding (e.g. funding of pre-feasibility studies).

Financing facilities could also be sought from regional DFIs (Industrial Development Corporation, Namibia Development Corporation, Botswana Development Corporation, New Development Bank, etc.), regional pension funds, international DFIs (AfDB, IMF, etc.) and development funds/banks. SAMVADA's focus would be on establishing and growing the regional mineral inputs and outputs industries (feedstocks into the regional market), particularly in states with a relatively low level of mineral upstream and downstream value addition. (SADC/AMDC, 2015/6).

Member States that already have operating commodity production backward and forward linkage industries have an advantage over new investments because their capital expenditure is amortised and their workforce is trained. Consequently, new entrants could be granted timebound infant industry protection that would permit any Member State to impose a tariff of up to 10 per cent on commodity-based intermediates, semis and inputs imports from other Member States for up to seven years on new projects that conform to the regional strategy to ameliorate the extra costs for new plants (capital expenditure servicing, workforce training, etc.) Such an infant industry tariff would be added to the outer SADC tariffs on the intermediates/semis concerned for extra-SADC imports from abroad.

Facilitating the growth of local capital to build the commodity value chains (indigenization)

The AMV on local capital:

“The African state is, for a wide variety of often country-specific reasons, generally typified by an extremely weak domestic business sector. This, more often than not, renders it unable to effectively realise its numerous resource sector opportunities (both within the resource sector and in its “linkage” sectors). In most cases, focussed, country specific, strategies for growing local capital to take advantage of the resource endowment opportunities urgently need to be developed ...” (AU, 2009 p. 24/5)

Global experience has shown that local capital is much more likely to build the commodity production linkages than foreign capital (FDI) (Wright, et al., 2004), due to their deeper knowledge of local supply chains, lack of global purchasing systems, knowledge of local downstream opportunities, lack of global processing facilities and capacity, etc.

Adopt strategic interventions to insert indigenous firms in supply chains:

“Following the dynamics of national, regional and global value chains, it is in the interests of major commodity firms to outsource many of their supplies and services. Industrial policy should cover customised supply-chain development programmes that help indigenous firms to insert themselves in these value chains and to remain competitive. Such policy may focus on upscale niche markets and quality certification—environmental sustainability, speciality products or fair trade—as well as on special funding mechanisms to build firms’ capabilities in backward and forward linkages.” (UNECA, 2013 p. 12).

The facilitation of local capital could be part of the state conditionalities by:

- The incorporation of indigenization requirements into Member States' mining laws/licences), land concessions, water rights and contracts covering the granting of other state rights or authorizations.
- These laws, regulations, licences, leases, contracts or authorizations need to cater for reciprocal recognition of African ownership. Indigenous ownership in other Member States should be recognized, possibly at discounted values (inverse of GDP/capita).
- Likewise, all Southern African states should introduce legislation that caters for indigenization requirements in state purchases and that recognizes regional ownership—albeit discounted—for these requirements (e.g., the South Africa Preferential Procurement Policy Framework Act needs to be amended to recognize indigenous ownership in other SADC Member States).

If governments wish to embed linkages by promoting domestic ownership of the targeted supply or processing firm, the focus of policy should still be on increasing local value added activities, as these have the most potential to create positive spillovers and to build firms' competencies in new areas (UNECA, 2013 p. 225).

Trade facilitation of the KRVCs: SADC Free Trade Area and CET, non-tariff barriers, AfCFTA and Afreximbank, role of RECs

Bilateral arrangements, RECs and multilateral negotiations have made significant strides in facilitating trade flows by reducing costs imposed by tariffs. The SADC Free Trade Area was launched in August 2008, with the maximum tariff liberalization only attained in January 2012 when the phasing down of tariff on sensitive products was completed (SADC, 2008).

RECs that have formed free trade areas are the effective legal instrument through which regional integration is implemented. More than 60 per cent of all intra-African trade in goods takes place among the members of SADC. The Southern African Customs Union, joining Botswana, Eswatini, Lesotho, Namibia and South Africa, is part of SADC and is commercially highly integrated also in respect of trade in services. Complex trade negotiations have been streamlined by arriving at common positions within RECs, as the experience of the Tripartite Free Trade Area comprising the East African Community (EAC), COMESA and SADC formed in 2016 demonstrates. The Tripartite Non-Tariff Barrier Mechanism has been proved effective at resolving complaints and been used as the model for the AfCFTA Non-Tariff Barriers Annex (TRALAC, 2018). The critical role played by RECs to give effect to the goals of the AfCFTA is explicit in Article 5 of the agreement establishing the AfCFTA that states that the AfCFTA shall be governed by specific principles such as “driven by Member States of the African Union; RECs' Free Trade Areas ... as building blocs for the AfCFTA.”

Analysis by RECs of regional integration initiatives indicates that the reduction of tariffs has a limited impact on the enhancement of intraregional trade. It is increasingly apparent that various other barriers contribute more than tariffs to low levels of intraregional trade

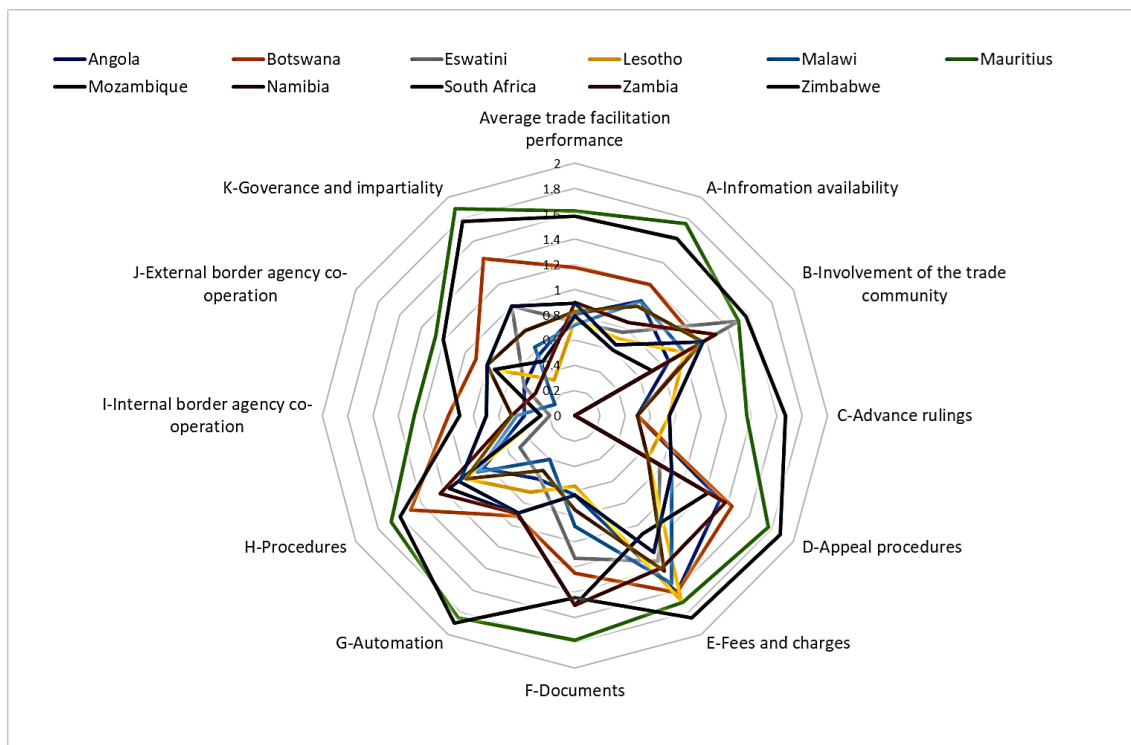
Non-tariff barriers (NTB) are impediments to trade and are especially onerous in Africa. NTBs include import bans, unjustified documentation and conditions, excessive border checks, corrupt and/or lengthy customs procedures and police stops. The average applied rate of tariff protection in Africa is 8.7 per cent, but other obstacles increase the cost of Africa’s trade by an estimated 283 per cent (UNECA, 2017 p. 87).

Inadequate transit and road infrastructure are important impediments to trade that is examined in the next section. Empirical evidence suggests that NTBs in some instances can add as much as 15 per cent to the price of goods, effectively reducing consumption of goods by the same amount (UNCTAD, 2016).

SADC has established the Trade Monitoring and Compliance Mechanism for monitoring the implementation of the SADC Free Trade Area, with a specific aim of identifying and eliminating NTBs. The position of Southern African states, scored on the OECD Trade Facilitation Indicators for the period 2017 to 2019 show many states are far from the efficiency frontier (see Figure 9 below). Mauritius, South Africa and Botswana were the best performers, while Malawi and Zimbabwe were the worst performers.

Figure 9

Southern Africa Trade Facilitation Indicators for 2019



Source: Author’s compilation from OECD Trade Facilitation Indicators 2019

More complex products involve greater cross-border flows of raw materials and intermediate inputs going into their manufacture. Trade facilitation measures are thus crucial for firms to become integrated into production networks and markets at a regional and global level (OECD, 2013).

Regional approaches to trade facilitation make the greatest impact on reducing of the cost of doing business, facilitating intraregional investment and building of RVCs (ITC, 2017). SADC and other African RECs play a significant role in driving deeper integration.

The AfCFTA (intra-African tariffs reduction), together with the Afreximbank (intra-African trade financing), has the potential to have a profound impact on continental economic relations. A critical role it can play is to implement simplified rules of origin so that firms can participate in regional value chains at scale. Well-designed rules of origin would widen the range of intermediate goods sourced from within Africa and pave the way for more firms in Africa to participate as suppliers in regional and GVCs and also for countries to engage in manufacturing, technological upgrading and economic and export diversification (UNCTAD, 2019).

In January 2022, AfCFTA State Parties adopted rules that could cover 87.7 per cent of goods on the tariff lines of Member States. This paves the way for Member States to gazette these legal instruments at the national level so that states can apply these rules of origin for continental trade. Further negotiations on sensitive goods, including products in the automotive sector, have yet to be finalized.

For this regional commodity value chains strategy to succeed, the region will need to go beyond free trade areas into a commodity value chains customs union with common outer tariffs (CET) for commodity value chain products (backward and forward linkages products) to fully reap the rewards of regional value chain strategies (larger markets, economies of scale and more diverse range of commodity feedstocks for downstream industries, etc.)

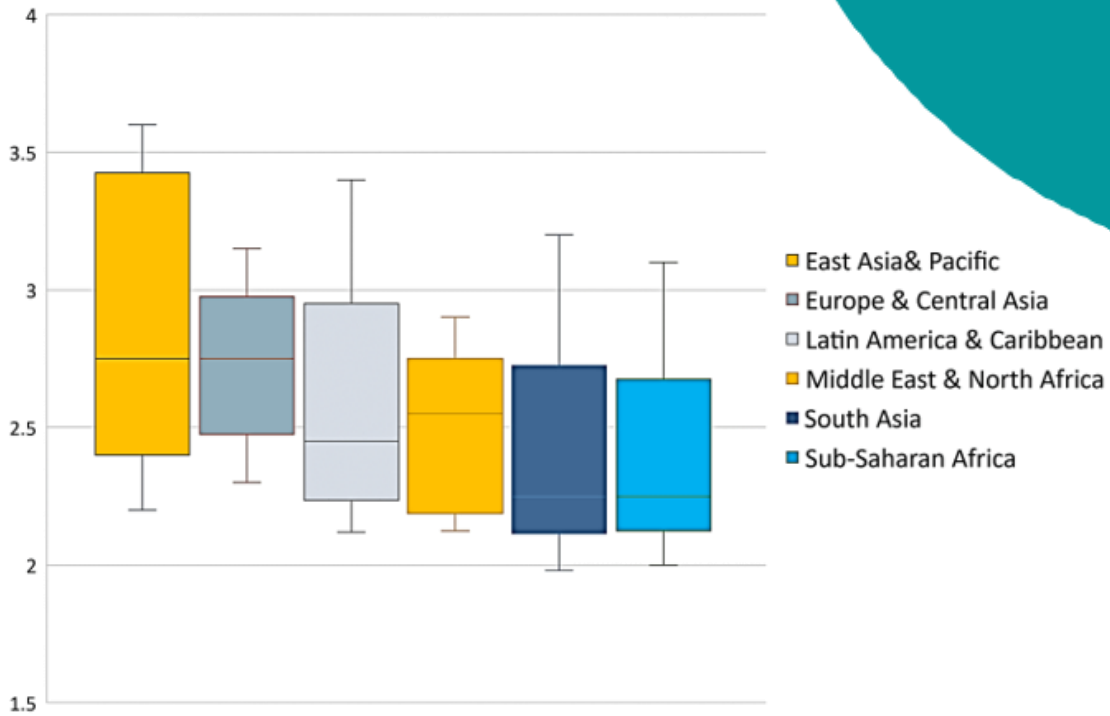
Logistics facilitation of the KRVCs: transport infrastructure

High trade costs for SADC are due to a mix of poor infrastructure and NTBs (OECD, 2017), which translate into transport costs that are more expensive by at least \$13/ton (Vilakazi, 2018). Infrastructure is a binding constraint to industrialization, manufacturing and the building of regional value chains, therefore closing the infrastructure gap is critical for BBB.

Interregional and intraregional freight movement is captured in the Logistics Performance Index which is a comprehensive measure of the efficiency of international supply chains. Sub-Saharan Africa has the lowest median index score among developing country regions (see Figure 10 below).

Figure 10

Logistics Performance Index for world regions

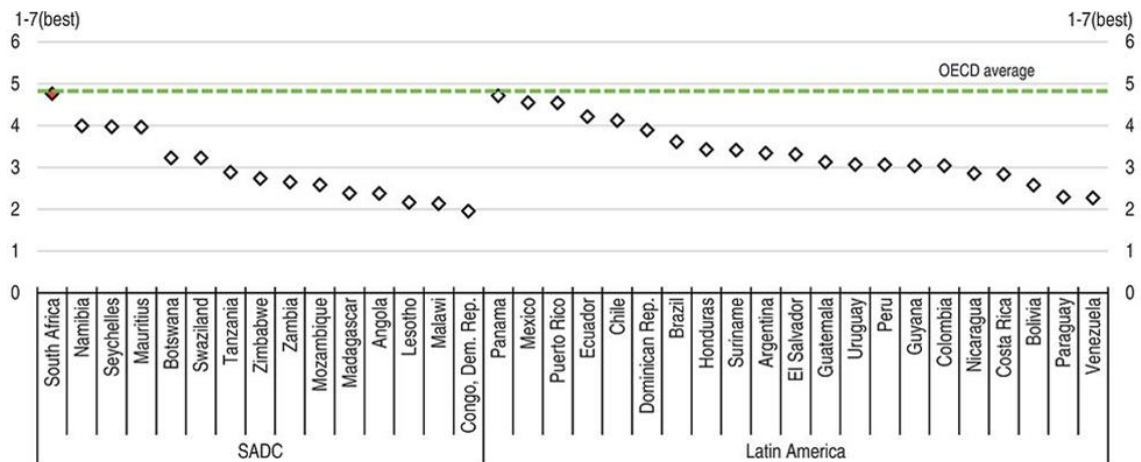


Source: Sustainable Mobility for All. 2019 calculations based on World Bank (2018)

SADC transport infrastructure compared to the OECD average depicted in Figure 11 below shows that most Member States have poorer infrastructure than found in Latin America, highlighting the obstacles to intraregional trade and the importance of giving effect to plans to upgrade regional transport and communications infrastructure.

Figure 11

SADC and Latin America transport infrastructure compared to OECD average



Source (World Economic Forum, 2017). Global Competitiveness Report, 2016-2017

A crucial issue for the development of infrastructure is the funding. The SADC Regional Infrastructure Development Master Plan 2012 estimated a capital requirement of \$500 billion (SADC, 2012) In 2016, SADC members agreed to set up a Regional Development Fund as a financing mechanism for economic infrastructure. Weak fiscal positions, now much worsened by the COVID-19 pandemic, prevented capitalizing of the fund. To make progress on regional integration, it is essential for Member States to subscribe the capital necessary to operationalize the fund and to also attract private funding (pension funds, investment funds) and international funding (OECD, multilateral funders, bilateral funders, etc.)

Given the criticality of plugging the regional infrastructure gaps, it is proposed that a specific infrastructure fund be established based on three interlocking principles:

- 1 Capital should be raised from national and multilateral DFIs, specifically enlisting economic recovery facilities created to deal with COVID-19 pandemic shocks. This should create the opportunity to blend funding sources at different risk levels and allow DFIs to de-risk projects for commercial lenders via first lost funding¹.
- 2 The fund should be designed to mobilize private sector financing of economic infrastructure by adhering to strict commercial practices, inter alia, transparent and uniform procurement processes, international standards for bid selection and evaluation, transparent pricing and tariff regulation insulated from political influence.
- 3 In order to mobilize the limited pool of Member State national savings into infrastructure as an asset class, prudential portfolio diversification rules should be harmonized among Member States.

The limits for non-domestic exposure could be set at 40 per cent within which at least 12 per cent should go into SADC. The limit for investments in unlisted assets could be set at 15 per cent of assets under management. These prudential limits should give asset managers considerable choice to fund infrastructure and industrial development, either directly or via a regional infrastructure fund.

High intraregional logistics costs aggravate monopoly logistics catchment pricing and pose a significant constraint to all intraregional trade and economic integration. The SADC Regional Infrastructure Development Master Plan and its regional transport corridors (SADC, 2012) need to be re-energized and to incorporate a strategy to reduce coastal shipping (cabotage) tariffs and increase ports of call. NTBs need to be minimized in tandem with a movement towards seamless regional rail operations, rather than border limited operations, regional trucking protocols/regulations (for seamless cross-border movement), regional feedstocks logistics systems (production, blending, storage/depots,

¹ A form of credit enhancement where the DFI covers a certain amount of loss for an investor in the event of a default

packaging, distribution) and regional seamless coaster (cabotage) links around the Southern African coastline in order to move towards all Member States and enterprises and citizens being able to benefit from regional commodities in the form of customized products (intermediates, semis) at affordable prices.

Box 3

The Kazungula Bridge: intraregional trade game changer

The Kazungula Bridge connecting Botswana to Zambia across the Zambezi River is a strategic connector for the Southern African region access to central Africa.

River crossing via a ferry service has been in operation since 1979. Building a bridge was confirmed technically feasible in 2001 (ICA, 2007). In 2006, the governments of Botswana, Zambia and Zimbabwe agreed to back the project, but Zimbabwe held it back. As a result, the governments of Zambia and Botswana opted for joint ownership and expedited customs clearance.

Construction started in 2014 and was completed in May 2021 at a cost of \$259 million that will be funded by toll fees.

On the first day of operation, truck crossings increased by 224 per cent compared to the ferry, completely eliminating border delays.

The new bridge relieves pressure on the Beitbridge border crossing where trucks take an average of four days to cross the border (Mudzingwa, 2021). Border delays make up between 45 per cent and 60 per cent of high transport costs in SADC (Lowitt, 2017) making this bridge a significant regional game changer.

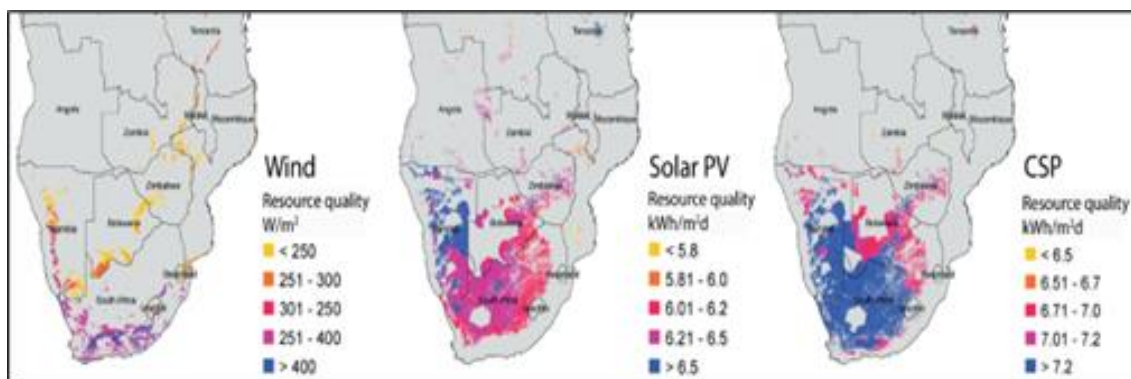
Leveraging the energy transition to build better through developing the energy generation, storage and distribution linkages

Southern Africa continues to experience energy insecurities which have severe implications for economic growth and development. Energy access in SADC is at 48 per cent (below the weighted average for sub-Saharan Africa), but there is a huge variation across states (REN21, 2018).

In 2018, in Southern Africa, Mauritius had the highest access to electricity at 99 per cent, while it is lowest in Mozambique at 31 per cent and Malawi at 18 per cent (World Bank). From 1990 to 2005, inadequate energy infrastructure is estimated to have cost Southern Africa 20 basis points of GDP/capita growth (Foster, 2010). Power generation is dominated by coal at 64 per cent and hydro at 22 per cent with solar and wind making up only 5 per cent (SAPP, 2020). The power deficiency is a binding constraint on industrialization that the SADC Energy Sector Plan is intended to tackle (SADC, 2019).

Figure 12

Southern Africa wind, solar photovoltaic (PV) and concentrating solar power potential (CSP)



Source: (Sanders, 2017)

Southern Africa has some of the highest quality solar and onshore wind resources globally which remains extensively untapped (REN21, 2018). As can be seen in Figure 12 above, most wind power potential is along the South Africa coastal escarpment and in Namibia, while the extensive solar power potential is concentrated on the southwest of the region in Namibia South Africa, Botswana and parts of Zimbabwe.

Southern Africa has significant installed large hydropower. Untapped hydropower resources are considerable. The potential small/mini hydropower in the Southern African Power Pool (SAPP) has been estimated at approximately 9.9 GW (Korkovelos, 2017), see Figure 13 on page 39). SADC also has enormous large-scale hydropower potential (estimated at ~200GW), particularly in the Congo River basin.

Costs for electricity from utility-scale solar PV fell 85 per cent between 2010 and 2020. New solar and wind projects are increasingly undercutting even the cheapest and least sustainable of existing coal-fired power plants (IRENA, 2021). Renewable energy markets are expanding in South Africa, Egypt and Morocco. For Southern Africa power can be evacuated from utility scale generation and imported or exported via the SAPP interconnectors (SAPP, 2020).

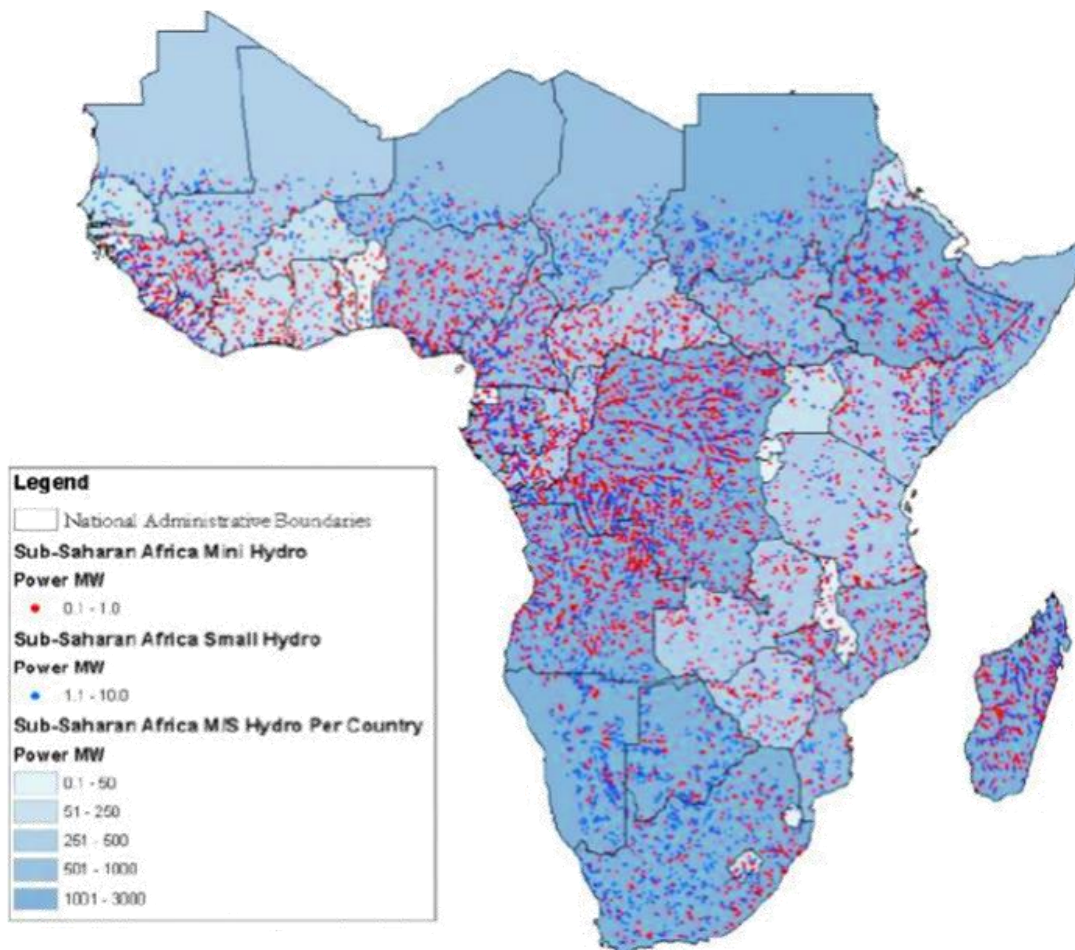
Current regional energy master plans lag the renewables cost advantage by a focus on the prospects for coal, hydro or gas projects. Fossil fuel power plants risk becoming stranded assets and funders are becoming increasingly cautious given the environmental, financial and social risks associated with such projects.

In 2019, AfDB announced that the bank will no longer finance coal projects (Jerving, 2019). In September 2021, FirstRand Ltd, Africa's biggest bank by market value, stated it is ending its funding of new coal-fired power stations immediately and will phase out coal mining funding by 2026 (Bloomberg, 2021). China, the largest financier of infrastructural projects in developing countries, has pledged to stop funding coal-fired power projects abroad, as stated by Chinese President, Xi Jinping, in his address at the United Nations General Assembly on 22 September 2021.

Government policies need to embrace a “just energy” transition and harness technology and financing facilities to make BBB a green recovery. Evidence shows potential economic multipliers for carbon-neutral or carbon-sink activities are positive at about two to seven times greater than fossil fuels (Batini, 2021). Green projects are more job intensive, create higher short-term returns and give higher long-term cost savings than a traditional fiscal stimulus (Hepburn, 2020) if their value chains (backward linkages) are localized.

Figure 13

Mini and small hydropower potential sites in sub-Saharan Africa



Source: (Korkovelos, 2017)

The region should harness the cost advantage of renewable energy to create generation and distribution linkages and offset renewable energy variability through utility scale storage and regional power trading. This is essential to create the energy availability, security and pricing necessary to underpin regional value chains and industrialization.

Select key regional value chains

The region should leverage the energy transition by making renewable energy access to the SAPP national and regional grid and authorizations (generation, transmission, wheeling) dependent on the local/regional content of solar energy (PVs and concentrating solar power (CSP)), wind energy and hydropower systems and energy storage in order to expand the local manufacture of PV cells and panels, CSP mirrors, wind towers, blades, gearboxes, etc., as well as generators, transformers, cabling, masts and storage (batteries, pump storage, hydrogen/fuel cells, etc.) for the whole regional energy system. This is elaborated in KRVC 6 below. Further, all green energy concessionary financing and incentives—local and foreign—should be made dependent on the attainment of minimum backward linkages (local content). This will likely require a regional energy transition protocol to realize the regional manufacturing industrial opportunities along the regional energy value chains.

The green energy transition could present a significant opportunity to BBB and industrialize Southern Africa if all relevant levers are used and if the regional dimension is brought into play.

VI. Select key regional value chains

KRVC 1: Ferrous (iron, steel, steel alloys, intermediates)

Iron and steel is the single most important feedstock into manufacturing and industrialization.

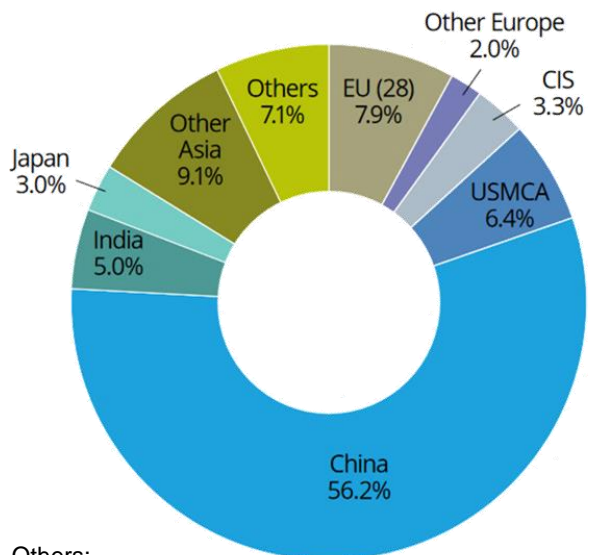
Global consumption is around 1.8 gigatons (billion tonnes) per annum (see Figure 14), which is why most developmental states established steel plants to supply their manufacturing sectors with competitively priced steel.

Globally, about half of the world's consumption is into infrastructure (construction) and half is into manufacturing (WSA, 2021), but infrastructure consumption tends to be higher in developing countries.

The iron and steel value chain is depicted in Figure 15 below.

Figure 14

World total apparent steel consumption in 2020 (Finished steel products: 1.8 Gt)

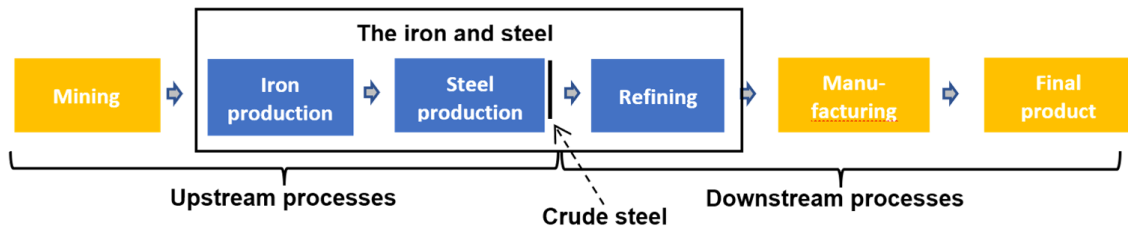


Others:
Africa: 2.0% | Central and South America: 2.2%
Middle East: 2.6% | Australia and New Zealand: 0.3%

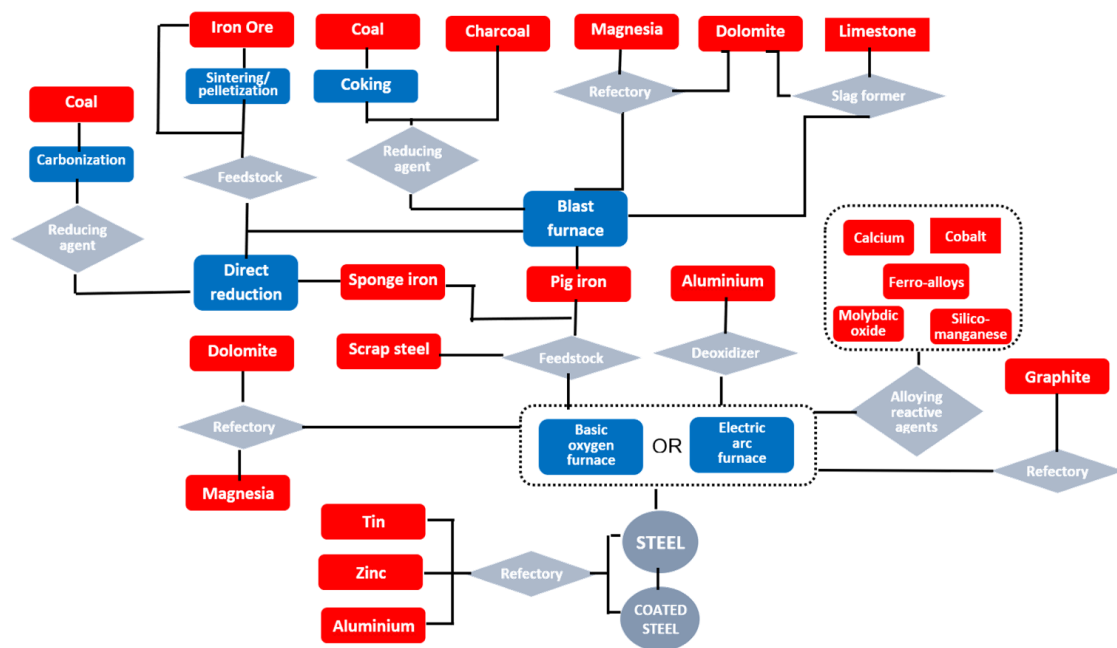
Source: (WSA, 2021)

Figure 15

Iron and steel value chain and steel production model



Simplified steel industry supply chain model



Source: (WSA, 2021)

Regional iron ore reserves are about 6 billion metric tons, but resources could be greater than 60 billion metric tons. Production is 60-70 million metric tons per annum (tpa) and exports run at 50-60 million tpa, almost all from South Africa. SADC carbon steel production is 6-8 million tpa and regional demand/consumption is 8-11 million tpa, with the difference made up by imports.

Crude steel exports run at 2-3 million tpa and value added steel (in products) exports are 0.8-1 million tpa, almost entirely from South Africa. Theoretical SADC steelmaking capacity is around 11 million tpa, but the three major plants—ArcelorMittal South Africa and Highveld Steel and Vanadium Corporation Limited (HS&V) in South Africa and Zimbabwe Iron and Steel Company (Zisco) in Zimbabwe—are in financial difficulties and obsolete capacity is likely to be permanently closed. At the time of writing, only the flat rolling mill is operational at the old HS&V works.

Select key regional value chains

Only South Africa and Zimbabwe have primary integrated iron/steel plants, however, Zisco is not currently operating. Steel is supplied into the regional market at high IPP, stunting downstream economic activity. There are several projects for new integrated steel plants, including Zambia (Kafue) and Tanzania (Liganga).

There are numerous scrap-based steel mini mills in the region, mainly in South Africa, but also in Zambia, Angola and Mozambique. The region exports 1.5-2 Mtpa of steel scrap that could feed additional mini mills. Regional steel consumption is mainly into the construction (infrastructure) and manufacturing sectors.

Table 7

SADC imports of iron and steel and articles of iron and steel, 2011 to 2020 (\$ thousands)

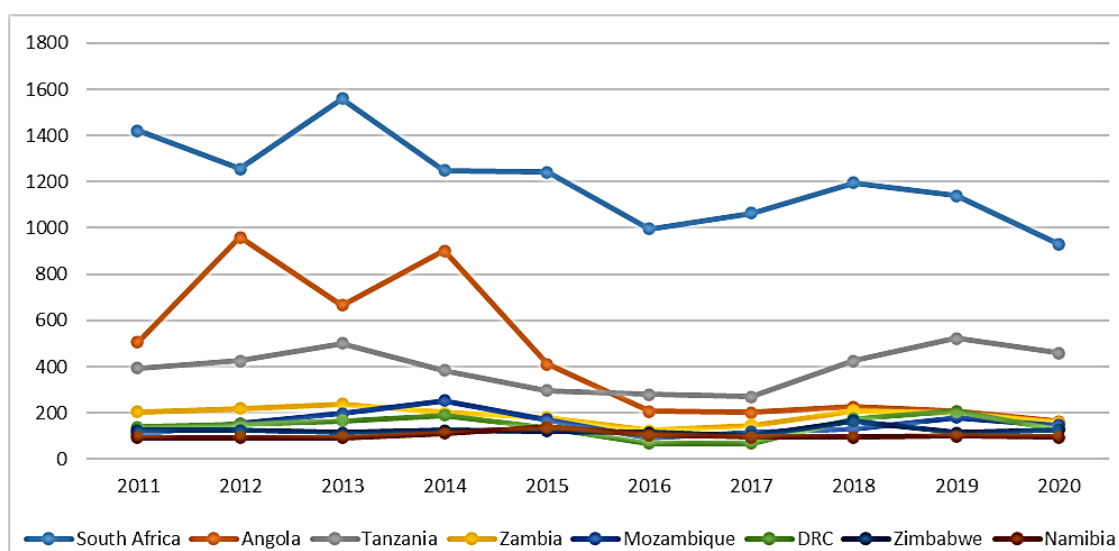
SADC imports	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Ferrous metals HS 72	2 404	2 793	2 883	2 725	2 263	1 677	1 778	2 136	2 312	1 990
Ferrous articles HS 73	3 210	3 925	4 011	4 210	3 253	2 552	2 356	2 698	2 971	2 286

Source: ITC Trade Map 2021

For the period 2011 to 2020, SADC Member States imports of iron and steel averaged over \$3.1 billion per year, peaking in 2013 at almost \$4 billion (see Table 7 above). These imports could probably underpin a new integrated mill in the region.

Figure 16

SADC Members States imports of iron and steel (HS 72, \$ thousands)

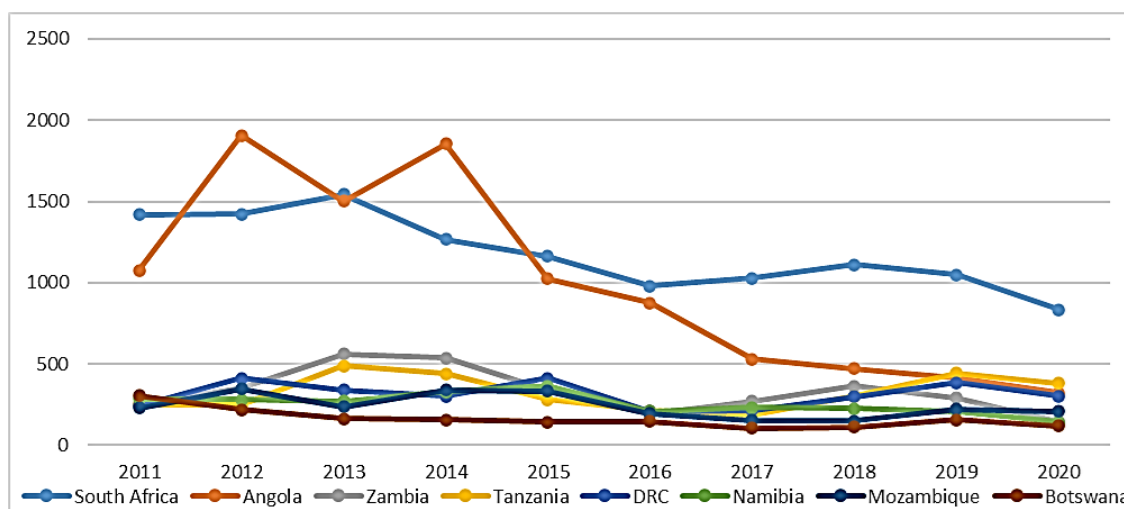


Source: ITC Trade Map 2021

Only South Africa, Angola and Tanzania imported more than \$400,000 worth of products per annum.

Figure 17

SADC Member States imports of articles of iron and steel (HS 73, \$ thousands)



Source: ITC Trade Map 2021

The region also imports about \$1.3 billion articles of iron and steel (HS 73) per annum. Such imports have been concentrated in Angola and South Africa, albeit that they have declined since 2014 (Figure 17 above). This trade is a substantial downstream linkage opportunity for the region.

A regional ferrous commodity value chain strategy is seminal given the importance of iron and steel as a manufacturing feedstock. Part of the regional ferrous import displacement opportunity could be realized through the facilitation of the establishment of steel electric arc furnace/induction furnace mini mills (primarily scrap-based) for long products (bar, rod, sections, etc.) in or close to all the region’s main consumption centres—generally the Member State capitals and secondary centres—through a regional VCF, scrap metal export ban and common outer tariffs regime.

There is only one stainless steel plant in the region (Columbus Stainless in South Africa) which produces 400-700 kilotons per annum (ktpa) (50 per cent austenitic), mainly for export. The raw materials for stainless steel are chromium and nickel or manganese. The region has huge reserves and production of chromium and manganese and moderate reserves and production of nickel. In 2019, South Africa produced over 16 megatonnes (Mt) of chromite (37 per cent of world production) and 3.6 Mt of ferrochrome alloys (26 per cent of world production) mainly for export into the global stainless steel value chain (USGS, 2021). SADC Member States’ stainless steel consumption is 200-300 ktpa, mainly into the manufacturing (automotive in South Africa) and construction sectors. Imports run at 50-100 ktpa. South Africa could also consider a new stainless steel export plant—particularly for the low nickel 200 and 400 series—based on local ferrochrome and manganese metal. Such a plant could progressively underpin the establishment downstream stainless-steel fabricators.

Select key regional value chains

Recognizing the seminal importance of low-cost manufacturing feedstocks, several developmental states established state utilities to supply low-cost (or cost-plus) steel into their manufacturing and construction sectors and thereby underpin their international competitiveness. Examples are the Pohang Iron and Steel Company (POSCO) in South Korea, Japan Iron and Steel Company, China Steel Corporation in Taiwan, Rautaruukki in Finland, NJA-SSAB in Sweden and Bao Steel in China. In this regard, consideration could be given to regional plants (utilities) to supply the SADC market with low-cost feedstocks for downstream job creation (SADC, 2019).

Box 4

Examples of utility steel suppliers

POSCO: With the strong Korean shipbuilding and automobile industry dependent on POSCO for steel, it has been seen as the bedrock of Korea's industrial development over the past 40 years.

(<http://rendezvous-inmyblog.blogspot.com/2010/04/posco-korean-valuable-asset.html>)

In 1934, the Japanese government merged the Imperial Works at Yawata with six leading private steelmakers: Wanishi, Kamaishi, Fuji, Kyushu, Toyo, Mitsubishi and mdash to form the Japan Iron and Steel Company, Ltd., which was about 80 per cent owned by the government.

(<http://www.fundinguniverse.com/company-histories/Nippon-Steel-Corporation-Company-History.html>).

Norrbottnens Järnverk merged into SSAB, privatized in 1989 and later merged with Rautaruukki.

Given the importance of competitively priced steel supply to the region's industrialization ambitions, a regional iron and steel development agreement is needed that could look to another integrated mill using the most cost-competitive technologies to reduce Southern Africa's particular ores using locally available reductants (coal fines, natural gas) and determine the optimal sites to produce iron units at a small to medium scale (100-500 ktpa) for the mini mills (scrap substitute) and integrated mills and the facilitation of their establishment.

Finally, given climate change and the global carbon reduction, the feasibility of green steel technologies, using hydrogen from renewables as the reductant (instead of coke, gas or coal) needs to be assessed, given the region's significant renewable energy potential (see Figure 12 on page 38 and Figure 13 on page 39). This may give steel plants based on renewables a global exports advantage.

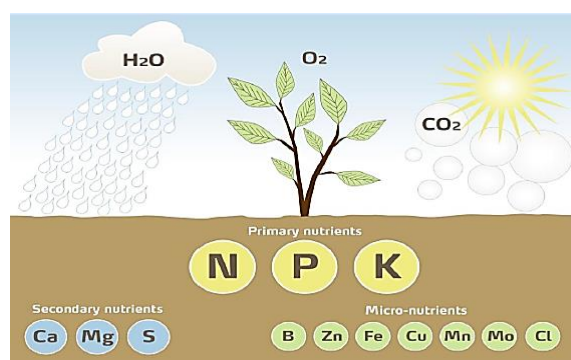
KRVC 2: Fertiliser commodities (NPK)

It is estimated that in 2020-21, 17 per cent (34 million) of the rural population of SADC (over 200 million) were food insecure (SADC, 2020). The cost-effective provision of fertilisers to the commercial and peasant farmers in the region is the key to increasing yields to overcome regional food insecurity. Modern agricultural productivity is highly dependent on the fertiliser mineral value chains which provide NPK plant nutrients to the system. NPK are the primary nutrients required for plant growth and are the main ingredients of chemical fertilisers. Secondary and micronutrients may be added to meet the requirements of specific soils and crops (see Figure 18).

Figure 18

Mineral plant nutrients

Regional market economies of scale are critical to a regional fertiliser strategy, particularly nitrogen and phosphate strategies. Consequently, a Southern African fertiliser strategy needs to take advantage of the potential regional market by establishing/rehabilitating the requisite infrastructure to give regional access to fertilisers and products, such as:



- Seamless regional rail operations (for bulk fertilisers, blends, etc.), rather than border-limited operations.
- Regional fertiliser logistics systems (production, blending, storage/depots, packaging, distribution).
- Regional seamless maritime coaster (cabotage) links around the Southern African coastline.
- Efficient import infrastructure (potassium: ports/terminals, storage).
- Adequate regional fertiliser/blending (targeted formulations) capacity.

These measures are in order to move towards all farmers in Southern African being able to benefit from regional fertiliser resources in the form of customized products at affordable prices.

Box 5

Main plant mineral macronutrients

The main macronutrients and their function are:

Nitrogen (N)	Structural component of proteins, DNA, enzymes, etc.
Phosphorus (P)	Structural component of DNA, involved in energy conversion.
Potassium (K)	Essential for many chemical reactions in plants.
Sulphur (S)	Structural component of some proteins, neutralizes alkaline soils.
Magnesium (Mg)	Central component of chlorophyll.
Calcium (Ca)	Influences permeability of cell membranes, limestone neutralizes acidic soils.

The main micronutrients and function include:

Iron (Fe)	Structural component of several essential enzymes.
Manganese (Mn)	Involved in enzymes for respiration.
Boron (B)	Required for protein synthesis.
Chlorine (Cl)	Involved in carbohydrate metabolism.
Zinc (Zn)	Trace: Component of enzyme for decomposition of carbonic acid.
Copper (Cu)	Trace: Component of enzyme for oxidation reactions.
Molybdenum (Mo)	Trace: Component of enzyme that reduces nitrate to nitrite.

In parallel with enhancing the fertiliser infrastructure, the region should be moving towards a regional fertiliser products common market (customs union) with outer trade tariffs (CET) and intraregional free trade, especially for feedstocks with high economies of scale production processes. Regional fertiliser production nodes, based on the lowest cost resources and customer supply logistics, need to be developed to supply blending plants across the region to provide the requisite formulations for the local soils.

The main nodes could comprise:

North-west SADC: Soyo/Matadi: gas (nitrogen), HEP (nitrogen), phosphorus and potassium from Congo-Brazzaville.

North-east SADC: Mtwara-Palma, nitrogen (natural gas), phosphorus (Evate) and potassium imports.

South-east SADC: Secunda-Sasolburg (nitrogen, gas and coal), phosphorus (Phalaborwa), potassium imports).

A fourth possible south-west node is also located in the south-west of the region (Saldanha Bay, phosphorus and potassium in offshore glauconites and nitrogen imports), but the extraction of the offshore resources is still at feasibility stage. In addition, stand-alone phosphates facilities are located at Dorowa and Minjingu and Thundulu. The Panda Hill (Mbeya) could also be a possibility once the niobium mine is operational.

The move towards seamless effective fertiliser/products, trade infrastructure and the realization of a regional fertiliser/formulations common market must be progressed in tandem with instruments to support the least developed Member States (variable geometry). National Member State fertiliser mineral value chain development strategies are likely to fail or be limited to small, costly uncompetitive product plants (e.g., nitrogen, phosphates) due to domestic market constraints. Even South Africa, with more than half of the regional market, is struggling to establish a competitive fertiliser industry and still has huge imports of fertilisers/formulations.

Despite the region having large fertiliser raw materials resources (except for potassium), the average annual SADC imports of fertilisers (from outside SADC) over the period 2011 to 2020 were \$1.3 billion, of which 56 per cent were nitrogenous, 14 per cent potassic (no commercial deposits in the region) and 1 per cent phosphatic fertilisers which are mainly supplied from within the region (Phalaborwa Mine in South Africa). Trade data set out in Table 8 on page 48 indicates that the size of the import displacement opportunity for nitrogenous fertilisers is above \$700 million per annum.

Given the variable geometry of SADC Member States (divergent levels of industrialization, development, human development index scores, etc.), the creation of a regional customs union (with outer tariffs of 5-10 per cent) for fertilisers will initially strongly favour the Member States with a head start in the production and supply of NPK products, particularly South Africa and Zimbabwe. This initial asymmetric beneficial impact is common for regional trade areas and is termed “industrial polarization” (skewed distribution of benefits often created by market integration), which requires amelioration measures or the Member States with less perceived or real benefits will opt out.

Table 8

SADC fertilisers imports from world minus SADC (\$ millions)

HS code	Fertiliser commodities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	AVG	%
3102	Nitrogenous fertilisers	850	885	837	778	557	468	640	759	629	677	708	56%
3103	Phosphatic fertilisers	34	18	15	12	8	12	11	9	8	14	14	1%
3104	Potassic fertilisers	192	231	206	211	167	126	131	171	164	147	175	14%
3105	Composite fertilisers (NPK)	388	369	345	373	428	291	365	407	417	402	379	30%
	Total	1 464	1 504	1 404	1 374	1 160	896	1 146	1 347	1 217	1 239	1 275	100%

Source: ITC Trade Map 2021

Consequently, in order to realize the substantial SADC regional fertiliser products markets, instruments need to be developed to support product manufacturing/transformation projects and regional market access in least developed Member States that ameliorate or eliminate asymmetric benefits (industrial polarization) within an overarching SADC fertiliser development strategy. Such instruments could include a VCF for inputs and the production of intermediates (fertilisers) as well as logistics infrastructure funding to level the playing field for fertiliser value chain suppliers along lines similar to the value chain development strategy outlined in 'Regional financing of the development of the KRVCs: pre-feasibility study funding, equity and debt' above.

Nevertheless, it should be borne in mind that there is much less developmental gain from fertiliser plants than from the customers (agricultural development), as plants tend to be capital intensive with meagre and skills-intensive employment. The much greater impact is generally in the downstream sectors of agriculture and agroprocessing. These sectors tend to have low entry barriers and high unskilled labour absorption potential. A key element to growing labour absorbing agriculture is making the requisite fertilisers regionally available at competitive, export parity prices.

Regional farmers are forced to pay elevated prices for fertilisers derived from national resources (gas/coal and phosphate deposits), severely constraining downstream economic activity in agriculture. In general, intermediate plants charge IPP if they can get away with it, rather than a competitive price which would be the international price less the cost of transporting the fertilisers to the international price markets (export parity prices). To ensure that competitive appropriate fertilisers are available to SADC's farmers, it needs to create vibrant regional competition, with several producers across the range of fertiliser products, as well as selectively allowing imports to discipline price abuse. This would be best achieved at a regional level that realizes the larger market and economies of scale.

However, given the economies of scale for cost-competitive integrated fertiliser plants, the current SADC market could probably only support a few such world-scale operations, which is likely to result in price collusion (and IPP). Consequently, SADC needs to consider the establishment of regional regulation/competition authorities for fertilisers to curtail market dominance and elevated pricing (IPP). Southern Africa needs to adopt a common fertiliser regional value chains development strategy, with NPK substrategies, that is a key part of an SADC agriculture development plan. A regional agriculture development plan would require many other interventions beyond fertiliser supply, especially for small-scale agronomists, including access to markets, seeds/seedlings, water, affordable finance, extension services, affordable logistics (access to inputs and markets), price and weather data/forecasts and storage facilities (silos/warehouses), etc.

As with green steel, the viability of green nitrogen fertiliser production—based on the electrolysis of water³ using renewables, instead of using natural gas (steam-methane reforming) with carbon emissions—needs to be assessed, particularly reverse fuel cell technology. This may in future give an export advantage to agricultural products grown using green fertilisers.

KRVC 3: Citrus fruit

Citrus is one of the most prolific and widely grown fruit crops in the world. Global 2020/21 citrus production is estimated at 98 million metric tons. Oranges account for half of the production, followed by tangerines/mandarins (referred to as soft citrus), lemons/limes and grapefruit. China is the largest producer, followed by Brazil and the European Union (mostly grown in Spain) (USDA, 2021).

Southern Africa participates in this highly competitive GVC through the industry concentrated in South Africa along with production for export in Zimbabwe and Eswatini. The international trade segments of the citrus industry are dominated by national producers focused as citrus exporters. Of the four major segments, the top 15 exporting countries share of the world market is 87 per cent for oranges, 90 per cent for soft citrus, 90 per cent for lemons and 83 per cent for grapefruit. Spain is the top exporter for oranges and soft citrus. South Africa is the second-ranked exporter for oranges, the fourth ranked for both soft citrus and lemons and the top exporter for grapefruit (Binard, 2019).

SADC citrus exports valued at \$1.72 billion were achieved in 2020. Despite the COVID-19 induced disruptions over 2020, exports continued to grow strongly, driven by the demand for healthy food and because of the high vitamin C content in citrus fruit. Consumer behaviour has shifted to preferences for fresh and healthy food as a consequence of the health crisis. Capitalizing on the region's strong market position in citrus production and export competitiveness, combined with global food trends favouring fresh produce, make the citrus value chain a strong regional driver for the BBB strategy.

Citrus as a KRVC has a number of attractive features that make it suited to being given attention as a BBB strategy. Southern Africa has significant agricultural land that could be brought into fruit production (Chisoro-Dube, et al., 2018), it is highly labour absorbing, export earnings reduce balance of payments constraints and the technological demands for success in export markets apply competitive pressure throughout the value chain to raise productivity with positive upstream, downstream and side stream linkage effects. Thus, the citrus value chain, while originating in agriculture, can be better understood when seeing through the lens of manufacturing that involves extensive processing, a wide range of inputs (backward linkages) and sophisticated logistics to supply into domestic and export market channels. A simplified export-oriented value chain is found in South Africa (see Figure 19 on page 52).

³ To produce hydrogen for ammonia (NH₄) production into nitrogenous fertilisers

Table 9

SADC citrus fruit international trade 2018-2020 (\$ millions)

HS code	Product label	SADC's exports to SADC			SADC's exports to Africa, less SADC			SADC's imports from world			SADC's exports to world		
		2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
080510	Fresh or dried oranges	17	16	14	8	6	8	13	13	12	834	679	810
080550	Fresh or dried lemons	3	3	3	1	1	1	6	5	4	270	284	377
080521	Fresh or dried mandarins, tangerines, satsumas (excl. clementines)	2	3	2	2	4	7	5	7	7	253	261	391
080590	Fresh or dried citrus fruit (excluding oranges, lemons)	2	2	2	0	0	0	2	2	1	3	3	3
080540	Fresh or dried grapefruit	2	2	1	0	0	0	3	3	2	186	144	136
080529	Fresh or dried wilkings/ similar citrus hybrids	0	0	0	0	0	0	0	0	1	6	5	3
080522	Fresh or dried clementines incl. monreales	1	0	0	0	0	0	1	1	1	12	11	5
080520	Fresh or dried mandarins and similar citrus	-	-	-	-	-	-	2	0	1	0	-	-
Total	Citrus fruit	29	27	25	13	14	19	33	34	31	1 567	1 389	1 727

Source: ITC Trade Map 2021

Select key regional value chains

South Africa's high rank in the four main citrus export segments is testimony to successful features of the value chain notably:

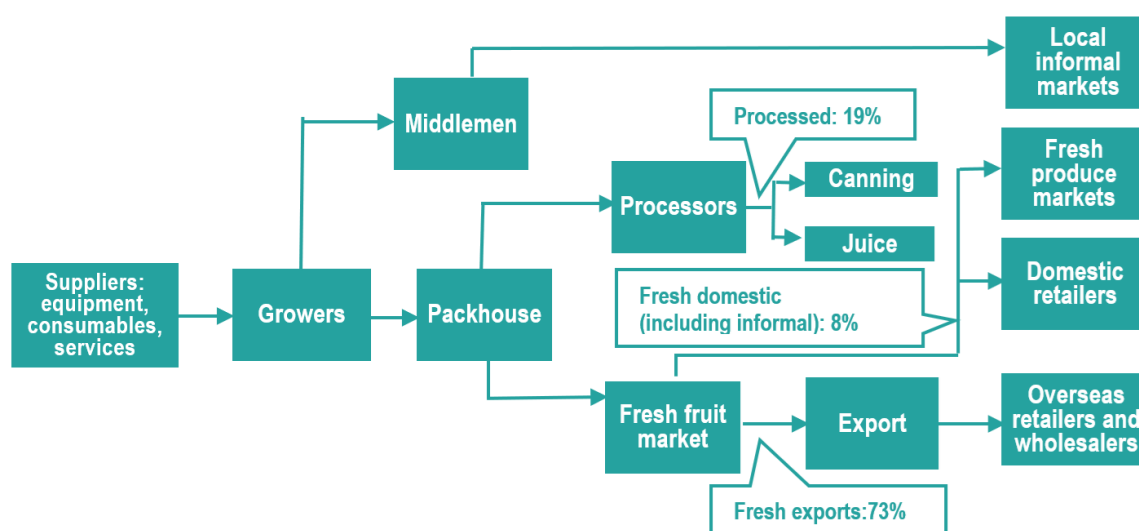
- Southern hemisphere growing seasons supplying into the largest markets in the northern hemisphere.
- Large vertically integrated firms with the resources to support innovation and invest in packing and storage facilities needed to maintain the fresh fruit cold chain.
- Active industry associations that give voice to industry interests along the value chain.
- University level and state agricultural research facilities for developing new varieties and methods to control pests and diseases.

These strengths, however, belie a number of challenges to the competitive position of the value chain. If these are not adequately addressed, the potential for growth of the citrus value chain in Southern Africa will be compromised.

Demand for higher value soft citrus, as well as lemons and limes, is growing faster than the market for oranges. Production is being switched from oranges to these faster growing segments; however, Latin American producers in Chile and Peru are expanding their output more rapidly, which is putting pressure on South Africa's market share (USDA, 2021). SADC citrus exports are mainly to the European Union market where growth has slowed, but have limited presence in Asian markets which are set for much higher rates of growth.

Figure 19

Simplified citrus value chain



Source: Adapted from (Bitzer, 2015)

Infrastructure constraints and the rising technology content in high-value fruit production are the two critical challenges for future growth of the citrus value chain in Southern Africa. Addressing each should form a key part of the action agenda for growing the regional citrus value chain.

Ship congestion, handling delays and machine breakdowns at South African ports have become the most critical recent challenge for citrus exporters. South Africa port inefficiency is a deep structural problem related to the poor performance of South Africa's state-owned enterprises to the detriment of trade across the region. The best placed South African Port of Cape Town scored 347 out of 351 in the Container Port Performance Index 2020, the top-ranked African port, Djibouti, in 61st place (World Bank and IHS markit, 2021).

Irrigation infrastructure quality has declined, as has the management of water resources, with the result that all the security is a growing risk for citrus production. Over the longer term, climate change related impacts will affect varietal choices growing areas. Inadequate telecommunication infrastructure is another obstacle the citrus value chain faces that constrains the deployment of sensor technology and real-time management of the citrus cold chain.

Applying research and technology to generate innovations and productivity gains is the other imperative for competitiveness of the citrus value chain. The expansion of the fruit industry in the region has been underpinned by agricultural research along with a host of measures to satisfy quality and regulatory requirements set by demanding global markets. Efforts in research and technology development have been in the fields of biotechnology on new varieties and on-farm production technologies such as precision irrigation and disease and pest management. Post-harvest production technologies focusing on improving yields, production rates, shelf life, quality and traceability along the value chain involve the digitization of these activities and application of internet of things systems (Cramer, 2021).

Expansion of the citrus value chain requires coordinated efforts from both public and private actors. Infrastructure constraints have to be solved by refurbishment and new investments to expand capacity, encouraging economic infrastructure to be financed by the private sector and supporting the public sector to refurbish and maintain public assets. Technological innovation in the citrus value chain draws upon skills developed in the higher education system across the region. This critical human capacity development at universities and research institutions, and its application for the generation of innovation and productivity enhancing knowledge in private-sector firms, is mutually reinforcing. Strong partnerships and long-term relationships to formalize this virtuous cycle involve companies sponsoring research at universities and ensuring graduate student apply their skills through bursaries with employment are recommended as practical mechanisms to support ongoing technological development required to expand the citrus value chain.

KRVC 4: Commodity production backward linkages (capital goods, consumables and services)

The region offers a significant market for commodity production inputs (capital goods, consumables and services), particularly mineral commodities, where the backward

linkage capital goods market is larger than the European Union for hard rock mining (SADC, 2019).

Mineral and agricultural commodities production also have significant common inputs such as valves, pumps, separators, mills, screens, truck and trailers, generators/motors, etc. and opencast mining capital goods have a major overlap with construction (earth moving) machinery and equipment.⁵

Mining and mineral processing inputs (capital goods, consumables and services) are, by and large, common to all mineral value chains. The Southern African backward linkages are weak, except for services in some Member States, but services are not a route to industrialization (manufacturing). The South Africa inputs sector used to be relatively strong, but it is being increasingly displaced by imports, since the exit (relisting) and/or break-up of the major South Africa mining houses post 1994 (Morris M., 2012).

Table 10

SADC mining capital goods[#] imports 2011-2020, annual averages \$ millions

Member State	Average imports 2011-20	% share of SADC imports
South Africa	2 117	46%
Angola	695	15%
Zambia	457	10%
United Republic of Tanzania (the)	234	5%
Democratic Republic of the Congo (the)	214	5%
Mozambique	214	5%
Botswana	182	4%
Namibia	159	3%
Zimbabwe	159	3%
Other	196	4%
TOTAL	4 628	100%

Source: ITC Trade Map 2021

[#] Note selected HS codes for mining capital goods are listed in the appendix.

SADC regional mining capital goods import displacement opportunity is around \$4.6 billion (average imports for the period 2011 to 2020 (see Table 10 on page 54). Of this, South Africa accounted for 46 per cent, Angola 15 per cent, Zambia 10 per cent, the Democratic Republic of the Congo, Tanzania and Mozambique 5 per cent, Botswana

⁵ For example, Bell Equipment in South Africa is a major supplier of articulated dump trucks to both mining and construction sectors.

4 per cent, Namibia and Zimbabwe 3 per cent and all other Member States 4 per cent (see Table 10 on page 54).

Using the average imports of around \$4.6 billion per year, this indicates about 46,000 direct manufacturing jobs forgone.⁶ Indirect jobs forgone in the original equipment manufacturer supply chains (tiers 1 and 2) are estimated at 3.2 times the direct jobs,⁷ which translates to about 147,000 formal capital goods manufacturing jobs forgone.

Further, each job in capital goods manufacturing creates on average four more jobs elsewhere in the economy, particularly in services (Deloitte Africa, 2016 p. 5) and (Center for Automotive Research, 2015 p. 1). Consequently, the realization of the mining capital goods backward linkages could create some 590,000 jobs across the SADC region.

If only half of the region's mining capital goods imports are displaced through a well-crafted, supported and incentivized local-regional procurement strategy, about 300,000 formal sector jobs could be created in the SADC region and up to a million livelihoods supported.

However, to realize this huge apparent opportunity, the regional market needs to be brought into play—through common outer commodity production inputs tariffs and local content requirements with regional content recognition—and incorporated into Member States' mining laws and licences⁸, agricultural leases/concessions and water extraction rights, ideally together with a LED subrequirement on local content and labour from the mining and agribusiness communities, especially for services. Regional content could be credited as local content at a discounted rate, possibly inversely proportional to the supplying Member States' GDP/capita.

If regional supply is in play, albeit discounted, then regional-local content targets could conceivably be elevated to 80 per cent for services, 70 per cent for consumables and at least 60 per cent for capital goods. This would need to go together with a regional commodity value chain development fund (VCF) and support for knowledge linkages development in least developed Member States in order to contain industrial polarization. Such a system of reciprocal local content recognition would probably be best tackled by a subset of two or three Member States with an appetite to pilot such a mutually beneficial system.⁹ Once other Member States can observe tangible benefits accruing to the pilot participants, they would be more likely to accede to the scheme.

⁶ South African mining capital goods manufacturers employ about 1,000 workers for every \$100 million of sales.

⁷ Using the South Africa automotive original equipment manufacturer multiplier (National Association of Automobile Manufacturers of South Africa).

⁸ Where imports from other Member States are recognized as local/regional content for mining licence targets-milestones, but at a discounted rate, inversely proportional to GDP/capita; for example, from 50 per cent to 90 per cent of the value addition in the supplier Member State.

⁹ The only losers would be current overseas imports of these goods, mainly OECD states.

KRVC 5: Automotive: towards carbon neutrality

The main players in the SADC automobile value chain are global automobile manufacturers through affiliates in South Africa, mainly producing for the SADC market.

Multinational first-tier automobile manufacturers have established subsidiaries in eight SADC states: Angola, Madagascar, Malawi, Mauritius, Mozambique, South Africa, Tanzania and Zambia (see Figure 20 on page 57). This value chain is concentrated in South Africa; however, South Africa's automobile assembly plants are below world scale: 50,000 vehicles compared to around one million in the producers' home countries and up to 10 million globally (OECD, 2017). The impact of COVID-19 took 29.3 per cent off production with a total of 631,921 and 447,218 units being produced in 2019 and 2020, respectively (IOICA, 2020).

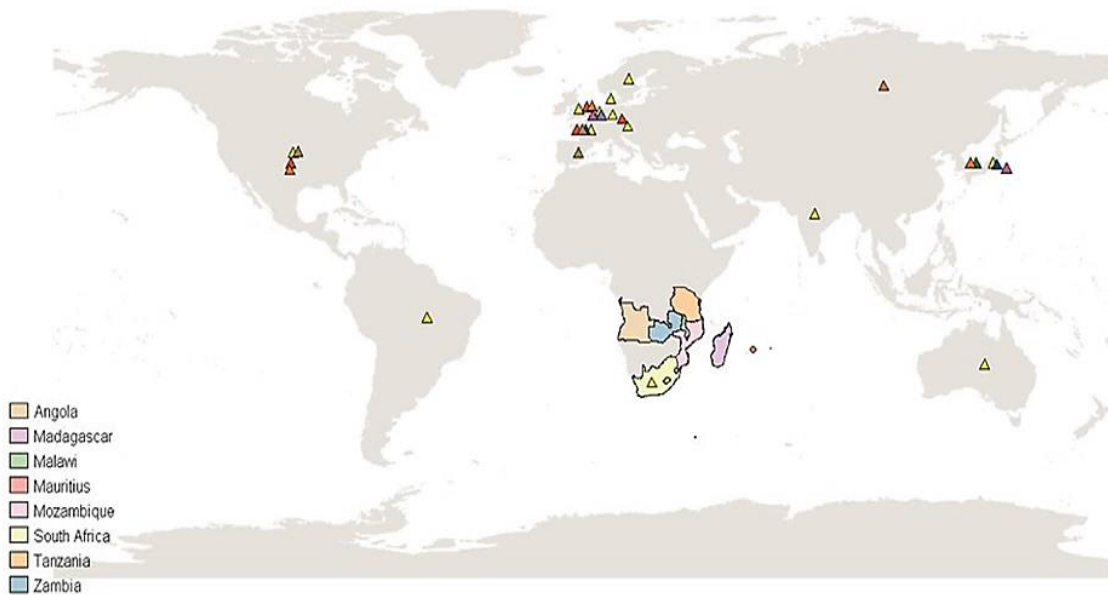
Automobile manufacturers source around 45-55 per cent of components locally, primarily from large international component suppliers that have a presence in South Africa. The current lack of scale prevents many first-tier component suppliers from locating in the region. A simplified automotive industry value chain is shown in Figure 21 on page 57. The remaining components are sourced from original equipment manufacturers and component plants elsewhere in the world.

Components produced in the region tend to be simple. Local linkages are limited and only South Africa has some domestically owned first-tier suppliers, which produce around 50 per cent of automobile parts and components (OECD, 2017). With the exception of South Africa, SADC and sub-Saharan Africa more broadly, remain extremely reliant on imports and export very little. Most operations are small scale and involve minor semi-knocked-down assembly, with minimal to no local content (Barnes, et al., 2021). For South Africa in 2019—a more representative year—imports accounted for 55 per cent of the domestic light vehicle and 61 per cent of output was exported, the principal destinations being to the European Union at 64 per cent, to Africa at 15.8 per cent (84.3 per cent to SADC) and 6 per cent to North America. Trade data for the period 2018 to 2020 is shown in Table 11 on page 59.

The market for vehicles in sub-Saharan Africa, though currently small, is growing very rapidly. It is currently met by imports, especially of used vehicles. Sub-Saharan Africa will become a significant global market over the next decade (Black, et al., 2017). Growth constraints to be overcome are weak manufacturing capabilities and the costs of trade diversion, which are particularly high given the large presence of low-priced, imported second-hand cars in most Southern African markets (Markowitz, 2019).

Figure 20

First-tier automobile suppliers in the SADC region with their global headquarters

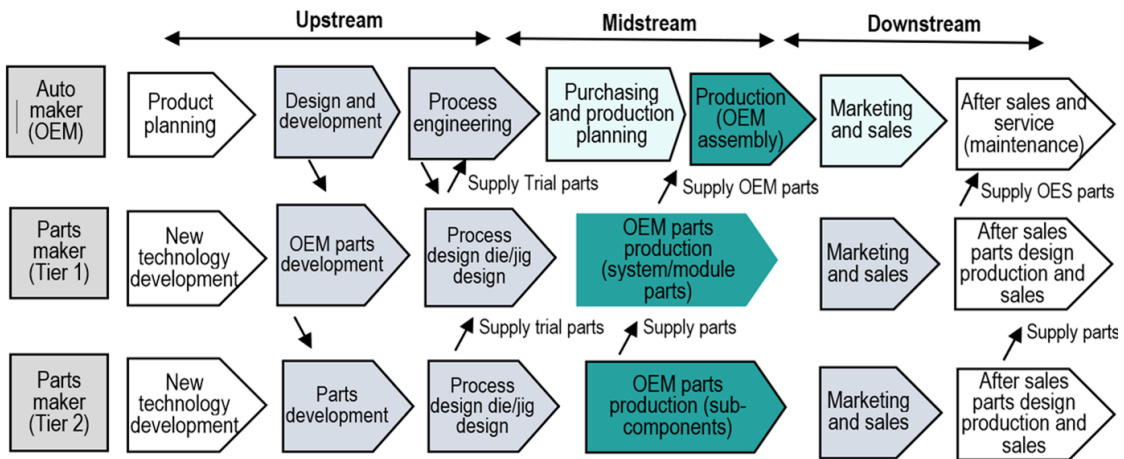


Source: Chapter 1. Deepening regional integration within the Southern African Development Community. (OECD, 2017), (Factset, 2016)

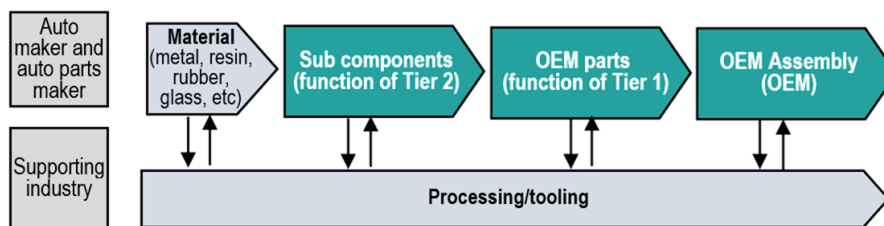
Note: Triangles represent the locations of the headquarters of first-tier suppliers. Shaded areas reflect affiliates within the SADC region. For instance, all yellow triangles are headquarters of firms that operate in South Africa.

Figure 21

Generic automotive industry value chain



Supply chain of automotive manufacturing



Source: Japan International Cooperation Agency; Nomura Research Institute; IMG Inc., 2019

Regional integration is essential to achieve the scale for viable automobile value chain development.

Indonesia, Thailand and Malaysia are successful examples of developing countries building world-scale automobile industries through regional integration. South Africa's extended Automotive Production and Development Programme (APDP2) and Automotive Investment Scheme (AIS) are industrial policy instruments upon which to possibly build a regional automobile value chain strategy.

The APDP2 incentivizes firms to increase local production and value addition to build their capability and production scale while moving up the value chain. These elements can be used to offset import tariffs on vehicles and components. The AIS is a grant for qualifying investments into productive assets for automobile assemblers and, importantly, for component manufacturers to increase production and to start new product lines. In tandem, these instruments facilitate entry into value chains and incentivize firms to upgrade links at every level in the automotive value chain to be able to compete in regional and global markets.

It is recommended that consideration be given to configuring a regional automotive development scheme (along the lines of APDP2 and AIS) that incorporates well-crafted targeted support for the automotive energy transition (internal combustion engines to renewable energy: electric vehicle, fuel cell, hybrid), in both the Automotive Production and Development Programme (APDP) and the AIS equivalents, that can benefit from international green funding and that develops the regional renewable energy commodity value chains (lithium, cobalt, rare earths, zinc, silicon, platinum group metals, etc). Such regional automotive development schemes would operate under a common external tariff for automobiles and components to cater for the tariffs offset mechanism. But this is unlikely to fly without funding for poorer Member States to be able to participate in a regional AIS. This could possibly be sourced from a regional automobile import duties pool that are not offset under a regional APDP.

Policymakers are alive to economic benefits to Africa from effective national and continental automotive policies within the framework of the AfCFTA that leverages demand from an expanding middle class. There are, however, significant obstacles to be cleared for countries to wean themselves off the current dependence on imports of discarded vehicles from developed countries, which is likely to be politically difficult.¹⁰ Indications that this short-sighted policy of used vehicle import dependence is being increasingly challenged add strength to the BBB strategy advanced in this KRVC.

¹⁰ Cheap used cars have become an accepted right in many Member States despite the downsides of high aftermarket import costs, greater liquid fuel imports, environmentally unfriendly old models and the increased costs of road infrastructure to handle the congestion.

Table 11

SADC automotive trade within the REC, with Africa and the world (\$ thousands)

HS code	Product label	Production			Consumption			Exports to Africa		African market		World exports ex-Africa			World imports ex-Africa	
		SADC's exports to SADC			SADC's imports from SADC			SADC's exports to Africa less SADC		Africa less SADC's imports from world		SADC's exports to world			SADC's imports from world	
		Value in 2018	Value in 2019	Value in 2020	Value in 2018	Value in 2019	Value in 2020	Value in 2019	Value in 2020	Value in 2019	Value in 2020	Value in 2018	Value in 2019	Value in 2020	Value in 2019	Value in 2020
8704	Vehicles for transport of goods	641.7	546.6	391.9	588.9	478.8	314.0	233.2	243.9	4,435.8	3 602.0	3 590.5	3 603.4	2 825.2	2 002.0	1 403.0
8703	Motor cars	312.8	240.0	174.9	342.8	240.8	151.1	43.8	34.9	13 573.3	11 167.3	6 296.1	6 766.7	4 641.8	5 396.9	2 990.7
8708	Components for 8701 to 8705	189.5	181.1	143.8	184.8	155.2	116.0	16.5	18.0	4 245.5	3 418.8	709.6	668.5	541.2	2 130.6	1 585.1
8701	Tractors	117.6	120.3	107.4	121.7	131.7	120.2	3.6	5.5	1 618.4	1 490.4	180.5	177.5	164.6	805.0	648.2
8716	Trailers and semi-trailers	119.7	116.7	98.1	109.5	119.0	92.0	3.5	22.2	605.0	514.1	174.9	169.3	172.9	364.8	288.1
8705	Special purpose vehicles	34.5	41.0	24.9	45.4	37.8	21.9	3.4	3.7	929.0	826.1	53.7	74.4	41.7	209.4	165.0

		Production			Consumption			Exports to Africa		African market		World exports ex-Africa			World imports ex-Africa	
HS code	Product label	SADC's exports to SADC			SADC's imports from SADC			SADC's exports to Africa less SADC		Africa less SADC's imports from world		SADC's exports to world			SADC's imports from world	
		Value in 2018	Value in 2019	Value in 2020	Value in 2018	Value in 2019	Value in 2020	Value in 2019	Value in 2020	Value in 2019	Value in 2020	Value in 2018	Value in 2019	Value in 2020	Value in 2019	Value in 2020
8702	Mini bus, taxi	44.9	40.8	14.6	37.5	37.6	18.1	0.9	0.9	1 149.2	832.0	63.0	65.2	33.9	355.4	195.9
8711	Motorcycles	12.1	13.9	9.6	5.5	7.0	5.9	1.4	3.0	2 356.5	2 815.3	22.0	21.1	20.9	298.6	242.8
	All other product categories	14.8	15.9	15.9	15.8	20.3	15.4	42.8	34.5	2 605.0	2 208.9	137.1	156.0	88.5	349.8	329.5
SADC market SADC market share per cent																
	Vehicles for transport of goods							5.3%	6.8%			2.6%	2.5%	2.6%		
	Motor cars							0.3%	0.3%			0.8%	0.9%	0.7%		
	Components for 8701 to 8705							0.4%	0.5%			0.2%	0.2%	0.2%		

Source: (ITC-Trademap, 2021)

Africa cannot continue to be the receptacle for dumped used vehicles from Europe, the United States of America and Japan. “If we do that, it’s actually unsustainable because it is causing increasingly big balance of payments problems. Secondly, it’s causing significant environmental damage and thirdly it’s restricting our industrialisation.” Former South African Minister of Trade and Industry, Alec Erwin (automotive forum session Intra-Africa Trade Fair, Durban, South Africa, 15-21 November 2021).

KRVC 6: Renewables (wind, solar, hydro) and storage

Africa’s population, growing at a rate of at over 2 per cent, is higher and younger than the rest of the world. The continent and the Southern African region are urbanizing rapidly. These conditions create challenges and opportunities for Southern African states to improve energy access along with employment while also meeting national climate change goals. Africa is home to a fifth of the world’s population, yet the global share of electricity demand for all African countries is just over 3 per cent, of which South Africa accounts for 40 per cent.

The progressive combination of new technology in energy systems is displacing centralized infrastructure dependent on fossil fuels with new forms of energy generation storage and distribution. Embedded generation at the point of consumption, regional energy trading, energy storage to ensure variable renewable energy security of supply and low-cost options for energizing low-income households far from electricity transmission grids, make achieving energy access for the 52 per cent of households in Southern African without power an achievable goal.

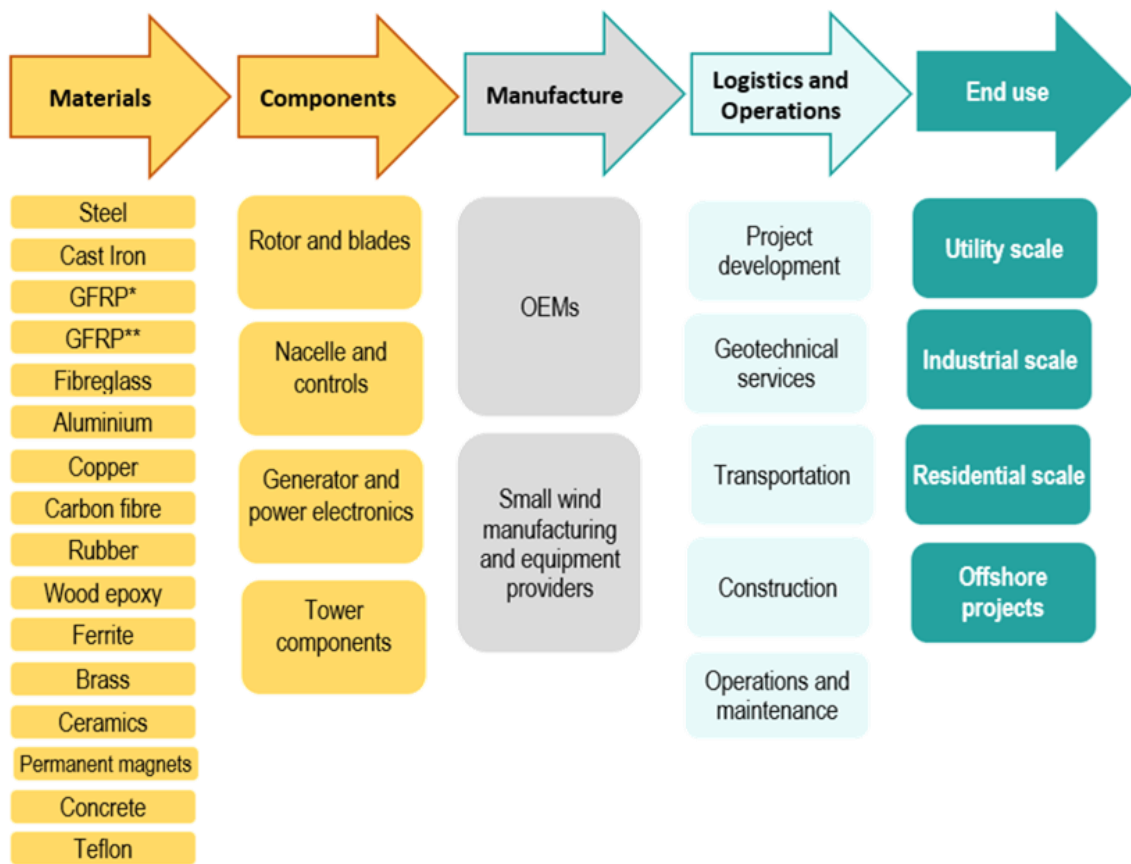
Southern Africa’s renewable energy potential is highest in biomass, biofuels, solar, wind, small-scale and large- and small-scale hydroelectric power (see Figure 12 on page 38 and Figure 13 on page 39). Energy storage options include pumped storage and utility plus household and larger scale battery storage.

The region is exceptionally well endowed with variable renewable energy potential: solar PV generation theoretical potential is estimated at 160,000 terrawatt hours (TWh) per year, while wind across Africa has the potential to produce 460,000 TWh per year (IEA, 2019).

The region has the capacity to meet its own needs and even export energy, but if renewable energy value chains are not effectively localized, then jobs and economic development to a low carbon future will be forfeited. In 2015, it was estimated that up to 70 per cent of this value is captured by foreign investors and companies (Mutanga, et al., 2015) where local capacity is lacking and where it is not made a policy priority.

Figure 22

Generic wind power value chain



Source: (Ayee, 2009)

Table 12
Renewable energy component trade in the SADC region 2010-2020 (\$ millions)

Product label	SADC's exports to SADC			SADC's imports from SADC			SADC's exports to Africa			SADC's imports from Africa			
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020	
TOTAL	All products	38 291.9	28 332.7	22 137.7	25 126.0	23 080.9	20 111.9	5,190.2	4 994.8	4 454.6	7 293.3	6 266.1	4 275.8
730820	Towers and lattice masts	7.1	9.6	6.4	8.9	7.3	6.9	1.8	1.0	1.2	0.6	3.1	1.1
850231	Wind turbines	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-	-
850440	Inverters	26.0	26.8	21.8	20.1	21.2	19.7	5.2	6.2	10.6	4.0	1.7	1.5
850720	Deep cycle batteries LA	6.6	7.8	7.1	5.5	6.1	6.5	0.2	0.2	0.4	0.1	0.2	0.1
850780	Deep cycle batteries, Lipo	5.4	5.9	5.4	5.7	4.1	3.8	0.4	0.3	0.5	0.4	0.6	0.2
853710	Control cabinets	34.2	26.9	31.1	29.9	23.7	25.0	11.5	17.4	11.8	3.0	3.0	3.7

Product label	SADC's exports to SADC			SADC's imports from SADC			SADC's exports to Africa			SADC's imports from Africa		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
854140 Solar panels	12.0	17.9	17.5	11.8	20.9	16.0	1.2	1.0	0.9	0.8	2.2	0.9
903289 Charge controllers	5.3	7.9	4.2	5.8	4.4	3.8	1.1	1.0	0.7	0.4	0.1	0.2

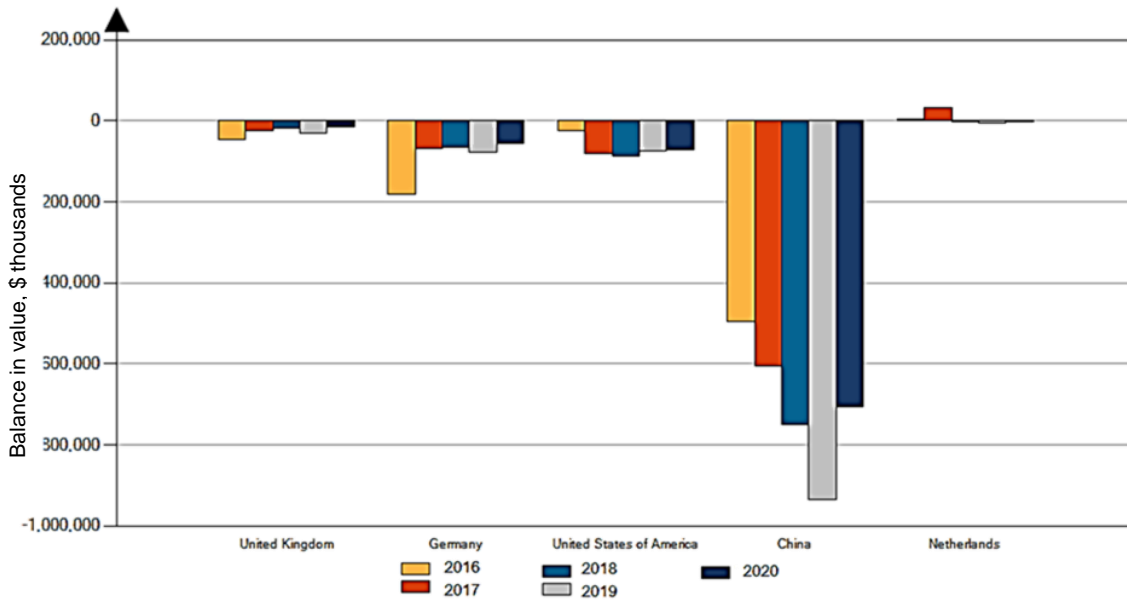
Product code	Product label	SADC's exports to world					SADC's from world				
		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
730820	Towers and lattice masts	0.3	3.5	6.1	0.3	0.0	53.9	53.9	148.2	76.4	66.4
850231	Wind turbines	0.1	0.3	0.3	0.0	0.5	385.2	385.2	0.1	320.6	337.3
850440	Inverters	15.7	10.7	11.6	10.0	9.7	328.0	328.0	424.0	474.1	393.9

Source: Author's analysis of Trade Map data 2021

Trade in renewable energy components comprising towers, wind turbines, inverters, deep cycle batteries, control cabinets, solar panels and charge controllers shows a significant import dependence with China being the principal source of imports.

Figure 23

SADC trade balance: top five renewable energy component trading partners (\$ thousands)



Source: www.sadc.int

Annual imports are between \$100 million and \$130 million (see Table 12 on page 63). The foundations for regional industrialization built on renewable energy systems equipment have already been laid by the linkages seen in all the product categories. An effective strategy for scaling up production to supply the large markets in the region and the rest of Africa must be built on three pillars:

- 1 Visibility on the market size, backed by enabling policies for renewable energy development in Member States to provide investors with confidence to expand capacity.
- 2 The adoption of a regional supply chain development strategy with skills, manufacturing and services capabilities upgrading for all stages along the value chain.
- 3 The mobilization funding available for green technologies from DFIs' international development partners and commercial lenders.

VII. Cross-cutting themes

Side stream linkages: human capital development (skilling)

The development of all of the KRVCs are critically dependent on human capital development, particularly STEM skilling. The commodity value chain backward linkages are key to industrialization and the realization of the backward linkages is STEM-skills intensive, especially the manufacture of capital goods (machinery, equipment and plant).

Regional strategies are needed to fill the skills gap including an annual human resource development expenditure requirement—at least 5 per cent of the payroll—on all beneficiaries of state rights (licences, leases, concessions, etc.) that also recognizes expenditure on human resource development in other regional Member States, even if discounted, as per regional local content recognition (see ‘Reciprocal recognition of regional value added (backward and forward commodity linkages development), science, technology, engineering and mathematics (STEM) skilling and RDI’ on page 25).

Lateral linkages: out of commodity-based manufacturing

Sections of the commodity production supply industries are technology and skills intensive (particularly capital goods and high-tech services such as information and communications technology (ICT) enhancing firm agility and the capacity to reinvent itself to supply other sectors of the local and regional economy (and extra-regional exports).

“Drawing on the international experience of successful mineral-based industrialisation ... the ‘deepening’ of the natural resources sector through the promotion and support of backward and lateral linkages could result in core industrialisation nuclei ... Over time, with increasing human resource development, technology development and skills formation, such resource-dependent clusters could evolve into resource-independent industrial activities.” (Wits Enterprise, 2015).

The “lateral migration of technologies to non-resource sectors can promote further industrial growth and technological advancements in other sectors. This contributes to increased value added and job creation, establishment of new firms and important processes of knowledge intensification. Whether or not these processes result in commercially viable products, they form an important learning process at the institutional, firm and economy level ... Further, stimulating lateral migration linkages carries numerous economic benefits. Not only does it assist in generating greater technological competence in the local workforce and increasing the contribution of high-tech exports to total exports, but it also ensures a long-term and sustained approach to the management of a transient resource base—the competitiveness of the original resource-based economy is maintained and broadened as it is gradually embedded into more and more sectors of the economy.” (Walker, et al., 2003 p. 24).

However, the realization of the lateral linkages potential is intrinsically dependent on the development of the backward linkages in capital goods manufacturing which is, in turn, dependent on realizing the knowledge linkages (STEM human resource development and RDI). The migration of backward linkages into lateral linkages industries represents the final step of CBI.

Additional complexity servicification of manufacturing

Integral to the analytical framework of value chains is the recognition that services and manufacturing activities are intertwined as the sequences of value addition occur within an industry (Miroudot, 2017). Given the steadily rising share of services in global GDP, attention has turned to this phenomenon in manufacturing, which has been defined as follows:

“The servicification of manufacturing means that the manufacturing sector is increasingly relying on services, whether as inputs, as activities within firms or as output sold bundled with goods. The phenomenon is intrinsically related to global value chains as it is through the deployment of services that GVCs operate. But it goes beyond as services are also redefining the way manufacturing companies produce value.” (Miroudot & Cadestin, 2019).

Two important implications follow from these changes occurring in manufacturing industries.

First, there are trade regulation implications as separate rules apply for trade in goods and trade in services. Governments negotiating trade agreements therefore need to take into account both sets of rules and judge how market access is opened or restricted in sectors where exports bundle both goods and services.

Second, the servicification of manufacturing challenges the development paradigms of industrialization and manufacturing to achieve structural transformation of developing economies in order to catch up with advanced economies by adding additional complexity the attainment of manufacturing competitiveness.

To the established attributes of manufacturing competitiveness in the form of access to raw materials, control over costs, quality and design, new sources of competitiveness in the form of cost-efficient and high quality services are being added, mostly embodied not in products or patents but in people which need to move freely for markets to be efficient (Kim, 2019). The second point will be examined in relation to the BBB strategy for Southern Africa.

How deeply the servicification of manufacturing phenomena has permeated manufacturing value chains in Southern Africa is not well understood. Most attention has been given to the increasing trade in services through the SADC Protocol on Trade in Services (SADC, 2012) and Regional Indicative Strategic Development Plan (SADC, 2001).

Research conducted (Visagie & Turok, 2019) that combined analysis of balance of payments with foreign direct investment (FDI) flows for SADC members found exports of services tended to lag domestic rates of growth, typically made up less than 15 per cent of each state’s trade balance and had exports concentrated in lower value services while importing higher order services from outside Africa (the researchers note the potential for import substitution in favour of knowledge intensive African firms). They found little evidence of the servicification of manufacturing in the goods exported from the region, which could be attributed to lower technological sophistication of products and all logistics costs and nontariff barriers. Further research, they suggest, is required

supported by better data collection¹² to understand the extent to which servicification of manufacturing is playing out in Southern Africa.

Africa's experience of premature deindustrialization—discussed in 'Current state of commodity-based industrialization and non-resource based manufacturing in Southern Africa' on page 6—underscores the point that the traditional strategy to develop and modernize an economy with the help of industrialization is not sufficient. Expecting that the manufacturing sector, which formed the backbone of most advanced economies in the past, will be simply be able to repeat that role in low- and middle-income countries today is misguided. The thread that runs through the BBB strategy is a focus on value chains where the concentration of productive factors puts firms and regions in a competitive position from where they can grow. The BBB value chain strategy calls for focused effort from government, the private sector and other stakeholders to build out linkages from these positions of strength. Doing this necessarily entails choosing a limited number of sectors on which to concentrate resources. Competitiveness in all the dimensions that dictate success (raw material access, cost, technology, services and more) in domestic regional or global markets is the critical requirement for value chains that can propel development in Southern Africa.

VIII. Case studies: Regional value chains, industrial development, leveraging state power and building back better

This compendium presents case studies which build on the strategies outlined in the study on BBB from COVID-19 by fostering CBI, manufacturing and regional value chains. The case studies are drawn from Africa's industrialized countries and those that are rapidly industrializing as well as those also from rapidly industrializing Asian countries. The report also draws some case studies from successful Association of Southeast Asian Nations (ASEAN) regional value chains in the automotive industry. Further analysis is also made from countries that have also leveraged state power/rights and resources to drive industrialization and integrating it with renewable energy uses. Lastly, some lessons are also drawn from the economic recovery plans of post COVID-19 to BBB from Mauritius, South Africa and Rwanda on how their economic recovery plans seek to revitalize and strengthen their industrialization goals to build resilience.

Regional value chains

ASEAN automotive regional value chain: hub-and spoke model

The ASEAN regional organization members have developed a hub-and-spoke model to create an automotive industry built upon regional value chains. The lessons it holds for Southern Africa is how countries with small domestic markets specialized in regional value chains to create competitive production volumes. Vehicle components are

¹² Updated collection and codifying in of relevant service data in line with WTO guidelines is recommended.

manufactured in five ASEAN Member States (Indonesia, Malaysia, the Philippines, Viet Nam and Singapore) and are shipped to Thailand, where vehicles are assembled (ASEAN Briefing, 2019). The hub-and-spoke model allows many countries to participate in and benefit from the automotive sector in Asia. To achieve this, policies in various countries are aligned in order to ensure that countries focus on producing certain components. ASEAN has become a dominant player in the automotive industry. Over the past decade, automotive exports from ASEAN Member States have consistently increased, partly due to an expanding middle class within the region.

The automobile industry contributes at least \$177 billion to the GDP of ASEAN Member States and creates 2.4 million jobs in the region (ASEAN-Japan Centre, 2020). ASEAN is considered an important production hub for the entire automobile sector, including automobiles, motorcycles, trucks and their parts and components. Although the automobile industry is complex and multilayered, its production has been internationally segmented and requires well integrated regional and global production networks. The automobile industry in ASEAN Member States is still characterized by low value added in its output and a limited multiplier effect. However, depending on the country's position in the automobile value chain, value added in exports varies across ASEAN Member States. The importance of ASEAN Member States for "Factory Asia" and automobile GVCs has been growing substantially with each country developing its own specialization. Member States have also established themselves in the regional and global automobile value chains and, therefore, possesses the necessary qualities for upgrading.

Trade and industrial policies

ASEAN is a front runner in East Asia's economic integration and also plays a central role in the regional cooperation. ASEAN was founded in 1967 by its five original Member States: Indonesia, Malaysia, the Philippines, Singapore and Thailand. The first effort by ASEAN to address trade liberalization was the ASEAN Preferential Trade Area (APTA), 15 years before the ASEAN Free Trade Area was launched. APTA, which came into effect in 1977, was a scheme to reduce intra-ASEAN tariffs on products of the ASEAN Industrial Projects and the ASEAN Industrial Complementation, as well as products agreed upon through negotiation. The APTA was unable to achieve its objective because of time-consuming, product-by-product negotiation and a lack of seriousness from Member States (Yoshimatsu, 2000 and Ishikawa, 2021). The fundamental reason for failure was that ASEAN Member States pursued an import substitution industrialization through protective trade policies, such as the prohibitively high tariffs in the 1970s.

The first effective trade liberalization was the Brand-to-Brand Complementation (BBC) scheme which was achieved in 1988. The scheme, adopted at the ASEAN Economic Ministers Meeting in October 1988, allowed an approved automobile part to enjoy a minimum of 50 per cent margin of tariff preference and local content accreditation if it was a component for the manufacture of any product in participating countries. The

scheme originated from a proposal by Japanese automobile manufacturer Mitsubishi Motors, but it was also used by other multinational companies such as Japanese automobile manufacturers Nissan and Toyota. BBC promoted intra-ASEAN complementation of automobile parts and components produced in each ASEAN Member State in accordance with their comparative advantage.

In 1996, BBC was expanded to ASEAN Industrial Cooperation (AICO) to widen products covered to include items other than automobile parts and apply a tariff of 0 per cent to 5 per cent to intracompany trade. While multinational companies successfully encouraged the AICO arrangement, it did not work effectively for one and half years after its introduction. The dysfunction of the arrangement stemmed largely from the ASEAN states' persistence in maintaining their national interest seeking to increase the benefits of their local economies and firms. Most countries adhered to the 30 per cent national equity as a condition to participate in the scheme with an eye to fostering local firms, while government officials did not put forward procedures for AICO applications that were likely to exacerbate trade imbalances of their countries.

Later, after the ironing out of the challenges emanating from the need to protect national interests, AICO was also used by foreign companies, such as those in the electric industry, and its main users were also Japanese companies. Effective trade liberalization, such as through BBC and AICO, was realized because ASEAN Member States converted to an export-oriented industrialization strategy. Entering the 1990s, the international environment surrounding ASEAN changed rapidly due to huge scale economic reforms in China and economic integration in other regions such as the North American Free Trade Agreement and the European Union began. In response to these environmental changes, ASEAN launched its Free Trade Area, a full-scale trade liberalization scheme, in 1993 (Koichi I., 2021).

The declining trade and transportation costs increased the benefits of specialization and exchange, reaping significant gains from international trade. For instance, some types of automobile parts, such as a wire harness are labour intensive, hence it became more efficient to procure them from least developed countries thereby promoting intra-industry trade of intermediate inputs. Moreover, manufacturing of key parts and components such as engine and transmission parts, which involves large fixed cost and requires a well-established local supplier base, became more efficient to concentrate production in a single country for economies of scale rather than set up factories in many countries.

ASEAN began forming the ASEAN Economic Community (AEC) in 2003 at the 9th ASEAN Summit. In addition to free movement of goods, AEC deepened its integration through free movement of services, investment, capital and skilled workers. The AEC covers a wide range of areas, including mutual recognition of standards, intellectual property rights, competition policies, infrastructure development and narrowing the development gap. The AEC furthers integration into the global economy by participating in global supply chains and actively promotes free trade areas with countries outside the ASEAN region. The AEC was established at the end of 2015 as planned and ASEAN is currently implementing the AEC Blueprint 2025 (Koichi I., 2021).

Lessons from the ASEAN automotive industry

ASEAN Member States recognized the necessity of, and value in, economic cooperation and integration covering the whole region required to overcome friction from states' national interest. ASEAN members relaxed regulations concerning AICO applications after 1998 because of the Asian economic crises in 1997/98. They recognized the risk that the crises would lead foreign investors to flee from the region, looking for alternative investment locations. ASEAN Member States needed to promote regional economic cooperation in order to raise the attractiveness of the integrated market. At the same time, manufacturing multinational companies have been a major force to encourage the ASEAN Member States to facilitate the AICO procedure.

The ASEAN automotive industry provides critical lessons to the Southern African region in its pursuance of RVCs by its power to enhance competitiveness and mutual gains from trade by being export oriented.

Thailand developed from an agricultural country to expanding light industry and then became a major exporter of automobiles through successive rounds of industrial capacity upgrading. The region also needs to understand and leverage its comparative advantages to grow from low value added activities to higher value added in countries and then region. It is also important to note that industrial and liberalization policies are complementary. It is a matter of timing of when to promote the industry and how to promote the linkage with neighbouring countries.

No single country can produce all components for vehicles. There is a need to rely on the comparative advantage of neighbouring countries in the region or outside the region.

Box 6

Key learnings from the ASEAN automotive industry

ASEAN automotive firms developed specialization and scale with encouragement from multinational companies that needed a certain level of production volume to manufacture high value added parts efficiently and sought to circulate parts manufactured in one plant to other countries.

Effective trade liberalization, such as through BBC and AICO, was realized because the ASEAN Member States converted from import substitution to an export-oriented industrialization strategy, therefore being able to benefit from trade openness that had run counter to their previous import substitution industrialization policies. This experience showed the conversion from a formal free trade area to a functioning one providing mutual gains from trade.

The voice of the private sector was critical, first in industrial cooperation schemes and then taken into account in trade policy, tariff reductions and local content accreditation, which were granted under the AICO scheme. Policy coordination was used to stimulate intraregional trade and RVCs by combining comparative and competitive advantages of individual countries, or developing specialization in

certain parts of the value chain for certain products. Countries such as the Lao People's Democratic Republic and Cambodia made use of their advantage of lower labour costs to participate in the value chain through producing labour-intensive components such as seat cover wiring harness (ASEAN Japan Centre, 2020).

Industrial policies and development

South Korea

South Korea's remarkable transformation from a resource-poor, low-income country to an industrialized nation in just a few decades is one of the most noteworthy developmental success stories in modern times. South Korea accelerated its economic development through the careful management of the various stages of the country's agricultural reform and industrial transformation.

In a few decades, South Korea's economic development strategy lifted the nation out of poverty and set it on a path of high economic growth. South Korea, Taiwan, Hong Kong and Singapore collectively earned the title of the East Asian Miracle owing to their rapid structural economic transformation to high-income economies driven by interventionist governments, industrial policies and use of domestic protection alongside phased trade liberalization. There are multiple lessons these countries hold for Southern Africa, not as policies to simply replicate but rather in their approach to policy formulation, creating physical and human capital infrastructure and sequencing of policy adjustments to discipline firms by competition pressure to upgrade from demanding export markets.

Numerous African countries adopted import substitution policies and infant industry protection measures in their efforts to industrialize. The collapse of industries in many African countries started under such programmes has been attributed to the failure to pivot domestic industries to exports, leading to balance of payments problems that necessitated the imposition of licence by the IMF. The ensuing rapid trade liberalization then decimated uncompetitive domestic industries.

Significant differences between the economic history of African and Asian countries and the geopolitical conditions of firms in the United States of America and Japan offshoring manufacturing that prevailed during these countries' industrialization need to be taken into account. Furthermore, the instruments of export subsidies and trade restrictions such countries used during their early industrialization are now impermissible under prevailing international trade rules.

From 1960 to 1979, South Korea grew on average by 8 per cent per annum. During this period, it implemented a targeted industrialization strategy focused on low-technology and light industries. Besides achieving sustained economic growth, it has also shown great ability to recover from crises. After the 1979 oil shock, South Korea rapidly recovered and regained an average annual growth of 8.8 per cent from 1981 to the mid-1990s. During this period, it shifted to support heavy chemical industries oriented towards the export market using two levers, i.e. trade policy in the form of imported input subsidies and heavily discounted credit (Lane, 2017).

Industrial policies

The period between the 1960s and mid-1990s marked industrialization drive and structural transformation by promoting exports through several channels instead of import and tariff restrictions to protect domestic markets. Existing multiple exchange rate systems were replaced with a unitary exchange rate to support comparative advantages of local production activities, while export subsidies and import concessions linked to exports were put in place to achieve the nation's export targets (OECD 2012).

Free trade export promotion zones were established by focusing on manufactured exports of labour-intensive, technologically simple goods, such as clothing, footwear, processed food, sports goods and toys. South Korea began its export-led growth using a triangular trade with Japan, on which it depended for the supply of intermediate and capital goods, and with the United States of America as its export market. Continued economic growth and industrial catch-up, widened export markets, as well as industrial structure led to the diversification of the manufacturing industry. The developing economies became increasingly important as export markets, while the nation exported more heavy and chemical industry goods.

A major policy instrument in the industrial strategy has been the five-year economic plans. From 1962 to 1992, the government formulated and implemented seven five-year plans for economic development which set targets and allocated resources to achieve the objectives of industrial transformation and export-led growth. The five-year plans supported the creation of domestic capabilities by orchestrating action across several fields, such as industry and technology, trade, education and infrastructure. The five-year plans sought national agreement on the direction of medium- and long-term policies by harmonizing various views from different segments of society. Usually, individual government ministries and agencies designed their own goals and strategies within the realm of their mandates, and the Economic Planning Board (EPB) took the role of the social planner by coordinating those plans and thereby designing a final comprehensive plan that was coherent at the national level.

In the earlier phases of Korean economic development, the government took the leading role in formulating the five-year plans. The major issues of the plans were sector investments and mobilization of domestic and foreign capital to finance such investments. Each of the five-year plans identified key objectives, introduced selective policies and directed resources to achieve them. As the economy grew and the economic structures became more complex, the government-led economic development strategy became less effective. Hence, since the 1980s, the five-year plan has evolved from a directive into an indicative plan that respects the initiative and the creativity of the private sector. The plans implemented in earlier years focused on expanding the productive capacity and mobilizing the required resources, whereas, in later years, industrial rationalization and macroeconomic stabilization aimed to make the economy more efficient and productive.

Table 13

Development regimes and seven five-year economic plans in Korea

Development regimes	Government-led industrialization 1962-	Government-led industrialization 1982-	Transforming to market-led growth 1993-
Major plans	Five-year plans (first to fourth)	Five-year plans (fifth to sixth)	'New economy' plan (seventh)
Key features of plans	Mobilization and allocation of national resources	Rationalization and restructuring	Private sector's participation in government's planning
The focus of government policies	Export promotion, heavy-chemical industries drive	Strengthening industrial competitiveness	Internationalization and economic liberalization
Key targets of fiscal policies	Supporting industrialization, strengthening defence capabilities	Restoring fiscal prudence, priorities on education and social welfare	Strengthening industrial competitiveness, priorities on economic sectors

Source: Adapted from Suh (2007)

Climbing up the ladder of comparative advantage

In the 1960s, the government had identified labour-intensive industries as holding great promise for exports, but the export promotion did not target specific industries or firms when providing incentives. It overcame the initial export pessimism and let comparative advantage operate and focused its efforts on labour-intensive industries. It imported raw materials, intermediate inputs and capital goods and used its cheap, high-quality labour to produce exports such as clothing and footwear. However, the government was well aware that outward orientation by itself was not enough to sustain growth. From the second half of the 1960s, it made concerted efforts to move into higher value added segments along the value chain by making complementary investments in human capital and infrastructure.

In pursuing industrial upgrading, the government looked thoroughly to fill the missing links in the domestic value chain and move up the quality ladder and made conscious efforts to aim for international competitiveness from its comparative advantage. After exploiting its comparative advantage to develop labour-intensive industries downstream, it sought to produce the intermediate inputs imported from foreign upstream industries

through the acquisition of technology, the development of human resources and the construction of optimal-scale plants aimed for world markets. For example, in the chemical-textile value chain, the nation systematically built the links backwards from the export of textiles to the production of synthetic fibres to the development of basic petrochemicals.

Although capacity underutilization turned out to be a major problem at the end of the 1970s, the drive by heavy chemical industries provided the foundation of many of the nation's leading industries, such as steel, shipbuilding, machinery, electronics and petrochemicals. It strengthened significantly backward and forward linkages among these industries, as well as related industries such as automobiles, to increase the local content of exports (Lin 2011). It also enabled the nation to develop its defence industry.

Economic management of the industrialization effort

The industrialization drive requires quite a considerable effort from the government and industry. Initiating the industrial take-off and then coordinating to ensure that the push to industrialize be sustained requires both planning and continued monitoring of the economy. In Korea, the government body that was responsible for the planning and coordination effort was the EPB, which was created in 1961. It occupied the centre of the nation's economic policymaking and coordination structure and had a great deal of control over other economic ministries and agencies. The EPB played strategic functions, such as development planning, national budget management and management of aid, foreign capital (borrowing) and technology. Moreover, its head was given the rank of deputy prime minister, and he chaired the Economic Ministers' Council and reported directly to the president.

Box 7

Key learnings from the South Korean development experience

Notable features of South Korea's development trajectory were political leadership that achieved effective transversal coordination of government policies and was able to maintain close relations with the private sector while largely insulating government from rent seeking.

Industrial targeting with protection was used to establish industries which were then subject to the discipline of global competition through carefully sequenced trade liberalization.

Alongside highly specific industrial policy targets for chemicals, steel, automobiles and shipbuilding, the government also invested heavily in production factors of general application through infrastructure and education as building blocks to propel the economy and its labour force into high value added activities.

Singapore

Singapore is a high-income economy with a gross national income of \$54,530 per capita as of 2017. Rapid industrialization in the 1960s catapulted the country's development trajectory from a low-income country to a high-income country with manufacturing being the main driver of growth based on low-cost labour, low- to mid-level technology and a rapid increase in exports (World Bank, 2017).

By the 1970s, Singapore has reached full employment and joined the ranks of Hong Kong Special Administrative Region, the Republic of Korea and Taiwan as Asia's newly industrializing economies. Manufacturing value added as a percentage of GDP increased from 10.6 per cent in 1960 to 26.5 per cent in 1980, while manufacturing exports as a percentage of merchandise exports from 27.5 per cent in 1970 to 85.4 per cent in 2000 before it recedes to 74.2 per cent in 2020 (World Bank). The manufacturing sector's continuing success was largely a function of Singapore's ability to attract FDI through a favourable business climate and then provide investors with an educated, trained and disciplined labour force.

There are so many lessons which developing countries could learn and apply from what Singapore has achieved, especially now with the greater risk of nationalism due to the impacts of the COVID-19 pandemic (Vogel, 2020). Singapore is counted as one of the Asian miracles because of its bold move in embracing globalization and being open to trade, investments, technology and people. The government clearly understood that the people were its key asset as the country did not have substantial land or natural resources. Upon realization of this knowledge, they built a country marked by meritocracy competitiveness and respect to each other, which extends to all areas of life, especially the government.

Industrialization policy

With a small domestic market of about two million people, it meant that Singapore had to rely exceptionally on external demand for it to industrialize (Ha-Joon Chang, et al., 2013). Singapore overcame its physical constraint by adopting the region and the world as its economic hinterland through policies that foster free trade and free flow of investments. One of the key policies in anchoring external demand was to build good relations with other countries by becoming a member of the United Nations, the Commonwealth and later ASEAN.

Singapore managed to establish relations with more than 189 countries to which it went into free trade agreements and international investment agreements (Mondeja M., 2017). Singapore exploited its connectivity by becoming an export-oriented economy based on value added manufacturing. This means that raw or partially manufactured products come to Singapore and after being processed in the country, Singapore exports value added products elsewhere. This was largely achieved thanks to the country's vast network of free trade agreements already mentioned.

In 1961, the government established the Singapore Economic Development Board (EDB) to play a central role in formulating and implementing the industrialization programme. To spearhead this drive, EDB set out the policy to attract labour-intensive industries and provide industrial parks which were ready-built standard factories to facilitate the speedy set up for the companies. This led to the formation of two largely distinct industrial environments with the first one being the well planned large industrial estates in the rural/suburban parts of the island and the second one being that of the light industrial estate located close to high-density housing estates or at the fringe of the central area (Kaushik, 2012).

In 1968, three years after the first Jurong Industrial Estate becoming operational, there were already 153 factories fully functioning, while 46 other industrial parks were being constructed and set up. The key elements of this stage of industrialization were to eradicate unemployment and attract FDI. During the 1980s, the EDB strategy shifted from labour-intensive industries to develop Singapore into a modern industrial economy based on science, technology, skills and knowledge. Finally, in the last two decades the focus has once more shifted, this time towards increasingly sophisticated industries with an emphasis on R&D, ICT and other innovation activities.

Singapore's industrialization was achieved in great measure by attracting massive flows of FDI. Despite fierce competition for foreign investment in the region, Singapore was a destination of choice for foreign capital because of its more importantly enforced investor friendly policies. In 1988, Singapore's 3,694 manufacturing establishments, employing 352,600 workers, were responsible for 29 per cent of the GDP. Industrial production, valued at \$14,509.7 million—and this was fractionally higher than earnings from financial and business services—double those from commerce, and nearly equal to the total of commerce and transport and communications (Mondeja M., 2017).

The government's proclamation of the Economic Expansion Incentives (Relief from Income Tax) Act 1967, further enhanced by the Employment Act 1968, stimulated the flow of FDI and helped Singapore penetrate export markets and bring in advanced technology.

As early as 1970, when full employment was attained, the government embarked on upgrading the industrial structure to provide higher-paying jobs. By 1979, efforts to upgrade the overall industrial structure and to accelerate the trend towards skill- and technology-intensive, higher value added economic activity was intensified. The government implemented the large, three-year wage increases recommended by the National Wages Council, which began the easing out of labour-intensive, low value added activities in Singapore. The machinery industry was increasingly at the forefront of technological innovation as a result of the EDB's promotion of computer-controlled production, industrial robots and flexible manufacturing systems. The industry's output increased by 17 per cent in 1987 and by 20 per cent in 1988.

However, domestic enterprises played a lesser role in industrialization. The government's emphasis on the large industry was a more effective stimulus to increased productivity and long-range economic development.

Major promotional efforts sponsored by the government were focused on high-productivity projects, creating industries that the government believes would not otherwise have been established in Singapore. Although institutional assistance for small-scale local industry, the majority of enterprises, was provided through a subsidiary of the EDB, the effectiveness of this aid was limited until after the mid-1980s recession when the greater emphasis was placed on encouraging and upgrading small-scale local industry.

Following a decline in the textile industry in the mid-1980s resulting from increased international competition, automation and the upgrading of product lines were encouraged. What had originally been a textile industry and then a mass-market clothing industry was encouraged to target high-fashion markets. A 10 per cent growth in the fashion industry in 1987 reflected both the new trend and a strong market among Western trading partners.

Viet Nam

While global trade has stagnated, Viet Nam's trade soared to 190 per cent of GDP in 2017, up from 70 per cent in 2007. Worldwide, one in 10 smartphones is produced in Viet Nam. Mobile phones are Viet Nam's number one export, generating export revenues of more than \$45 billion in 2017 (Eckardt, et al., 2018). While premature deindustrialization sweeps through the world economy, Viet Nam's manufacturing sector has steadily expanded, adding an estimated 1.5 million new manufacturing jobs between 2014 and 2016 alone. Viet Nam's experience holds lessons for developing and advanced economies alike on how policies could be used to create manufacturing jobs in their countries.

Some basic foundations are important. Wages are still low and demographics are favourable. About half the population is below the age of 35 and Viet Nam has a large and growing workforce. The country is also politically stable and geographically close to major global supply chains. But this is not necessarily what sets Viet Nam apart. Instead, Viet Nam managed to capitalize on its strong foundations through good policies.

Industrial and trade policies

Viet Nam achieved its success by embracing trade liberalization complemented with domestic reforms through deregulation and lowering the cost of doing business. Finally, Viet Nam invested heavily in human and physical capital, predominantly through public investments. Lessons on global integration, domestic liberalization and investing in people and infrastructure, while not new, are fundamental in the wake of rising economic nationalism and anti-globalization sentiments that came in the aftermath of the COVID-19 pandemic.

The trade policy has arguably been the most important industrial policy for Viet Nam. With Singapore, it shares the top spot in East Asia of being a member for bilateral and multilateral free trade agreements. Viet Nam is a signatory to 16 bilateral and multilateral free trade agreements, a member of the World Trade Organization, ASEAN and has bilateral agreements with the United States of America, Japan, South Korea, the

European Union and the Eurasian Customs Union. Recently, Viet Nam became one of 11 countries to join the revived Comprehensive and Progressive Agreement for Trans-Pacific Partnership which recognizes the challenges facing small and medium-sized enterprises (SME) in establishing export markets and includes outcomes to help make this task easier in the free trade agreement region. These trade agreements dramatically reduced tariffs, anchored difficult domestic reforms and opened much of the economy to foreign investment. It is estimated that more than 10,000 foreign companies, including major global players such as Samsung, Intel and LG, are currently operating in Viet Nam, mostly in export-oriented, labour-intensive manufacturing (Eckardt, et al., 2018).

Viet Nam also leveraged its demographic dividend through effective investment in its people by promoting access to primary education and ensuring its quality through minimum quality standards. In 2015, Viet Nam ranked eighth out of 72 participating countries in the OECD Programme for International Student Assessment which tests high school students in mathematics, science and other disciplines ahead of OECD Member countries such as Germany and the Netherlands. Education sustained Viet Nam's economic growth through productivity increase during the 1990s and early 2000s (Asadullah, et al., 2020).

Viet Nam also had a relentless focus on competitiveness and the ease of doing business by making steady progress in improving its investment climate, as evidenced by higher scores in the World Economic Forum's competitiveness index, up five points to 55th in the world, and the 2018 World Bank's ease of doing business ranking 68th in the world, up 31 places since 2014. Viet Nam also reduced the corporate income tax rate to 20 per cent from 32 per cent in 2003. Furthermore, Viet Nam also invested heavily in infrastructure, especially in the power sector and connectivity. Thanks in part to high public investment, power generation, transmission and distribution capacity have been scaled up to meet rapidly rising demand. Viet Nam also developed its connective infrastructure, including seaports and marine terminals, to keep pace with rapidly growing container trade which expanded at a staggering average annual rate of 12.4 per cent between 2008 and 2016 (Eckardt, et al., 2018).

Limitations

Overall, Viet Nam's manufacturing sector remains relatively small. Most of the sector is driven by FDI, which accounts for close to 90 per cent of manufacturing exports. Many of the newly created jobs in manufacturing are in basic assembly which requires manual labour but does not necessarily add a lot of value per worker. Linkages between FDI and domestic firms are weak. Moreover, as wages inevitably rise, Viet Nam's current comparative advantage in low-skill, labour-intensive industries will start to dissipate, a trend that may be amplified by new labour-saving technologies and automation.

South Africa

South Africa's industrialization has evolved around the dominant capital-intensive and minerals-energy complex industries. The minerals revolution of the 19th century laid the foundation for the emergence of the modern South African industrial state. Post-1994, South Africa's industrial developments continued to be dominated by the minerals-energy complex, with the manufacturing sector also becoming more diversified. Notably, the share of basic iron and steel, non-ferrous metal products, metal products and the machinery sector in manufacturing declined slightly from 25 per cent in 1998 to 21 per cent in 2015.

On the other hand, petroleum, chemical products, rubber and the plastic products sector increased their share in manufacturing from 17 per cent in 1998 to 23 per cent in 2015. Also, the food and beverages sector increased its share of the manufacturing industry from 19 per cent in 1998 to 23 per cent in 2015. The biggest job losses in manufacturing from 2008 to 2014 emerged in commodity-based manufacturing such as metals, heavy chemicals and the wood/paper value chain. Only agroprocessing saw employment gains in this period (TIPS, 2016).

The government has prioritized inclusive economic development which viewed international markets as one of the gateways to accelerate economic growth. Most trade barriers were removed, while a considerable amount of resources were used to expand exports and diversify the manufacturing sector. The South African industrial policy was, therefore, designed to export more manufactured commodities to create employment opportunities. Both trade policy and industrial policy share a common objective, namely upgrading and diversifying the economic base to produce and export increasingly sophisticated, value added products that generate employment (the dti, 2007). Furthermore, the South African Trade Policy and Strategy Framework reiterates the need to achieve full-scale industrialization and puts more emphasis on the need to upgrade the industrial base to foster the production and export of more value added manufactures.

Industrial policies

In January 2007, the government adopted the National Industrial Policy Framework (NIPF) as a point of reference to roll out and develop industrial policy action plans (IPAP) for industrialization.

The NIPF was designed to:

- Diversify the economy beyond reliance on traditional commodities and non-tradable services.
- Ensure long-term intensification of South Africa's industrialization process and movement towards a knowledge economy.
- Promote a more labour-absorbing industrialization path, with emphasis on tradable labour-absorbing goods and services and economic linkages that create employment.
- Promote industrialization, characterized by the increased participation of historically disadvantaged individuals and marginalized regions in the industrial economy.

- Contribute towards industrial development in Africa, with a strong emphasis on building the continent's productive capacity (the dti, 2007).

The government further acknowledged that NIPF could not be implemented in a vacuum leading to the adoption of policies that promote:

- A stable and supportive macroeconomic and regulatory environment.
- The development of skills and education for industrialization as well as traditional and modern infrastructure.
- Innovation and technology, hence their inclusion.

To implement the NIFP, the government developed a three-year rolling IPAP with a 10-year annual outlook. The IPAP objectives are to support investments in productive sectors, skills and increased local manufacturing capabilities in support of export-led industrialization by focusing on priority sectors. About nine sectors have been prioritized from the onset and in various IPAPs, and these can be broadly be classified under three different categories:

- 1 Strategic sectors that can grow from a low base and high employment sectors such as business process services and agroprocessing, high-tech sectors like green industries and advanced manufacturing.
- 2 Sectors that are likely to develop off pre-existing economic advantages, including metals fabrication, plastics and chemicals and aerospace and defence.
- 3 Pre-existing sectors that require protection, or that are being targeted for expansion, notably the textile industry and the automotive sector (TIPS, 2016).

The clothing textile and automotive sectors have been perhaps the biggest recipients of sectoral targeting support.

The South African sectoral industrial policy intervention can largely be divided into two parts. The first is sustained, large-scale support of the kind given to the automotive industry. This support is supposed to be transformative, building industry into something new, bigger and more inclusive. The second is more low-level support, often in the form of strategic planning and small interventions, of the kind delivered in a scattershot manner to a wide range of sectors. This support is either an ad hoc intervention brought about by a crisis or an idiosyncratic shock to the sector, or it is targeted at removing barriers, which can help a sector but which is seldom transformative in isolation.

Automotive industry

Automotives in particular have received perhaps the largest incentive support through the Motor Industry Development Programme (MIDP) which was superseded by the APDP. The aims of MIDP and APDP policies on the automotive industry focused on

expanding and realigning to export-oriented production with a target of doubling production to between one and two million vehicles by 2020 from 563,000 produced in 2008, deepening local content levels and also increasing employment on the back of local content.

The government has made enormous progress in establishing a globally competitive, export-rich automotive sector by adopting APDP—a comprehensive policy which aimed at supporting and incentivizing the automotive industry in South Africa through import protection, tax relief and direct support. But the global market requires constant innovation and creativity, and the sector cannot stand still. The key to industrial policy is thus how effectively it can adapt to a very dynamic environment.

The sector contributes 33 per cent to manufacturing GDP and about 6 per cent to overall GDP. It produces approximately 600,000 vehicles per year, supporting 113,000 jobs (the dti, 2018). Exports have doubled over a 10-year period, which has also seen Rand 45 billion worth of investment from the world's leading global vehicle manufacturers such as Toyota, VW, BMW, Ford, BAIC, BAW, Isuzu, etc. As part of the ongoing effort to sustain South Africa's competitive capabilities in this sector, the Department of Trade, Industry and Competition (DTIC) has developed an Automotive Master Plan 2020, working together with automotive companies, component suppliers and labour to ensure that South Africa:

- Retains and grows its automotive sector.
- Can continue to compete with other national jurisdictions for production platforms.
- Grows its exports.
- Secures higher levels of empowerment across the sectoral value chains.

Clothing and textiles

Clothing and textiles are one of the most labour-intensive sectors, generating significantly more jobs per unit of output, direct and indirect than do the other sectors. The sector, particularly clothing, generates some three times more jobs than automobiles and automobile components. (Kaplan, 2019). Moreover, a much higher proportion of the jobs are unskilled and semi-skilled.

Clothing and textiles have long been selected for special attention and support in terms of South Africa's industrial policy through trade protection and frequent financial interventions. While support has not been as extensive as for the automobiles and components sector, it has nevertheless been significant. Some of the measures introduced to support the sector include:

- Increasing duties on a range of clothing products from 40 to 45 per cent.
- Enhancing enforcement against the smuggling of imports.
- Local procurement by the government of all of its clothing, textile and footwear requirements.

- A strong public campaign to buy South African products.
- Investment subsidies and extensive support by the Industrial Development Corporation for investments in the sector.

In the wake of the devastation of the sector that followed the liberalization and restructuring of the industry in the 1990s, where approximately 120,000 jobs were lost, the sector has been saved from extinction and stabilized through various interventions.

The Clothing and Textile Competitiveness Programme (CTCP) policy on textiles was overwhelmingly about survival in a global environment where imports threatened one of the country's largest employers. As a result of the conditional support under the CTCP, the sector now employs 95,000 workers, contributing 8 per cent to manufacturing GDP and 2.9 per cent to overall GDP. In the leather sector, 22 new factories have been opened, supporting 2,200 jobs (the dti, 2018). However, no industrial policy sector strategy can afford to be static in the face of rapidly evolving and dynamic market conditions, massive productivity increases and continually intensifying global competition. With this very much in mind, the DTIC has recently launched a wide-ranging collaborative study with all the relevant sectoral players to raise competitiveness, deepen localization and support job creation across the value chain.

Special economic zones

Beyond explicit focus areas, sectoral issues have been implicit in several more generic interventions. Policies like the clustering strategy—for example, involving the selection of industries to cluster and general interventions like the Special Economic Zone (SEZ) policy—come equipped with limitations on which industries qualify for the best incentives and a process of targeting certain industries for key zones. (TIPS, 2016). The purpose of SEZ is to expand the strategic industrialization focus to:

- Cover diverse regional development needs and context.
- Provide a clear, predictable and systematic planning framework for the development of a wider array of SEZ policies to support industrial policy objectives, the IPAP and the New Growth Path.
- Clarify and strengthen governance arrangements, expand the range and quality of support measure beyond the provision of infrastructure.
- Provide a framework for a predictable financing framework to enable long-term planning (the dtic, n.d.).

Some of the SEZ industries targeting the automotive industry are COEGA Industrial Development Zone (IDZ) located outside Port Elizabeth and hosting Isuzu as well as two large Chinese automotive industries, East London IDZ hosting automotive component manufacturers and Mercedes Benz and Dube TradeZone hosting Durban automobile component manufacturing.

Ethiopia's industrial parks as a tool to facilitate industrialization

Ethiopia has been one of the continent's best economic performers, growing at an average rate of 10 per cent for the past 15 years (UNIDO, 2018). It has been a model of state-led development with the government investing heavily in infrastructure, agriculture, education and other sectors. Higher economic growth brought with it positive trends by reducing the population living in extreme poverty from 55 per cent in 2000 to 33.5 per cent in 2011 in both urban and rural areas (UNIDO, 2018). The government is implementing the second phase of its Growth and Transformation Plan, GTP II, for the period 2019/20 to develop physical infrastructure through public investment projects and to transform Ethiopia into a global manufacturing hub. Growth targets include an annual average GDP growth of 11 per cent, which is consistent with its manufacturing strategy, and a 20 per cent growth rate for its industrial sector (World Bank, 2017). While the manufacturing sector still constitutes the lowest share of the national economy and the service sector, it remains the leading contributor to real GDP growth. Recently, the contribution of manufacturing to Ethiopia's economic growth keeps increasing.

Industrial strategy

Ethiopia started by correctly identifying footwear, textile and apparel as manufacturing priority sectors because of their potential comparative advantage. The country has the largest hide stocks in Africa and is the tenth largest in the world. The abundance of leather gave prospective brands lots of material options to work with.

Low power tariffs were an important factor in attracting manufacturing to Ethiopia as the country's electricity costs are some of the lowest in the world. The expected completion of the Grand Ethiopian Renaissance Dam, whose installed capacity is expected at 6,000 megawatts (MW), is also set to reduce the costs of electricity tremendously.

The country's investment in infrastructure and factory capabilities, together with a multitude of incentives such as industrial parks, access to bank loans and financial incentives, attracted businesses such as Ericsson and H&M (AGOA.info, 2020). The strongest evidence that Ethiopia presents enormous potential for footwear manufacturing lies in the investment it has been receiving from Chinese manufacturers to ramp up its production.

Ethiopia's approach to spur manufacturing is hinged on well-serviced industrial parks and building business partnerships with captains in the industry from China and other countries. Ethiopia has been a pioneer in the creation of Chinese-inspired industrial parks to attract investments in light manufacturing, especially textiles and apparel, and stimulate exports (Schneidman, 2019).

In the early stages of the development of industrial zones, the focus of development was on labour-intensive industries with huge market potential for agricultural products as raw materials, export-oriented and import substitution industries and other industries that could benefit from the migration of industries from Asia and that can transfer technology. Ethiopia is aiming to create 30 industrial parks by 2025 to increase jobs, generate export revenue and grow the manufacturing sector from 5 per cent to 22 per cent of the economy's productivity (Schneidman, 2019).

Role of industrial parks in Ethiopia's industrial strategy

The main focus of the industrial parks is to prioritize industrialization in growth and transformation through the implementation of the Industrial Development Strategy which was formulated in 2002/03 based on the Agricultural Development Led Industrialization strategy. Three mechanisms are in place for the establishment of industrial parks/SEZs which are fully developed by the federal or regional government, developed by PPPs with the Ethiopian Industrial Parks Development Corporation and by private developers only. Under the first Growth and Transformation Plan, five industrial parks were established with a target of attracting \$1 billion of annual investment over the next decade to boost exports and make Ethiopia Africa's top manufacturer. Industrial parks were based on four key principles which sought to provide strong linkage between industry and agriculture:

- Giving preferential treatment to export-oriented sectors to lead industrial development.
- Giving priority to labour-intensive sectors to exploit comparative advantage.
- Maximizing employment.
- Recognizing the private sector as the engine for growth, while the government assumes the leadership and coordinating role through the PPPs.

Following the example set by several East Asian economies, such as South Korea, Malaysia and China, Ethiopian authorities were in favour of government interventions with the state leading the industrialization process.

The industrial parks also sought to increase openness and attract FDI by focusing and prioritizing textile and apparel, leather and leather products, agroprocessing and pharmaceuticals and chemicals. The imperative is to build on the country's agricultural foundations by moving towards new tradable activities in manufacturing that absorb large numbers of young and semi-skilled workers.

Ethiopia's potential in the light manufacturing sector is significant but faces binding constraints related to access to land, infrastructure, trade logistics, customs regulations and a skills gap. FDI is seen as a way of lifting all these constraints with an important role to be played by industrial parks. The industrial zones offer land for factories at \$1 per square metre per month, tax holidays for up to seven years and customs and other services on site for those investing in the country.

Industrial parks had the advantage of clustering individual enterprises into industrial parks which helps them take advantage of public infrastructures, economize costs and gain access to nearby skilled labour markets, research, educational facilities as well as other critical inputs. Ethiopia's Eastern Industrial Park (EIP) is one of the best examples of Chinese investment in manufacturing in Africa. EIP has been showcasing the positive impact of Chinese industrial development and has become a place for manufacturing excellence and a platform for developing and transferring skills (UNIDO, 2018).

Ethiopia's integrated agro-industrial parks

Agricultural modernization and the development of labour-intensive agro-industries in the leather and textile sectors are among the main priorities identified in the last five-year development plan. The Integrated Agro-Industrial Parks (IAIP) are specialized industrial zones, designed to attract domestic and foreign investors in agroprocessing and spur agricultural development. Their main objectives are to create jobs, increase farmers' incomes and contribute to economic growth in rural areas. Four IAIPs were piloted in 2017 with the support of various developmental agencies such as the Food and Agriculture Organization of the United Nations and the United Nations Industrial Development Organization (UNIDO), among others. The government is striving to achieve its plan to construct 17 IAIPs that will be built in all states and part and parcel of the nation's journey towards a lower-middle-income status by 2025.

The government aims to boost exports and trade through a \$1 billion investment in IAIPs to make Ethiopia a top manufacturing hub on the continent. In its current first phase, the four IAIPs under construction will provide support services to companies, opportunities for skills development and attraction for foreign investment. The total estimated cost of the four pilot agro-industrial parks is \$181.2 million.

The government projects that the four IAIPs will attract about \$1.5 billion in investment, 400 business opportunities and 400,000 jobs. The IAIPs are planned to provide a one-stop-shop to provide various services to facilitate trade logistics, access to land, customs clearance and other business services (UNIDO, 2018). Generous government investment incentives, preferential access to the United States of America's large market under the African Growth and Opportunity Act (AGOA), low cost of electricity and labour and abundant natural resources have resulted in increased foreign direct investment into the parks. In 2019/20, the industrial parks generated \$610 million in export earnings and created 89,000 job opportunities.

Commodities intended for processing include coffee, sorghum, maize, sesame, horticulture, meat and dairy and cereals, among others. The IAIPs will include companies that export value added agricultural products as well as those producing products for domestic consumption. Major agriculture processing potential includes cattle fattening and processing, chicken production and processing, livestock feed manufacturing, wheat-based food production (e.g. pasta, biscuits), sesame processing (e.g. tahini), soybean crushing (e.g. soybean oil and feed), sugar production and processing, juice and dairy manufacturing, as well as garments and leather goods. In 2019, the Ministry of Finance Ethiopia implemented a policy change authorizing the duty-free import of agricultural and irrigation equipment. This new directive aims to increase agricultural productivity for both smallholder farmers and commercial farmers to improve access to new agricultural farming capital goods.

However, the agroprocessing firms in the IAIPs are experiencing some challenges which include insufficient local product, in part due to complexities in smallholder farm structures, post-harvest storage, as well as inconsistent commodity quality. Furthermore, a critical constraint to agro-industrial development is the lack of infrastructure to support sufficient

raw commodities flow to processors. Establishing effective supply chains, including cold chains, can increase agro-processor access to local producers. With the establishment of the agro-industrial parks, the integration of smallholder farmers and processors into the industries as part of the commercial value chain could improve the local economy.

Lessons from the industrial parks

Industrial parks in Ethiopia have been credited for:

- Stimulating investment and creating employment.
- Facilitating export growth and foreign earnings.
- Developing industrial clusters through forward/backward linkages; eliciting knowledge transfer and technology spillover.
- Facilitating the establishment and connections to GVCs.
- Fostering sustainable growth and social equality.
- Enforcing the implementation of national industrialization strategy.

Some newly built industrial parks have also started to implement sophisticated technology and introduce it to the local manufacturing sector. The involvement of the state-led industrial parks coexisting with the private foreign-led SEZs ensured that more FDI firms that wish to invest or expand in industrial zones can be allowed to do so, and that the parks' activities are aligned with the country's needs in terms of the industrial development which could not have been the case if the state is not actively involved.

Governments, industrial park developers and resident firms in Ethiopia continue to experience multifaceted challenges, such as complications associated with administrative and regulatory capacity building, coordinating key actors and stakeholders, infrastructure and public utility provision, financing issues, skills development and linkages with local economies. This could be resolved by improving the efficiency of regulatory bodies, ensuring sufficient funding for infrastructure development, promoting linkages between industrial parks and the local labour market.

Rwanda's experience between trade and industrial strategies

Rwanda has made significant progress in social and economic development over the past few decades with real output growth increasing from 3.23 per cent in the period 1991–2000 to 8.23 per cent in 2001–2010 and 7.32 per cent in 2011–2018 (UNCTAD, 2021).

There have been significant changes in the structure of the Rwandan economy, with the contribution of agriculture to GDP decreasing and that of services increasing at a rapid rate. Relative to the service sector, the industrial sector's share of output increased from 15 per cent during the period 2001–2010 to 18 per cent during the period 2011–2018.

Manufacturing contributes about 42 per cent of industrial output. Within manufacturing, food, beverages and tobacco make up around two thirds of output, with a number of smaller sectors making up the remainder (ACORD Rwanda, 2018). Manufacturing has played a very important role in the economic growth and development as it accounts for a significant share of new jobs that have been created in the economy. Based on the labour force survey for 2017/18, manufacturing accounted for about 21 per cent of new jobs created in the economy, making it the second most important source of new jobs after construction, which accounted for 25 per cent (UNCTAD, 2021).

Based on the UNCTAD Productive Capacities Index¹³ for 2018, Rwanda had a score of 25.42, which is slightly above the average for least developed countries but below the average for landlocked developed countries. While the 2018 score is low, it reflects a significant increase from the score of 19.09 in 2000, driven largely by improvements in human capital, institutions and the private sector. The components of the index where Rwanda had the least performance were energy and structural change.

Available data indicates that the role of trade in the economy has increased over the past few decades from 32 per cent of GDP in 1970–1980 to 33 per cent in 1991–2000 and 48 per cent in 2011–2018. This increase in the role of trade is also reflected in the fact that the value of merchandise exports increased from a mere \$121 million in 1980 to about \$1.17 billion in 2019, while the value of merchandise imports rose from \$262 million to \$2.7 billion over the same period.

A classification of Rwanda's exports by technological category suggests it has made some progress over the years by reducing dependence on primary products. The share of primary commodities in total exports fell from 83 per cent in 1995 to 46 per cent in 2010 and 22 per cent in 2018, while the share of resource-based manufactures in exports increased from about 8 per cent in 1995 to 39 per cent in 2010 and about 29 per cent in 2018. The contributions of low, medium and high technology products to exports are still very low and need to be enhanced

Industrial development policies

Rwanda's National Industrial Policy, approved in 2011, outlined measures for upgrading, modernizing and expanding the industrial sector in Rwanda with the main objective being to create and build momentum behind the transformational industrial growth that would make Rwanda regionally and internationally competitive.

The policy is anchored on five main pillars:

- 1 Sector specific strategies
- 2 Reducing the cost of production
- 3 Improving quality
- 4 Promoting backward linkages
- 5 Mind-set change

¹³ The index of productive capacities for 193 countries based on eight components: transport, energy, information and communications technology, human capital, natural capital, institutions, private sector and structural change. It ranges from 0 to 100 with higher values indicating higher levels of productive capacities

This ambitious goal was in line with the Rwanda Vision 2020 that targets industry as well as services in economic activities. According to Rwanda's National Industrial Policy, manufacturing provides both demand and supply stimulus for the growth of agriculture and modern services. It is often the largest customer for banking, transport, insurance, agriculture, communications, advertising and utilities, fuelling markets for services and skills in these areas (ACORD Rwanda, 2018).

Another important recent initiative to boost industrialization in Rwanda is the Made in Rwanda Policy. According to the Ministry of Trade and Industry (MINICOM), the Made in Rwanda Policy is aligned with Rwanda's aspiration to become upper middle-income country by 2035 and a higher income country by 2050. The policy is a holistic roadmap aimed at increasing economic competitiveness by enhancing Rwanda's domestic market through value chain development. It does so through two channels:

- It **brings together existing government interventions** under a clear policy framework.
- It **addresses supply bottlenecks via targeted interventions** aimed at deepening specific high potential value chains, improving quality and boosting cost competitiveness.

There is also an attempt to reduce the deficits through increasing domestic production of imported consumer goods as enumerated in the Made in Rwanda Policy prepared by the government in December 2017. Other aims of the Made in Rwanda Policy are to enhance competitiveness of Rwandan products and services and to encourage Rwandans to buy locally made products by changing the perception that locally made goods are of lower quality than imported products.

Regulatory reforms

In addition to the industrial policy, Rwanda also enacted other policies, strategies and laws to further boost industrialization in the country. On investment, the Government of Rwanda undertook a series of pro-investment legal reforms intended to improve Rwanda's investment climate and increase FDI including the enactment of Rwanda's investment code (Law no. 06/2015 of 28/03/2015 relating to investment promotion and facilitation). These legal measures, in addition to improving the investment climate in Rwanda, are particularly also enjoyed by the industrial sector.

Disputes between investors and the government can be resolved through international arbitration, court judgments or out-of-court settlements. Rwanda is signatory to the International Centre for Settlement of Investment Disputes and the African Trade Insurance Agency. In 2012, the government launched the Kigali International Arbitration Centre, an alternative business settlement venue that aims to reduce the costs of contract settlement and enforcement for investors.

Rwanda Special Economic Zones

Rwanda also formulated, adopted and implemented a Special Economic Zones Policy in 2006, designed to boost manufacturing in the country and encourage industrialization by addressing related constraints such as availability of industrial and commercial land, availability and the cost of energy, limited transport linkages, market access and availability of skills. The SEZs are managed by the Special Economic Zones Authority. SEZs have potential to address many constraints facing investors and businesses in Rwanda and support the achievement of key goals such as those outlined in Vision 2020.

The SEZs in Rwanda are seen as key instruments to boost industrialization in the country by making sure that manufacturers have easy access to fully serviced land at an affordable cost from industrial parks programme such as the Kigali Special Economic Zone. The government's aim is to position Rwanda as a regional leader in light manufacturing and to attract investment across a variety of sectors but specifically in agribusiness, ICT, trade and logistics, textiles, and construction.

Institutional framework and policymaking

Regarding the institutional framework and process for policymaking, Rwanda MINICOM is responsible for the formulation of trade and industrial policies. It also coordinates the implementation of these policies in the country. The fact that trade and industrial development in Rwanda are under the same ministry is a good recognition of the interface between trade on the one hand and economic transformation and productive capacity development on the other. It is also good practice that has been observed in newly industrialized developing countries in Asia. For example, in South Korea trade and industrial development issues are under the Ministry of Trade, Industry and Energy and in Singapore they are under the Ministry of Trade and Industry.

In performing its lead role in design and implementation of trade and industrial policies, MINICOM works in collaboration with the following ministries and establishments: Ministry of Agriculture and Animal Resources, Ministry of Finance and Economic Planning, Ministry of Foreign Affairs and International Cooperation, East African Community, National Bank of Rwanda, National Agricultural Export Development Board, Rwanda Standards Board, Rwanda Development Board and Rwanda Revenue Authority. In addition to the roles played by relevant line ministries and establishments, there is also a process for consultation of the private sector and other local stakeholders in the formulation and implementation of trade and industrial policies.

Challenges and lessons

In addition to the fact that Rwanda has separate trade and industrial policies frameworks or documents, there are multiplicities of policies and strategies geared towards promoting trade and industrial development in the country. For example, on trade policy there is the National Trade Policy (2010), the National Cross-Border Trade Strategy (2012), and the National Export Strategy (2015). Similarly, on industrial development there is the SME Development Policy (2010), the Special Economic Zone Policy (2017), the Made in Rwanda Policy (2018) and the National Strategy for Transformation. These

are all very useful documents but having several strategies to address related trade and industrial development issues creates room for policy incoherence. These documents often have overlapping goals, which can result in duplication of efforts and make achieving policy coherence challenging. It would be desirable to integrate these policy documents into a comprehensive trade and industrial development strategy or framework to make implementation and monitoring and evaluation of policies much easier and enhance their development impact.

An example was where the implementation of trade policy came at odds with the objective of promoting industrial development on plastics. The government banned the importation and use of non-biodegradable packaging bags because of environmental concerns. While this is a well-intentioned policy, it had consequences for the achievement of the industrial development and transformation objectives of the country. Because plastics are durable, lightweight and cheap, they are widely used in production and transportation of manufactured products and so the imposition of a ban on plastics puts domestic manufacturers at a cost disadvantage relative to their foreign competitors who are less constrained.

While the liberalization of trade has gone hand in hand with a significant increase in exports, especially traditional exports, it has also increased competition facing domestic manufacturing firms and made industrial development and productive transformation even more challenging. Experience has shown that rapid trade liberalization leads to surges in imports of consumer goods and the demise of domestic manufacturing in many countries in Africa.

In 2016, the EAC decided to ban imports of used clothing and leather products into Member States by 2019. Following this decision, there was pressure on EAC members not to implement this decision and most of the countries, except Rwanda, backed down. As a result, in July 2018, Rwanda was removed from the list of countries eligible to participate in the AGOA programme, which presented challenges for the domestic firms who depended on AGOA for access to export markets.

The key lesson from this experience is that African countries that are keen to foster industrial development and productive transformation have to balance the trade benefits from participation in bilateral treaties against the loss of policy space associated with these initiatives before making a decision on whether or not to participate. Another lesson from the experience is that when policies of this nature are to be implemented, the timing should reflect the supply response capacity of domestic firms.

The above analysis amplifies the need to integrate these policy documents into a comprehensive trade and industrial development strategy or framework to make implementation and monitoring and evaluation of policies much easier and enhance their development impact. In addition, there is the need to address specific aspects of design and implementation of trade policy that are not fully supportive of the goal of

productive transformation. These include the policy on plastics, the nature and scope of bilateral agreements with key development partners and the implementation of regional integration agreements, particularly the application of the EAC common external tariff.

Bangladesh: export-led industrialization

Bangladesh's economy has experienced significant structural transformation during the last five decades. At the time of its independence, the country used to be characterized as an agrarian rural economy.

In the early 1970s, the share of agriculture in the GDP was around 60 per cent and the industry and services sector had only a small share. The share of agriculture in the Bangladeshi economy has now declined to 13.6 per cent, while that of the industry and services sectors stands at 34.6 per cent and 51.8 per cent, respectively, with the manufacturing sector playing a dominant role in industry's contribution with a share of 23.3 per cent of the GDP. (Khatun, 2021). This has increased from only 4 per cent in 1972. Along with structural change, the composition of employment generation by the sectors has also changed. Though agriculture still employs about 40 per cent of the total labour force, the industry has become an important source of employment generation.

The rise of export-led industrialization: a Bangladesh success story

Among the export-oriented industries, that of readymade garments (RMG) has been a forerunner that flourished in the mid-1980s, riding on the enabling global and domestic policies.

Since the early 2000s, many other potential industries were also identified by the government as export potentials. These include software and ICT, pharmaceuticals, leather products and footwear and shipbuilding, among others.

Export-led industries have generated employment and helped in reducing poverty. The RMG sector has also supported women's empowerment. Bangladesh's newly adopted Eighth Five-Year Plan for the period 2021-2025 has emphasized export-oriented industrial development.

Industrial policies have changed focus over time

To date, the industrialization process in Bangladesh has been built on very weak ground. In the 1970s, the country followed an import-substituting industrialization strategy. Specifically, Bangladesh followed a public sector-led industrial development plan during 1971-1975. This was largely attributed to the existence of several industrial units abandoned by non-Bangladeshis after independence. Small and cottage industries and foreign enterprises were kept outside the public sector.

The revised industrial policy of 1975 allowed both foreign and local private investors to set up industries in collaboration with public sector corporations so that public enterprises would keep the major share. Following a change in government in 1975, a process of

denationalization was implemented. The major objective of the industrial policy during this period was the development of private sector-led growth. So, private investment was encouraged through liberal credit policies. The industrial policy of 1978 allowed the public sector to participate in joint investment with the private sector as a minority shareholder. The private sector could be bestowed with the responsibility of the management of the investment in cases where the public sector corporations had the major share in such investments.

The denationalization of industries gained further momentum in the following decades under structural adjustment policies. The New Industrial Policy 1982 and the Revised Industrial Policy 1986, and also industrial policies during the trade liberalization phase from 1991 onwards, were crafted on the philosophy of a market-based competitive economy that emphasized export-oriented growth. The role of the public sector was downsized significantly, except for keeping its existence in a limited number of restricted areas.

The industrial policies of 1999, 2005 and 2010 devised action programmes for stimulating the involvement of the private sector, both domestic and international. Privatization of state-owned enterprises continued to be a major focus in these policies. In addition, the export orientation of the industrial sector, improved competitiveness of industries and effective utilization of resources for industrial development was emphasized so that the contribution of the manufacturing sector to overall GDP could be raised substantially. The Industrial Policy 2016 had several specific targets. Notably, it aims to increase the share of the industry sector in GDP to 35 per cent by 2021. The policy also targeted to employ 25 per cent of the total labour force by 2021.

Industrial policies during the post-1990s introduced a set of action programmes to raise the productivity of the industrial sector. The list of the thrust sectors that would be promoted through policy measures and foreign investment was expanded. These sectors were, in turn, encouraged through special incentives. Agro-based and agroprocessing industries, SMEs and cottage industries received attention. As a continuation of earlier policies, the Industrial Policy 2016 also aimed to establish import substitution industries to cater to the local demand and promote export-oriented industries.

Trade policies to complement industrial policies

Successful industrialization is not possible without an effective trade policy. Bangladesh's trade policy has dramatically changed since 1985. The trade policy reforms implemented were trade, exchange rate, monetary and fiscal policy incentives. The export promotion measures were designed to diversify the export market, improve the quality of exports, stimulate higher value added exports and develop industries for backward linkages in the country. Such reforms were beneficial to many sectors including the RMG sector. These reforms provided exporters with unrestricted and duty-free access to imported inputs, financial incentives in the form of easy access to credit and credit subsidies and various forms of fiscal incentives such as rebates on income taxes and concessionary duties on imported capital machinery.

Trade liberalization since the 1980s reduced the nominal tariff rate, the import-weighted average tariff rate, the implicit nominal tariff rate and the effective rate of protection. NTBs such as quantitative restrictions on imports were also removed to a large extent. Both the import penetration ratio and the export orientation ratio rose significantly during this period.

Emerging issues to Bangladesh's industrialization and lessons

The progress towards industrialization in Bangladesh has been significant in terms of its share in the GDP, export income and employment generation. However, the sector has to move to the next phase, which will be characterized by high value added RMG garment and non-RMG manufacturing. To make this transformation happen, some measures have to be taken by policymakers.

In terms of policies, there is a need for a second-generation industrial policy that will be based on the emerging realities of the 21st century. Hence, the industrial policy should be coordinated with other relevant policies such as financial, trade and investment policies. These policies will need to be revisited and made more strategic and consistent with global policy regimes, particularly in the context of the World Trade Organization.

Bangladesh has to diversify its manufactured products to take into account the changing global demand. This requires large investments in the more modern sectors. Unfortunately, both domestic and foreign private investments have not seen much of a surge in the recent past despite investment-friendly policies being in place. This reiterates the fact that policies alone are not enough to attract investment.

The overall investment climate has to be improved by removing supply side constraints, including inadequate infrastructure and the existence of red tape and corruption which increase the cost of doing business. In an attempt to reduce infrastructural deficiency, the government has undertaken several initiatives to uplift the infrastructure in power and energy sector. SEZs are also being set to attract foreign investment.

The supply of skilled and smart human resources who can do the job on the ground is urgently needed. Modern industrialization depends on the quality of human resources. The investment comes where there is a skill set of people. Despite having a large youth population, Bangladesh suffers from a lack of qualified people for industries. As a result, private companies are increasingly relying on human resources from neighbouring countries, while there is a large number of unemployed youth in the country. Higher investment in education and capacity development is required by both the government and the private sector.

Finally, due to the increasing interface with technology, the entire production and marketing environment is going through a dynamic change. Additionally, the overall supply chain has gone through a change during the ongoing COVID-19 pandemic, which may continue beyond the pandemic. These will disrupt the labour market. The need for human labour is shrinking in several jobs. Therefore, human resources have to be

reskilled and upskilled so that they can benefit from large-scale industrialization. At the same time, they should also be provided with financial, technological and other related support for self-employment through investing in small-scale industrialization. This will create new jobs and eventually help eradicate poverty.

Leveraging state power for industrialization and promoting energy transition

South Africa: localization of value chains in the renewable energy sector

South Africa has been suffering from chronic power shortages with regular load shedding since 2007. The country put in place policies to implement environmentally friendly energy sources and to retire the current aging and highly unreliable fleet of coal-fired power stations. A target was set to retire about 10,500 MW from coal fired stations and replaced with more environmentally friendly energy sources while bringing 19 GW of wind and solar capacity by 2030 to feed the gap. There is a strong emphasis on renewable energy and gas in the Integrated Resource Plan, an energy plan published in 2010 (Department of Energy, National Treasury, Development Bank of Southern Africa, 2016).

The government also adopted a New Growth Path framework, which aimed to create five million new jobs by 2020 and focused on five sectors including the green economy. This was meant to spur a shift away from the apartheid era characterized by high levels of inequality and unemployment. Based on dialogue with industry, the government signed the Green Economy Accord in 2011, which included a goal to create 300,000 green jobs by 2020. It also focused on inclusivity and the need for the green economy to facilitate Broad-Based Black Economic Empowerment and included a commitment to realize the renewables targets in the Integrated Resource Plan.

Renewable energy independent power procurement process and leveraging process to localize

South Africa implemented a competitive bidding process known as the Renewable Energy Independent Power Producer Programme (REIPPP) to meet the Integrated Resource Plan goals. The REIPPP, adopted in 2011, was designed to procure the 3,725 MW of new renewable energy generation allocated in the Integrated Resource Plan. The creation of the Independent Power Producers Unit in the Department of Energy heralded a major step forward for green energy industrial policy intentions (Eberhard and Naude 2017).

At the heart of South Africa's auction programme is the need to create jobs and enable socioeconomic empowerment. An application must exceed thresholds which covers six areas: environment, land, commercial and legal, economic development, financial and technical. The actual prices bid to deliver the power account for 70 per cent of the project's total score for consideration, while 30 per cent covers local content, job creation, ownership, management control, preferential procurement, enterprise development and socioeconomic development. Local content specifically comprises 7.5 per cent of the total score. These factors were designed to incentivize bidders to promote job growth, domestic industrialization, community development, and black economic empowerment.

The economic and social development accounting for 30 per cent of total bid value played a much stronger role in the REIPPP procurement process than non-price criteria in the South African government's preferential procurement policy. The REIPPP design built in programme features that support the securing of significant local development impacts in the job creation and new industrial development which were viewed as key aspects of the bidding programme to gain support across government, unions and the various social partners. To facilitate localization, the Independent Power Producers Unit incorporated local content in auction requirements.

In the first bid round in August 2011, REIPPP attracted a multitude of international and local private project developers and investors who channelled large amounts of private expertise and investment into grid-connected renewable energy in South Africa at competitive prices. Second and third bid rounds of the programme also fostered competition with consequent and impressive price reductions. In total, REIPPP has generated 64 new renewable energy independent power producers of different sizes at different sites. \$14 billion in investment has been committed for the construction of 3,922 MW1 of capacity in technologies like grid-connected wind, PV and concentrated solar power, as well as smaller amounts of hydro, landfill gas and biomass energy (PPIAF, 2014).

Since 2012, South Africa has ranked among the top ten countries globally in terms of renewable energy independent power producer investments. In less than three years, South Africa has signed up more investment for more independent power generation than has been achieved across the entire African continent over the past 20 years.

Local content requirements also underwent various changes as the bidding progressed through the three rounds:

Round 1 Local content was defined to mean the total costs attributed to each project at the commercial operation date, excluding finance charges, land and mobilization fees of the operations contractor.

Round 2 The definition was refined so that total costs were limited to spending on South Africans and South African products. The exclusions were expanded to cover imported goods and services, as well as finance charges, land and mobilization fees.

Round 2 also included a requirement that bidders provide more detailed information on their local content plans. They were required to provide a breakdown of the components and activities to be undertaken to achieve the committed local content figures.

Using a template provided in the request for proposal, the breakdown was to be used to identify the components related to energy procurement and construction (EPC) contracts and non-EPC components, the percentage of local content for each, along with the cost figures reflected by the percentages.

Finally, round 2 also identified components that were earmarked by the government for manufacturing in South Africa. These included wind turbine blades and towers, PV modules, PV inverters and the metal structures used in PV plants.

Nevertheless, the DTIC made it clear that future bid rounds would focus on these priority components, with the expectation that eventually they would all be manufactured in the country.

Round 3 The definition of local content was further refined. On the one hand, costs incurred by the private company in connecting to distribution and/or transmission systems were now excluded from the definition. On the other hand, all raw or unworked steel and aluminium used in the local manufacture of components were deemed locally sourced to calculate local content. This change reflected the DTIC's desire to encourage local manufacturers of components (e.g., wind turbine towers and solar PV mounting structures) to keep their costs as competitive as possible by seeking the best prices globally for primary steel and aluminium.

Round 3 bidders were also required to provide a more detailed breakdown of relevant costs than had been required in earlier rounds and to differentiate between costs associated with key components and or equipment (identified in the request for proposal) on the one hand and costs for balance of plant on the other.

The Department of Energy wanted to incentivize compliant bidders to make commitments that were as high as possible. No points were awarded for commitments up to or equal to the threshold level. The compliant bidder offering the highest commitment in respect of a specific economic development sub-element was awarded full points for that sub-element, provided the commitment was above the target level. Other compliant bidders were awarded points in proportion, based on their position between the highest compliant bidder and the threshold level, or zero if no threshold level was set. Thus, foreign-owned players complied with local content rules by setting up subsidiaries in South Africa to act as project developers, operations and maintenance providers and energy procurement and construction contractors, or by forming joint ventures or other strategic alliances with local players. In addition, they have contracted local companies for services such as catering and logistics, rather than for the role types directly involved with the project (Bazilian, M. et al, 2020).

Challenges and lessons from REIPPP

While REIPPP has been successful in many ways, there are many concerns that need to be addressed in further rounds of implementation to improve predictability and investor confidence. The success of the REIPPP was hinged on the willingness of the state power

producer, Eskom, to purchase the power and ability to enable connection to the national grid transmission. However, the delay by Eskom to sign the purchase agreements of round 4 independent power producers had negative impacts on the sector including manufactures who were forced to close shop (Power Futures South Africa, n.d).

The Integrated Resource Plan also created uncertainties for manufactures due to suspension of planned REIPPP bidding rounds which had negative impacts on the entire value chains of the industry. Other challenges included unfavourable local business environment around lack of access to finance and scaling of businesses and also limited appropriate skills and also reskilling of workers in the coal industry.

The lessons drawn from this include the need to address conflicts of interest between state entity and independent power producers to ensure immediate purchase of generated power based on the agreed terms in order to create policy certainty, long-term planning and investment for appropriate education and training for new capacity to be addressed at national planning level. Furthermore, in a transition like this, there is a need to align policies of industrial development with the energy and resource policies for smooth implementation of localization policies, capacity constraints and ensuring adequate financial and non-financial assistance to SMMEs which targets businesses of different sizes.

South Korea: leveraging fiscal stimulus to improve energy transition

South Korea's electricity consumption in 2019 was 10,192 kWh per capita and its energy policy focused on an affordable and stable supply of power to boost economic growth (Climate Policy Initiative, 2021). As a result, the energy mix in power generation became heavily dependent on fossil fuels. However, there is now a political will to accelerate the transition to renewable energy to boost renewables and reduce carbon emissions significantly.

South Korea plans to increase its share of renewable electricity production to 20 per cent by 2030 and to 30-35 per cent by 2040. Given this background, South Korea's crisis policies were formulated to ideally be in line with and to support these targets.

From January to July 2020, South Korea saw a decline of -2.8 per cent in electricity consumption compared to 2019 due to the impact of COVID-19 on the energy sectors in the first half of 2020. This decline mainly came from the industrial (-5.1 per cent) and commercial (-1.7 per cent) sectors and reflects an immediate response to the COVID-19 containment measures such as lockdowns and an aggressive push for work/school from home. Energy consumption in the industrial and commercial sectors was expected to rebound to business as usual once the pandemic is under control. On the contrary, residential electricity demand increased significantly by 5.5 per cent in South Korea, primarily due to restrictions that required people to stay at home for long hours.

South Korean Green New Deal

The primary focus of fiscal stimulus in response to the COVID-19 crisis in South Korea was to address health emergencies and to provide support to vulnerable households and businesses for survival. At the same time, the government of South Korea managed to seize the opportunity by using the economic recovery momentum to formulate policies that anchor BBB by encouraging the transitioning from high carbon energy to renewable energy sources by leveraging its state power and resources. In July 2020, the South Korean government announced fiscal stimulus packages amounting to \$238 billion which included the South Korean New Deal equalling \$137 billion aiming to strengthen the economy by creating close to 1.9 million jobs.

Further to the stimulus packages, the South Korean government introduced the Green New Deal to transition buildings and infrastructure into green, expanding the use of low carbon and distributed energy and developing green industrial innovation (Climate Policy Initiative, 2021). The case of South Korea shows that it is possible to address both economic and climate concerns through fiscal stimulus packages. The Green New Deal, along with other recent developments, signifies a positive change of political commitment and a promising opportunity to leverage large-scale public investments for reaching long-term, sustainable growth goals.

Objectives of the Green New Deal

The Green New Deal aims to turn the tide and boost the transition to renewables by promoting research and development, further dissemination and ensuring a just transition. The main focus of the deal falls largely on solar and wind power. Under the deal, support will be provided to increase PV panel installations in residential and commercial buildings (up to 200,000 households), farming areas and industrial complexes. In addition, by establishing a joint research centre among public and private actors, the government aims to promote R&D and support domestic PV manufacturers in carrying out product performance and quality testing.

In the case of wind, the government plans to support the development of large-scale offshore wind power, particularly concerning conducting feasibility studies and measurements, which has been identified as a key barrier to private investment.

While the Green New Deal does not offer concrete targets, it falls in line with the 2030 Renewable Energy Implementation Plan, released by the Ministry of Trade, Industry and Energy in December 2017. Under the plan, the share of new and renewable energy will be increased from 7.6 per cent in 2017 to 20 per cent in 2030. Generation capacity will be amped up from 15.1 GW to 63.8 GW. Targets such as these, and the deal policy in general, will be supported by several measures.

By amending the enforcement decree of the act on promoting the development, use and diffusion of new and renewable energy, the mandatory requirement for public institutions were increased from 30 per cent in 2020 to 40 per cent by 2030. The renewable energy

portfolio standard for generation companies was also increased. Further, the necessary amendments to strengthen the role of central and local governments in developing larger-scale complexes for renewable energy installations were made to prevent and alleviate conflicts that tend to arise with residents. In addition, the government introduced a power purchase agreement opening the doors for domestic businesses that wish to participate in the RE100 initiative. This long-overdue measure will require amendments to the electric utility act.

Lessons from South Korea's Green New Deal

To ensure a sustainable economic recovery and accelerate the energy transition agenda in South Korea, stimulus spending offers a window of opportunity to support short-term economic growth while addressing longer-term climate, sustainability and economic inclusion goals. However, South Korea still needs to remove barriers such as blocking power purchase agreements and stepping in to support investments that are either too risky or unprofitable for the private sector, such as improving infrastructure and creating more incentives that would attract private investment and include specific targets, timelines, sectoral pathways and plans to reduce emissions and stimulate economic recovery.

A toolbox of policies and measures, such as revising relevant laws in South Korea to allow companies to enter into power purchase agreements with renewables providers are required to better address both short-term incentives and long-term structural changes. Specific attention needs to be given to creating enabling environments that attract private investment in the green transition plan while relieving the pressure on public spending. For South Korea, market policies and practices need to be reformed to address long-term investment barriers and attract private investment.

Recovery plans for Bringing Back Better post-COVID-19

South African Economic Reconstruction and Recovery Plan

South Africa had immense challenges for many years before the COVID-19 pandemic which worsened these challenges. Poverty and inequality deepened, threatening many South Africans with hunger and a sudden loss of income.

The economy, like other economies, contracted sharply by 8.2 per cent, businesses closed and about 2.2 million jobs were lost due to the pandemic. The unemployment rate reached a new record at 34.4 per cent, the highest it has been since the inception of the Statistics South Africa's Quarterly Labour Force Survey in 2008 (Statistics South Africa, 2021). South Africa's response to the pandemic was anchored on a robust health response, social and economic relief and economic recovery.

On 15 October 2020, the government launched the South African Economic Reconstruction and Recovery Plan which resulted from extensive consultation with the business, labour and community sectors as social partners to restore the economy to inclusive growth following the devastation caused by the COVID-19 pandemic (Government of South Africa, 2020). Its objectives are to:

Building Back Better in Southern Africa

- Create jobs, primarily through aggressive infrastructure investment and mass employment programmes.
- Reindustrialize the economy, focusing on growing small businesses.
- Accelerate economic reforms to unlock investment and growth.
- Fight crime and corruption.
- Improve the capability of the state.

Resource mobilization and fight against corruption, regulatory reforms, building social compacts, strengthening the capacity of the state, communication and the digital economy, skills development, economic diplomacy and further integration into the African continent, support for the SMMEs, cooperatives and start-ups and innovation were identified as some of the key enablers in steering the recovery plan. The recovery focuses on four areas which are infrastructure, energy generation, employment and reindustrialization of the economy.

Infrastructure expansion

The focus of the government is on critical network infrastructure such as ports, roads and rail that are key to the economy's competitiveness with the potential to stimulate investment and growth, develop other economic sectors and create sustainable employment both directly and indirectly.

The Infrastructure Fund, to be partially financed by freeing up private savings currently tied up in pension funds, will provide Rand 100 billion in finance over the next decade and Rand 1 trillion in new investment for strategic infrastructure projects. An open tender system will be established to enhance greater transparency and accountability to the entire tender process to rebuild public trust and boost confidence. To ensure that the projects are implemented and completed on time, the government established a government agency, Infrastructure South Africa, which will coordinate the infrastructure investment programmes and, where there are capacity constraints for certain key projects, enlist the help of the DFIs.

Industrialization and local production

This is primarily aimed at encouraging local beneficiation and limiting imports of goods that can be produced locally. The industrialization will be done in conjunction with the infrastructure investment drive by enforcing government policies to ensure that all public infrastructure projects use locally made materials including steel products, cement, bricks and other components. Priority will be given to industries located in depressed areas, as well as those with a competitive advantage to help expand sales of South African-made products to the export market.

The participation of SMMEs will be intensified through the provision of 0-2 per cent interest loans for start-ups, with priority given to value chains that will supply construction input goods, agroprocessing, healthcare, basic consumer goods as well as capital goods used for infrastructure projects. Among other outlined measures, the government will be working with women-empowered companies to progressively reach the target of directing at least 40 per cent of procurement spending to such enterprises.

Priority is being placed on key-value chains such as construction, agroprocessing, healthcare, basic consumer goods, capital goods, including equipment and industrial inputs used in infrastructure projects, and transport rolling stock focusing on automobile and rail assembly component production, with 42 product areas already identified as a focus for strategic localization over the next five years (DTIC, 2021). The industrialization effort is also anchored on the sectoral master plans in the automotive, clothing and textile, poultry and sugar sectors, which bring all partners together to agree on specific measures to improve productivity, investment and competitiveness.

Energy security

The intervention is to rapidly expand energy generation capacity. The government is accelerating the implementation of the Integrated Resource Plan to provide a substantial increase in the contribution of renewable energy sources, battery storage and gas technology. The plan seeks to bring 11,800 MW of new generation capacity into the system by 2022. More than half of this energy will be generated from renewable sources. In the immediate term, agreements will be finalized with independent power producers to connect over 2,000 MW of additional capacity from existing projects by June 2021. The utility, together with some renewable energy sources, will provide further power generation which will be connected to the national grid.

The implementation of the nuclear programme will take place at a pace and rate that is affordable. Private organizations are allowed to generate power for their use and price and market regulatory changes will be implemented in the gas industry to increase the usage of LPG for heating and cooking, which will ease some pressure on the national grid. The government amended the energy regulations to allow independent power producers to produce up to 100 MW of power without having to go through a long-drawn-out licencing process. However, they will only be required to acquire a permit from the National Energy Regulator of South Africa (RSA Government, 2021) if they want to sell to the national grid.

Employment

The other intervention is an employment stimulus to create jobs and support livelihoods. Large-scale job interventions driven by the state and social partners have proven effective in many countries that have faced devastation from wars and other crises. The government also committed Rand 100 billion over the next three years to create public and social employment.

Public employment programmes have an advantage in that, not only do they create jobs for people where they live, they also help in meeting community needs in areas such as infrastructure maintenance, the care economy and ecological services. This is part of an employment stimulus, based primarily on direct public investment in employment to counteract anticipated job losses. The stimulus would enable the creation of a cumulative 2.5 million direct jobs by the end of 2021/22 and five million jobs by 2023/24. A provisional allocation of Rand 19.6 billion was made in the Special Adjustment Budget for this purpose. The mass public employment plan cuts across clusters and spheres of government and builds on existing Expanded Public Works Programme and the implementation of the Presidential Youth Employment Intervention.

Implementation

By mid-2021, significant progress has been made since the announcement of the plan, the Infrastructure Fund has been established and its investment committee has been constituted. A total of Rand 18 billion has been allocated to the fund over the next three years for blended finance arrangements that will leverage private sector funding. To achieve greater energy security, a total of 1,200 MW of new generation capacity has now been connected to the grid from projects approved through Bid Window 4 of the REIPPP. A request for proposals has been issued for 2,600 MW of power from wind and solar PV projects through Bid Window 5. Eleven preferred bidders have been approved as part of the emergency power procurement programme, which will together deliver nearly 2,000 MW of power to the grid over the next 18 months. The energy regulations have already been amended to increase the licensing threshold for embedded generation projects from 1 MW to 100 MW.

The Presidential Employment Stimulus has supported close to 700,000 work opportunities across a range of programmes through the creation of new work opportunities, the protection of existing jobs in vulnerable sectors and support for livelihoods (SA Gov News, 2021). Four sector master plans are currently in implementation in the automotive, sugar, poultry and clothing, textiles, footwear and leather sectors. This approach, which relies on close collaboration with stakeholders to develop a tailored action plan for high-growth sectors, is already demonstrating results. The success of the recovery plan is based on a strong partnership with business, labour and other social partners, as a whole-of-society effort to promote our economic recovery.

Mauritius Industrial Policy and Strategic Plan

Mauritius is one of the most successful countries which transformed itself from a predominantly low-income and monocrop economy depending on sugarcane production. The economy diversified away to an upper middle income economy with growing manufacturing, agro-industry, financial, ICT and tourism sectors whose economy has been growing spectacularly, averaging 5 per cent for the last decade. Manufacturing remains the main engine for growth in Mauritius, contributing 12.5 per cent in 2019 to gross value addition and 17 per cent to total employment in addition to foreign exchange

earnings (Government of Mauritius, 2020). The country adopted various industrial policies from import substitution followed by export-led strategies. These policies were successful on the backdrop of trade preferences and the availability of low-cost labour. However, due to unpredicted challenges associated with the outbreak of COVID-19, the government saw it imperative to develop a new industrial policy and strategy which hinges on the use of intelligence, lean production systems embedding digitalization, eco-friendly and fair-trade practices, product quality, branding, research and development and innovation, supplemented by a versatile and high-skilled labour force as these are the factors that dictate the competitiveness and survival of businesses.

The new industrial policy seeks to create a solid industrial foundation based on the availability of technically qualified labour force, an enhanced soft and hard infrastructure to service the manufacturing base, support the drive to diversify products and production processes with the adoption of high-end technologies, promoting local production and boost regional and global exports. It also acknowledges that market forces cannot be left alone to drive the force of structural transformation and sustain economic growth, rather they risk specialization in low-productivity and low value added economic activities. The Industrial Policy and Strategic Plan launched in December 2020 comprises different policies that will be implemented over the years to ensure high economic growth (Government of Mauritius, 2020).

The industrial policy is implemented against abundant challenges ranging from preferential access erosion and heightened international competition resulting in progressive loss of competitiveness in its manufacturing sector whose share of GDP almost halved since the turn of the millennium. Trade and transport costs and limited connectivity create barriers for manufacturing firms based in Mauritius to supply regional markets in a cost-effective way and deficiency in technological uptake, particularly among SMEs, impinges on the ability to manufacture precision-driven and high-end products. The above challenges have slowed the transition towards an innovation-driven economy and put at risk the potential benefit of the new information and communication technologies which denies the Fourth Industrial Revolution and entirely reshaping the organization of production in several sectors, hence the need to adopt a set of policy measures tailored to local conditions and capabilities being more important than ever.

The industrial policy seeks to put Mauritius in a globally competitive and sustainable sector that contributes to higher economic growth through continuous innovation, technology upgrading, productivity gains and high skilled employment. Its objectives are to:

- Increase manufacturing gross value addition from \$1.6 billion in 2018 to \$3.6 billion.
- Grow the manufacturing sector at a compounded annual growth rate of 6.79 per cent (from 2018 to 2030) and reach a target of contributing 25 per cent to GDP.
- Improve sector productivity by an annual 3.87 per cent to sustain the economy's structural transformation in the high-income status.
- Increase manufacturing employment from 103,411 in 2018 to 146,122.

According to the plan, expanding the manufacturing sector in Mauritius is key to resolving three interlinked economic challenges: technology absorption, quality employment creation and the raising of productivity. The plan contains a wide range of policy recommendations in six areas: industry foundations, upgrading of value chains, increased domestic market supply, regional and global export growth and advanced technology absorption (see Table 14 below). These policies are designed to shift the production structure towards new types of activities and sectors with progressively higher productivity, better-paid jobs and a greater upgrading potential.

Table 14

Summary of the Mauritian Industrial Policy and Strategic Plan

Focus area	Recommendation	Type of implementation	Budget impact
Industry foundations	Establish a manufacturing sector skills development map	Coordination	Funding for roadmap
	Develop an expatriate permit expediting process allowing firms to respond to rapid market demand shifts	Coordination	Resourcing of expediting the process
	Develop a labour market flexibility framework that enhances the ability of manufacturers to adjust their capacity to market shifts	Coordination	None Stakeholder engagement process
	Develop domestic accreditation capabilities for domestic and international market supply and ensure associated enforcement	Coordination Infrastructure	Funding of accreditation capacity
	Develop a digital roadmap for priority manufacturing sectors and ensure digital infrastructure is in place for evolving business models	Coordination	Funding for roadmap Infrastructure gaps
	Review the standard of industrial estates and advance standards to those of leading industrial estates globally	Coordination	Resources for upgrading industrial estates
	Review port operations and align costs and performance standards with leading merchandise ports internationally	Coordination	None Engagement process with port

Case studies: Regional value chains, industrial development, leveraging state power and building back better

Focus area	Recommendation	Type of implementation	Budget impact
Upgrading of value chains	Establish a manufacturing fund	Incentive	Rand 1.9 billion over five years
	Establish a modernization investment support fund	Incentive	Rand 4.4 billion to 2025 Rand 9.6 billion to 2030
	Establish a technology innovation incentive	Incentive	Lost income tax
Increased domestic market supply	Initiate a domestic market certification process for food processing and fast-moving consumer goods that encourages sustainable local production.	Coordination	Resourcing of certification capacity
	Mauritius Competition Commission to monitor supermarket chain purchases and respond to monopsonic trade practices.	Coordination	None Stakeholder engagement process
	Government to engage with supermarkets on supporting local production and supporting the private sector's Made in Mauritius label.	Coordination	Stakeholder engagement process Made in Mauritius label support
	Government to investigate the designation of local manufacturing for selected government procurement contracts.	Coordination	None Government coordination only
	Review Mauritius' monitoring and evaluation of preferential trade areas (PTA) and establish remediation processes that protect local manufacturers during investigations.	Coordination	Resourcing of PTA monitoring and evaluation and remediation process
	Explore potential domestic manufacturing servicification models and develop market regulations that advantage these models.	Coordination	Potentially substantial but exploration dependent

Focus area	Recommendation	Type of implementation	Budget impact
Regional and export growth	Explore the establishment of cost-effective warehousing servicification models and develop market regulations that advantage these models.	Coordination Infrastructure	Resourcing of selected warehousing
	Government to explore the provision of discounted export credit guarantees to support risky market search activities in sub-Saharan Africa markets.	Coordination	Resourcing of credit guarantee discounts
	Target the development of regional value chains for selected manufacturing subsectors, including clothing and textiles, food processing, medical instruments and jewellery	Coordination	Resourcing of regional engagements
	Negotiate continued market access advantages into the European Union, the United States of America and extend to Australasia	Coordination	None
	Explore the establishment of cost-effective warehousing in key developed economy markets to aid SME supply into these markets	Coordination Infrastructure	Resourcing of selected warehousing
Advanced technology absorption	Establish a formal institutional process to explore Mauritian and regional cyberphysical platform development opportunities and to then link these opportunities to established upgrading incentives	Coordination	None Link to incentives

Source: Industrial Policy and Strategic Plan for Mauritius 2020-2025

Further to this, the government introduced a Medium-Scale Distributed Generation Scheme, for a maximum of 10 MW to enable beneficiaries to produce electricity for their consumption and sell the excess to the Central Electricity Board, and the installation of 25 MW of rooftop solar PV to cater for public and residential buildings in the 2020/21 budget to encourage the use of renewable energy.

Monitoring of performance of the policy

The government establishment an Industrial Policy Executive Oversight Committee that reports to the Ministry of Industrial Development, SMEs and cooperatives and is responsible for monitoring and evaluating the realization of the strategy over its lifespan. The mechanism is built in a way that the impact of the framework is constantly assessed and where the infrastructure, coordination interventions and incentives are delivering on the growth rates required and represent demonstrated value to both the government and private sector could be expanded and where they fall short, they are reviewed and either remedied or replaced.

Rwanda's Manufacture and Build to Recover Program

The COVID-19 pandemic drove Rwanda's economy into its first recession since 1994. GDP fell by 3.4 per cent in 2020 compared to an expansion of 8 per cent anticipated before the COVID-19 outbreak (World Bank, 2021).

In December 2020, the Government of Rwanda, in consultation with the private sector and investment partners, developed a Manufacture and Build to Recover Program (MBRP) to revive and rebuild the economy to negate the damage caused by the COVID-19 pandemic.

MBRP succeeded the Economic Recovery Fund which was established in June 2020—capitalized with \$101 million by the Government of Rwanda—to support the recovery of businesses hardest hit by COVID-19 so that they can survive, resume operations and safeguard employment, thereby cushioning the economic effects of the pandemic. In addition, with support from the World Bank and the Asian Infrastructure Investment Bank, the recovery fund was revamped with the creation of a new investment window to large corporates, SMEs as well as microbusinesses (AIIB, 2021).

The MBRP seeks to boost economic recovery efforts with specific incentives for the key performance indicators to manufacturing, agroprocessing, construction and real estate development sectors. The goal of the MBRP is to reduce set-up and operational costs for both new and existing companies (Government of Rwanda, 2021). The government targeted the manufacturing sector to boost job creation and support the economic recovery with the objective of fast-tracking the economic recovery, mainly through temporary tax incentives for manufacturing and construction activities. Reforms to accelerate private sector-led growth remain central to fiscal policy and will form part of Rwanda's MBRP. This new investment window will provide financing to create and expand new ventures in agroprocessing, light manufacturing, construction and other job-intensive manufacturing activities (AIIB, 2021). The industrial sector is expected to grow, benefiting from government support of the manufacturing and construction sectors through the MBRP.

Box 8

Structure of the Rwanda Manufacture and Build to Recover Program (MBRP)

MBRP incentives to the existing and new manufacturing, agroprocessing and construction firms.

New and existing companies

- Import duty exemption for imported construction materials not available in the EAC (subject to approval).
- VAT exemption for imported construction materials not available in the EAC.
- VAT exemption for machinery and raw materials sourced domestically.
- VAT exemption for construction materials sourced domestically.

Existing companies operational in Rwanda in up to 2018

- Import duty exemption for imported construction materials not available in the EAC (subject to approval)
- VAT exemption for imported construction materials not available in the EAC.
- VAT exemption for machinery and raw materials sourced domestically.
- VAT exemption for construction materials sourced domestically.
- Tax credits offsetting 2021 pay-as-you-earn and corporate income.

Source: Government of Rwanda. Manufacture and Build to Recover Program, 2020

The interventions by the Government of Rwanda, such as these investment incentives covering corporate taxes for companies that make investment exceeding \$50 million and incentives for exporting, and also reduced corporate tax rate of 15 per cent instead of 30 per cent for companies that export goods manufactured in Rwanda have also been credited for attracting significant investment from VW for vehicle production.

Lessons from the case studies

<p>Functional framework</p>	<p>A functional framework guided by a vision with a specified period is critical for formulation and implementation of trade and industrial development policies. In the case of Rwanda, key stakeholders are consulted in the design and implementation of policies, while funding for the implementation of policies are also reflected in budgets and there is a process for monitoring and evaluation of policies.</p>
<p>Promoting trade and industrial development</p>	<p>While many countries have separate trade and industrial policies frameworks or documents, there are multiplicities of policies and strategies geared towards promoting trade and industrial development in the country. These are all very useful policy documents but having several strategies to address related trade and industrial development issues creates room for policy incoherence. These documents often have overlapping goals, which can result in duplication of efforts and make achieving policy coherence challenging.</p> <p>It is therefore highly recommendable to integrate these policy documents into a comprehensive trade and industrial development strategy or framework to make implementation and monitoring and evaluation of policies much easier and enhance their development impact.</p>
<p>Liberalization of trade</p>	<p>While the liberalization of trade has gone hand in hand with a significant increase in exports, especially traditional exports, it has also increased competition facing domestic manufacturing.</p> <p>Experience has shown failure to shift to an export orientation has left domestic industries unable to compete when protection is lowered led to the demise of domestic manufacturing in many countries in Africa.</p>
<p>Balancing trade benefits</p>	<p>It is important that countries keen to foster industrial development and productive transformation have to balance the trade benefits from participation in bilateral treaties against the loss of policy space associated with these initiatives before making a decision on whether or not to participate.</p> <p>When policies of this nature are being implemented, the timing should reflect the supply response capacity of domestic firms.</p>

Trade and industrial performance	<p>There is a strong linkage between trade and industrial performance, which calls for an integrated approach to trade and industrial strategies to ensure policy coherence. It is critical to integrate these policy documents into a comprehensive trade and industrial development strategy or framework to make implementation and monitoring and evaluation of policies much easier and enhance their development impact.</p>
Human capital development	<p>Human capital development is one of the key drivers of productive capacity development and industrialization. Entrepreneurs will have an incentive to invest if there is an abundant pool of both skilled and unskilled labour to support their investment and production activities.</p> <p>This requires stemming brain drain and also ensuring that the outputs of educational and vocational institutions meet the needs of domestic industry through, for example, fostering effective linkages between industry and universities and research institutes.</p>
Innovation and creativity	<p>It is critical to note that the global market requires constant innovation and creativity and that industrial policies and strategies need to be constantly reviewed to take into account internal and external dynamic environment for them to remain relevant and to have high impact.</p> <p>The key to industrial policies is thus how effectively it can adapt to a very dynamic environment.</p>
Global economy changes	<p>The global economy has changed in recent decades and is today much different than when China and Korea began their industrialization drives. Roughly half of world trade occurs in GVCs, and this trade in tasks is the growing segment of the world market.</p> <p>The new industrial development paradigm involves narrow specialization and trading in tasks in a context of complex cross-border production platforms.</p> <p>It no longer makes economic sense to develop full domestic supply chains in the way South Korea did in order to take part in competitive global industries. Therefore, a value chain model of development should start with measures that enable local firms to join value chains. Over time, they need to be supported in efforts to move up to higher value added activities.</p>

IX. Conclusions and recommendations

Southern Africa has a significant comparative advantage for the production of both mineral and agricultural commodities which could be leveraged to BBB the numerous commodity value chains by developing the backward, forward and knowledge linkages. Further, Southern African states need to make access to national resources for commodity production (e.g., minerals, land, water) dependent on developing the value

chains (linkages) as well as using other state rights (permissions/authorizations) to facilitate linkages development, manufacturing and industrialization. Additionally, Southern African states should BBB by using state purchasing power to enhance localization (local content and indigenization). These levers need to be used in tandem with creating a conducive environment for value chain development through access to affordable capital, trade facilitation, access to utilities (energy, water, waste disposal), lower logistics costs, skills development, etc. Such a commodities-based industrialization strategy should be undertaken at a regional level to access a more diverse range of commodities (feedstocks), a much larger market and achieve economies of scale through the promotion and establishment of regional commodity value chains. Such a strategy would create the scale for regional industries to competitively replace imported products (on price and service) and expand into global markets. The development of regional value chains will require the reciprocal recognition of backward linkages (local content), forward linkages (intermediates) and knowledge linkages (skilling and RDI), by participating Member States. Regional commodity value chain development will also require seamless intraregional trade in the commodity value chain products behind CETs.

Effective BBB strategies will require cooperation between, and clear roles among, the key stakeholders involved: governments, organized industry, labour unions and skills development institutions.

Responsibility for establishing regional development funds lies with SADC Member States to give effect to commitments to capitalize these funds. In the key regional value chain sections of this report, sector-specific regional strategies are proposed that have the following elements in common:

- A CET for the selected value chain upstream and downstream linkages products. The excise duties could be used to part fund the investment funds (VCF) required for new value chain investments in least developed Member States, as per the SADC RMV.
- A regional development fund with a VCF, biased towards the least developed Member States (funding eligibility at the inverse of the Member States' GDP/capita), that would proportionally fund investment project pre-feasibility studies, debt and minority VCF equity participation.
- A regional infrastructure fund targeting critical connecting infrastructure (road, rail, bridges, power, telecoms, water and gas) by raising capital from commercial banks, DFIs and green financing facilities. This would blend finances and provide different levels of risk to match institutional mandates for least cost finance at scale. This would move towards more equitable regional infrastructure costs to participate in the proposed regional upstream and downstream value chain opportunities.
- Infant industry protection within the CET for least developed Member States to apply moderate time-limited tariffs on new value chain investments that may struggle to compete with amortised investments elsewhere in the region.

- Indigenization of the value chains (development of local capital) through firm-centric strategies in order for regional indigenous firms to thrive in a supportive policy environment in competition with incumbent market leaders.

If there is indeed an appetite to pursue a regional CBI strategy, drawing upon the enormous natural comparative advantages the region possesses—as per the Economic Report on Africa 2013 (UNECA, 2013) and the 2018 SADC Regional Mining Vision—by developing the commodity value chain linkages, then it would appear to be simpler to consolidate the discrete regional commodity value chain strategies into a single regional CBI strategy, rather than separate strategies for each commodity value chain. Such a regional strategy would prioritize the key requisite commodity feedstocks into local/regional manufacturing and industrialization, rather than commodities exported into GVCs. In this proposal, the automotive value chain would constitute a separate regional value chain strategy, albeit the endpoint of several regional commodity value chains (e.g., steel, polymers, base metals). Likewise, the renewable energy supply chain would need to be a separate regional strategy. Accordingly, it is recommended that consideration be given to developing the following three complimentary BBB strategies:

- 1 An SADC commodity-based industrialization strategy that builds on the AMV, the SADC RMV and the UNECA report *Making the Most of Africa's Commodities* (UNECA, 2013).
- 2 An SADC automotive strategy based on the APDP and AIS (South Africa), incorporating the vehicular energy transition (automotive is the culmination of several regional commodity value chains).
- 3 An SADC renewable energy localization strategy (backward linkages development, also the endpoint of several regional commodity value chains).

However, given that in the short term the region is unlikely to agree on and resource these strategies for BBB through CBI, manufacturing and regional value chains, individual Member States could start fleshing out and developing these strategies nationally and with other like-minded Member States. Setting targets and resolving obstacles to implementation can only be done with in collaboration with organized industry. Following successful examples of industrial development from Asia discussed in this report, after targets are set clearing implementation hurdles and monitoring progress should be done iteratively.

Given that five Member States are already part of a customs union with a CET, namely the Southern African Customs Union, it may be possible to start with these Member States as a pilot and to enlarge it into a wider regional BBB strategy as other Member States see the palpable benefits.

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Appendix

Mining Capital Goods: Selected HS Codes:

401011; 401012; 401019; 401031; 401032; 401033; 401034; 401035; 401036; 401039;
591000; 730840; 820713; 820719; 841710; 842320; 842820; 842831; 842832; 842833;
842839; 842911; 842952; 842959; 843031; 843039; 843041; 843141; 843143; 845410;
845420; 845430; 845490; 845510; 845521; 845522; 845530; 845590; 847410; 847420;
847490; 848110; 848120; 848130; 848140; 848180; 848190; 870410

