

# Accelerating Industrialization in Southern Africa through Beneficiation and Value Addition

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Designed and printed by the ECA Printing and Publishing Unit. ISO 14001:2004 certified.

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# **Acronyms**

ACET African Centre for Economic

Transformation

AfDB African Development Bank

COMESA Common Market for Eastern and

Southern Africa

CSIR Council for Scientific and Industrial

Research

EAC East African Community

ECA Economic Commission of Africa

GAH Growth at Home

GDP gross domestic product

GCVC global commodity value chain ICT information and communication

technologies

IDP Industrial Development Policy
IDPF Industrial Development Policy

Framework

MSMEs micro, small and medium-sized

enterprise

OECD Organisation for Economic

Co-operation and Development

PPP public-private partnership

RISDP Regional Indicative Strategic

Development Plan

RCVC regional commodity value chain SACU Southern African Customs Union SADC Southern African Development

Community

SME small and medium-sized enterprises SRO-SA ECA Sub Regional Office for Southern

Africa

STP SADC Trade Protocol

UNDP United Nations Development

Programme

UNCTAD United Nations Conference on Trade

and Development

UNIDO United Nations Industrial

Development Organization

ZIMASSET Zimbabwe Agenda for Social and

**Economic Transformation** 

# **Acknowledgements**

The report was compiled with assistance from Farai B. Zizhou of Harare. It was conducted under the direct supervision of Sizo Mhlanga, Chief of the Data Centre, ECA Sub Regional Office for Southern Africa (SRO-SA) and the overall supervision of Said Adejumobi, Director of SRO-SA. Oliver Maponga supervised the study and compiled the final report. Comments and observations by colleagues from the SRO-SA Office; Mzwanele Mfunwa, Anthony Taylor, Emmanuel Louzet, Zebulun Kreiter, Marta Duda-Nyczak, Peter Chikwekwete, Chilombo Musa, Juliet Achen, Henry Lubinda and Ian Filakati shaped the content and focus of the final report. The final report also benefited immensely from the

comments of delegates and participants to the 21st Session of the Intergovernmental Committee of Experts of Southern Africa, which was held in Victoria Falls, Zimbabwe on 12 and 13 March 2015 and was hosted by the Government of Zimbabwe. The success of the 21st ICE was ably anchored by administration and finance colleagues at SRO-SA: Bernard Bamin; Ruth Kananda; Bedson Nyoni; Ronald Nkhoma; Grace Kaonga; Dailes Matoka; Anne Temba; and Mubanga Katongo.

# **Executive Summary**

Member States of the Southern African Development Community (SADC) are individually pursuing programmes aimed at deepening the level of regional integration through the creation of higher value tradable goods, leveraging on their rich natural resource endowments. This is aligned with the beneficiation and valueaddition of natural resources thrusts of regional and continental industrialization frameworks on producing higher value goods, raising incomes and facilitating linkages. The regional frameworks supporting this endeavour include: the SADC Treaty; Regional Indicative Strategic Development Plan of SADC, as revised; SADC Protocol on Trade; Industrial Upgrading and Modernization Programme; SADC Industrial Development Policy Framework; and SADC Industrialization Strategy and Roadmap, 2015-2063. The SADC regional integration agenda was revised in 2015 to frontload industrialization under which value addition to commodities is central.

The general thrust of the national industrialization policy frameworks of SADC member States is beneficiation and value addition. The degree to which it is emphasized varies among the individual countries and South Africa's industrial policy framework and implementation plans constitute an elaborate example and shows the direct link between the policy and the country's national development plan.

SADC member States stakeholders are involved in global commodity value chains that are very much a relic of the colonial era. These producers, however, are generally anchored at the bottom of these value chains and derive limited benefits in the process. This study has identified areas in which there are some levels of value addition and areas that offer opportunities or show potential for higher levels of beneficiation and value addition. Among them are diamonds, platinum, gold, iron ore, cotton, fruits, coal, crude oil, marine products, natural gas and copper sectors.

In the industrial policy documents, skills, finance, technology, infrastructure (such as power, roads), and markets, are identified as common constraints. to the industrialization efforts of member States. With regard to skills, SADC countries need to identify the nature of the skills gap (which areas?) to devise possible regional strategies. The power deficit is currently a major constraint to industrial development and to wider industrialization efforts. Furthermore, policy coordination among SADC countries, especially in implementing their industrial policies, remains weak. However, the recently adopted SADC Industrialization Strategy and Roadmap provides a coherent and forward looking approach to industrial development anchored on value addition and beneficiation.

The study reviewed various initiatives by enterprises in member States to participate in global value chains, and concludes that value addition and beneficiation to the natural resources utilizing global, regional and national value chain development techniques can potentially accelerate industrial development in Southern Africa. This, however, requires collaboration among stakeholders. The role of the State through various instruments is particularly important in navigating the transition from commodity exporters to knowledge economies.

The focus of regional integration in SADC is already directed at transforming the Trade Protocol and the COMESA-EAC-SADC tripartite arrangement so that they both support regional industrialization. Through various incentives and instruments, industrial policies in the region should encourage enterprises to invest in developing regional value chains anchored on the various regional commodity endowments rather that targeting the highly competitive global market where barriers are higher. The successful localization of the diamond sector by the Botswana government could be replicated and improved upon as a regional strategy. Similarly, the initiative by South Africa on titanium minerals is also instructive for

regional value addition and establishing centres of excellence that focus on research, development and innovation and production of tradable goods from mineral commodities.

The availability of financial support to industrial development is a major constraint to value addition and beneficiation. Mechanisms that can be used to overcome this constraint include, among others, prescribed State budget allocation to industrialization, South-South cooperation, financing specific value chains, financing industrialization and infrastructure through regional development banks, and using sovereign wealth funds from natural resources revenues to finance value addition and value chains development...

The member States of SADC and national stakeholders should align their industrialization strategies to the aspirations of the regional industrial development framework and the industrialization strategy by providing supporting infrastructure for industrial development, collaborating with the private sector and other regional countries in skills development and retention and, developing and supporting the acquisition of industrial technology, and deepening regional cooperation.

The prospects of implementing a regional value chain approach to industrialization make it possible for individual countries to concentrate on fewer specific industries for which comparative advantages exist. Collaboration among member States becomes critical in the broader regional industrialization strategy.

Regionally, the SADC secretariat should play a leading role in spearheading the implementation of the Industrialization Strategy and Roadmap through, among other strategies, enhancing capacity in industrial policymaking, regional pooling of resources and capacities, research into and the development of regional value chains and industrial clusters, investigating the possibility of changing the mandates of existing regional development banks to include the provision of long-term capital for industrial development and the implementation of the SADC Regional Infrastructure Development Master Plan. Furthermore, the efforts of regional stakeholders in value-addition and beneficiation require continued technical and financial support from development partners, including the United Nations Industrial Development Organization, the Economic Commission for Africa, the African Development Bank and other bilateral and multilateral support mechanisms.

# **Chapter 1**

### Introduction

#### Overview and background

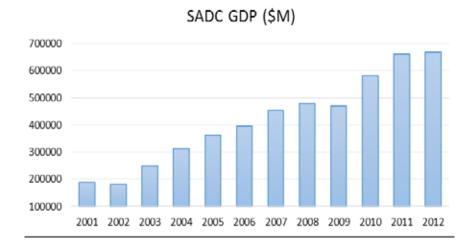
Industrial development has been placed at the core of the developmental integration agenda of the Southern African Development Community (SADC)<sup>1</sup> (IDPF, 2009a, p 4). With few exceptions, the region has generally achieved rapid growth of gross domestic product (GDP) over the past decade, especially Mozambique and Zambia, which achieved annual growth rates in excess of 7 per cent and 6 per cent, respectively, for most of the period (SADC Statistics Yearbook, 2013).

Some single commodity-dependent countries, such as Angola and Botswana, however, experienced serious economic downturns during the global financial crisis of 2008-2009, as they were exposed to the resultant global fall in demand and prices. Other regional countries were affected negatively to varying degrees depending on specific commodities and the

extent of integration into developed economies markets.

Though the growth in overall GDP between 2001 and 2012 was laudable, it did not necessarily translate into increased jobs or higher standards of living for the majority of the region's population. For example, South Africa, Mauritius and to a lesser extent Botswana, show that despite registering positive real growth rates in GDP during the decade, levels of unemployment in the three countries did not change much. This indicates that most of the growth registered was concentrated in the highly capital-intensive extractive sectors which have fewer linkages with the rest of the local economy.

Figure 1.1: Total Southern African Development Community Gross Domestic Product, 2001 to 2012



**Source:** *SADC* (2012).

<sup>&</sup>lt;sup>1</sup> Throughout this report, SADC and Southern Africa is used interchangeably to refer to Angola, Botswana, the Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, the United Republic of Tanzania, Zambia and Zimbabwe.

Table 1.1: Agriculture and industry share of gross domestic product in the Southern African Development Community

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Agriculture	10	10.3	8.4	7.5	7	7.2	7.4	7.8	8.2	7.4	7.5	8.1
Mining and quarrying	10.2	10.5	9.8	10.3	13.1	14	15.6	18.1	13.7	14.3	15.3	15.6
Manufacturing	16.9	16.8	17.2	17	16.1	15.3	14.7	14	13.8	13	11.8	11.6
Others	62.9	62.4	64.6	65.2	63.8	63.5	62.3	60.1	64.3	65.3	65.4	64.7

Source: SADC Statistics Yearbook (2012).

Table **1.1** shows that the contribution of extractive industries (mining and quarrying) to regional GDP increased from 10.2 per cent in 2001 to 15.6 per cent in 2012. On the other hand, the share of value adding activities during that timeframe as represented by the manufacturing sector, declined from 16.9 per cent to 11.6 per cent.

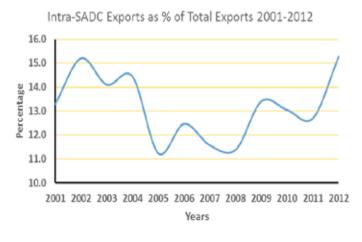
During the period 2001 to 2012, income inequality as measured by the Gini coefficient increased in the countries for which some data are available. In Botswana, one of the star performers in terms of economic growth, the Gini coefficient increased from 57.3 per cent in 2002 to 64.5 per cent in 2010. Inequality for Mauritius increased from 37.1 per cent in 2002 to 41.3 per cent in 2012. The inequality rate of South Africa increased from 57.8 per cent in 2000 to 65.0 per cent in 2012 (SADC Statistics Yearbook, 2012). Inequality in the United Republic of Tanzania and Swaziland hardly changed for the years figures are available.

This means that for the period 2001 to 2012, GDP growth attained by some SADC member State had little or no positive impact on inequality. If anything, the tendency was increasing inequality with increasing economic growth, pointing to a possible source of future social conflict.

The annual total exports from SADC to the rest of the world grew from \$47 billion in 2001 to \$200 billion in 2012. At the same time, intra-SADC exports increased from \$6 billion to \$30 billion over the same period (SADC Statistics Yearbook, 2012).

Although the value of intra-SADC exports grew fivefold over the period 2001 to 2012, the proportion of intra-SADC exports to total exports oscillated between only 11 per cent and 15 per cent. This prompted regional leaders to call for a reprioritization of the regional integration agenda to emphasize industrial production based on

Figure 1.2: Intra-Southern African Development Community Exports as a percentage of total Southern African Development Community exports 2001-2012



Source: SADC Statistics Yearbook (2012).

the region's abundant natural resources. Deeper regional integration allows for the free movement of capital and other factors of production, making it possible for beneficiation and value addition to take place across borders. This is critical to increasing the level of intraregional trade in value added products both mineral and agriculture-based products.

Mineral beneficiation and value-addition to agricultural products are key to industrial development and economic transformation in the region. Currently there is very limited domestic downstream value-addition and beneficiation for most minerals in the SADC region as companies either sell mineral products directly onto the world commodity markets, on long-term contracts with major consumers or to sister companies for further processing (ECA, 2011). Value-addition is traditionally highly vertically integrated. This type of integration is missing in the region for most minerals. Consequently, the region is unable to benefit from the multipliers along the value chains of the diverse minerals. Such value-addition can be driven by industrial strategies, trade barriers, processes and/or product innovation. Furthermore, the international trading environment affects beneficiation strategies as value-added products face tariff escalation on the international markets. Tariffs on ores and concentrates and metals and alloys exported to developed countries are relatively low but tend to be higher on semi-finished products and finished mineral products (ECA, 2011). Other barriers to accessing developed country markets include product specifications and standards and labelling requirements. A regional beneficiation strategy in SADC is also constrained by such factors as inadequate infrastructure, including energy, technology and limited skills.

Similarly, the SADC region produces a wide range of agricultural commodities for domestic consumption and for trade (local and regional). These include both cash crops and food crops. The producers range from large commercial and agroindustrial estates to smaller peri-urban market farms and smallholder and communal farms. The main agricultural commodities produced in the

region on commercial scale are cotton, maize, coffee, tea, tobacco, peanuts, cashew nuts, sisal, citrus, oil-seeds, and sugar, as well as vanilla, cloves and other spices (SADC Statistics Yearbook 2012).

In a manner similar to the minerals sector, for the agricultural sector, integrated value-chain approaches to increase productivity and improve market access supported by investment in infrastructure and trade promotion are important for industrialization. The constraints to value chain development include market access, market orientation, available resources and access to infrastructure, factor conditions and the capacity of institutions. The importance of infrastructure to economic development prompted the SADC Heads of State at their 2014 Summit, which was held in Victoria Falls, Zimbabwe on 17 and 18 August, to call for the urgent implementation of regional infrastructure projects in order to catalyse the regional industrialization, customs and economic liberalization agenda. Notwithstanding these challenges, the region is focussed on domestic beneficiation and value-addition to natural resources and the development of value chains as strategies to strengthen the developmental role of natural resource exploitation.

#### Objectives of the study

The overall objective of this study is to review the status of industrialization and economic transformation in Southern Africa, focusing on beneficiation and value-addition of natural resources as the key drivers. The study identifies the constraints and challenges to industrialization and industrial take-off, the attendant policy and institutional and financing gaps at national and regional levels. It provides recommendations to local value-addition and beneficiation and constraints to industrial development and the growth of regional and global commodity value chains. It is recognized, however, that Africa in general and the Southern African region, in particular, has been enmeshed in global commodity value chains for a long time, yet industrial take-off has not materialized. An estimated 60 per cent of the integration reflects the role of Africa (and Southern Africa) as a source of inputs for other countries' exports, predominantly made up of raw materials, rather than to its role as a production hub. In this case, forward integration is greater than backward integration. The study seeks to identify possible measures that regional countries can take so as to grow regional commodity value chains (RCVCs) while progressing up the global commodity value chains to reverse the situation.

#### Scope of the study

The scope of the study involved:

- Reviewing the industrialization policies and programmes in the SADC region, including the Industrial Development Policy Framework, the Industrial Upgrading Modernization Programme and the Regional Indicative Strategic Development Plan, focusing on beneficiation and value-addition;
- Reviewing relevant industrialization programmes, including value chain development, under the COMESA-EAC-SADC tripartite;
- Reviewing national industrialization and industrial development programmes in the SADC member States in terms of their focus, content and alignment to regional programmes and the aspirations of the SADC Protocol on Trade;
- Assessing progress in the implementation of national industrialization programmes and plans and identifying challenges, constraints and gaps;
- Profiling the priority sectors for the region including agro-food processing and mineral beneficiation to do the following: identify regional development potential lessons to be drawn from implementation so far and bottlenecks and constraints to regional commodity value chain development; propose action to be taken to operationalize potential regional commodity value chains; and appropriately locate local production in global commodity value chains;

- Preparing a draft study report with concrete national and regional-level recommendations for accelerated industrialization through beneficiation and value-addition;
- Preparing a summary of the study findings and recommendations;
- Presenting the findings of the study to the 21st Session of the Inter-Governmental Committee of Experts of Southern Africa;
- Finalizing the study report on "Accelerating Industrialization in Southern Africa through Beneficiation and Value Addition" by incorporating comments from the 21st Session of the Inter-Governmental Committee of Experts of Southern Africa.

#### Methodology

This work is primarily the result of a desk study utilizing regional and national industrial policy documents and other literature available in the public domain, focusing on industrialization and beneficiation and value-addition at the continental, sub regional and national levels. The documents were accessed online. Some officials in member States were consulted to confirm the validity of some of the documents obtained online.

The main task was to establish the role of beneficiation and value-addition in the continental policy frameworks, which are supposed to serve as a guide to policies being pursued at regional and national levels. At the national level, the study sought to establish whether the policies include beneficiation and value-addition, and assess the potential of the same to push forward the industrialization agenda of regional countries. Establishing the existence of policy measures involved looking for appropriate references in the text. Measuring policy success involved using the proxy measured by the proportion of beneficiated products of the mining sector and other value-added exports in total exports.

#### Limitations of the study

As this report is the outcome of a desk study, it is devoid of any detailed personal interactions with policy practitioners. While some contacts were made with some officials to confirm the content in the documents, a more in-depth study would have been ideal in which different views of various stakeholders would be captured and compared with the official documents available in the public domain. This is beyond the scope of this assignment. There was also the challenge of the public availability of up-to-date data or policy documents. In particular, a key part of the study was to establish the proportion of value-added products in total production and in exports of regional countries. For most member countries, these data are not available in the public domain, thereby putting limitations on making binding conclusions in the study. Such work would greatly benefit from direct interactions with officials of member States in their respective countries.

#### Structure of the report

This report consists of eight Chapters. In Chapter 1, the introduction to the study, the objectives, the scope and the methodology and limitations are presented along with an introduction to the

strategy of industrialization through beneficiation and value-addition to the primary products produced in the region. Chapter 2 contains a discussion on the continental, sub regional and national policy frameworks and approach to industrialization, including the role of beneficiation and value-addition in industrialization. In chapter 3, beneficiation and value-addition within the context of industrialization policies of selected Southern African countries is reviewed. Chapter 4 examines the development of commodity value chains. Chapter 5 contains a discussion on the African region's participation in global value chains and regional and national value chains in nine SADC member States. In chapter the constraints and challenges to natural resources beneficiation and value-addition in the SADC region are reviewed with a focus on selected member States. Strategies to overcome the constraints and strengthen domestic and regional beneficiation and value-addition through value chains are reviewed in Chapter 7. Chapter 8 presents the conclusions and recommendations, focusing on what can be done to accelerate industrialization in Southern African countries through beneficiation and value-addition.

# **Chapter 2**

# Continental and Regional Industrialization Policy Frameworks

# The Industrialization Policy Framework of Africa

The continental initiatives for development are underpinned by the African Union Vision to "build an integrated, prosperous, and peaceful Africa, driven and managed by its own citizens and representing a dynamic force in the international arena", which places industrialization at the centre. Initiatives and plans central to the continent's development agenda include the Plan of Action for Accelerated Industrial Development of Africa, the boosting of intra-African trade and the realization of a continental tree trade area. The recently crafted Agenda 2063 seeks to push for the socioeconomic transformation of Africa, inclusive growth and sustainable development. Among others, the milestones for Agenda 2063 include: transforming, growing and industrializing African economies through beneficiation and value-addition of natural resources; and consolidation of the modernization of African agriculture and agro-businesses through valueaddition and increased productivity. Furthermore, the common Africa position at the discussions on the post-2015 development agenda, Agenda 2030, also re-emphasized industrialization as the centrepiece for prosperity on the continent. The six pillars of the common African position at those deliberations are: (a) structural economic transformation and inclusive growth; (b) science, technology and innovation; (c) people-centred development; (d) environmental sustainability, natural resources management and disaster risk management; (e) peace and security; and (f) finance and partnerships. These aspirations are reflected in the regional development policy frameworks.

#### Southern African Development Community Regional Industrialization Policy Frameworks

In recent years, member States of the SADC have been pursuing programmes aimed at deepening the level of regional integration through the creation of higher value tradable goods, leveraging on the their rich natural resource endowment. The overall frameworks are as follows: (a) the SADC Treaty provides for an integration approach in the region, which seeks sustainable use of natural resources; (b) The Regional Indicative Strategic Development Plan (RISDP (2015-2020)), among others, advocates for the "...diversification of regional economies through, inter-alia, industrial development and value-addition;"2 and situates industrialization at the forefront of the region's integration agenda; (c) the push for industrialization is also echoed in the SADC Protocol on Trade in Article 4(2); (d) the current regional initiatives towards accelerated industrialization fall under the Industrial Upgrading and Modernization Programme, adopted in 2009; (e) the adoption of the SADC Industrial Development Policy Framework in 2012 as the region's blueprint on industrialization marks a bold step towards fostering industrial development in the region; (f) the SADC Industrialization Strategy and Roadmap (2015) provides a long-term action programme linking the regional body's industrialization drive to the African Union Agenda 2063.

The Regional Indicative Strategic Development Plan, adopted in 2003, with implementation beginning in 2005, reaffirms the commitment of SADC member States to a number of priority

<sup>&</sup>lt;sup>2</sup> See www.sadc.int/about-sadc/overview/strategic-pl/regional-indicative-strategic-development-plan/ (p.27).

intervention areas, including development of deliberate policies for industrialization with a focus on promotion of industrial linkages and efficient utilization of regional resources through increased value-addition. The Plan was revised in 2012/13 to provide guidance for the last phase of implementation: 2015-2020. The new priorities under the Plan are: priority A — industrial development and market integration; priority B infrastructure in support of regional integration; priority C — peace and security cooperation; and priority D — special programmes. The special programmes fall under education and human resource development, health, AIDS and other diseases of public health importance, food security and transboundary natural resources, environment, statistics, private sector, gender equality, and science, technology and innovation and research and development. Each of these priority areas has a strategic objective and specific objectives. The priorities will be pursued in a synergistic manner.

The SADC Industrial Development Framework seeks to implement industrialization component of the Regional Indicative Strategic Development Plan and sets out areas of cooperation at the regional level to build a diversified, innovative and globally competitive industrial base, which contributes to sustainable growth and employment creation for the mutual benefit of the people of the region. It endeavours to promote the development of an integrated industrial base in the region by exploiting regional synergies in value-added production and enhancing export competitiveness. As a result, the policy underscores the importance of value-addition and beneficiation as anchors of the industrialization process in a resource-rich region. Specifically, the policy framework seeks to promote collaboration in the development of regional value chains, with targeted interventions on, but not exclusively, identified priority sectors, with the following objectives:

(a) To increase intraregional trade and expansion of markets;

- **(b)** To diversify the region's manufacturing base through efforts to stimulate and encourage value-addition on local primary resources;
- (c) To stimulate investment flows into productive sectors in which the region has a comparative advantage, and as a strategy for acquiring modern technology to support valueaddition, innovation and technology transfer into the regional economy;
- (d) To strengthen national and regional institutional frameworks and capabilities for industrial policy design and implementation, with specific emphasis on enhancing evidence-based research processes between the public and the private sectors;
- **(e)** To strengthen research and development, technology and innovation capabilities and skills to facilitate structural transformation of the manufacturing sector;
- (f) To facilitate the upgrading of existing industries, particularly small and mediumsized enterprises (SMEs), to make them more competitiveness, including improvements in the quality and standards infrastructure necessary to ensure international competitiveness of goods produced in the SADC region;
- **(g)** To promote export diversification of goods and services;
- (h) To facilitate regional public and private investments in infrastructure and services in order to reduce the costs of doing business in the region;
- (i) To position the region to exploit opportunities arising out of collaboration with other parts of the world.

The regional Industrial Upgrading and Modernisation Programme, which was developed after extensive consultations, seeks to reinforce institutional support infrastructure for improving productivity and competitiveness for the success

of beneficiation and value-addition. The extensive consultations and analytical work confirmed both comparative and competitive advantages in promoting the development of regional value chains and their linkages with global supply chains. Nine priority sectors were identified: agro-food processing; fisheries; wood and wood products; textiles and garments; leather and leather products; beneficiation of mineral products; pharmaceuticals and chemicals; machinery and equipment; and services. Overall, the Programme seeks to promote industrial upgrading through innovation, skills development, technology transfer and research and development. The implementation of the SADC Protocol on Science, Technology and Innovation, which emphasises cooperation in the development and transfer of science, technology and innovation in the member States, is a key starting point.

The thrust of the Programme on value-addition and beneficiation of natural resources is re-emphasized in the updated/revised Regional Indicative Strategic Development Plan (2015). In the revised Plan industrialization has been frontloaded. In 2014, the SADC Council also "requested the Committee of Ministers of Trade to review the sequencing of targeted outputs on Industrial Development and Trade Liberalisation in order to accord centre stage to industrialisation in the current stage of integration in SADC."3 This change in priorities was further buttressed by the directive of the 2014 SADC Summit that industrialization should take centre stage in the Community's regional integration agenda. Thus, the Summit mandated the Ministerial Task Force on Regional Economic Integration to develop a regional strategy and road map for industrialization. The Council further directed the secretariat to facilitate the implementation of all pillars of the development integration agenda, in particular, fast track the coordination of measures for effective implementation of the SADC Industrial Development Policy Framework and the Industrial Upgrading and Modernisation Programme, in

<sup>3</sup> Outcome of SADC Council of Ministers Meeting, Victoria Falls, Zimbabwe, 14 and 15 August 2014. Available from https://www.sadc.int/news-events/news/outcome-sadc-council-ministers-meeting-held-august-14-and-15.

order to boost productive competitiveness and industrial capacity, and promote equity, fairness and balance in intraregional trade.

At the 2015 SADC Summit, the Heads of State and Government approved the Industrialization Strategy and Roadmap and called for the urgent development of a costed action plan for its implementation. The SADC Industrialization Strategy and Roadmap (the Strategy) seeks to: engender major economic and technological transformation at national and regional levels; accelerate the growth momentum; and enhance the comparative and competitive advantages of the economies of the SADC region. The Strategy is anchored on three pillars: industrialization as a champion of economic and technological transformation; competitiveness as an active process to move from comparative advantage to competitive advantage; and regional integration and geography as the context for industrial development and prosperity.

The Strategy has a longer term perspective, covering the years 2015 to 2063 and is aligned with the African Union Agenda 2063 with the following three growth scenarios:

- (a) Phase I: covering the remaining period of the Regional Indicative Strategic Development Plan —2015 to 2020. This period constitutes a period of active frontloading of the industrial development and market integration component of the Plan and related infrastructure and services support to industrialization, together with initiation or continuation of interventions to strengthen integration and competitiveness; (b) Phase II: covering the period from 2021 to 2050, during which the focus will be on diversification and enhancement of productivity and competitiveness;
- (b) Phase III: covering the period from 2051 to 2063 in which SADC economies would move into the innovation-driven stage, characterized by advanced technologies and increased business sophistication;

- The Strategy sets out the following quantitative goals and growth targets for the region:
- (a) To lift the regional growth rate of real GDP from 4 per cent annually (since 2000) to a minimum of 7 per cent a year;
- (b) To double the share of manufacturing value added in GDP to 30 per cent by 2030 and to 40 per cent by 2050, including the share of industry-related services;
- (c) To increase the share of medium-and-hightechnology production in total manufacturing value added from less than 15 per cent at present to 30 per cent by 2030 and 50 per cent by 2050;
- (d) To increase manufactured exports to at least 50 per cent of total exports by 2030 from less than 20 per cent at present;
- (e) To build market share in the global market for the export of intermediate products to East Asian levels of about 60 per cent of total manufactured exports;

(f) To increase the share of industrial employment to 40 per cent of total employment by 2030.

This new industrialization framework is the first to put emphasis on the employment of the value chain as a strategy for ensuring that development is spread across the region. It is expected to be anchored on development of regional value chains, initially focusing on three key sectors: agroindustry; mineral processing; and pharmaceutical industries. Development in other sectors, such as fisheries, is expected to follow under the same format.

Notably, in these frameworks, value-addition and beneficiation and industrial development are emphasized. As indicated in the following chapter, some member States have not yet aligned their policies to the regional blueprints and others are in the process of doing so to create a harmonized environment. The Industrialization Strategy, in particular, requires a significant change in the focus of national development plans, especially the aspect of building regional value chains. It marks a departure from the focus up until now only on national development to encompass a regional outlook and in a sense some interdependence.

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# **Chapter 3**

# Industrialization Policies of Selected Southern African States

The domestication of the regional industrialization agenda through national policy frameworks is essential for their implementation. In this section, the policies of some of the SADC member States are reviewed with a view to establishing their complementarities with the regional industrialization agenda. "As for member States of SADC, the crucial question is whether industrialization is a policy priority for their governments and, if so, to what extent are these initiatives embedded in national development policies. A related question to enquire is whether there are specific policy tools and instruments that national governments have adopted to stimulate local beneficiation and value-addition. Also, there is need to assess whether Southern African countries were/are pragmatically pursuing industrialization policy cooperation (or coordination) as this marks an important point of departure in the analysis of industrialisation in the region." The following sections examine the industrialization policies of some of the member States with particular emphasis on beneficiation and value-addition and seek to ascertain if the policies incorporate strategies for adding value to domestically produced primary products.

#### **Angola**

The objectives of the national policy to promote and diversify the economy under Angola's Vision 2020-2025 are as follows:

- (a) To promote balanced growth of the various sectors of economic activity centred on economic growth and expansion of employment opportunities;
- (b) To enhance natural resources, enabling the expansion of value chains and the

- construction of "clusters" based on local resources:
- (c) To increase the self-sufficiency of the country through competitive, gradual replacement of select imports.

The priority sectors for industrialization are identified in the Angola Strategic Development Plan 2025. These sectors were chosen according to a set of criteria that match their contribution to national objectives, including the generation of added value, meeting the basic needs of the population, job creation, equitable and balanced regional development and the net effect on the trade balance,, in addition to the multiplier effect that can boost the process of industrialization and economic activity. The strategies, though anchored on adding value to locally available resources; include the following;

- (a) Food and Drink Industry meat, fish, vegetables, oils, fats, milk, dairy products, flour, pasta, bread, cakes and other products for human and animal consumption, production of spirits, wines, beverages based on malt and soft drinks, including mineral water and soft drinks. Strong links with agriculture and fisheries;
- (b) Textile and clothing manufacturing production of textiles and garments, strong links with agriculture;
- (c) Leather and footwear comprises the entire production chain from tanning and finishing of leather to the manufacture of footwear and its components, as strong links to livestock production and rubber and plastics industry;

- (d) Wood and Furniture production of wood products used in construction, containers, coffins, and furniture, board and other wooden panels, has strong links to the forestry industry;
- (e) Pulp and paper articles of paper and paperboard, including packages, has strong links to the forestry industry;
- (f) Chemical manufacturing, including pharmaceuticals manufacture of basic chemicals, including petroleum, and other chemicals, such as paints, perfumes and pesticides, resulting from the transformation of the former, has strong links with the petroleum industry;
- (g) Non-metallic mineral products/ building materials – manufacture of glass and glass products, ceramic products, tiles, bricks, roof tiles, cement and derivatives, lime, plaster, concrete, production of ornamental rocks, abrasive products and other non-metallic mineral products, has strong links with mining industry;
- (h) Metals and Metal Products primary processing of metal ores, such as steel, aluminium and casting, and the manufacture of structures, doors, windows, tanks, boilers, steam generators, forged products, cutlery, hardware, hand tools, packaging, wire products, springs, chains, crockery and other metal products, including agricultural implements and other working tools;
- (i) Transport equipment manufacturing shipbuilding and repair, operating equipment for railways, iron, chassis, trailers and semitrailers, and of widely used equipment, such as motorcycles or bicycles.

The country's reindustrialization process favours the development of light industry, supported by unsophisticated production equipment; beverages and food products account for more than 80 per cent of the sectoral production measured by their value added. Agro-industry requires low tech equipment, making it the bulk of current industry.

The implementation of priorities, will take place based on the following action programmes:

(a) National Production Diversification Programme: An initiative for building a strong and diverse economic base that allows reduced dependency on imports of consumer goods and high dependency on imports of consumer products and high dependency on oil exports;

#### (b) "Clusters Priority" Creation Programme:

This is aimed at the development of sectors that can create dynamic comparative advantages to sustain the position of Angola in the production chain segments of higher added value:

**(c) "Angola Investe" Programme:** Promotion of the establishment of a strong national business structure, especially with regard to "small and medium enterprises", to generate employment and wealth for people of Angola.

Other programmes that that are designed to enhance the achievement of the same objective include: (a) Entrepreneurship Promotion Programme; (b) Credit Access Facilitation Programme; (c) Support Programme for Emerging Economic Activities; (d) Conversion Programme for the Informal Economy; (e) Programme for Relocation of Companies in Angola; and (f) Medium Term Development Plan for the Agricultural Sector.

Factors seen as constraining industrial development are:

- Generally inadequate industrial infrastructure, including water, sanitation, electricity, transport, logistics;
- No temporary domestic industry protection;

- Insufficient government agencies commitment to ensure the development of a non-oil economy;
- Business environment not very conducive to private industrial investment;
- Restrictive credit policies to the productive sector;
- Lack of modern industrial technology;
- Serious skills shortage for industrialization;
- Very weak external linkages with SADC

The Government has established the following institutions to support industries:

- Industrial Development Institute of Angola, to support industrial innovation
- Angolan Institute of Standardization and Quality
- Angolan Institute for Industrial Property

#### **Mozambique**

The Country's overall development strategy is outlined in the National Development Strategy 2015-2035 (2014) and the industrialization strategy is articulated in the Industrial Policy and Strategy (2007). The National Development Strategy is based on four pillars: (a) development of human capital; (b) development of infrastructure to support industries; (c) research, innovation and technical development; and (d) institutional articulation and coordination. The strategy suggests (a) an expansion in higher and technical education, (b) development of cooperation with the private sector to promote apprenticeships and "learning on the job" and (c) creation of a public job-information and clearing service. Regarding scientific and technological development, the strategy includes (a) research and development, (b) education and training for human capital, (c) technological transfer, (d) the installation and expansion of scientific and technological centres, (e) financial support for research, innovation and

technological development, and (f) management of knowledge existing in the country pertaining to technology and of research and development projects.

The specific objectives of the Industrial Policy and Strategy are:

- The development of mechanisms for coordination, articulation, implementation and economic and impact analysis of public policies, strategies and interventions and complementary competitive investment, rationalization and development of policy institutions and industrial promotion organizations;
- Development and supply of technological and informational services;
- Development and strengthening of coherence and consistency for infrastructure, economic, social and horizontal policy, institutional and educational support programmes and the priorities and requirements for industrial development;
- Mobilization of public and private finances for development of the industrial base; and
- Identification and elimination of administrative and bureaucratic redundancies and irrelevancies, simplification of administrative processes, and the construction of a publicservice culture to render useful, cheap, efficient, timely and good-quality services favouring the development of competitive productive activities.

The Industrial Policy and Strategy emphasizes the use of national resources and capabilities, reinforcement of industrial linkages, gradual modernization of the industrial base, import substitution and export promotion on an ample, interlinked and competitive basis. The priority sectors include food industry value chains, furniture manufacturing, the construction-materials industry, metal-mechanical, electrotechnical and chemical industries, and industrial

waste recycling. It prioritizes value-addition in cooking oils, stock-feeds and other derivatives, such as soap, from cashew nuts, sunflowers and cotton, basic processing of pulp, juices and canned food from fruits and vegetables, canning and processing of fish products, including the production of fishmeal for animal feeds and diversification of the sugar industry, in particular with a view to strengthening the linkages with other branches of the food and drinks industry. It seeks to ensure the development of programmes that aim to widen the use of sugar-derived alcohol, including its use as fuel; and the development of the salt industry, focusing on consolidation of the quality and iodization programme.

Other resource-based value-adding activities that the policy focuses on are developing the furniture and wood products industries, the building materials and equipment industry and the textiles and clothing industries, and consolidating diversified industrial uses of the energy created by natural gas extraction. The policy suggests that these value-adding activities can be realized through the reorganization of the integrated support system for SMEs to enable development of clusters and production and value chains. The development of institutions at the central and provincial government levels to provide the necessary coordination mechanism will be important in this drive.

However, the Mozambican economy remains mainly anchored at the bottom of global value chains for most commodities, driven by megaprojects that are predominantly funded by foreign direct investment focus on aluminium, extractive industries (mainly coal) and the gas sector. The extractive sector was the most rapidly growing in 2013, at 22 per cent, propelled by coal exports.

This growth has failed to translate into many new employment opportunities because the projects are capital intensive and are enclaves with limited links with the rest of the economy. Table 3 shows that the contribution of value- adding activities actually declined between 2008 and 2012.

Sector-specific development strategies are elucidated in other national documents including, for example, the Strategic Plan for Agricultural Development 2010-2019, the National Energy Strategy, (2000), the Science, Technology and Innovation Strategy (2006), the Strategy for the Development of Small and Medium Enterprises (2007), the Strategy for Integrated Development of the Transport Network (2008) and the Natural Gas Master Plan, (2013), for example. These strategies complement the industrial policy by outlining sector-specific strategies.

Mozambique has already identified areas from which value addition can be promoted with a focus on development by the SME sector. Fisheries and other marine foods, cashew nuts, the textiles sector are some of the areas identified. The gas sector and the minerals sector, such as coal, are identified mainly for the large corporations.

#### **United Republic of Tanzania**

The short-term goals of industry policy of the United Republic of Tanzania include: human development and creation of employment opportunities; economic transformation for achieving sustainable economic growth; environmental sustainability and equitable development. The policy seeks to support agroallied industries (resource- based industries) that could potentially give the country competitive advantages if mixed with the correct technologies. In the medium term (ending in 2010), the policy

Table 3: Mozambique – gross domestic product by sector (percentage)

Sector	2008	2012	
Agriculture, hunting, forestry, fishing	29.3	32.6	
of which fishing	1.9	1.9	
Mining	1.5	2.4	
Manufacturing	15.3	11.9.	

Source: SADC (2012)

sought to establish new capacities in areas with clear potential for gaining competitive advantages, though no specific sectors other than iron ore were listed. The policy will lead to the exploitation of the country's iron ore deposits depending on available technology. Although small, the exploitation of iron ore deposits has already taken off. This is also in line with one of the objectives of the Mining Policy of the United Republic of Tanzania, which is "to promote and facilitate value-addition activities within the country to increase income and employment opportunities" (Government of Tanzania, Mining Policy 2009, p 10).

Although the policy lacks details on exact strategies, in the long-term (up to 2020), it expects to support the establishment of fully fledged capital goods industries based on experience gained in the short and medium-term implementation phases of the industrialization policy. This will involve actualization of the iron and steel industries

#### **Namibia**

The Namibian Industrial Policy gives impetus to private-sector-led industrialization, export orientation, value-addition, skills development and economic diversification. It recognizes national processes and strategies in this endeavour within the wider framework of regional integration in both the Southern African Customs Union (SACU) and SADC and alludes to the need for developing cross-border industrial cooperation with neighbouring countries on a bilateral basis in order to extend the supply and value chains across borders to spread industrial development. The Mineral Policy of Namibia provides direction for the sector in terms of value-addition and beneficiation. It alludes to the export of minerals in raw and semi-processed forms and indicates that adding value to minerals would increase national economic activities. The policy observes that the country's extensive mineral endowment makes it a prime candidate for further processing notwithstanding constraints imposed by: the shortage of local capital, especially risk capital; scarce fresh water supply; a shortage of technical skills; long distances between the mineral deposits; markets and export destinations; and the usually large size of operations. The supporting fiscal framework defines incentives to support beneficiation and value-addition in the minerals sector.

The Namibia Draft phased Growth at Home (GAH) (Ministry of Industry and Trade, Namibia, 2014) Industrialization policy framework provides a road map for the execution of the country's industrial policy in a phased approach. The phases cover the periods 20152020 (laying the foundation), 2020-2025 (being a regional player), 2026-2030 (a global player in selected areas) and beyond 2030. GAH comprises three strategic intervention areas and sets targets in line with the guiding policy and strategy documents. The three strategic intervention areas are supporting value-addition, upgrading and diversification for sustained growth, securing market access at home and abroad and improving the investment climate and conditions. The key features of GAH include, among others, local value-addition to local raw materials, such as minerals and agricultural produce, through national and regional value chains, regional value chains development, infant industry protection and reform for competitiveness. There are proposals for a targeted approach towards industrialization with the initial sectors to include mining and mineral beneficiation, agriculture and agro-processing, fish and fish processing, chemical industries linked to locally available minerals and steel manufacturing and components of automotive industries. In addition, the general reforms to be pursued under GAH include: the Industrial Upgrading and Modernisation Programme to provide support to majority Namibian-owned entities with at least 10 employees in four sectors: agro-food processing; pharmaceuticals and cosmetics; fish processing and minerals beneficiation; supportive incentive schemes and financing instruments, targeted investment promotion into the defined priority sectors and support the diversification process; local Procurement Support Initiative; Retail Charter development for best practices, a trade competitiveness programme (single window system documentation); practical training and import of skilled labour (Namibian Training Authority), operationalizing the ten-year Industrial Infrastructure Development Master Plan for Namibia, SME support and creation of a platform to jointly address he remaining challenges in the business environment.

#### **Zimbabwe**

The Zimbabwe Industrial Development Policy (IDP) 2012-2016 seeks to: "To transform Zimbabwe from a producer of primary goods into a producer of processed value-added goods for both the domestic and export market." (Zimbabwe, 2011) The policy objectives are to replace obsolete machinery with new technology in order to increase the level of value-addition to domestically produced primary products.

Value-addition has already been part of the country's aspirations since independence. The current industrialization policy observes that "post the crafting of the IDP 2004-2010, the manufacturing sector's contribution to GDP continued to decline in spite of implementation of appropriate interventions, such as assistance to distressed and closed companies, import substitution and value-addition, development of integrated industrial clusters and the creation of subsector task forces that were developing detailed action plans for each subsector" (Zimbabwe, 2011). It is critical at this point to determine whether the policy achieved the intended outcome and, if not, what aspects of the current policy will make a difference in terms of implementation outcomes.

The main drawback to IDP 2004-2010 was the absence of a dedicated financing mechanism for the revival of the industrial sector and support to the new policy initiatives. The collapse of the Zimbabwe dollar during the period 2007-2008 resulted in financial institutions being unable to finance productive activities. By the time of the introduction of the multi-currency regime in 2009, the banks had no solid deposit base from which to provide any form of lending beyond 30 days, which caused industrial capacity utilization to decline to as low as 5 per cent (Zimbabwe, 2011, p. 6). The distressed industries fund, financed through the national budget, had insufficient

funds, resulting in many industrial firms being forced to fold up because of lack of working capital. The Government of Zimbabwe negotiated for lines of credit and the rise in banking sector deposits enabled the banks to resume short-term lending (for up to 90 days). Industrial capacity utilization then rose to about 40 per cent by 2014.

Following the massive de-industrialization during 2004 to 2014, the key strategies of IDP 2012-2016 are as follows:

- (a) Establish a dedicated financial mechanism through the remodelling or restructuring of the Industrial Development Corporation or other new banks to provide long-term funding for recapitalization;
- (b) Identification of additional lines of credit of a medium to long-term nature to provide working capital;
- (c) Government to provide short-term revival packages for distressed companies through budgetary allocations;
- (d) Review of import tariffs to level the playing field between local and foreign competitors;
- (e) Strengthening existing institutions that support research and technology.

In line with IDP 2012-2016, the Government developed a supportive programme called the Zimbabwe Agenda for Sustainable Social and Economic Transformation (ZIMASSET). The programme puts beneficiation and valueaddition of primary products at the centre of the country's transformation efforts. It proposes to grow the economy through recapitalizing and capacitating institutions, such as the Industrial Development Corporation, Infrastructure Development Bank of Zimbabwe, Agribank, the Small Enterprise Development Corporation, the Zimbabwe Mineral Exploration Company, the Zimbabwe Mining Development Corporation and the Minerals Marketing Corporation of Zimbabwe to provide critical support for industrial development (IDP, 2011. p 35). The strategies of the programme provide for the creation of a sovereign wealth fund from mineral resources revenue and the enhancement of private- public partnerships (PPPs) to support value-addition and infrastructure development efforts. The targeted sectors in the programme include biodiesel from jatropha, biogas, fertilizers, fruit juice production, edible oils, avocado oil, meat and dairy products, diamond cutting and polishing and value-added steel products. The Government is currently reviewing the mining policy landscape and is emphasizing value-addition and beneficiation as industrialization strategies. The fiscal framework in the proposed minerals sector framework will incentivize value-addition and beneficiation. The challenge remains how to finance the initiatives under ZIMASSET.

#### **South Africa**

The South African economy continued to suffer from low levels of employment, while poverty and income inequality continued to be more widespread than in other middle income economies. South Africa has been a resource economy for more than a century and the country is estimated to be the wealthiest mining jurisdiction in the world. The country is the most endowed in Africa in terms of reserves of known minerals, including, among others, platinum group metals, gold, diamonds and chromite. However, a considerable amount of the country's mineral resources is exported as raw ores or only partially processed. Although South Africa has steadily improved its ratio of beneficiated to primary products exported since the 1970s, these ratios are still well below the potential suggested by the quality and quantity of its mineral resources endowment.

The Government's industrialization policy calls for a paradigm shift in mineral development, strategic investment in assets to maximize long-term growth beneficiation projects, enhance value of exports, increase sources for consumption of local content, and create opportunities for sustainable jobs. Minerals are a vital input to an industrialization programme that is intended to accelerate manufacturing in South Africa (for local consumption and export). Competitive access to

minerals for local beneficiation is one of the key success factors for the country's industrialisation initiative." (South Africa, 2011, p. 1)

Despite the country's regionally superior manufacturing sector, a greater part of the economy, by value, of its economic output, consists of products at or near the bottom of global commodity value chains. Furthermore, the country has one of the world's most unequal societies, with a Gini coefficient of 65.0 per cent in 2011 (SADC Statistics Yearbook, 2012). The Government of South Africa "adopted a developmental economic policy known as "The New Growth Path", which seeks to place the national economy on a production-led growth trajectory in order to tackle the country's developmental challenges of unemployment, inequality and poverty" (South Africa, 2008, p. 1).

### The Industrial Policy Framework of South Africa

The principal industrial policy document in South Africa is the National Industrial Policy Framework, which is being implemented through the Industrial Policy Action Plan. The 2013-2015 Industrial Policy Action Plan outlining government initiatives to accelerate the industrialization of the South African economy was approved by the Cabinet in 2013. The Action Plan fell under and provided one of the key pillars of the New Growth Path, an economic policy framework for 2010-2020 in which the overriding objective is employment. Furthermore, the Action Plan was informed by the vision set out by the National Development Plan, a policy blueprint which seeks to eliminate poverty and reduce inequality in South Africa by 2030. The industrial plan has helped stabilize the country's clothing sector, turned around the automotive sector and added jobs in the business process services sector through strategies, such as procurement designation, aimed at boosting local manufacturing by designating certain products as requiring minimum levels of local production and content in order to qualify for procurement by the state by 2015. Other sectors added to the list of designated products included electrical valves, manual and pneumatic actuators, electrical and telecommunication cables, and components of solar water heaters. The key objectives contained in the National Industrial Policy Framework are:

- To promote diversification beyond the economy's current reliance on traditional and non-tradable services through the promotion of value-addition, characterized particularly by the movement into non-traditional tradable goods and services that can compete effectively in export markets and against imports.
- To promote a labour-absorbing industrialization path, with emphasis on tradable labour-absorbing goods and services and the systematic building of economic linkages that create employment.
- promote industrialization characterized by increasing participation of historically disadvantaged people and marginalized areas in the industrial economy.
- To contribute towards industrial development in Africa, with a strong emphasis on building the continent's productive capacity and securing deeper regional economic integration.
- To ensure the long-term intensification of the country's industrialization process and drive towards a knowledge economy

The priority areas of intervention include beneficiation, infrastructure development, regional economic development and industrial integration, new export markets, local procurement and supplier development and stronger collaboration with other BRICS nations (Brazil, the Russian Federation, India and China.

The policy recognizes the challenges of industrial financing and considers the domains of policy intervention to be introduced to encompass cost-based interventions — (interest rates, transport, utilities), inclusion-based interventions (support to labour-intensive sectors/activities, small businesses/cooperatives, Broad-Based Black Economic Empowerment (BBBEE) and industrial

upgrading interventions (sector specific financing, manufacturing excellence support, industry specific technical and industrial infrastructure, skills development, innovation and technology support).

The National Industrial Policy Framework focuses on a set of principles and processes through which sector strategies are to be developed, strengthened and prioritized going forward. The five broad sectoral groupings identified with potential for diversification are (a) natural resource based sectors, (b) medium technology sectors, including downstream mineral beneficiation, (c) advanced manufacturing sectors, (d) labour-intensive sectors and (e) tradable services sectors. The sector strategies include industrial upgrading and support to the development of technology. In addition, the policy puts regional integration at the centre, including supporting productive competitiveness in SACU countries.

### The Mineral Beneficiation Strategy of South Africa

The Government approved the development of a beneficiation strategy for eleven mineral commodities to strengthen the value-added component of the minerals sector. The minerals to be included in this plan were chromium, coal, diamond, gold, iron, manganese, nickel, platinum, titanium, uranium and vanadium. Presently, up to 89 per cent of the potential value of the raw minerals in South Africa is reported lost through premature exports (Zientek and others, 2014, p 13). The beneficiation strategy for the minerals sector of South Africa calls for a coordinated approach to encouraging greater beneficiation of minerals through the development of specific value chains. The strategy is rooted in the various policy provisions and regulatory framework of the Government. These include:

- (a) The Minerals and Mining Policy of 1998 which seeks to create an enabling environment for the development of the country's mineral wealth to its full potential;
- (b) Mineral and Petroleum Resources Development Act, 2002. This law enunciates

the Minerals and Mining Policy of 1998, but is being amended to further clarify and strengthen its provisions to ensure that downstream industries have a reliable supply of input materials for conversion into higher value goods;

- (c) The Broad-Based Socio-Economic Empowerment Charter for the Mining Industry, the Mining Charter, as amended in 2010, encourages both downstream and side stream value-addition through provisions that trade off (BBBEE targets against specified levels of procurement from black economic empowerment entities;
- (d) The Precious Metals Act, 2005, which ensures that priority is to those applicants whose beneficiation processes will be at the last stage of the mineral beneficiation value chain or will have a positive impact on those beneficiating in the last stage of the mineral value chain;
- (e) Amendments of the Income Tax Act to provide incentives to new manufacturing concerns, training to workers and research and development activities;
- (f) The Manufacturing Investment Programme, an incentive designed to stimulate investment growth within the manufacturing industry through grants to manufacturing investment projects by small enterprises and to support large-to-medium-sized investment projects that are on the borderline of being sustainable;
- (g) Establishment of a new state-owned mining company to participate and execute the developmental agenda of Government, including security of supply for local mineral beneficiation.

In addition, multi-stakeholder structures supporting various aspects of beneficiation created to identify and investigate specific value chains also provide support. For example, the country's trade agreements are intended to support the beneficiation policy of government.

These include the Beijing Declaration on the Establishment of a Comprehensive Strategic Partnership between the Republic of South Africa and the People's Republic of China, the African Growth and Opportunity Act, the trade agreement between the European Union and South Africa; the SADC free trade agreement; the Generalised System of Preferences; the trade agreement between Zimbabwe and South Africa; the Free Trade Agreement between the Southern African Customs Union and the European Free Trade Association States; rules of origin guides/ trade agreements

The beneficiation strategy for South Africa also includes instruments, such as special economic zones, research and development incentives, tax inducements and international trade agreements, were in place to encourage downstream value-addition and investment. Government had also committed to providing transport, electricity and water infrastructure to enable greater beneficiation.

#### Zambia

The National Long Term Vision 2030 articulates possible long-term alternative development policy scenarios at different points, which contributes to the attainment of the desirable social economic indicators by 2030. Five- year development plans, annual budgets, and sectoral policies and strategies provide a roadmap for the pursuit of the vision.

The goal of the national industrial policy had been to develop a competitive, export-led manufacturing sector that contributes 20 per cent of GDP by 2015. The overall policy objectives as stated in the Commercial, Trade and Industrial Policy document are: -

- (a) To stimulate and encourage value addition activities on primary exports as a means of increasing national export earnings and creating employment opportunities;
- (b) To transform the Zambian economy into a diversified and competitive economy, which

is well integrated into the international trading environment;

- (c) To stimulate investment flows into exportoriented areas in which Zambia has comparative advantages as a strategy for inducing innovation and technology transfer in the national economy;
- (d) To support the effective development and utilization of domestic productive capacities as a means to increasing output and expanding employment opportunities;
- (e) To facilitate the acquisition of modern technology to support value adding, industrial processes by domestic firms;
- (f) To facilitate public and private investments in testing infrastructure to support improvements in the quality and standards of Zambian products;
- (g) To assist domestic firms to increase their levels of efficiency and competitiveness, and, therefore, withstand increasing competition in domestic and international markets;
- (h) To formalize, monitor and regulate domestic trade activities with a view to promoting and stimulating a vibrant domestic trading sector, particularly by ensuring fair competition in the domestic market, and also protecting the welfare of consumers.

Since the late 1980s, successive Governments of Zambia have continued to emphasize export diversification as a way to reduce export instability. The Export Board of Zambia was established to promote the production of non-traditional exports and the Zambia Development Agency Act (2006) introduced special tariff exemptions for designated priority sectors, mostly in the manufacturing sector. Other measures included: zero rating duty rate on all machinery and equipment for five years; duty exemptions for manufacturing materials; machinery, fixtures and equipment; tools for motor vehicle assembly; textiles and clothing; cement; roofing sheets; and

computer parts. Furthermore, manufacturing under bond ensures that manufacturers of readymade exports are allowed to import their required inputs duty and tax free.

As part of the implementation of the Zambia Development Agency Act, the Government has embarked on the establishment of multi-facility economic zones, under which developers, operators, and tenants benefit from a number of fiscal and non-fiscal allowances, such as tax holidays and imports duty exemptions. The purpose of this is to promote manufacturing, exports, technological development, skills transfer and job creation. The zones are designed to support firm clusters that can benefit from spatial proximity throughout various industrial processes, primary production, processing, including marketing and sales and ultimately distribution.

Mining is one of the country's major economic sectors; copper is the country's key mineral, accounting for about 75 per cent of export earnings, mainly as refined copper and unwrought alloys. However, the sector only accounts for 9 per cent of GDP. Mining has accounted for more than 85 per cent of all foreign direct investment into Zambia during the last decade. Between 1996 and 2011, a total of \$5 billion was invested in the mining sector. The Government's policy in the sector focuses on attracting investment for both mining and beneficiation. The Minerals and Mining Development Policy (2013), which replaced the 1995 Mining Policy and draws on Vision 2030, seeks to promote a mining sector that is integrated into the domestic economy and encourages local entrepreneurship, increased demand for local goods, value-addition and employment for the local population. The promotion of linkages between mining and agriculture, mining and tourism and mining and value-addition industries is emphasized.

The Policy has a specific theme on value-addition under which the Government commits to promote and facilitate the development of downstream processing capacity for minerals through mechanisms, such as "(a) providing a supporting fiscal regime; (b) exploring the

opportunities for the establishment of local metallurgical plant capacity and (c) identifying markets for national and regional consumption of value added products" (Zambia, 2013). To support research and development in the sector, the Government commits to facilitate research by creating the necessary conditions and encouraging partnerships between mining companies and research and training institutions. The importance of regional cooperation is also underlined in the sectoral strategy.

The positive impact of domestic or regional industrialization policies and frameworks within Southern Africa can, in part, be gauged by the extent to which they have led to the creation of domestic or regional value chains and the generation of jobs. This section of the report explores the importance of value chains and the participation of SADC member States in regional and global value chains.

#### **Summary**

The general thrust of the national industrialization policy documents is beneficiation and value-addition that is in line with regional and continental policy frameworks. The policies, however, differ on level of guidance, with the South African policies

being much more detailed or comprehensive. The policy clearly brings out the related policies and is very specific regarding the sectors and actual products of concern. The South African policy provides an example which other regional countries could use in refining their own policies. Generally, there is room for realignment of national industrialization policies with regional policy frameworks. In particular, the articulation of regional value chains is a recent development in the regional context which requires serious domestication by member states.

Monitoring and evaluation frameworks of member States' industrialization policies vary and in some instances do not exist. South Africa has an elaborate framework while Mozambique and Namibia have very general approaches. As part of harmonization of policymaking in the region, the crafting of monitoring and evaluation frameworks need to be part of a policy training schedule.

# **Chapter 4**

# Commodity Value Chain Development

#### **Overview**

Value chains denote the sum total of processes involved in product development from initial extractive process (in minerals) or primary production in crop or animal husbandry, to the final consumption phase. Typically, each process adds more value along the chain and can take the form of a material transformation, such as spinning a fibre to a yarn, or a service application, such as bank finance or transport from a ginnery to a spinner. Value chain analysis helps to clarify the connection to other actors in the chain. It addresses the question: Who adds how much value and where along the chain? By its nature, the organization of production according to value chains provides opportunities for SADC member States to specialize (in terms of skills development and technological capability) in specific areas of the value chain, depending on particular conditions in the country (Humphrey and Memedovic, 2013, p 43). The processes, whether done within one country or in several countries in the region, define the value chains or regional value chains in the production process that this report focuses on.

National economies in the SADC region can create more wealth for citizens through value-addition processes within the country. Value-addition to mineral ores and primary agricultural commodities can take place within the producing country's borders (domestic value chains) or as has become increasingly important with globalization in several countries to the final product (regional or global commodity value chains). The success of domestic or regional industrialization policies and frameworks within Southern Africa can be gauged by the extent to which they have led to the creation of domestic or regional commodity value chains. This section of the report shows

what value chains are and why they are important. Value chain development is briefly outlined for a number of SADC countries.

The processing of mining and agricultural products through the various stages confers value at each stage and the services that enable the processes to take place also add additional value to the final product. The processes and services together form the commodity value chain which can be completed in one or more countries (Figure 4.1).

Figure 4.1 shows an example of a typical value chain in the cotton agro-industrial cluster and Box 4.1 shows decisions at farm level. The production of cotton involves on-farm activities; suppliers of seed, fertilizers and pesticides; financing; harvesting labour (mostly hand-picking which entails seasonally employing a lot of unskilled labour) and management; Government agencies, private companies, and non-governmental organizations are often involved in inputs supplies; transport services deliver seed cotton to ginneries; ginning involves capital outlay in machinery and medium skill labour, management; cotton seed is a by-product usually used for extraction of oil and manufacture of stock-feeds by separate companies; transport services, usually provided by independent transporters, deliver ginned fibre (cotton lint) to spinning mills, the lint is packed and transported to seaports for export, thereby limiting the local multiplier effects of the chain.

However, in the case where lint is converted locally, expansive capital outlay in spinning machines is required and the machines are operated by medium-skilled labour; spinning machines produce yarn, which is delivered to knitters and weavers who may be located in the country or may be in another country in the region or abroad. Knitters

Ginning

Cotton farming

Cotton farming

Weaving

Formation

Garment making

Distribution & Retailing

Retailing

Figure 4.1: Simplified illustration of a typical cotton to garment value chain

Source: Illustration by author

#### Box 4.1: Decision-making at a farm;

The planning stage at a farm is influenced by: -

- a) The farmer's interest, technical know-how and experience regarding production of various farm products (crops, animals);
- b) The market signals for various farm products represented by market prices usually reflective of Government policy, including even when policy emphasizes non-interference in market pricing. Some market prices are reflective of buyers' assessment of information on foreign markets, especially where value-addition takes place in other countries;
- c) The suitability of the land and moisture levels (irrigated or expected rainfall patterns forecast by meteorological services) for various crops or animal husbandry or a combination thereof; and
- d) The availability of support services, including finance for inputs such as seeds, fertilizers, chemicals, labour, feedstock, insurance, and agricultural extension support, transport to markets and support infrastructure, such as roads and power for irrigation.

**Source:** Developed by Author

and weavers also require extensive capital outlay in the form of knitting and weaving machinery and skilled labour. The resultant grey cloth is then sent for dyeing and printing/finishing. Finished fabric may be exported or sold locally to wholesalers and retailers for consumption as is, or as in most cases, is used by clothing firms and individuals for the manufacture of garments. Garment manufacture involves a lot of skilled and semi-skilled labour. Processes include designing, cutting and stitching. Designing can involve the use of well-known labels (often foreign) for which royalties are paid. Cutting and stitching involves use of small machines for individual operation. Garments may be exported for consumption outside the country or may be

sold locally to wholesalers and retailers for final consumption by locals.

While some services are directly connected with a product, such as transport or warehousing, other services are less obvious, such as banking and finance, but they all contribute to the value of a product at the various stages. However, similar services can add different values to different products. In addition, the overall contribution of various services to the total value of a product also varies between sectors (figure 4.2).

Services are intertwined in national, regional or global commodity value chains as well as the global production networks. The OECD/WTO Trade in Value Added database reveals that the value created directly and indirectly by services as intermediate inputs represents more than 30 per cent of the total value added in manufactured goods (AfDB, OECD and UNDP, 2014, p. 126).

Value chain analysis illustrates the process of creating value and shows clearly that value creation is not just restricted to material transformation and that a product is brought to market through a combination of activities which all contribute to the final value. In fact, in many chains, the value added for stages, such as design or the production of certain key components, is higher than that of the final assembly process. This has

Source: OECD, WTO and UNCTAD (2013).

implications for the returns to labour and other service providers. Workers and service providers participating in high value-added activities are more likely to renumerated higher than those in functions adding lower value. This obviously has a bearing on the benefits that accrue to countries involved in a particular chain depending on the stage of participation.

As observed in by analysts, the value chain concept also enhances our understanding of the way trade takes place today (McCormick and Schmitz, 2003). Research on value chains shows that an increasing amount of international trade occurs within trading networks. Firms in the networks are formally independent of one another, but linked by personal relations, repeated transactions, and often dense information flows. Networks contain firms of many different types, from global buyers to small local workshops (McCormick and Schmitz, 2003, p 21). As noted earlier, the benefit accruing to economies in the value chain process are dependent on many factors including the number and level of processes and services, or parts of the chain, which are undertaken within a country's borders. In the diamond industry, for example, while diamond extraction is generally a profitable activity generating profitability of between 16 and 20 per cent, more value is realized in the production and sale of jewellery (Figure 4.3).

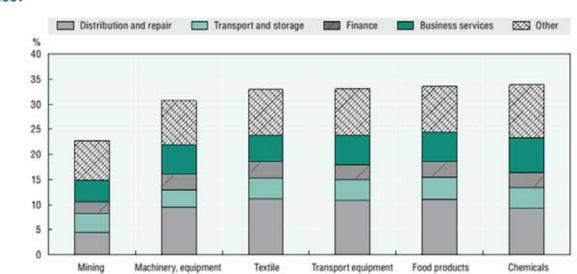


Figure 4.2: Services share of value added in manufacturing trade, all countries, 2009

Rough diamonds Global revenues by value chain segment, 2012, \$ billions +25 72.1 +25 47.2 +2 +6 Revenues +0.4 the 22.6

20.7

Figure 4.3: Value escalation in the global diamond value chain

15.2

Source: Bain and Company, (2013)

14.8

This illustration is very relevant for Southern African countries as eight of them are diamond producers and some of them have realized the importance of participating in stages higher up the value chain as they seek to improve the standards of living of their people. Countries that invest in these stages of value chains realize the greatest benefit. This illustration also shows that, in the case of diamonds, the first stage provides a lot of value, which is higher than all other stages other than jewellery manufacture and retail. This is particularly important for decision-making regarding the extent to which value addition will benefit the country. A country importing rough diamonds will not realize that much benefit unless it engages in jewellery manufacture. Similarly, while a producing country will realize relatively high value from production of rough diamonds, other processes, including cutting and polishing, add little value and hence low returns. Therefore, investing in the processes of manufacture is a requisite to realize significantly more value.

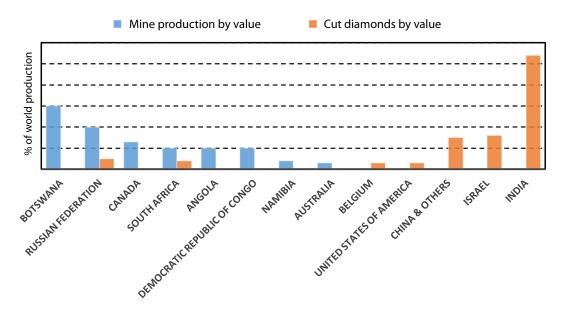
Since independence, most resource rich Southern African countries have found themselves immersed in GCVCs, but firmly anchored at the bottom where the value realized is least. In the case of the mineral value chain, the benefit is mostly restricted to such activities as mining of ores, initial smelting to semi-worked forms and their transportation to seaports. This work is almost exclusively carried out by international mining conglomerates either alone or in joint venture with State-owned enterprises. The ore destination is almost always sister companies or other companies located in other parts of the world where all the higher value processes take place. Examples include copper mining in Zambia, platinum and gold mining in Zimbabwe and South Africa, diamond mining in Namibia, Botswana, coal in Mozambique, cobalt in the Democratic Republic of the Congo and oil in Angola. As result, the industrialized or importing countries benefit from the all-important multiplier effects. In the case of the cotton agro-industrial clusters noted above, typical benefit to local producers and service providers often ends with the transport of cotton lint to seaports, with the higher value conversion activities taking place in other countries. Figure 4.4 shows that in 2004, the major diamond producers were not the major producers of cut and polished diamonds, the latter being countries that had little or no diamond production at all during that year. These countries focused their policies on attaining the necessary skills and building networks with producers and markets.

previous

value chain

To accelerate industrialization in Southern Africa, countries in the region need to devise strategies

Figure 4.4:Global share of diamond mine production by value versus Global share of diamonds cut and polished by value, 2004



Source: Adapted from Baxter R, 2005

to move away from the export of primary commodities at the initial stages of the value chain and invest in operations used in later or the final stages of the value chain. In addition to fetching higher values on international markets, exporting garments has a much higher multiplier effect than exporting cotton lint. Extending to other industrial clusters is the best way to improve the livelihoods of the region's population. Factors such as government industrialization policy, and the national regional trade policies impact on the extent to which countries can exploit value chains. In addition, "these value chains are not just strings of market relations where buyers and sellers act freely. Often, there are powerful actors in the chain who pull the strings and control the flow of goods and information." (McCormick and Schmitz, (2003), p 11)

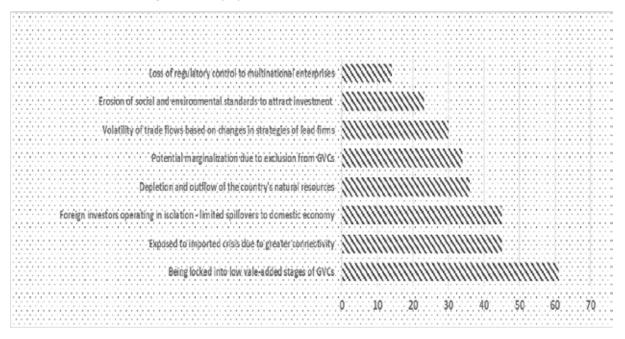
\*It is important for regional countries to study GCVCs of various commodities with a view to establishing potential benefits arising from acquisition or development of higher capabilities. However, it is equally important to investigate possible threats to economies stemming from participation in GCVCs. The African Economic Outlook 2014 report includes a survey of African experts on the latter (figure 4.5). The experts view

being locked onto low value-added categories of the GCVC as the greatest threat that can arise if firms do not take measures to upgrade by acquiring new capabilities. Other possible threats include very limited spillover effects because of lack of linkages with the rest of the economy and possible exposure to an external crisis as a result of greater connectivity.

Research into possible pitfalls or threats to watch out for should be carried out by every enterprise that seeks to join GCVCs. Furthermore, RCVCs should be approached with caution as there maybe inherent threats to survival. For SADC to maximize the benefits and minimize the risks associated with RCVCs, it is therefore important at the regional level to:-

- (a) Focus on measures to stimulate product value chains in industrial development policies;
- (b) Take a lead role in dealing with infrastructure and energy bottlenecks that limit the potential of these chains;
- (c) Ensure that the business climate favours the movement of firms, including that of their professional staff, across borders;

Figure 4.5: The greatest threats associated with global commodity value chains and resultant new trade patterns (%)



**Source:** Adapted from AfDB, OECD and UNDP (2014).

- (d) Set up regional public procurement requirements as a way of ensuring regional local content for regional businesses;
- (e) Create linkages both within and outside the extractive sector to ensure economic diversification and spill over effects in other sectors of the economy.

# **Chapter 5**

# Participation in Global Commodity Value Chains in Africa

A comparison of the participation of the African regions in GCVCs in the African Economic Outlook 2014 shows that Southern Africa is the leading sub region ahead of North Africa and West Africa, although the latter two sub regions are strongly driven by forward integration (Figure 5.1). Southern Africa accounts for about 40 per cent of the continent's GCVC participation, one third of which is backward integration.

North Africa is more inclined towards forward integration than backward integration. The integration profile of West Africa is similar to that of North Africa though it represents a much smaller proportion of the continent's participation in GCVCs. East Africa and the Indian Ocean island States together account for just 6 per cent of the continent's GCVC participation with their profile split 50-50 between forward integration and backward.

### Value Chains in Selected Southern African Countries

#### **South Africa**

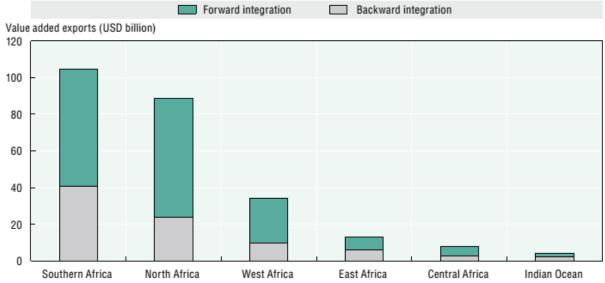
South Africa is by far the leading economy in the region accounting for more than 60 per cent of regional GDP in 2013 (SADC, 2014). At the same time, the country's trade with the region is dominated by imports of intermediate inputs, with estimates showing an increase of such imports from \$78 million to \$686 million during the period 1995-2011. On the other hand, South Africa is also a source of intermediate inputs, such as steel, chemicals, and plastics, for industries in regional countries, such as Botswana, Namibia, Swaziland, Zambia and Zimbabwe (AfDB, OECD and UNDP, 2014). This is an interesting scenario in that the SADC region has embarked on an ambitious industrialization drive dubbed "SADC Industrialization Strategy and Road Map", which is anchored on the concept of exploiting

Figure 5.1: Integration of African sub regions into global commodity value chains, 2011

Forward integration

Backward integration

Value added exports (USD billion)



Source: AfDB, OECD and UNDP, 2014.

regional value chains as a key strategy for the industrialization of regional countries.

As the region's most developed economy, South Africa is integrated deeper into several GCVCs than other regional countries. The Africa Economic Outlook 2014 reports that significant sectors in this instance include motor vehicle assembly, minerals processing, such as diamonds, platinum, oil from coal, the agro-industrial goods, such a fruit juices and wines, the financial services and retail. Although the economy of South Africa represents a large portion of the regional economy and accounts for the largest portion of the region's participation in global value chains, it participation remains relatively small in global terms.

This level reflects the position of South African motor industry in GCVCs. Recognition of the position South Africa in GVCs and access to regional markets is demonstrated by the decision of several multinational firms to use South Africa to source components and assemble vehicles for local, regional and international markets. Among the multinational companies with a motor assembly plant in South Africa are BMW, Ford, General Motors, Mercedes Benz, Nissan, Renault, Toyota and Volkswagen Some component manufacturers, such as Arvin Exhaust, Bloxwitch, Corning, and Senior Flexonics, have taken advantage of the establishment of these plants to also establish production bases in proximity.4 The advent of component manufacturers has enabled the South African motor industry to add value to vehicle exports of up to 40 per cent (AfDB, OECD and UNDP, 2014), and, in the process, has generated more than 28,000 in automotive manufacturing, and about 65,000 jobs in the component manufacturing industry, 6 600 of which are employed in the tyre manufacturing industry.<sup>5</sup> About 200,000 are employed in retail and aftermarket activities

The sector is one of country's most important, contributing at least 6 per cent to the country's GDP and accounting for almost 12 per cent of the

manufacturing exports, making it a crucial cog in the economy. In 2010, 271,000 vehicles were exported.<sup>6</sup>

With its ability to link throughout the economy, the Government has identified the automotive industry as an important growth sector. This sector has already exhibited significant growth under the Motor Industry Development Programme, doubling in size since 1994.

Its successor, the Automotive Production and Development Programme, launched in 2013, aims to stimulate the expansion of local production to 1.2 million vehicles a year by 2020, while significantly increasing local content at the same time.

These component and car manufacturers are large international firms that own the core elements of the value chain all the way from research and development through assembly, marketing, distribution and after-sales services. Consequently, some of the key inputs for the sector are imported from outside the region for assembling in South Africa. Experience gained from working with the local assembly lines has enabled local firms to penetrate global commodity value chains and enabled them to become exporters of components, such as catalytic converters and leather seats. The automotive industry in South Africa accounts for more than 6 per cent of the country's GDP and 12 per cent of its manufacturing exports.7

The high value of domestic content in mining exports reflects the industry's long history, local ownership and extensive backward integration into the wider South African economy. The impact of the mining industry on other sectors, such as steel, timber and rail, is about 19 per cent of the country's GDP. Additionally, mining accounts for more than 16 per cent of formal sector employment, although this is likely to be reduced following a spate of long drawn out labour disputes, some of which were fatal. "The finance from mining circulates throughout the

<sup>&</sup>lt;sup>4</sup> See http://www.southafrica.info.

<sup>5</sup> Ibid.

<sup>&</sup>lt;sup>6</sup> Ibid.

<sup>7</sup> Ibid.

economy, affecting sectors as diverse as financial services and housing. The mining services and equipment sectors have developed into important exporters in their own right. Indeed, South African suppliers are global leaders in numerous areas, particularly the provision of washing spirals, underground locomotives, submersible pumps, hydropower equipment and mining fans. South African firms are also leaders in some of the vast mining services, including geological services, prospecting, shaft sinking, turnkey solutions to the mining and mineral processing industries, and operation services. They are also competitive on a global scale when it comes to the four vital areas of mine safety, tracked mining, shaft sinking and ventilation. Development in these areas is strong and considered much greater than in comparable countries, such as Chile or Australia. According to the South African Capital Equipment Export Council, one of the country's largest exports is mining equipment, accounting for 8.5 per cent of total exports from 2005 to 2009, and 55 per cent of capital equipment exports during the same period. It is estimated that 90 per cent of the exports of the mining equipment and specialist services are local content. Mining houses are clustered around Johannesburg and supply industries are located around East Rand. Mining equipment and specialist services have not received any direct government subsidy at any stage in their development."8

South African finance and retail industries also have deep value chains, including regional commodity value chains. The retailers are branching out into neighbouring countries as supermarket chains. These regional commodity value chains offer important opportunities to create value in key industries, boost employment opportunities and improve economic growth in South Africa. However, this development does not bode well for regional economies as they promote South African produced goods at the expense of local goods. In the interest of promoting regional commodity value chains and industrialization in other SADC member States, local sourcing should be the driving policy for the supermarket chains.

The country's advantages in global commodity value chains pertain to skills, well-established companies with leading products competencies, public research linked to firms, well-developed and dense networks of local supply industries and services and geographical clustering. However, skills shortages manifesting themselves at various levels, particularly among engineers and artisans, with many firms stating that standards are declining. Companies increasingly see their major areas of operation outside the country, and regard South Africa as a less attractive place from which to direct and administer global commodity value chain investments, mainly because of low labour productivity.9. In order to increase the depth of value chains, measures that target skills development, expansion of technological capabilities and access to capital are essential.

# The opportunity for South Africa in titanium beneficiation<sup>10</sup>, a case study

South Africa is the second largest producer of titanium-bearing minerals in the world after Australia, accounting for about 16.2 per cent of global production. (South Africa, 2008, p. 2) Notwithstanding South Africa being the secondlargest titanium producer in the world, in the absence of significant value-adding activities in the country, the greater benefit from this industry is potentially lost to other countries outside the region. The significant point here is investment in the development of processes and technologies that would enable enterprises in South Africa to operate in the areas involving primary metal and mill products, as well as downstream components and manufactured products. Titanium is light in weight, but it is very strong and resists corrosion, key properties that provide lucrative market opportunities for production related to, for example, aerospace, medical instruments and marine applications

The titanium beneficiation project resulted from a report on mining and metallurgy of the National Research and Technology Foresight Project, published by the Department of Arts,

<sup>9</sup> Ibid.

 $<sup>^{\</sup>rm 10}\, The$  titanium story is adapted from du Preez (2014).

Culture, Science and Technology in 1999, which recommended that titanium and titanium oxide production from local raw materials should be pursued. The Titanium Centre of Competence was established in 2009 following a consensus among key government departments regarding possible beneficiation opportunities. This development resulted from the convergence of interests involving major aerospace players, Boeing and Airbus, as well as Government, as represented by the Department of Science and Technology. The Centre for Scientific and Industrial Research (CSIR) has been providing technical leadership to this project.

The development of a titanium production capability road map, which focuses on downstream manufacturing technologies and products is covered in the latest version of the Industrial Policy Action Plan of the Department of Trade and Industry (2013/14-2015/16. The economic rationale is to position South Africa as a lead supply chain participant within the global titanium manufacturing industry, concentrating

on aerospace and defence products and new technologies. This is expected to increase the spill over effect of these new technologies into related activities and adjacent industries, such as medical, energy, automotive, chemical processing, marine, oil and gas, which would generate employment and provide other benefits to the country.

South Africa is aiming to establish a new titanium metal industry sector that potentially offers economic and job-creation opportunities. The envisaged industry is illustrated in figure 5.2.

The Titanium Centre of Competence was established to integrate and coordinate research and development and commercialization of titanium across the value chain. The Centre is developing a number of technology platforms, which are essential for the local production of a range of products. If the technologies are industrialized and commercialized successfully, South African suppliers of a number of products will be established.

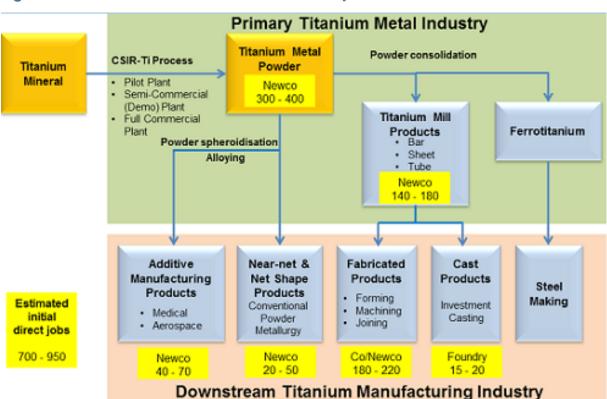


Figure 5.2: A new South African titanium industry

Source: du Preez (2014).

The Titanium Centre of Competence has mobilized and aligned research and development groups across South Africa to contribute towards achieving the national objective. Each research group has international linkages and at least 80 permanently employed researchers. To meet future manpower needs, at least 20 postgraduate students at the Centre are studying to attain qualifications in this field. A Titanium Inter-Departmental Task Team facilitates the cooperation required. Several government departments are members of the team, including Science and Technology; Trade and Industry; Mineral Resources; Public Enterprises; and the Industrial Development Corporation, indicating a coordinated approach and the overall governments support for the titanium beneficiation initiative.

# Impact of beneficiation

South Africa currently designs and manufactures customized medical implants using an imported titanium powder additive. This new initiative is expected to turn around the situation and result in more affordable production of customized medical implants. Although still in its infancy, the application of this technology to produce parts for other industry sectors, such as aerospace, generation, power chemical processing and marine, is expected to stimulate broad downstream industry development (figure 4.7). The two areas with the most potential for the country's titanium beneficiation programme are the primary production of titanium metal powder and the downstream manufacturing of titanium components through the process of additive manufacturing.

# Lessons for other South African Development Community Countries

Even though the titanium project is in its infancy, the identified success factors for the beneficiation offer critical lessons for wider beneficiation and value addition of other minerals in the SADC region. These factors include: agreement on a national strategy by all key players; securing a mandate to implement the strategy; mobilize the best South African talent and facilities; identifying and empowering a champion in each collaborating unit; ensuring early industry involvement; sharing

e and continuously promoting the vision with all stakeholders; sustaining effective communication throughout the collaborator network; recognition of each contribution to ensure ongoing buy-in; and remaining focused and persevering.

This illustration also shows that a long-term vision shared by the stakeholders to establish national support is the key to success. The development and commercialization of beneficiation processes do not happen overnight — perseverance is required. Following this example, success requires deployment of the best resources to the task, empower them and ensure their ongoing buy-in. Finally, such efforts should use proven approaches and models, such as the Centre of Competence model, to focus and manage the research and development and implementation efforts.

# Mozambique

The economy of Mozambique is generally focused on the primary sector, particularly extractive industries. Over the last decade, agriculture has progressively increased its share of GDP to 32 per cent, over the secondary sector (24 per cent) and services (44 per cent). The recent prominence of the extractive sector has brought about little transformation as there is little added value both on the upstream and the downstream processes. Over that period, with the exception of the Mozal aluminium plant, the industrial sector had the lowest growth rate, employing just 2.8 per cent of the labour force. Some studies point to a labour shift from more productive to less productive activities, such as agriculture. The average productive capacity of Mozambique is lower in 2016 than in 1975. This, according to a Government of Mozambique report, has resulted in the country having one of the lowest productivity levels of sub-Saharan Africa, particularly at the SME level, which constitutes the bulk of companies.

"The aluminium industry, however, is well integrated in the GCVC via the Mozal mega project. Established in 1999 as the country's first megaproject with an initial investment of \$1.34 billion, (increased to \$ 2.2 billion in 2003) the aluminium smelter plant is the second largest in Africa. The investment in the plant took advantage

of the country's comparative advantages, such as its geographic favourable position, the availability of low cost electricity (provided from Mozambican hydropower sources) and extensive fiscal incentives. Moreover, Mozambique benefited from the European Union under the Lomé Convention, which allowed aluminium to be exported to Europe tax free" (Almeida-Santos, Roffarello and Filipe, 2014, p 13).

Large investments, such as Mozal, while welcome, however do not equally provide extensive benefits to the country as they tend to be very capital intensive. Direct employment has been put at 1,200, while those who are indirectly employed is estimated to be about 10,000 (Almeida-Santos, Roffarello and Filipe, 2014). Mozal created MozLink, a joint programme with government and development agencies, to promote connections between the project and Mozambican suppliers (Almeida-Santos, Roffarello and Filipe, 2014). The indirect impact of the programme is reflected in the adoption by national suppliers of quality standards and certifications.

Progress was made in integrating Mozambique into the global commodity value chain and a deal was signed in 2013 between Mozal and Midal Cabos, a subsidiary of the Bahrain-based Midal Cables, for the first aluminium processing industry in the country. Under this deal, Mozal provides Midal with 50,000 tonnes of aluminium ingots to produce electrical cables with the potential to support the automotive and construction industries.

Aside from natural gas, electricity and aluminium, representing more than 66 per cent of exports, Mozambique mostly exports coal and unprocessed agricultural products (cashew, cotton, shrimp, wood and tobacco). Export of manufactured or processed products is low; only 3 per cent of SMEs are exporters, targeting mostly South Africa for food and beverages, and fabricated metal products. Asia (in particular China) provides a market for wood products (AfDB, OECD and UNDP, 2014).

The implication of the details mentioned above is that Mozambique must investigate the possibility of adding value to products, such as cashew nuts, which is currently a major raw export, and coal and cotton. Although large gas deposits were recently discovered offshore, prospects of the country would be better served by investing in the beneficiation of the gas. Conversion of coal to electricity could earn the country export value, given the energy requirements of neighbouring South Africa.

# **Angola**

Angola needs to accelerate economic diversification and reduce its dependence on oil, which accounts for about 46 per cent of GDP, 80 per cent of government revenue and 95 per cent of exports (AfDB, OECD and UNDP, 2014). The country's GDP growth averaged 10.8 per cent per annum between 2005 and 2013, but most of this growth was dependent on the oil sector, exposing it to global oil price fluctuations. Indeed, the economy in 2015 is expected to contract because of the drop in oil prices, which started in 2014 and as of April 2015 has been hovering at around \$50 a barrel (a drop of more than 50 per cent from price levels of April 2014). This drop in oil prices is expected to adversely affect government revenue and exports.

The country's involvement in the global oil value chain has been limited to underwater umbilical, risers and flow lines made locally. Other key activities performed at the local level include systems, equipment, pipes and valves installation, construction and services and drilling services. The oilfield service sector injected \$51 billion into the economy from 2004 until 2010 (AfDB, OECD and UNDP, 2014). However, typical of most megaprojects in the SADC region, only about 1 per cent of Angolan workers are in the oil industry. Currently, Angola produces 1.8 million barrels of crude a day and refines about 39,000 barrels per day against total domestic demand for 85.000 barrels each day. The country exports 90 per cent of its oil production, primarily to China (44 per cent) and the United States of America (25 per cent) (AfDB, OECD and UNDP, 2014).

Even though all material inputs are imported, there are opportunities for Angola to enhance its position in the global commodity value chain and broaden its participation into such sectors as liquefied natural gas, methanol, power gas transmission and gas-to-liquids. Investment in these industries could generate jobs and promote the emergence of higher value-added activities. According to a 2013 African Development Bank study, Angola is more likely to integrate into the oil and gas value chain and play a catalytic role at regional level through the following:

- (a) Major investment in liquefied natural gas;
- (b) Adopting a phased approach to developing oil and gas downstream industries, starting with high impact projects to demonstrate the country's viability;
- (c) Additional investment in fertilizers, methanol and gas-to-liquid downstream industries;
- (d) Improving the regulatory framework by ensuring stable transparent regulations, encouraging transparency and addressing capital gain taxes.

The country's oil output offers opportunities for increasing its participation in regional commodity value chains. There is merit in regional development of oil refining capacity, which would supply the region with refined petroleum products. The country could negotiate with oil companies to partner with the national oil company Sociedade Nacional de Combustiveis de Angola (Sonangol) to expand the existing oil refinery and supply the full needs of Angola, the SADC region and beyond. As already noted, the development of the petrochemical industry can greatly boost industrialization efforts in Angola. In addition, the Government of Angola also aims to increase the linkages of local firms to global markets by giving preferential treatment to national firms in supplying goods and services.

As a result of diamond exploration and mining Angola is producing about 8 million carats per annum. "The Government of Angola has made a major effort in simplifying the law relating to mining, and is also committed to using the country's oil wealth to diversify the economy and improve infrastructure".<sup>11</sup>

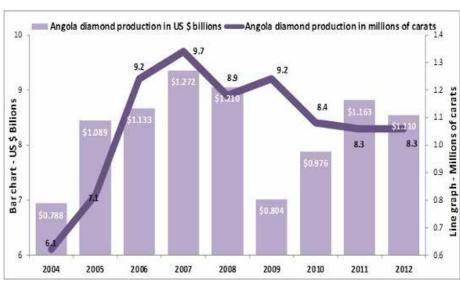


Figure 5.3: Angola diamond production in \$ billions and millions of carats

**Source:** Adapted from Mining.com. Available from http://www.mining.com/.

<sup>&</sup>lt;sup>11</sup> See http://www.mining.com/.

Angola could draw from the experience of Botswana in beneficiating diamonds. However, the country is currently facing difficulties developing other sectors, including agriculture and small-scale industries. It "continues to face massive developmental challenges, including the reduction of the dependency on oil, the diversification of the economy, the rebuilding of the economic and social infrastructure (mostly destroyed during the long civil war), and the improvement of the institutional capacity, governance, public financial management systems, human development and living conditions of the population. These factors are constraining the pace of diversification of the economy and impeding the development of SMEs and job creation. Lack of access to water, energy and transport services constitute the major bottleneck for private sector competitiveness. (AfDB, OECD and UNDP, 2014).

### **Zimbabwe**

Zimbabwe was previously a bastion of value addition, but since about 1999, the country's economy has been characterized by deindustrialisation and "informalisation". On an annual basis, the share of the manufacturing sector in GDP peaked at 26.9 per cent in 1992 before collapsing to only 7.2 per cent by 2002 (SADC Statistics Yearbook, 2012). The Confederation of Zimbabwe Industries Manufacturing Sector

Surveys suggest that industrial capacity utilization declined sharply from 35.8 per cent in 2005 to 18.9 per cent by 2007 and to less than 10.0 per cent by 2008. It increased to 33.0 per cent in 2009, 43.7 per cent in 2010 and 57.2 per cent in 2011, before declining again to 44.2 per cent in 2012 and 39.6 per cent in 2013. (AfDB, OECD and UNDP, 2014)

The country is currently integrated in global commodity value chains in agriculture (tobacco, sugar, cotton and horticulture), mining (diamonds, ferro-chrome, gold, and platinum group metals) and in regional commodity value chains in manufacturing (food and beverages, clothing and textiles, wood and timber, fertilizers and chemicals and pharmaceuticals) (AfDB, OECD and UNDP, 2014).

Table 5.1 shows the current spread of manufacturing activities which, by and large, represent value-addition of some of the country's mineral resources and agricultural produce.

Zimbabwe is endowed with a wide variety of mineral deposits, including, among others, diamonds, chromite platinum group metals, copper, asbestos, lithium, tin, iron ore, coal, precious stones, gold and nickels.

The global commodity value chain of the diamond industry includes exploration, mining, sorting,

Table 5.1: Index of Manufacturing Production: base year 1999=100

	Weight:	2006	2007	2008	2009	2010	2011
Foodstuffs	135	41.4	33.6	28.6	38.9	40.6	47
Drink and tobacco	195	57	88	58.2	53.7	68.5	69.7
Textiles, including ginning	110	51.2	17	14.4	12.4	13.5	23.3
Clothing and footwear	68	148.3	19.1	17.9	18.2	18.5	10.2
Wood and furniture	31	196.1	96.5	86.2	85.2	85.5	79.9
Paper printing and publishing	64	53.5	30.6	15.7	17.3	15.7	18.2
Chemical and petroleum products	115	52	32.9	23	23.2	21.1	32
Non-metallic mineral products	23	69.9	71.8	71.8	71.4	72.5	69.5
Metals and metal products	221	49.2	46.2	34	31.9	44.4	65.3
Transport and transport equipment	30	42.9	43.6	43.5	41.3	35.8	32.1
Other manufacturing	8	65.3	45.7	38.1	31.4	41.3	57.5
All groups	1000	63.5	47.8	35.4	35.4	41	49.2

**Source:** SADC Statistics Yearbook, (2012)

polishing, dealing, jewellery manufacturing and ultimately retail. The country's participation in the diamond industry is limited to exploration, mining and sorting. This means that there are opportunities for investment in the other four areas.

Zimbabwe has a gold refinery, which produces internationally accepted delivery bars and a subsidiary of the refinery produces gold jewellery. With respect to platinum, the country currently has no refinery, but this may change under the government industrialization policy promoting value-addition in this sector; The three producers (Mimosa platinum mine, Zimplats, and Unki) agreed to collaborate and establish a refinery in the country by 2017 (AfDP, OECD and UNDP, 2014).

Zimbabwe, along with South Africa, hold the bulk of the world's platinum group metal reserves and in 2012 supplied 57 per cent of world refined platinum. As of 2012, exploration and mining companies delineated more than 20 billion metric tons of mineralized rock containing 42,000 metric tons of platinum, 29,000 metric tons of palladium, and 5,200 metric tons of rhodium, primarily in mafic and ultramafic intrusions of the Bushveld Complex and the Great Dyke. By comparison, the global net demand for PGE in 2012 was approximately 460 metric tons (Zientek and others, 2014, p. 1).

Value-addition in the platinum group minerals sector will begin with the establishment of the joint refinery by the mining companies. Currently the matte produced is sent to South Africa for refining.

In other areas, Zimbabwe has one of the African continent's largest copper processing plants in the town of Alaska. It has, however, been lying idle since the 1990s when nickel prices declined to uneconomic levels and, the Mhangura Copper Mine was closed. In addition, the collapse of nickel mining has resulted in the Empress Nickel refinery being decommissioned. The Bindura Nickel refinery is being resuscitated following the commencement of operations at the Bindura Nickel Mine.

The most linked mineral operation has been the production of iron and steel in Redcliff, which for many years has supplied inputs to steelbased industries, such as for manufacture of agricultural machinery of all types (hand-held, animal and tractor drawn), fencing materials, a host of household implements and steel rods and wire of various shapes and sizes for the building and construction sectors. The operation. which ceased production over a decade ago, but is set for to resume operations under new ownership, had linkages with the rail sector (National Railways of Zimbabwe), the coal industry (Wankie Colliery Company), the power generation sector (Zimbabwe Electricity Supply Authority), iron mining (Buchwa Iron Mining Company, Ripple Creek Iron Mine), the chemicals industry (Zimchem) and the nearby Sable Chemicals fertilizer industry. The movement of coal by the railways sector also benefited the tobacco farmers through the cheaper bulk rail transport, making coal for curing tobacco relatively cheap. Morewear Industries provided the wagons while

Table 5.2: Global supply of refined platinum

Sources of refined platinum	Refined platinum ('000 ounces), 2012	Implied global market share
South Africa	4095	53%
Russian Federation	800	10%
Zimbabwe	340	4%
North America	295	4%
Other	110	1%
Recycled material	2030	26%
Total	7670	100%

Source: Hinkly (2013)

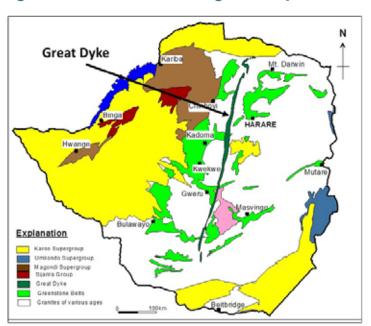


Figure 5.4: Zimbabwe showing Great Dyke

Source: Zimbabwe Maps

F. Issel and Sons made the steel wheels for the wagons. No other sector in the country's mining industry has got backward and forward linkages even remotely comparable to those of iron ore and the resultant production of steel.

The country also has ferro-chrome production facilities, though some of them closed shop because of low world ferro-chrome prices. This is sector has benefitted from Chinese investment over the past few years, with the investors linked to manufacturing plants in China. Also, the Government temporarily restricted or banned raw chrome exports in 2014 in a bid to force value addition.

In the agricultural sector, Zimbabwe is currently the largest cotton-producing country in southern and eastern Africa, although this is now threatened by the prevailing low producer prices following the slump in world lint prices. Cotton produced in Zimbabwe is renowned for its high-quality, uniform lint. The country's competitiveness in cotton production arises mainly from favourable climatic conditions and the availability of manpower to process the cotton through its various stages of the cotton value chain, especially at picking (harvesting). The country has an installed ginning capacity of

approximately 600,000 tonnes, more than double the cotton seed production.

Years of economic hardships and mismanagement has resulted in significant ginning capacity being completely lost. In addition, although no figures are currently available, a significant number of apparel-making firms have also closed down, especially following the availability of smuggled second-hand clothes and very competitively priced apparel from China.

The cotton sector urgently needs to be revived to help drive the country's industrialization through value-addition. The sector provides more forward and backward linkages than any other agricultural sector in the region.

Sugarcane, along with cotton and tobacco, are the most important agricultural export crops in Zimbabwe. The sugar subsector is concentrated and dominated by three companies. Production of sugarcane in Zimbabwe is based on the plantation system of production. Under this system of production, each sugar company owns a sugar estate and mills, permitting the companies to efficiently manage the cycle of cane production and processing. The sugar industry provides direct employment to 25,000

workers and indirect employment to more than 125, 000 others (AfDB, OECD and UNDP, 2014). In addition, in recent years, government policy to empower previously disadvantaged Zimbabweans has seen many small out-growers being established near the estates and using the estates mills for their cane.

After processing, sugar has different products, such as raw sugar, molasses and ethanol, which are traded in the domestic and export markets. In October 2013, Zimbabwe passed legislation requiring that imported petrol be blended with 5 per cent, 10 per cent, and 15 per cent of locally produced ethanol (mandatory blending). However, the blending is mostly done using ethanol produced at the Chisumbanje Estate (table 5.2)

The country has two independent sugar refineries, in Bulawayo and Harare, that produce white sugar, with a capacity of 260,000 tonnes per annum. In addition, brown sugar comes from the two mills, at Triangle and Hippo Valley. About 65 per cent of the sugar is produced for the domestic market, with the remainder exported to other Southern African countries, the European Union and the United States. The European Union market was

secure up to 2015, as it could be exported duty and quota-free. By-products include electricity, ethanol (for export), and molasses.

Tobacco is the country's largest export crop, with about 206 million kilograms of it being produced in 2014. Although the crop has very little valueaddition once it leaves the farm, the income generated from it benefits many other sectors of the economy, especially considering that about 70,000 smallholder farmers are involved in the production as many of them have contract farming arrangements with merchants. The crop's chief export destination, as of 2014, was China. A small portion of the output is, however, value added mainly for local consumption, but also for export. As there are opportunities to increase cigarette manufacture, the development of regional commodity value chain is feasible if properly pursued.

In summary, Zimbabwe could industrialize further based on value addition through value chains in the iron and steel, coal, ferro-chrome sectors, cotton, tobacco, fruit canning, sugar – ethanol, and to a lesser extent platinum.

**Table 5.2: Chisumbanje Ethanol-From-Sugarcane Project** 

Company	Greenfuel (PVT) Ltd.					
Ownership	Co-owned by private investors and Government of Zimbabwe (through ARDA Estates)					
Concept:	Value-addition to sugarcane to produce fuel quality ethanol for blending with imported petrol					
Construction	Fabricated locally using imported materials, utilizing local skills					
Technology	Ethanol from sugarcane technology imported from Brazil					
Production	200,000+ per day					
Benefits	<ul> <li>Reduces fuel import bill (saving foreign currency)</li> <li>Employs 5, 500 during peak times, set to rise to 7,700 following expansion, majority non-technical from local community</li> <li>Development of 1,000 hectares of irrigated sugarcane</li> <li>Cane out-grower scheme benefiting small farmers</li> <li>18 megawatts of electricity generated from bagasse, a process by-product sufficient to power 30,000 households (set to rise to 50 MW capable of powering 90,000 households); increases energy independence</li> </ul>					
Government support	Statutory Instrument enforcing compulsory blending of all petrol (5-15 per cent ethanol depending on availability) retailed in the country					
Future ambition	4 ethanol plants on 46,000 hectares of irrigated land producing 1.5 million litres of ethanol for domestic consumption and export to neighbouring countries					

**Source:** http://www.greenfuel.co.zw/.

### Namibia

Namibia has the potential to step up its integration into a number of GCVCs. Some positive diversification trends have occurred in the structure of its economy over the past three decades, however, the economy has remained narrow and resource-based. The contribution of the mining sector to GDP shrunk from about 47 per cent in 1978 to 19.6 per cent by 1990 and dipped to 12.6 per cent in 2012. The contribution of the manufacturing sector to GDP increased from 5.3 per cent in 1990 to 12.7 per cent in 2012 (AfDB, OECD and UNDP, 2014). This can mainly be attributed to the rapid expansion of fish and meat processing and some mineral beneficiation, the areas in which manufacturing activities are currently concentrated.

Global commodity value chains present opportunities for Namibia, especially in the view of the county's abundant natural resources. The country has reserves of a variety of minerals, including diamonds, uranium, lead, gold, copper and zinc. However, merely having mineral reserves is not enough to determine whether successful industries can be built around them. The country has some of the richest fishing grounds in the world. These natural resources offer Namibia a unique opportunity to expand its operations in GCVCs, especially in fish- and agro-processing, and secondary industries through further exploration of mineral beneficiation.

The extraction and the processing of minerals — mainly diamonds — for export remain the country's main growth driver notwithstanding the relative decline in the contribution of mining to GDP in recent years. The mining sector contributes about 12.6 per cent to GDP, but its employment contribution is less than 2 per cent of the labour force. In 2012, the mining sector generated \$1.2 billion of added value, and contributed 37 per cent of total export earnings and about 10 per cent of total public revenue. As alluded to elsewhere in this report, this is a feature characteristic of most SADC economies in which the capital-intensive nature of mining and its enclave attributes have limited its contribution to value chains in other sectors of the economy. Diamonds are the most significant mineral resource in Namibia, making up about half of total mineral exports, followed by uranium. The country has the potential to move towards further value-addition and beneficiation with existing opportunities in the diamond-cutting and -polishing industry by raising its productivity and lowering its cost of processing.

The manufacturing sector of Namibia has registered significant growth since independence. Its activities are concentrated in meat processing, fish processing, other food and beverages, and mineral beneficiation. Mineral beneficiation is the most important subsector, accounting for 50 per cent of value-addition in the manufacturing sector. The importation of ores underlines the significance of the sector with ores ranking fifth in the country's 2013 import statistics. Besides the polishing and processing of diamonds, mineral beneficiation includes the refining of copper and zinc.

Agro-processing is one of the priority areas in the country's industrial policy. There is, however, very limited value-addition is being carried out in Namibia with regard to agriculture products. There is need to investigate opportunities for creating regional commodity value chains through importing agricultural products from neighbouring countries that have greater agricultural output for further processing in Namibia to take advantage of the country's reliable infrastructure. As for fish processing, some fish products are imported into the country, to which the country adds value before they are re-exported.

Also only few companies located in an export processing zone in Namibia tare providing inputs, such as specialized packaging material to the European automobile industry. There is still significant room for expansion in the manufacturing sector that would enable Namibia to integrate into several GCVCs, including upstream mining products (input for mining), mineral beneficiation (potentially in copper, diamonds, gold, uranium and zinc), and agro- and fish-processing. As part of the SACU common industrial policy, research is being conducted to determine whether the manufacturing of automobile parts across the region would be a viable cross-border value-chain industry.

# Madagascar

The participation of Madagascar in GCVCs is concentrated in the export of unprocessed commodities to Western Europe and North America while importing non-food consumer goods from mainly China and France. Manufacturing activities account for only 10 per cent of GDP (SADC 2013). The country's natural resources endowment include: ilmenite; nickel; cobalt; chromite; vanadium; rutile; zircon; and a variety of gemstones (Zientek, 2014). Production of some of these minerals has been negatively affected by the country's political instability. However, there is virtually no beneficiation and value addition taking place for any of the minerals mined in the country. Mining activities are almost exclusively carried out by foreign firms registered in Madagascar. Among them are Rio Tinto (ilmenite), Sherrit (nickel and cobalt) and Madagascar Oil Ltd. of the United States and Total S.A. of France (drilling for petroleum) (Zientek, 2014; AfDB, OECD and UNDP, 2014).

Madagascar potentially could raise its GCVC participation through its natural resources of agriculture and minerals beneficiation. However, this is less likely in the medium term in the minerals sector. Better prospects to do this are in the agricultural sector. The country currently imports food produced from other SADC member States and COMESA member States.

### Malawi

The economy of Malawi is highly dependent on export of a few commodities, rendering it vulnerable to exogenous shocks. The export basket consists mainly of primary commodities. The main export commodity is tobacco, which accounts for 60 per cent of the country's foreign exchange earnings. Other key export commodities are tea, sugar, and cotton and uranium.

The share of manufacturing in GDP has declined during the past decade from 15 per cent to 10 per cent (SADC Statistics Yearbook, 2013). The country's industrial base is very narrow, with existing manufacturing activities limited to low-value agro-based processing. Its industries mainly supply the domestic market, although

some clothing, based on imported fabric, is also exported. The country's production capacity is limited; making the country's economy highly dependent on imports of finished goods.

As already noted, the country's most significant integration into GCVCs and the main foreign exchange earner is tobacco. Its tobacco industry is organized around clusters with strong backward linkages. However, there is very limited value addition when the leaf is harvested. The value addition mainly involves preparing the leaf for export.

In summary, Malawi has some potential to diversify into the export of higher-value products and to move up the regional and global commodity value chains. The products from which it is possible are tobacco, tea, and freshwater fish

### **Swaziland**

Swaziland is a small country in terms of population (about 1.1 million in 2013), GDP (\$3.8 billion in 2013) and exports of goods and services (\$2 billion in 2013) (SADC Statistics Yearbook, 2013) The country's ratio of exports over GDP, which was 53 per cent in 2013 and averaged 55.9 per cent between 2009 and 2013 (SADC Statistics Yearbook, 2013), is one of the highest in the SADC region. Foreign firms have been the key drivers of global commodity value chains in Swaziland. The country's participation in such activities, although small in terms of the global value, is quite significant at the domestic level. Foreign firms are chiefly responsible for the country's valueadded exports, linking the country to regional and global value chains. The most prominent exports are from chemicals and allied industries, textiles, prepared foodstuffs and beverages (soft drink concentrates dominate), wood and wood products, and electrical appliances (UNDP, 2014)...

However, the country's natural resources on which extractive industries can be based: coal; peat; lignite; and timber, are very limited. Current value-adding activities to a great deal rely on imported inputs.

# **United Republic of Tanzania**

The role of the United Republic of Tanzania in GCVCs has been shallow as was demonstrated by the consistency in trade performance during the global financial crisis in 2008 and 2009, which afflicted mostly the industrialized countries. Industry's share in GDP is 25 per cent, with particular contributions from value-addition activities, such as light manufacturing and agro-processing. However, there has been little generation of value added in GCVCs, both in terms of forward and backward linkages. It is, therefore, worth noting that the United Republic of Tanzania has experienced strong export growth and diversification away from traditional markets and products. Its total merchandise exports grew from \$2.52 billion to \$9.362 billion between 2004 and 2014 (SADC Statistics Yearbook, 2014). Traditional agricultural export commodities, such as coffee, tea, tobacco and fish, played an important role in this growth. However, gold has become a key product with exports of the precious metal rising from \$383 million to more than \$2 billion between 2003 and 2012. (AfDB, OECD and UNDP, 2014)

As alluded to elsewhere in this report, most of the intraregional trade is composed of finished and semi-finished value-added goods. This explains why the growth of light manufacturing and agro-processing exports from 7 per cent of total merchandise exports to 20 per cent (AfDB, OECD and UNDP, 2014) was accompanied by growth of exports to the neighbouring countries of the United Republic of Tanzania, which are members of the East Asia Community (EAC) and SADC from less than 10 per cent to more than 30 per cent over the decade to 2012. This development leads to the conclusion that "the most important development potential for the United Republic of Tanzania to generate trade in value added therefore probably lies in strengthening regional commodity value chains with neighbouring countries" (AfDB, OECD and UNDP, 2014). This ties in well with the country's vision for adding value in the minerals sector.

On the other hand, the country's performance in global value chains has not changed much with the emphasis remaining on raw mineral exports, such

as gold. Consequently, the country role in value chains is anchored at the bottom, even though the export destination has diversified to put more emphasis on shipping to Asia rather than Europe. There is need for deeper research to explain this diversion as potentially this could also reflect changes in global manufacturing activities, which have shifted to become concentrated in East and South Asia, such as to China and Indonesia from the traditional Western industrialized countries.

In summary, in order to move away from lower levels in global value chains and develop manufacturing capability, the United Republic of Tanzania must develop its precious stones industry, iron and steel, which has potential linkages with the rest of the economy, and agroprocessing. Gold processing beyond gold bars may not be a viable option given the volumes. The exploitation of the Rovuma Basin gas deposits would be a viable regional project in collaboration with other countries.

# **Botswana Diamonds Value- Addition Case Study**

Diversification and value addition have been the hallmark of the industrial policy of Botswana for several decades, despite the slow progress thus far. The slow progress could be attributable to its proximity to South Africa, which accounts for more than 60 per cent of the regional economy and continues to dominate industrial development. Since the discovery of diamonds at the dawn of independence in 1966, the country's diamonds have, through prudent management, helped Botswana move from being a poor lowincome country to a middle-income one that is relatively well-off. Despite the success, Botswana has in recent years sought to realize more benefit from marketing and adding value to its diamonds at home, thereby setting an example for other resource-rich countries in the region (ACET, 2014) (box 5.1). Botswana has built a stabilization fund, the Pula Fund, from diamond revenue, which is only drawn down in special circumstances.

The World Bank (2013) contends that the lesson from Botswana for other resource-rich developing nations, such as Angola, is that fostering reliable

## Box 5.1: Adding value to diamonds in Botswana

More than \$3 billion worth of De Beers diamonds were sorted in Gaborone in the first eight months since the company recently relocated its diamond aggregation and distribution activities after some 80 years in London.

The move is a part of a comprehensive 10-year deal that started with the renewal of the lease of the mines in 2006 by the Government of Botswana and was completed in September 2011. The new agreement for De Beers compelled the company to sell at least 10 per cent of its rough diamonds to a state-owned company in Botswana. The proportion sold to the local company would increase to 20 per cent by the end of the 10-year agreement. This provision allows the country to market more of its own diamonds and create incentives for more local value addition.

Previously all of the country's rough diamond production went to the trading arm of De Beers in London, which then aggregated the Botswana stones with its stock from around the world and sold most of them to its dealers or sight-holders in Antwerp, Belgium, Mumbai, New York, and Tel Aviv. China and Thailand have grown in importance as markets in recent years. This arrangement perpetuated Botswana's status of extracting the minerals and exporting them for value addition elsewhere, similar to other African countries where diamond exports consist of rough and as a result only \$15 billion of the \$71 billion final value of diamonds is captured before cutting.

But the Government has long aspired to move from mere extraction to the more profitable stages of the value chain. The strategy has been to become a diamond hub, one that creates high-value services, such as cutting, polishing, jewellery making, retailing, logistics, and information technology, and sophisticated security services. If successful, it would create jobs, diversify the economy, and make it resilient in the post-diamond mining period.

On full execution of the programme, an estimated \$6 billion worth of diamonds will be processed through the country each year, with \$1.2 billion available for local processing from \$800 million before the diamond hub. Dozens of the world's top diamantaires will converge on Botswana to buy diamonds and will consume other services in Botswana including the hotel industry. This will raise the country's global profile and will help it attract additional foreign investors in the other natural resources sector including tourism, copper, nickel and iron ore.

Source: ACET 2014

institutions and sound governance is critical to harnessing the development opportunities offered by natural-resource wealth. It is the proper management of resources rather than merely having resources that makes the difference.

### Zambia

While there are other sectors, such as agriculture, which have potential for regional value chains, the mining sector (copper, cobalt and gemstones) has the greatest potential in global value chain systems. Traditionally, Zambia has been a supplier of copper for value-adding in mostly the developed world. However, in recent years, according to the Observatory of Economic Complexity, the country's exports of refined copper, copper wire and insulated wire make up about 47 per cent of the country's total exports, signifying a significant shift in value addition. Raw copper, raw tobacco, raw cotton and maize and other raw products in the top 10 of Zambian exports contribute about 46 per cent of total exports. South Africa followed by Zimbabwe are the leading destinations of Zambian exports in the region, while China is the top global destination for exports, mainly copper. Data show that Zambia is well integrated in global value chains on the export side and is no longer just anchored at the bottom. According to AfDB, OECD and UNDP (2014), free manufacturing zones set up in the copperbelt are involved in copper smelting, manufacture of copper wire and household utensils and some agro-processing, and employ more than 3,500 people.

The potential development of value chains in agro-processing in Zambia is very significant. It lies in livestock, for example, with potential linkages in the dairy, beef and leather industries. Zambia, similar to other regional countries, has been a producer of cotton, with the textiles industry being a large industry. However, the industry has failed to withstand competition from more efficient Asian producers. Currently there are functioning value chains in a number of other agricultural sectors, including beef (part of the livestock sector), sugar, cotton and honey.

By their nature, value chains in their different forms are a business proposition which defines competitiveness. In Zambia, similar to the other Southern African countries, the chains are confronted with a number of challenges for which solutions have to be found to maintain viability and profitability, especially for private business ventures. The *African Economic Outlook* outlines some of the challenges to effective participation in global value chains to include: (a) transport infrastructure, which substantially increases the final product cost; (b) inadequate electricity supply; (c) inadequate skilled labour; and (d) international product standards (AfDB, OECD and UNDP, 2014).

### Summary

Based on the previous discussion, it can be deduced that the current levels of value-addition and the participation of SADC member States in various commodity value chains is significantly less than desirable. While the member States are involved in GCVCs, in most cases, the level of value-addition is so low, that they remain anchored at the bottom of them. The discussion has also shown that there is potential and opportunities for value-addition and beneficiation in the various commodities produced in the region. Various regional countries have taken steps to boost value chains but they are not being done systematically

within the national boundaries nor in a coordinated regional manner. The minerals sector, in particular is characterized by concentration on extractive activities. Major international mining companies, mostly from Western countries and also from China, are interested in mining ores and shipping their output as ore or in semi-worked form.

With the slight exception of South Africa in a few cases, most countries in the region are at the lower-end of the value chains. This affects the benefits derived from such participation. The efforts of South Africa regarding value chains provide some valuable lessons for regional countries. However, it must be noted that South Africa has the advantage of having a relatively large economy, eclipsing all others in the region put together (more than 60 per cent of regional GDP) ((SADC Statistics Yearbook, 2012)).

With the comparative advantage in natural resources as described in the preceding section and the policy framework, the question is why member States have not accelerated value-addition and beneficiation. The following section reviews the constraints and challenges facing beneficiation and value-addition in the Southern African region.

# **Chapter 6**

# Challenges of Beneficiation and Value-addition in Southern Africa

### **Overview**

Going into the seventh year since the proclamation of the SADC Free Trade Area, available data suggest that its establishment has not led to significant development of new industries, nor has it led to increased proportion of manufacturing value-added in GDP (Table 6.1.)

The SADC data show that between 2001 and 2012, the proportion of manufacturing's contribution to GDP (proxy for value added) declined from 16.9 per cent to 11.6 per cent. This development runs contrary to the expectation of the region's industrialization drive, but is reflective of the region's prioritization of trade over production in the integration agenda.

# **Resources availability**

The Southern African region contains some of the largest known reserves of usable minerals in the world. These resources have for decades provided raw materials for industries in industrialized countries and some of the emerging markets (table 6.2).

Base metals, especially nickel and/or copper, are extracted profitably in Botswana, the Democratic Republic of the Congo, South Africa, Zambia and Zimbabwe. Other mineral resources found in large proportions in SADC countries are uranium, gold, iron ore, asbestos, tin, fluorspar, manganese, limestone and zinc. The energy mix and challenges currently afflicting the region could

well be addressed through exploitation of the natural, shale and coal bed methane gas deposits that have been discovered in Botswana, Malawi, Mozambique, Namibia, South Africa, the United Republic of Tanzania and Zimbabwe in recent years. Lithium, which is used to manufacture mobile phones and electric vehicle batteries is mined in Zimbabwe.

The mineral resources provide the SADC region with a comparative advantage and also present a springboard for socioeconomic development of the countries. For example, given the growing demand for platinum as a catalyst in reducing air pollution and in jewellery, the increased production of platinum group metals and their beneficiation present significant opportunities for developing processing facilities. This could form the backbone of vibrant metallurgical and manufacturing industries.

For the diamond sector, world diamond markets are carefully controlled by a few major firms. Negotiations with these firms could result in increased regional beneficiation and value-addition. There are opportunities for regional skills development in cutting, polishing, jewellery manufacture, given the region's massive resource base. It is in these areas that a lot of value is added. India has specialized in these areas, as already noted, even though it does not have the resource. Regional firms need assistance in acquiring the capacities and technological

Table 6.1: Southern African Development Community manufacturing as proportion of gross domestic product (per cent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SADC Manufacturing / GDP %	16.9	16.8	17.2	17.0	16.1	15.3	14.7	14.0	13.8	13.0	11.8	11.6

**Source:** Calculations based on data from SADC Statistics Yearbook, (2012).

Table 6.2: Production of major minerals in the Southern African Development Community SADC

	Angola	Botswana	Democratic Republic of the Congo	Mozambique	Namibia	South Africa	United Republic of Tanzania	Zambia	Zimbabwe
Aluminium (tonnes)				545 000		800 000			
Bauxite (tonnes)				*3 600			120 000		
Coal (million T)		1.4	0.12	0.03		250			2.5
Copper (tonnes)		17 000	619 000		8 ,800	70 000	2000	600 000	6 600
Crude oil (million Mt)	90		10			0.35			
Crude steel (million T)						7.5			0.023
Diamond (million carat)	13	20	20		1.2	7	0.181		0.963
Ferro-chrome (million t)						2.5			0.11
Gold (tonnes)		1.4	2.5	0.5	2	154	39	2.8	15
Iron Ore (million Mt)						67			0.36
Natural gas (billion cm3)	0.8			3.1		1.5			
Platinum group metals (Kgs)						254 000			10.5
Tin (tonnes)			9 400						
Uranium (Mt)					4 600	650			
Zinc (tonnes)			12 000		240 000	37 000			

**Source:** SADC Statistics Yearbook, 2012The production figures shown in the table are used as a proxy for available resources in the region. The table shows that the majority of countries in the SADC region are endowed with an array of mineral resources. Between them, South Africa and Zimbabwe are endowed with approximately 80 per cent of the world's platinum group metals and chromite resources (Zientek, 2014). Vast deposits of coal, both thermal and metallurgical, are available and are mined in significant quantities in Botswana, Malawi, Mozambique, South Africa, Zimbabwe and Zambia. Moreover, Angola, Botswana, the Democratic Republic of the Congo, Namibia, South Africa and Zimbabwe provide the world's lion share of diamonds.

capabilities. In addition, for retailing of the finished product, access to developed country markets is necessary. The whole process therefore requires the establishment of close linkages with firms that are fully involved in the valuable parts of the diamond chain. Diamonds are a luxury item and regional consumers do not yet have the income levels needed to purchase the end product on a large scale.

# **Key Challenges**

The key constraints to beneficiation and valueaddition are presented in detail in the industrial policy documents of some of the SADC member States. Among them are: (a) The prioritization of trade over productive capacity remains the biggest constraint to industrialization, which the directive of the 2014 SADC Summit seeks to reverse. The change in policy direction follows the realization by the Heads of State that very little by way of sustainable improvement in livelihoods of the regional population can be expected from increased trade opportunities when there are very few products to trade among regional countries. As most of the region's exports are mere resource extracts, there is no basis for regional countries to exchange these as there is neither capacity nor capability to add value to them. The industrialization imperative requires that there

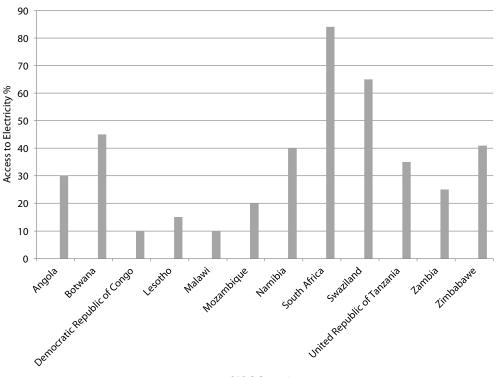
- be a deliberate effort at regional and national levels to redirect energies towards adding value to most of primary produce and in particular the mineral resource endowment.
- (b) Another challenge facing the region is how to develop a real cooperative basis for industrial development, one that would ensure strategic offshoots of industrialization for national economies, strenathen regional growth and development, and enhance global competitiveness among regional industries. The approach of the regional policy documents, the Regional Indicative Strategic Development Plan, the Regional Industrial Development Policy Framework and the Industrial Upgrading and Modernisation Programme is that the region works out a policy framework only and encourages member states to use the frameworks to draw up their own policies and implement as per each country's practice. As of now, the only evidence that some member States industrialization policies are related to the regional frameworks seems to be the emphasis on the value-addition objective. National industrialization policies do not refer to regional industrialization cooperation or the subject is only mentioned in passing.
- Another constraint facing value-addition in the region is the underdevelopment of clusters and regional commodity value chains. Value chains have the ability to break production processes into manageable activities for which firms can specialize in just one part of a chain, thereby making technology and related skills more affordable. Typically, manufacturing concerns more than one mineral to produce most products. For example, integrated jewellery manufacture requires gold, platinum group metals and diamonds) (SADC, 2009), meaning that other raw materials have to be supplied from other producers, including imports from other countries. High levels of technology (which changes all the time) are required to produce alloys, design products, and manufacture components or final products.

- Modern systems require components made by other firms in the world.
- (d) Lack of access to affordable financial resources, especially for the small and medium scale industry sector. Availability of long-term finance for capitalization has severely affected value-addition activities in Zimbabwe, for example, resulting in capacity utilization of below 40 per cent in 2013.

The large infrastructure deficit mainly in power, water, transport links is currently constraining access to markets either regionally or abroad and uncompetitive costs of doing business. In particular, access to and the availability of uninterrupted power (figure 6.1) is a major problem, which impeding prospects for industrial take-off in Angola and Mozambique. Regarding transport links, Mozal had to build a dedicated port at Matola while Rio Tinto is building a rail line from Tete to Nacala.

- (e) Limited investment in research and development, science, innovation and technology. In some member States, such as Madagascar and the United Republic of Tanzania, policymakers have been struggling to make small entrepreneurs aware of the benefits of research and development. Government budgets in the region are already very constrained by social services; there is no money for research and development.
- (f) Inadequate human capital and skills for industrial processes, science and technology. This feature is common to all countries in the region, including South Africa and Botswana.
- (g) Poorly developed and small private sector, which is highly undercapitalized and has low capacity, and oftenhas difficulties in complying with international standards and quality requirements.
- (h) New global requirements for dealing with environmental and climate change, especially on emissions.





- **SADC** Countries
- (i) Poor coordination between trade, investment and industrial policy as well as other crosscutting policies and regulations. Because of this, trade and investment agreements have constrained the policy space for industrialization.
- (i) Limited access to raw material for local beneficiation resulting from the current structural arrangement of the mining industry, which remains geared towards export orientation of raw material, with the bulk of current producers firmly stuck in longterm contracts with their international clients; Zimbabwe has been applying banning measures from time to time on exports of chrome ore. Retention of cotton lint for local spinners and tobacco leaf for cigarette manufacturing has also been applied by Zimbabwe. Botswana is reserving some diamonds for local cutting and polishing. South Africa is still trying to reserve some platinum group metals for local conversion though there has been pricing issues associated with this.
- (k) As of 2015, regional capacity and capability to add value to the mineral resources was very limited. Most of the limited capacity was in South Africa. While there are smelting facilities for some of the key metallic minerals, beyond that, the process of value-addition moves into the realm of manufacture requiring investment by other firms.

Problems dealing with most of the above have been cited in various industrial policy documents of SADC member States. The direct implication is that successful industrialization initiatives have to ensure that they are addressed. The following subsections present brief synopses of the constraints to industrialization being faced by a selection of Southern African countries.

# Mozambique

Mozambique is endowed with a range of natural resources, including minerals and agricultural products. Regarding minerals, it has coal, gold, iron ore, titanium, tantalum, gems, precious stones, gas and marble, while its agricultural products are prawns, fish, other seafood and marine resources, coconuts, cashew nuts, wood,

sugar and cotton. Mozambique faces the paradox of having one of the fastest sustained growth rates in Africa (averaging more than 7 per cent per annum) and one of the lowest ranking human development index (HDI). The discovery of vast reserves of natural gas, coal deposits and rare earth minerals could be a game changer for the country, with natural resource wealth estimated to generate annual revenues reaching \$9 billion dollars or about 7 per cent of GDP by 2032 (ibid).

The discoveries have heightened investor interest in extractive industries and are driving an economic transition that is also affecting the employment and education systems. A new labour market segment tied to the extractive industry is emerging, but the country is still characterized by the scarcity of applied labour skills, such as applied mechanics, welders, and electricians (Cruz and others, 2014). To deal with general lack of skilled personnel in the country, in 2013, the Government of Mozambique set a programme under which it opened two polytechnic institutes, recruited more than 6,600 new teachers, continued with distance education and promoted entrepreneurship programmes (Cruz and others, 2014).

However, the economy generates few jobs, reflecting the country's bottom position on global commodity value chains. The employment gap is large as 370,000 young people join the labour force every year, while the private sector creates fewer than 18,000 jobs per annum. The capital-intensive nature of the extractive industries has a limited impact on employment. In 2010 the megaprojects in the country combined generated just 3,800 direct jobs (Cruz and others, 2014).

Although the constraints identified in Mozambique's Industrial Policy and Strategy apply to industrial development in general, they take on added significance when applied specifically to the processes of beneficiation and value-addition. These include among others: "

(a) "High rates of smuggling and counterfeit products.

- (b) Poor organization and management capacity in enterprises, linked to the poor professional capacity of the workforce and the scarcity of specialized labour. There are considerable constraints at the middle-management level, above all in technical areas, such as maintenance, quality control, industrial engineering and product management. It is estimated that about 80 per cent of the work force is not properly qualified.
- (c) Inadequacy of national quality norms and specific technical regulations, shortage of metrology laboratories and absence of certification institutions.
- (d) Outmoded technology, obsolete equipment and lack of spare parts. (A significant part of the industrial base has been set up using second hand equipment.)
- (e) Lack of an integrated strategy to promote national products." (Mozambique, 2007, p. 12)

Consequently, Mozambican industrial enterprises, in general, are still in a nascent stage and do not have the experience and the industrial capability (financial, technological, marketing and organizational) as their external competitors. In addition, the country's low external tariff regime means industrialization efforts in Mozambique face strong external competition from the outset.

# Angola

The economy of Angolais one of the least diversified in the region. The country is overly dependent on revenue from the oil sector, although efforts are under way to diversify the economy using oil revenue. Oil revenue accounted for 80 per cent of total government revenue and grants in 2011 and 95 per cent of exports. However, according to the United States Energy Administration, about 36 per cent of the people of Angola live below the poverty line and only 40 per cent have access to electricity. The argument for diversification and industrialization through value chains could not be clearer as a way to create opportunities for the majority of people. Notably, however, proven reserves of oil in Angola are currently lower than

in most other resource rich countries (AfDB, OECD and UNDP, 2014)

The major obstacles to develop industries include:

- (a) Inadequate national transport infrastructure means limited connectivity with regional and international infrastructure (roads, ports, airports and railways connecting to foreign markets);
- (b) Inadequate and unreliable power supply;
- (c) Difficulties in access to finance;
- (d) Volatile trade flows resulting from fluctuating global commodity prices (the periods 2008-2009 and 2014-2015 being cases in point);
- (e) Strategy changes by multinational enterprises;
- (f) Administrative and other non-tariff barriers to free movement of goods and skills;
- (g) Weak capacity in local manufacturing;
- (h) Lack of specialized oil industry skills.

The lack of specialized oil industry skills limits the development of national value chains linking the oil service activities and the rest of the economy. The existence of oil dollars probably acts as a great disincentive for investment in value-added manufacturing activities, as most commodities and consumer requirements can be imported without much interference.

### **Zimbabwe**

The major constraints to value-addition and hence effective participation in GCVCs and RCVCs in Zimbabwe are:

(a) Poor and inadequate economic infrastructure, including road network and rail system, power supply and water supply. Current power shortages impede prospects for significant levels of foreign investment in value-adding activities. Some investors in the minerals sector (for example, in ferro-chrome

- mining and smelting along the Great Dyke) have proposed the establishment of private electricity generation capacity to power their proposed activities;
- (b) Lack of long-term finance and shortage of working capital following the adoption of the multiple-currency system;
- (c) Antiquated production machinery and limited access to new technology;
- (d) Limited skills base to support industrialization; Zimbabwe is currently afflicted by skills flight to neighbouring South Africa, Europe, in particular the United Kingdom of Great Britain and Northern Ireland, and the United States;
- (e) Uncompetitive business environment and the associated high cost of doing business;
- (f) Continued investor concerns related to indigenization and economic empowerment regulations;
- (g) Production of similar products with other regional countries limits exchange opportunities, especially the primary industry products from the agricultural and mining sectors.

# Namibia

A number of challenges need to be addressed in order to enhance the competitive advantage of Namibia.

- a) The country is facing skills shortages across all sectors of the economy, especially middle-level skills. The situation is further compounded by mismatches of available skills and job vacancies in the labour market;
- b) Inflexible labour laws and regulations;
- Poor business environment, which is relatively less attractive than in neighbouring countries;
- d) A wide range of policy, legal, regulatory and institutional weaknesses places the country

- at a competitive disadvantage compared to South Africa and Botswana, for example;
- e) The country is also facing the risk of serious power deficits.

# Madagascar

Several obstacles prevent Madagascar from moving more rapidly towards more value-added stages in the GCVCs. Among them are:

- (a) The country's physical distance from developed-country markets;
- (b) Lack of transnational infrastructure and remoteness of agricultural areas;
- (c) The small size of local markets;
- (d) Difficulties in obtaining credit finance
- (e) Costly and unreliable energy, which discourages investment;
- (f) Governance constraints, especially repeated political crises that force investors to include them as risks in their decision-making;
- (g) Major problem of corruption;
- (h) Slow growth of human resources; fewer than 3 per cent of the country's workers completed secondary education, according to figures for 2010;
- (i) Tradition still weighs heavily on the economy, which, in turn, curbs creativity and innovation.

### Malawi

The main factors hindering competitiveness of enterprises in Malawi and their ability to add value to primary products and move up the value chain and supply regional and global markets include:

- (a) High trading costs;
- (b) High transport costs and non-tariff barriers of other SADC member States;

(c) Inadequate skills required to produce products of a competitive quality.

The removal of these constraints is necessary for Malawi to exploit emerging opportunities to participate in regional and global commodity value chains.

### **South Africa**

Inhibitive factors to effective implementation and development of the beneficiation and value-addition programmes in South Africa include the following:-

- (a) Limited access to raw material for local beneficiation, resulting from the current structural arrangement of the mining industry, which remains geared towards export orientation of raw material, with the bulk of current producers firmly stuck in long-term contracts with their international clients;
- (b) Pricing mechanisms used by some raw and intermediate material producers that do not discount for proximity of the raw material also hamper beneficiation to the final stages of the value chain. The platinum group metals pricing is a case in point;
- (c) Shortages of critical infrastructure, such as rail, water, ports and electricity supply, have a material impact on sustaining current beneficiation initiatives and are a major threat to future prospects of growth in mineral value-addition (for example, power shortages militate against new industries). Lack of infrastructure linking mining operations and industrial hubs is also a disincentive;
- (d) Research and Development: the country's limited exposure to break-through research and development programmes thwarts the prospects of innovation in creating new products for beneficiation;
- (e) Skills sought for expediting local beneficiation, such as scientists and engineers, requires specific attention;

(f) Limited access to international markets for beneficiated products because of tariff and non-tariff barriers.

### Zambia

Zambia faces a number of challenges for effective implementation of the country's industrialization policy.

- (a) Inadequate infrastructure (energy and transport) is one of the factors affecting the development of the mining industry. The country's landlocked position substantially increases the cost of long-haul transport by up to 40 per cent of the final product's value;
- (b) Lack of access to reliable and stable electricity supply, which is critical in ensuring continuous production, which reduces waste of materials
- (c) The linkages between rural primary production areas and urban processing plants are weak, adding additional costs to the final product;

- (d) Access to qualified local labour, with the right skills mix needed to operate machinery that is becoming more automated and complex;
- (e) Global consumers and health and environmental authorities require better and safer products based on standards that are difficult to obtain and therefore limit exports.

This section has presented general constraints to value-addition as well as those that are peculiar to some of the individual member States. Skills, technology, infrastructure, such as power and roads, and markets, are common constraints to the industrialization efforts of member States. The next section proffers some solutions that have been implemented by member States or still need to be implemented by both member States and the regional body.

# **Chapter 7**

# Strengthening National and Regional Beneficiation and Value-addition, including through Value Chains

### **Overview**

The opportunities for value addition and beneficiation alluded to in the previous Chapter as well as the limited national efforts at promoting the further transformation of commodities at national level both indicate that Southern Africa still has more to do in this endeavour. The required action includes addressing structural and institutional constraints. The key areas of action include; financing, human capacity development, research, development and innovation, economic integration and supporting the development of small and medium scale enterprises.

# Financing Industrialization and Institutional Developments

Financing industrialization is essentially a long-term venture, for which financial institutions in the region may not configured to do. However, in order to fully appreciate the current state of play of financing mechanism within the SADC region, a mapping exercise must be undertaken to identify institutions involved in financial intermediation with a focus on medium to long-term funding and sector-specific facilities. The mapping would identify the specific products on offer and their relevance to financing of industrial projects to provide the basis of robust regional framework for financing industrial development. The financing options for industrial development in the region could include the following:

# (a) Prescribed budget allocation to industrial development

Direct state support to industrial development, especially to value-addition and beneficiation and research and development in strategic minerals has been successful in some countries in the region. The evolution of South African institutions such as Sasol, an integrated chemical company, the Industrial Development Corporation and other leading research and innovation institutions, such as the Centre for Scientific and Industrial Research and MINTEK into internationally competitive institutions is owed to deliberate State support through annual budgetary allocations. The role of the State in funding research, development and innovation is important and has been the source of many scientific breakthroughs worldwide.

### (b) South-South Cooperation financing

The partnership between SADC member States and the South should also include industrial development and cooperation strategies. The relationship with China and the other BRIC nations should include technology transfer and the development of linkages on the continent through the establishment of small and medium-scale processing facilities. The current resources-for-infrastructure arrangements should focus on local industrial development, value-addition and beneficiation. For example, rather than exporting iron ore, the relationships should investigate prospects of completing the value chain within

SADC through the upgrading of iron and steel facilities already existing in the region. This applies to other minerals for which potential exists.

# (c) Value chain approach

The financing of industrial development can be looked at from the value chain perspective specifically how the specific linkages in the chain can be used for the benefit of the whole chain. The experience of Mozal in Mozambique is instructive in that various parties in the value chain raised some portion of the funding required for the project. That kind of commitment then saw funders, such as the International Finance Corporation coming in to support the project.

# (d) Regional and domestic funding mechanisms

Most of the countries in the region have development finance institutions, which are currently providing long-term financing in other areas. The mandates for these regional development banks need to be changed to provide financing for long-term capital requirements of new and existing industries in addition to infrastructure which they already support. This is particularly important for demonstrably viable value-adding and beneficiation enterprise development, especially those projects with regional dimensions that can yield greater benefits.

# (e) Creation and use of sovereign wealth funds

The natural resources boom during the last decade increased earnings from the minerals sector, especially for those countries that had properly configured fiscal frameworks. Angola, Botswana and Namibia have established sovereign wealth funds from the proceeds from the minerals sector. These proceeds can be invested in value-addition activities, beneficiation, research and development and infrastructure. Recently, Zambia and Zimbabwe announced plans to introduce sovereign wealth funds.

# Financing small enterprises

Importantly, special financing for industrial development in SADC member should target micro, small and medium-sized enterprises (MSMEs). This sector is recognized to be a key driver of industrialization and structural transformation around the world and thus should be part of the regional strategies for industrialization. This sector, while innovative and able to contribute to industrial development, faces major financial constraints. The funding arrangements for MSMEs should be improved by; (a) creating specialized financial institutions to accommodate the special needs of the MSME sector; (b) creating hybrid capital mechanisms; (c) developing cluster models for raising funding which builds greater confidence between lenders and MSMEs based on provision of collective guarantees to financial institutions; and (d) provision of specialized lines of credit targeting the MSME sector. The role of the State in providing the required collateral in these financing tools is fundamental.

# Research and Development, Technology Development and Innovation

There are several methods by which regional countries can access technologies required to beneficiate and add value to the region's mineral resources:

- (a) Technology can be acquired directly through purchase of plant and equipment, such as in the case of the Chisumbanje Ethanol plant in Zimbabwe. The major challenge for this is to secure the funding given the shortage of long- term finance. Development banks could play a role in such purchases.
- (b) It can be acquired through linkages with technologically more advanced firms in a value chain, such as in the case of motor vehicle component manufacturers in the South African Motor Industry and Mozal in Mozambique. This is, however, very much dependent on the willingness and capability of the technologically more advanced firm to do so. There is also a strong possibility a

firm dictating terms in a manner such that the firm seeking technology can end up in a disadvantaged position.

- (c) Technology can be endogenously generated through focused research and development at the firm, as well as at technology research institutes; Sasol is a prime example. This requires substantial funding of research and hence well-resourced firms. As in the case of Sasol, government played a major part over a number of years.
- (d) Foreign direct investment is another way of obtaining the necessary technology for beneficiation and value-addition; the major challenge with this is finding investors willing to put their money into what are basically start-up projects
- (e) The region should endeavour to create centres of excellence in science and technology to spearhead the required fundamental research in industrialization and industrial processes. Institutions, such as the African University of Science and Technology in Abuja (box 7.1) and the African Institute of Science and Technology in Arusha, United Republic of Tanzania, provide infrastructure from which skills can be nurtured and innovation supported. Zimbabwe has also tabled a proposal to launch a centre of excellence in minerals beneficiation and value-addition.

South Africa has several centres of excellence, such as the Central University of Technology, specializing in titanium. These centres are part of the African Union framework for capacity development. They can play a leading role in research and development and in producing high quality scientists to lead industrial development.

In analysing the opportunities, challenges and industrial priorities, the distinction between domestic and international markets should not exist and cannot be upheld, because the markets, the production and value chains and the technological, financial and information systems are increasingly integrated. The domestic linkages generated by import substitutions can only be established and promote industrial and economic development, if the national products satisfy standards that are at least similar to those of the competitors.

The Southern African region should pool resources together and develop industrial technology incubation centres. These are research institutions with the primary function to develop endogenous technologies and/or adapt imported technologies that could be used to support the regional industrialization drive. Indeed there are institutions already existing upon which the region can build capacity. The South African CSIR, the Zimbabwean Scientific Industrial Research and Development Centre, and the Botswana

# 7.1: Creating regional centres of excellence - West Africa

The African University of Science and Technology (AUST) was set up in Abuja in 2007 and the African Institute of Science and Technology in Arusha in 2009 with the support of governments and the World Bank as regional centers of excellence. Both accept students from all African countries for Master's and Doctoral programs. AUST issued 64 Masters Degrees and one Doctoral degree in 2013. A student from AUST won the Bernard Zieglier Award in 2011 for work on discrete event systems, modelling language and graphical simulation completed in collaboration with a Professor from Blaise Pascal University in Clermont-Ferrand, France.

The International Institute for Water and Environmental Engineering was set up in Ouagadougou in 2006 to train professionals from 14 West and Central African countries. It has since trained 5,000 professionals and currently has 2,000 students on campus from 27 countries and 1,500 distance learners from 43 countries worldwide. Ninety percent of the Institutes' graduates find work within six months of graduating. In 2012 two students from the Institute won an entrepreneurship award at the Global Social Venture Competition at the University of California at Berkeley, for developing a highly nutritious powder, FasoProt, to fight malnutrition. Furthermore, in 2013 two other students from the Institute won the grand prize at the same competition for inventing a soap called FasoSoap to fight malaria. This was the first win of the award by a non-American.

Institute for Technology Research and Innovation and the Botswana Innovation Hub are examples of scientific and industrial technology research, development and implementation organizations that could be given a regional outlook. The Southern African Research and Innovation Management Association coordinates the activities of a number of research and innovation centres in the region. The region could build upon this association to share knowledge and innovation for industrial development.

The region can also make use of GCVCs where firms access technology through agreements on technology transfer with partners in the value chains. This transfer can start with fairly simple processes, such as assembly, and graduate to more complex manufacturing activities over time. Furthermore, industrial systems the world over have become highly automated. This can be translated to mean industrial processes are now inseparable from information and communication technologies (ICTs) as the former fully embody the latter. What is now emerging is a network of technology and innovation hubs

dedicated to young scientists, especially in the ICT field. Some of the operational technology hubs are shown in figure 7.1.

The above picture represents a good start. Going forward, the hubs require funding and establishment of close links with production systems. This will result in innovation with a purpose. The region requires industrialization strategic think-tanks that can pull together the opportunities that are available to come up with viable regional solutions, such as utilizing the ICT zeal of young people to develop local programmes for the computerization of regional production systems.

The region can take a take note of innovation associated with the mobile phone. Although it is safe to say that the majority of mobile phone users have no idea how the phone works; what is important is that an increasing number of people in Southern Africa now use the gadget for more than just talking to friends and family or sending short messages (Error! Reference source not found.. The mobile phone represents a major

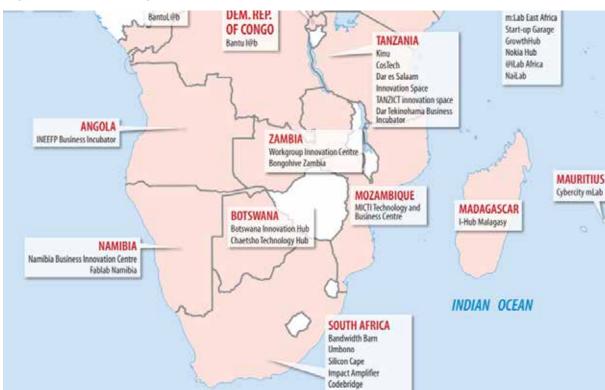


Figure 7.1: Technology and innovation hubs in Southern Africa

Source: World Bank (2014).

technological revolution, which for many in the developing world, including residents in Southern Africa, was an unaffordable luxury 15 years ago, but has now become a basic necessity competing with food, clothing and shelter. The technology has enabled 99 per cent of rural households in the region to skip the unavailable landline technology to become part of the Internet revolution almost at the same pace as the more affluent in the region

Mobile technology has revolutionized the availability of new and old services to the poorer sections of the regional population, both urban and rural. The mobile phone has now been adapted for use by mobile phone companies to extend banking services to anyone who owns a mobile phone. It has revolutionized the rural health-care delivery systems including, for example, disease outbreak monitoring, collection and reporting of news, reporting of emergencies, including traffic accidents and floods, and the provision of farmer extension services.

# **Human and institutional capacity**

It is noted that the skills gap in a number of SADC countries is very wide and that serious investment in human resources is a critical. However, deeper integration means more than just free movement of goods and services. It also requires strong political commitment to and the implementation of free movement of capital and skills by member States within the integrated regional market. Such factor movements necessitate higher levels of coordination and harmonization of social policies across the regional community. This is because free factor movement among countries with different levels of development has a tendency to entrench socioeconomic inequalities which, as has already been witnessed in countries, such as South Africa, can result in undesirable social upheavals.

As the SADC countries have singled out skills shortages as one of their biggest handicaps, it seems to be worthwhile for regional countries to pull resources together to ensure training

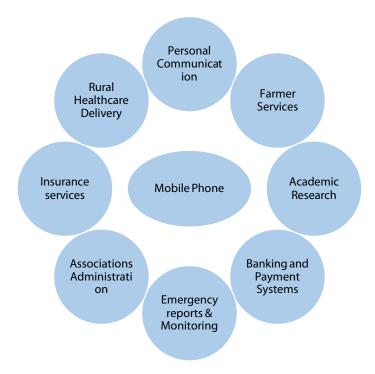


Figure 7.2: Mobile phone revolution

**Source:** Illustration by Author

of citizens to produce the required skills. The region needs clear identification of the skills gap to enable better coordination of activities of skills training centres. This would take the form of regional training centres each of which could specialize in specific disciplines. Several South African universities are currently training many regional countries' citizens in various technical fields; this could be exploited through a more coordinated approach. Such a strategy is likely to deepen linkages between member states of SADC.

Also of note, a large number of skilled Southern Africans are residing outside the region, in particular in Europe and the United States. Some of the skilled people are, however, still found in the region. There could be merit in establishing a regional technical skills data bank containing the details of skilled people relevant for the manufacturing and related industries and services so that they could be engaged to support value-addition activities in any of the member States. This would change the ongoing brain drain into a significant gain and in the process facilitate industrialization in the region.

# **Markets and regional integration**

# Market development for industrialization

The deepening of the SADC Free Trade Area accompanied by implementation of regional industrialization policies and strategies has the potential to substantially reduce poverty in the region. SADC should boldly put in abeyance the launch of the customs union and instead, focus on transforming the trade protocol and tripartite arrangements to become enablers in the industrialization programme of the region. Already, the tripartite arrangement incorporates the three pillars covering industrialization, free trade and infrastructure support. The launch of the Tripartite Free Trade Area encompassing 26 countries that are members of COMESA, the East African Community and/or SADC is an ambitious initiative designed to create space for the growth of industry in the Tripartite region.

# **Regional integration**

As already noted in previous sections, the SADC regional integration agenda has already been reformed in the revised Regional Industrial Development Policy Framework 2015-2020 to give prominence to industrialization, enhance regional production capacity and address other supply side constraints such as the high cost of services in the region. This development will help push forward the region's industrialization agenda as captured in the SADC Industrial Upgrading and Modernisation Programme. Furthermore, the SADC Industrialization Strategy and Roadmap, 2015-2063, the region's most ambitious strategy to date, is and linked to the African Union Agenda 2063. It is designed to take the region well into the period of the African economic community during which industries are expected to take advantage of a continent-wide free trade area.

The Industrial Upgrading and Modernisation Programme fits in well with the change in priorities to front-load the implementation of the industrialization policy. The capacity to produce is what is needed to make free trade have meaning, especially for the less developed member States. Regional integration would increase market size, enable firms to enjoy economies of scale and pave the way for the development of regional value chains, which could lower input costs by reducing the high cost of sourcing goods from outside the region. Furthermore, greater regional integration would also enable firms to access different skills and endowments, such as gas in Mozambique, oil in Angola, minerals and agriculture in Zambia and water in the Democratic Republic of the Congo. Integration under the EAC-COMESA-SADC Tripartite<sup>12</sup> agenda provides further impetus for industrialization from a larger market. However, successful regional integration would require the harmonization of industrial policies, the identification of specific country endowments and the standardization and alignment of regulations.

The many uses of some of the platinum group metals means that there are real opportunities for firms in Zimbabwe and South Africa to collaborate

<sup>&</sup>lt;sup>12</sup> For more details, see www.comesa.int/.

**Table 7.2: Uses of some Platinum Group Metals** 

Potential markets for minor PGMs	Uses
Ruthenium	data storage , electrical contacts, turbine blades, electronics, aerospace, medical
Iridium	spark plugs, crystal crucibles for LED, OLED; chloralkali electrodes; automotive; electronics; chemicals

in adding value to some of the output of metals in this sector and jointly market them. The mature motor car industry of South Africa presents a ready market for auto catalysts. This could entail strategic partnerships with firms in the industrialized countries already active at home for technology transfer.

Similarly, the experience of Botswana of establishing the Diamond Hub offers important lessons for other countries in the region. Transparent diamond revenue management has helped the country address development

challenges in a speedy manner and the establishment of the Hub has enabled the country to realize more benefits from diamond marketing and value addition (box 5.1). The Diamond Hub, though still evolving, could be adapted by other diamond producers in the region for greater regional benefits through economies of scale. For example, the country could provide services to neighbouring Zimbabwe and Namibia, other diamond producers.

# **Chapter 8**

# Conclusions and Recommendations

# **Conclusions**

This report has shown that both continental and regional industrialization frameworks are geared towards promoting the beneficiation and value-addition to natural resources. At the national level, the industrialization and sectoral policies and development plans of SADC member States emphasize value-addition and beneficiation to primary products as a means of strengthening domestic linkages, increasing locally retained value, generating employment, and reducing vulnerability to movements in the prices of primary commodities. The regional bloc is committed to transforming the comparative advantages borne out of natural resource endowments into competitive advantages through various initiatives. The importance of an inclusive institutional framework at regional and national levels to anchor the regional industrialization policy framework and the national industrialization programmes has been emphasized in the report. The conclusion is that the region is generally on course towards accelerated industrialization anchored on value addition despite numerous constraints.

Opportunities in value-addition and beneficiation in the region have been outlined and these can be exploited through a regional approach. The importance of strengthened regional value chains development has been highlighted as a strategy to spread the benefits of regional integration and industrialization. The participation of member States in lower level processes along value chains is currently suboptimal and presents opportunities. The review has observed that countries, such as South Africa, already have centres of excellence in industrial research, which could be shared through a regional framework. There is scope in the sharing of facilities and in creating regional innovation hubs, which can drive industrialization efforts. Policies pertaining to value-addition and beneficiation to the natural resources using the techniques of global, regional and national value chain development would help accelerate industrial development. However, cooperation in creating a competitive industrial sector is critical to producing internationally competitive products.

The role of the State and State institutions is particularly important in navigating the transition from commodity exporters to knowledge economies. State investment and support can underpin the operating framework for industrialization to allow the private sector to drive industrial growth and cluster development. State institutions, such as research centres, and development corporations, such as the Industrial Development Corporation in South Africa and the Industrial Development Corporation in Zimbabwe, should play a much more active role, especially in the establishment of new enterprises that add value to national resources. The State needs to adopt a developmental approach and support continued innovation and human skills development ,which are key to reducing the dependence on the initial factor endowment (natural resources), building and sustaining a locally embedded, competitive and diversified economy and moving towards a knowledgebased economy.

The profiling of the beneficiation and value-addition opportunities in natural resources in the region would allow member States to focus on areas in which they have full comparative advantages. It would also enable the countries to decide which stage of the value chain they should focus on. The beneficiation potential of minerals and agricultural products needs to be fully understood and the boundary conditions for such a strategy on a commodity-by-commodity basis should be determined. The profiling would investigate the strengths of the productive capacities in the region and the commodity markets. For example, in the agricultural sector,

oil seeds present opportunities for easier value-addition than minerals because of lower technology and skills requirements. As a result, more work needs to be done on profiling regional resources and opportunities for value-addition.

### **Recommendations**

Addressing the challenges raised throughout this report requires action at various levels. Importantly, member States and national stakeholders, as well as the regional economic communities should take for the lead in dealing with the challenges and opportunities with support from international development partners.

# **Regional Actions**

The SADC secretariat should take the lead in:

- (a) Facilitating the industrialization of the SADC region by spearheading and coordinating implementation of the SADC Industrialization Strategy and Roadmap, 2015-2063. The road map clearly identifies activities that should be carried out by the secretariat itself, the Governments of member States and the private business sector. The secretariat, however, has a role to play in coordinating the process and ensuring that milestones are respected.
- (b) Enhancing industrial capacity: The regional institutional framework proposed in the SADC Industrial Development Policy Framework needs to be operationalized to drive the domestication of the policy and the commencement of specific activities. A deliberate programme aimed at enhancing capacity in industrial policymaking and implementation at both national and regional levels is necessary. Measures that promote regional product value chains in industrial development policies should be introduced in the policy frameworks.
- (c) Regional pooling of resources and capacities: The region should pool resources to support the establishment of regional technology incubation centres or centres of excellence based on institutions that are already

- operational in some member States. These centres can specialize in identified areas of interest, such as the technologies to produce new products from the various platinum group metals. Another centre could focus, for example, on jewellery manufacture or pharmaceutical products.
- (d) SADC, with the assistance from the United Nations Industrial Development Organization (UNIDO) and the African Minerals Development Centre, should continue to research specific value chains and industrial clusters to help member States make decisions on exploiting their comparative advantages. Such research would also foster regional cooperation through the participation of member States in specific parts of regional value chains.
- (e) The SADC Project Preparation and Development Facility, which was designed to facilitate the preparation of bankable infrastructure projects, should be further strengthened to include an arm dedicated to dealing with industrial project preparation. Regional development banks should organize financing of projects identified through the Facility.
- (f) Infrastructure Development: The development of efficient, integrated and costeffective infrastructure is key for industrial development. The region is facing a deficit in the electricity sector despite the potential for the development of energy infrastructure. The SADC Regional Infrastructure Development Master Plan, adopted in 2012, outlines strategies to address the regional infrastructure gap. Funding proposals for the various infrastructure projects identified in the Master Plan must be pursued and the projects need to be developed. Projects, such as Inga III, can address the regional power challenges. Infrastructure can be developed through the promotion of development corridors through the African Spatial Development Programme, which consists of a network of key development corridors across the continent

- to liberate resources and the associated economic potential. The Programme aims to synchronize the provision of infrastructure with users to enhance investment potential and to provide economic rigour for infrastructure investments. Furthermore, development of infrastructure could be through PPP arrangements, such as build-own-operate or build-own-operate-transfer. The technical and economic feasibility of tapping the vast renewable energy options should also be investigated.
- (g) Developing regional value chain strategies: The SADC regional industrialization thrust requires collaboration through the development of regional value chains and participation in global value chains. Member States need to identify their place in the regional and global value chains based on resource endowments, capabilities and capacities and skills. Furthermore, a decision has to be made on which value chain should be fully develop, for example textiles, automotive sector or platinum group metals for the motor car industry. For instance, the cotton to textiles and garment sector is a sector in which some member States have some expertise in converting fabric to the finished product, despite lacking skills and technology in making yarn and fabric. Similarly, the South African automotive sector could offer opportunities for regional value chain development through the manufacture of components in neighbouring countries. The regional value chains would start with the simpler components and graduate to more complex parts, using regionally available materials over time. The end product would have a market that encompasses the whole region. Once member States have decided on value chains to pursue, the next stage would be technology acquisition and leveraging on the region to provide both the source of raw materials and the initial market for the finished product.

# Actions by member States and other national stakeholders

Member States should intensify efforts pertaining to:

- (a) Policy Alignment: Member States should align their value-addition, beneficiation and industrialization strategies to the aspirations of the regional industrial framework. The regional industrial upgrading and modernization programmes need to be domesticated with countries targeting sectors and projects in which positive nearterm results can be identified. In particular, the development of the regional value-chain concept needs to be domesticated in order to promote the implementation of the SADC Industrialization Strategy. For the minerals sector, the policy direction should be guided by the Africa Mining Vision.
- **(b) Development of Infrastructure:** Provide supporting infrastructure for industrial development, including roads, railways, ports, energy and water and ICT. The private sector can play a pivotal role in developing infrastructure. Mechanisms for their involvement should be developed including, for example, PPPs, such as the build-operatetransfer schemes being used for the new Beit Bridge over the Limpopo River connecting South Africa and Zimbabwe, and building industrial parks, independent generators, such as the Lunsemfwa Hydro Power Company of Zambia, Hidroelectricia de Cahora Bassa of Mozambique. The private sector has the resources and managerial expertise for these large infrastructure developments and require a conducive operating environment which Governments should provide.
- (c) Skills Development: Beneficiation, innovation and industrial development are skills-intensive activities and recent analyses have shown that member States are deficient in skills in the critical areas of material science, which are the areas required for innovation and research and development.

A skills development strategy that involves collaboration between governments and the private sector can address the skills gap in the critical areas required for beneficiation and value addition. In addition to direct investment in skills development, governments can provide incentives to the private sector to invest in skills development in critical areas as well as support intensive in-house training programmes. The Manpower Development Fund of Zimbabwe is an example of public-private participation in skills development. Funded by a levy equivalent to 1 per cent of formal sector wages and salaries, the Fund has been used to support skills training.

- (d) Research and Development, Technology Development and Innovation: Develop and support policies for acquisition of industrial technology and innovation strategies and also encourage firms to acquire technology through participation in global value chains or through joint ventures with foreign firms. The national fiscal framework, among other mechanisms, should be configured to support research, innovation and skills formation.
- (e) Stronger Collaboration with the BRIC nations: Governments can establish closer collaboration on value-addition bilaterally with, for example, China, the world's second largest economy, which currently consumes 47 per cent of the world's refined metals. In addition, technology transfer agreements should be part of investment agreements with the emerging nations.
- (f) Regional Cooperation: This would allow for the free flow of goods, services, capital and other factors, reduce transaction costs, lead to the establishment of intraregional synergies, facilitate sharing of industrial research and development and training capacities, enhance competitiveness and help to realize economies of scale that would catalyse cluster development. Sectoral policy harmonization would level the playing field.

# **Actions by cooperating partners**

- (a) The efforts of regional economic communities, member States and other national level stakeholders in value-addition and beneficiation and industrialization require the continued technical and financial support of development partners, such as UNIDO, the Economic Commission of Africa (ECA), the World Bank, the African Development Bank (AfDB) and other bilateral and multilateral support mechanisms.
- (b) The United Nations Industrial Development Organization has been particularly active in supporting industrial development efforts on the continent. For example, through the annual commemoration of the Africa Industrialization Day, mandated by the General Assembly in its resolution 44/237 of 22 December 1989, UNIDO provides an opportunity for member States to share successes and challenges in industrialization. UNIDO will continue to serve as a pillar of strength supporting socioeconomic and scientific research activities.
- (c) The African Development Bank, in addition to its usual financing facilities, has been particularly involved in capacity development support to member States in a variety of areas, including analytical work on industrial development. For example in 2013, the Bank arranged a grant of \$7.5 million to finance the COMESA-EAC-SADC Tripartite Capacity Building Programme. This support is aimed at providing technical assistance to the three regional economic communities, as well as the 26 Tripartite member countries with a view to increasing intra-Tripartite trade. The programme will enhance the Tripartite negotiation process and develop trade facilitation instruments and industrial cluster action plans in the Tripartite Free Trade Area.
- (d) The Economic Commission for Africa, through its analytical work on trade, industrial development, green growth, policy and capacity development work, for example, continues to support regional economic

centres and member States in industrial development. For example, ECA, through the African Minerals Development Centre is supporting SADC on studies on mineral value chains and on mapping skills in the minerals sector. Such support helps strengthen decision-making, especially regarding investment in specific value chains and the

development of specific regional policies. In particular, the definition of boundary conditions for specific minerals value chains helps to narrow the focus to only those minerals that potentially could have an economic impact nationally and regionally and prevent wastage of resources.

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