



AFRICAN DEVELOPMENT BANK GROUP

Eastern Africa's Manufacturing Sector

Promoting Technology, Innovation, Productivity And Linkages

> RWANDA COUNTRY REPORT November 2014





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ABBREVIATIONS

AGOA	America's Africa Growth and Opportunity Act
ARIPO	African Regional Intellectual Property Organisation
BDS	Business Development Services
BMC	Brasserie des Mille Collines
BNR	National Bank of Rwanda
CGD	Commission on Growth and Development
COMESA	Common Market for Eastern and Southern Africa
DRC	Democratic Republic of Congo
DIC	District Innovation Council
DQAL	Dairy Quality Assurance Laboratory
EAC	East African Community
ECGLC	Economic Community of the Great Lakes Countries
EDPRS	Economic Development and Poverty Reduction Strategy
EPA	Economic Partnership Agreement
EU	European Union
GIZ	Gesellschaft für Internationale Zusammenarbeit
GoR	Government of Rwanda
HHI	Herfindahl-Hirschman Index
IDEC	Industrial Development and Export Council
IPR	Intellectual Property Right
IPRC	Integrated Polytechnic Regional Centers
ISAR	National Agricultural Research Institute
ISTR	Institute of Scientific and Technological Research
KIST	Kigali Institute of Science and Technology
LDC	Least Developed Country
LMIC	Lower Middle Income Country
MCC	Milk Collection Centres
MINICOM	Ministry of Trade and Industry
MPDI	Manufactured Product Diversification Index
MSME	Micro Small and Medium Size Enterprises
MW	Mega Watt
NCSTI	National Council for Science, Technology and Innovation
NES	National Export Strategy
NIP	National Industrial Policy
NTB	Non-tariff Barriers
NUR	National University of Rwanda
PADEBL	Dairy Cattle Development Project (Projet d'Appui au Développement de l'Élevage Bovin Laitier)
PPP	Public Private Partnership
PRSP	Poverty Reduction Strategy
PSDS	Private Sector Development Strategy

PSF	Private Sector Federation Rwanda
PSTA	Plan for Strategic Transformation of Agriculture
RCA	Revealed Comparative Advantage
RDB	Rwanda Development Board
REMA	Rwanda Environment Agency
RIEF	Rwanda Innovation Endowment Fund
RNDB	Rwanda National Dairy Board
RRA	Rwanda Revenue Authority
RWF	Rwandan Francs
SEZ	Special Economic Zone
SME	Small and Medium Size Enterprises
SSC	Skill Sector Councils
SWOT	Strengths, Weaknesses, Opportunities, Threats
TSS	Technical Secondary Schools
TVET	Technical Vocational Education and Training
US	United States
USD	United States Dollars
VTC	Vocational Training Centers
WB	World Bank
WDI	World Development Indicators
WTO	World Trade Organisation





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This country report was prepared as part of a regional assessment of the manufacturing sector in Eastern Africa covering seven countries – Burundi, Ethiopia, Kenya, Rwanda, Seychelles, Tanzania and Uganda – commissioned by the African Development Bank (AfDB), East African Regional Resource Center (EARC). The report was task managed by Dr. Tilahun Temesgen, Chief Regional Economist, EARC. Overall guidance was received from Mr. Gabriel Negatu, Director, EARC, Nairobi, and Messrs. Abraham Mwenda and Stefan Muller, Lead Economists, EARC. The document was prepared by Mr. Valentin Gerold, BKP Development, and Mr John Bosco Kanyangoga, consultant and country experts, it was reviewed by Dr. Derk Bienen, BKP Development and Dr. Tilahun Temesgen, AFDB/EARC. Natassia Ciuriak, BKP Development and Beatrice Mulei, EARC provided editorial assistance. Important inputs and peer-review comments were provided by Mr. Edward Batte Sennoga, AfDB Country Economist for Rwanda.

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FOREWORD

A key objective of Rwanda's Vision 2020 is to transform the country into a middle income economy by improving its competitiveness while ensuring unity, shared growth and development. The majority of Rwanda's workforce is employed in the private sector, which places private sector-led growth at the center of the country's aspirations. The government has championed reforms to improve the business regulatory environment for the private sector development including manufacturing growth.

As a result of these reforms, manufacturing value-added increased by a factor of 3.5 to USD 421.3 million in 2012 compared to 2000 with the manufacturing exports growing by over 250% between 2009 and 2012. However, while the level of diversification in Rwanda's manufacturing sector has improved between 2001 and 2012, it is still low, with most of the manufacturing output being generated from resource-based product including food, beverages and tobacco products. The high cost of doing business resulting from infrastructure bottlenecks especially in the transport and energy, expensive trade logistics, and skills gaps are among the challenges to industrial development and further growth in manufacturing.

The government response to addressing these challenges is articulated in the Economic Development and Poverty Reduction Strategy (EDPRS-2) 2013-18 which presents several initiatives aimed at addressing the impediments to structural change and economic transformation. The Private Sector Development Strategy (2013-18), which was developed to strategically position the private sector to support the EDPRS-2 goals and objectives, identifies explicit programs to address the cost of doing business, improve trade logistics and to support the development of indemand skills.

This study seeks to complement government efforts in supporting industrial development as a vehicle for creating jobs, growing and diversifying the export base so as to realize the objective of a private sector led economy. This study serves a number of purposes. First, it summarizes an extensive body of literature on on-going interventions to support manufacturing growth to identify some requisite policy actions. Second, it presents a set of recommendations with a potential to support Rwanda to leap-frog the manufacturing value-chain. Third, it provides a tool for stimulating dialogue on reform measures to consolidate the current gains in the manufacturing sector.

We believe that the findings from this study will be used to guide the design and implementation of the required reforms to enhance the contribution of the manufacturing sector to Rwanda's structural change and economic transformation.

The Bank looks forward to continued dialogue and collaboration with various stake holders, as we work together to develop transformative approaches to industrial development in general and the growth of the manufacturing sector in particular.

upatu matan

Negatu Makonnen Resident Representative, Rwanda Field Officer African Development Bank





EXECUTIVE SUMMARY

The African Development Bank has commissioned a study entitled "Eastern Africa's Manufacturing Sector: Promoting Technology, Innovation, Productivity and Linkages". The overall study comprises a regional synthesis report and seven country reports for: Burundi, Ethiopia, Kenya, Rwanda, the Seychelles, Tanzania, and Uganda. This report assesses the manufacturing sector in Rwanda.

A two stage approach has been adopted to establish the characteristics of the manufacturing sector in Rwanda:

- Assessment: when undertaking the assessment it became apparent that a very extensive amount of recent literature exists on the Rwandan manufacturing sector. In particular the International Growth Centre has published several highly relevant studies during 2012 and 2013. In order to avoid duplication of efforts this report hence focuses on reviewing existing documents complemented by statistical analysis and stakeholder consultations;
- Formulation of recommendations: based on the assessment of the manufacturing sector recommendations to support the development of the manufacturing sector have been formulated. On-going policy actions proved to be highly relevant limiting the need for further recommendations.

Key findings

Our analysis shows that manufacturing value added (MVA) increased significantly from 2000 to 2012, by a factor of 3.5, from 120.9 MUSD to 421.3 MUSD. The share of manufacturing in GDP however declined over the period 2000 to 2012. The industrial sector has seen its share in GDP rise from 13.6% to 15.9%, primarily as a result of a buoyant construction sector but manufacturing's share slid from 7.0% of GDP in 2000 to 5.9% in 2012

Diversification of the Rwandan manufacturing sector is relatively low. Output is generated in seven subsectors: food; beverages and tobacco; textiles and clothing; wood, paper and printing; chemicals, rubber and plastics; non-metallic minerals; and furniture and others. Resource-based products dominate manufacturing output with food, beverages, and tobacco products accounting for more than 70% of total manufacturing output in 2012. All seven segments listed above saw their output rise from 2000 to 2012. By far the strongest rise occurred in food output, which increased by a factor of about 6.5 and nearly doubled its share in total manufacturing from 23.25% in 2000 to 43.79% in 2012.

Total manufacturing exports have increased significantly from 2001 to 2012, rising nearly tenfold. The biggest increase occurred from 2009 to 2012, when exports rose by more than 250%. Overall however exports remain small since most manufacturers produce for the domestic market.

In terms of competitiveness, over the period of 2001 to 2011, labour productivity (MVA / Employee) has remained relatively unchanged: it was 3,857 USD in 2001 and about the same at 3,750 USD in 2011. Rwanda's labour productivity is low compared to a selection of industrialised countries and to the Eastern African average.

The revealed comparative advantage (RCA) of Rwanda's manufacturing sector shows an overall comparative disadvantage. At 0.47 Rwanda's RCA score lies behind that of Uganda (0.83), Burundi (0.71) and Kenya (0.59) in 2012, but above that of Tanzania (0.41) and Ethiopia (0.17).

The level of diversification of the manufacturing sector has improved from 2001 to 2012 with both the product concentration ratio and the Herfindahl-Hirschman Index (HHI) decreasing during this period.

The enabling environment for private sector development and, as such, for manufacturing has improved significantly in Rwanda since 2001. Institutions have been streamlined and restructured to ensure better provision of public services and support to investors. Most prominently the Rwanda Development Board (RDB) unites all necessary services for investors under one roof. As a result of reform efforts Rwanda has made impressive progress in improving its business climate. Its position in the World Bank's Doing Business ranking has improved from 148th in 2008 to 32nd in 2014, making it the second best reformer worldwide since 2005.

Key to the success of government interventions, notably to improve the business climate, has been good governance, which has led to peace and stability. The rule of law has been strengthened and the GoR has introduced a zero tolerance approach to corruption. These factors contributed significantly to making the country attractive to investors.

Despite the GoR's efforts, foreign direct investment (FDI) inflows have remained relatively low in Rwanda, despite recent increases. The country's small, relatively isolated geographic position make Rwanda less attractive to FDI. Furthermore, infrastructure gaps, in particular energy and transport, the same as costly trade logistics and a skills gap also mean that given a scarce amount of contestable FDI, Rwanda has problems of attracting the amount of FDI needed to meet its development targets.

The overall policy framework is exhaustive and spells out numerous measures supporting the manufacturing sector. Key policy documents are the Economic Development and Poverty Reduction Strategy 2 (EDPRS 2), and the Private Sector Development Strategy (PSDS), which both stretch from 2013 to 2018. Further relevant policies include the National Industrial Policy (NIP) which is most directly targeted at manufacturing but whose current role in policy making is unclear, and the National Export Strategy (NES) which is currently being reviewed.

Access to finance also remains problematic as manufacturers complain about high interest rates and onerous collateral requirements as key constraints. A skills gap in particular in technical qualifications and lacking domestic knowledge transfer also hamper the development of the sector.

Trade logistics are costly in Rwanda, especially in terms of inland transport costs which also result from the country's landlocked situation. The government has undertaken numerous measures to improve the country's performance notably by establishing one stop border posts and improving the country's transport infrastructure.

Recommendations

Based on the study findings the following recommendations are proposed:

- Ensure a coordination mechanism of manufacturing related policy implementation to avoid duplication of efforts and proper delivery;
- Review the Science, Technology and Innovation Policy putting a stronger focus on knowledge transfer;
- Examine the structure, capabilities, and relevance of technology/innovation institutes;
- Examine the possibility to promote knowledge spillovers among private sector operators;
- Identify means of knowledge transfer to students by seconding academics from international universities to Rwanda;
- Promote the development of local professional services;
- Promote linkages between industry and universities/TVET institutions, notably to develop adequate curricula meeting manufacturers' needs;
- Explore possibilities to launch an internship programme with a special focus on TVET;
- Further develop / upgrade TVET schools;
- Energy and transport infrastructures need to be extended

and upgraded;

- Set up a capacity building programme on PPPs in support of setting up a PPP framework;
- Improving access to finance for manufacturers through establishing a Manufacturing Development Fund;
- Strengthening the capacities of intermediary organisations to support manufactures in meeting international standards;
- Buy plants in the industrialised world which had to close down for macroeconomic reasons (e.g. over-valuation of exchange rates).

The last recommendation represents an innovative new approach. Rwanda could buy firms which went out of business in industrialised countries ("relocaters") but who have technology relevant to jump start the development of the Rwanda manufacturing sector. It is important to stress that the argument is that many firms in industrialised countries have technology which constitutes a major upgrade over what is presently being applied in Rwanda. The appropriate way to think about this is "accelerating" private sector development, as opposed to "crowding out" or "crowding in".

The legal framework for such a relocated firm would be a stateowned enterprise statute. The institutional framework would be an industrial holding company created under that statute. Management of these firms should be enticed to stay with the firm as it relocates to manage them while bringing along new Rwandan employees in the firm. The intent is to privatise as quickly as possible. So the intent of the policy is not to replace private sector with government but to fill a gap the private sector is not filling.

In brief Rwanda could buy a handful of these firms, resettle them in industrial parks in Kigali, provide generous terms to management to continue in a mentoring mode, and use these firms, their techniques and their machines, to study and learn.





INTRODUCTION

The African Development Bank has commissioned a study entitled "Eastern Africa's Manufacturing Sector: Promoting Technology, Innovation, Productivity and Linkages". The overall study comprises a regional synthesis report and seven country reports for: Burundi, Ethiopia, Kenya, Rwanda, the Seychelles, Tanzania, and Uganda. This report assesses the manufacturing sector in Rwanda.

Industrial development is widely perceived as key in achieving sustainable economic development and generating higher incomes. Within the industrial sector, manufacturing allows diversifying economic activities and bears the potential for significant value addition.

Developing the manufacturing sector has many benefits, in particular "the strong potential for increasing value-added, potentially important technological spillover effects, access to foreign know-how, stimuli to greater innovation, and a general knock-on effect on other sectors of the economy through created demand for goods and services."¹ Since developing country manufactures tend to be labour-intensive, employment and wealth effects will be widespread across the population. Manufactured goods remain largely unaffected by exogenous shocks, such as climactic conditions. They are also less exposed to price fluctuations felt by primary exports, which is particularly important given the recent decreases in Rwandan mineral export prices. All of the above are factors conducive towards developing the

manufacturing sector² in Rwanda.

The importance of the manufacturing sector's development has been a strong policy focus of the Government of Rwanda (GoR). Its Vision 2020³ targeted an increase in the share in Gross Domestic Product (GDP) of industry from below 14% to 26% from 2000 to 2020. It has since launched numerous policy initiatives in support of reaching this objective.

The aim of this study is to assess the current state of the manufacturing sector and to formulate policy recommendations. The assessment will also identify three sectors for a more detailed SWOT (strengths, weaknesses, opportunities, and threats) analysis. The report builds on an extensive existing literature, complementing it with on-site consultations and an updated statistical analysis of the Rwandan manufacturing sector.

One recurring issue experienced throughout the drafting of this study is the lacking availability of certain statistics. While the National Institute of Statistics of Rwanda (NISR) makes a lot of data available on its website, certain figures, in particular those related to the manufacturing sector's employment and labour costs, were difficult to find. This study has attempted to close these statistical gaps as much as possible by using figures from other studies and estimates. Certain figures could, however, simply not be included in this document.

²Ibid. ³Government of Rwanda, Ministry of Finance and Economic Planning, Rwanda Vision 2020 (Kigali: Government of Rwanda, July 2000).

¹Government of Rwanda, Ministry of Trade and Industry, Rwanda Industrial Capacity & Performance (Vienna: UNIDO, 2009), 10.







1. THE CURRENT STATUS OF MANUFACTURING IN RWANDA

1.1 Overview of Economy

The Rwandan economy has experienced strong growth from 1995 to the present, allowing for a recovery from the major upheaval of the 1994 genocide. Annual economic growth averaged more than 10% in the decade after 1995 (though with occasional strong variations), and has continued to average just above 8% thereafter. The services sector has experienced the strongest growth in the more recent period from 2006 to 2012, at 11.8%, which is similar to the industrial sector, which grew by 11.5% over the same period; meanwhile, agriculture output rose by 5.3%. As a result GDP now stands at USD 6,573 million (2012), up from 4,938 million in 2008 and 1,294 million in 1995; per capita GDP has risen from USD 336 in 1995 to 644 in 2012.4

Rwanda's economic growth since the late 1990s is, therefore, considered a success, with Rwanda situated among the top ten fastest growing countries in the world. However, while output in the services and agriculture sectors has doubled compared to late 1980s levels, manufacturing remains below pre-crisis levels. The reasons for this lie in the fact that agriculture benefited immediately from productivity gains as peace and stability returned to the country while services gained from an inflow of donor assistance and investment in basic infrastructure, such as telecommunications, finance, and tourism. Hence, both agriculture and services recorded growth immediately after the genocide, while manufacturing activity started to grow only five years later. The reasons for the stronger impact of the crisis on manufacturing are manifold:

Manufacturing is more embedded in the economy and

depends on well-functioning supply chains, infrastructure, utilities, and financial markets, all of which were severely affected by the crisis:

- Manufacturing is capital intensive, yet capital flees unstable environments:
- Manufacturing requires heavy equipment and machinery, much of which had been destroyed or damaged by the crisis; and
- Manufacturing requires technically-skilled workers, many of whom either left the country as a result of the crisis or were among those killed.⁵

The structural transformation of Rwanda towards "higher productivity industry and services" has remained limited up to the end of the year 2012.6 Poverty remains high, especially in rural areas where it still lies at 48.7%. Inequality as measured by the Gini coefficient also remains high, compared to other Sub-Saharan African countries.7

The importance attributed to transforming Rwanda's economy from low productivity sectors like agriculture to high productivity sectors such as manufacturing stems from the realisation that "sustainable high growth and employment creation is almost always achieved through structural change towards increased manufacturing production."8 However, as Table 1 illustrates, the share of manufacturing in GDP declined over the period 2000 to 2012. Services predominate, with a share of around 50% of GDP, followed by agriculture, whose share in GDP has decreased from 37.2% in 2000 to 33.0% in 2012. The industrial sector has seen its share in GDP rise from 13.6% to 15.9%, primarily as a result of a buoyant construction sector but manufacturing's share slid from 7.0% of GDP in 2000 to 5.9% in 2012.7

Table 1: Compos	ition of	Rwanda	a GDP i	n %, 20	00-2012								
Sector	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Agriculture	37.2	37.3	35.4	38.3	38.6	38.4	38.4	35.6	32.4	33.9	32.2	32.1	33.0
Industry	13.6	14.2	13.9	12.8	13.9	14.1	13.8	13.9	14.8	14.4	15.0	16.4	15.9
Of which Manufacturing	7.0	6.9	7.5	6.8	6.9	7.0	6.8	6.1	6.2	6.4	6.6	6.6	5.9
Services	49.2	48.5	50.7	48.9	47.6	47.6	47.8	50.4	52.8	51.7	52.8	51.6	51.1

Source: World Bank / World Development Indicators (WDI).

Note: Manufacturing is defined as ISIC classification Rev. 3 section D "Manufacturing", Divisions 15-37.

⁸GoR. Rwanda Industrial Capacity & Performance.

⁴All figures are taken from the Rwanda Private Sector Development Strategy (2013), except total GDP for 1995, which was taken from IndexMundi (http://www.indexmundi.com). ⁶Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and Manufacturing Sectors (London: International Growth Centre, 2013).

The Republic of Rwanda, Economic Development and Poverty Reduction Strategy 2013-2018: Shaping Our Development (Kigali: Government of Rwanda, 2013) Ibid

Food crops constitute the largest single subsector in Rwanda's economy, accounting for over 30% of GDP, followed by wholesale and retail trade (14%) real estate and business services (10%) and transport and communication (8%). Manufacturing output is dominated by agro-processing, with other manufactured products contributing only minor share to overall GDP.⁹

As Figure 1 illustrates, the share of manufacturing in Rwanda is low compared to industrialised countries such as South Korea and China. While this may not be surprising given the advance both South Korea and China have in terms of economic development, the fact that Rwanda also lies below the East African Community (EAC) average shows that the country still has a long way to go on its path to manufacturing development.



Regional integration and free trade are important to Rwanda. Rwanda is a member of the EAC and of the Common Market of Eastern and Southern Africa (COMESA). Being a Least Developed Country (LDC), its products enjoy preferential market access to EU and US markets. However, non-tariff measures – particularly sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) – are a recurring issue for Rwandan firms.¹¹

Rwanda exports mainly tea, coffee, and minerals; resource-based products and low technology products dominate manufacturing exports, which are however exported in much lower quantities. As import growth has outstripped export growth significantly, Rwanda has a trade in goods deficit of around 20% of GDP; the GoR

considers developing manufacturing sector clusters to be crucial to remedying this unsustainable situation.¹²

To support economic development, the GoR has undertaken targeted macroeconomic and market-oriented reforms. Vision 2020 propagates the long-term goal of "creating a productive middle class and fostering entrepreneurship" and making Rwanda a middle income country by 2020. This is to be achieved by moving the country from a "subsistence agriculture economy to a knowledge-based society".¹³ One of the key objectives of Vision 2020 is to expand the industrial sector to reach 26% of GDP by 2020. This figure, which was set in 2000 when Vision 2020 was finalised, has since been revised to 20% in 2012.

¹³GoR, Rwanda Vision 2020.

⁹Government of Rwanda, Ministry of Trade and Industry, National Industrial Policy (Kigali: Government of Rwanda, April 2011). ¹⁰The "Fast Africa average" is calculated here as the average share of the manufacturing

[&]quot;The "East Africa average" is calculated here as the average share of the manufacturing sector in the 7 country studies (Burundi, Ethiopia, Kenya, Rwanda, Seychelles, the United Republic of Tanzania, and Uganda). "United Nations Conference on Trade and Development, Investment Policy Review:

Rwanda (New York and Geneva: United Nations, 2006). ¹²GoR, National Industrial Policy.





A number of policies and strategies have been developed and implemented to move the country forward in its path to a middle income economy. Vision 2020 was implemented through several medium-term strategic plans:

- 1. The Poverty Reduction Strategy (PRSP), covering 2002-2006, focused on "managing the transition from emergency relief to rehabilitation and reconstruction."¹⁴ It comprised six priority areas: human development, economic infrastructure, governance, private sector development, and institutional capacity building;
- 2. The Economic Development and Poverty Reduction Strategy 1 (EDPRS 1), covering 2008-2012, focused to a greater extent on the development of the real economy, i.e., the production of goods and services, which had been identified as a shortcoming of the PRSP. EDPRS 1 emphasised economic growth and diversification by strengthening the role of the private sector, and the decentralisation of government functions to "take decisiontaking closer to the people";¹⁵ and
- 3. The Economic Development and Poverty Reduction Strategy 2 (EDPRS 2), covering 2013-2018, pursues the objective of "accelerating progress to middle income status and better quality of life for all Rwandans through sustained growth of 11.5% and accelerated reduction of poverty to less than 30% of the population."¹⁶ To achieve this, it develops activities around four areas: (i) economic transformation for accelerated economic restructuring and growth; (ii) rural development; (iii) productivity and youth employment to ensure that growth and rural development are underpinned by appropriate skill and productive employment; and (iv) accountable governance.

In order to meet the private sector development goals of EDPRS 2, the GoR has developed the Private Sector Development Strategy (PSDS). It stands at the centre of EDPRS 2 and aims to "develop an entrepreneurial, innovative and competitive sector that delivers broad based and inclusive economic growth."¹⁷ The PSDS aims to remedy obstacles to growth and investment in Rwanda faced by business. As such, the PSDS provides a framework for reform, setting out key gaps and weaknesses of efforts undertaken to date, and suggests gap-closing solutions. The PSDS comprises seven programmes, all of them relevant in varying degrees to the manufacturing sector.¹⁸

1.2 Descriptive overview

¹⁶lbid

To understand the Rwandan manufacturing sector today it is helpful to look at its historic development. Gathani and Stoelinga¹⁹ plot manufacturing's development in the country through three phases, preceded by colonial rule:

- 1. Colonial rule to independence: Belgian administration investment policies focused mainly on Burundi. This implied that at the end of colonial rule the Rwandan manufacturing sector was hardly developed. The agribusiness sector was, however, supported, introducing in particular coffee;
- 2. Independence to 1973: industrialisation increased, driven mainly by foreign investors and donors from Belgium and China. Several manufacturing firms, which today form the backbone of the Rwandan manufacturing sector, were created through foreign investment at the time. Examples include Bralirwa, RTC (at the time called Rwandex), and Manumetal, all of which were created by Belgian investment. The tea sector was boosted through public investment and donor funds. Chinese aid supported the development of rice and sugar cane;
- 3. 1973 to 1994: the Rwandan manufacturing sector saw a rapid diversification, as many new firms entered the sector and as a result of public intervention. This led not only to growth, but also to inefficiencies in the sector. In particular, the tea sector (with strong government intervention), construction materials, agro-processing, beverages, fast moving consumer goods, textiles, footwear, and furniture grew during this period. Two important traits of manufacturing's development during this period were the following: (i) growth was increasingly driven by private Rwandan investment; and (ii) many new entrants into the manufacturing sector previously acted as traders; and
- 4. 1995 to today: the economy opened up through regional integration, while continuous improvements to the investment climate led to strong economic growth. This period can be further sub-divided into two phases:
 - A reconstruction phase from 1994 to 2004, which focused on the restoration of productive capacities and the creation of a limited number of new firms; and
 - b. A growth and consolidation phase, which started in the late 1990s but picked up pace from 2006-2007 onwards. Through the 1996 Privatisation and Public Investment Law, numerous state owned manufacturing sector enterprises were privatised, attracting foreign and domestic private investors. Investment activity accelerated, particularly as of 2006-2007 when investments over GDP rose from 15% in 2006 to 22-23% in 2007. Firm creation gathered pace, capital investments into existing firms increased, and Rwanda's entry into the EAC in 2007 led to a further rise in investments in the sector.

As will be seen throughout chapters 1 and 2 of this study, path dependency played an important role in the development of

¹⁴The Republic of Rwanda, Economic Development and Poverty Reduction Strategy 2013-2018. ¹⁵Ibid.

¹⁷Government of Rwanda, Rwanda Private Sector Development Strategy: Unleashing the Private Sector in Rwanda, Draft Final Report (Kigali: Government of Rwanda, December 2012).

¹⁸The seven PSDS programmes are: 1 – Infrastructure growth; 2 – Investment promotion task force; 3 – Entrepreneurship development; 4 – Credit expansion; 5 – private sector linkages for skills and innovation; 6 – Better regulation; 7 – Market access for export development.

¹⁹Gathani and Stoelinga, Understanding Rwanda's Agribusiness and Manufacturing Sectors.

Rwanda's manufacturing sector. Coffee and pyrethrum, which were introduced in the 1930s following the pressures of the global economic crisis, remain Rwanda's main export crops. Firms that were created in the 1960s with the support of foreign investors, such as Bralirwa (beer and soft drinks) and Sulfo (soap), remain among the largest firms in Rwanda today.²⁰

1.2.1 Size of manufacturing sector in the economy

As outlined in Table 1 and in Table 2, the share of the manufacturing sector in total GDP and in industrial GDP decreased from 2000 to 2012. Table 2, however, also illustrates that manufacturing value added (MVA) increased significantly over the same period, by a factor of 3.5. MVA per capita, which is widely used as the basic indicator to measure a country's level of industrialisation, also rose during this timeframe.

Table 2: Manufa	acturing	, value	added ((MVA) in	n Rwano	da, 2000)-2011 ²¹						
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
MVA (million current USD)	120.9	115.7	125.6	125.4	144.9	181.4	211.5	228.0	290.1	335.1	373.5	420.0	421.3
Contribution of manufacturing to industrial GDP, in %	51.3%	48.8%	53.8%	53.0%	50.0%	50.0%	49.4%	43.7%	41.5%	44.2%	44.4%	40.3%	37.2%
MVA per capita	14.4	13.2	14.0	13.7	15.7	19.2	21.9	23.0	28.4	31.8	34.5	37.7	36.8
Source: World Ba	nk / Worl	d Develo	pment li	ndicators	s (WDI).								

Despite the increase in MVA, Rwanda still fails to capture most of the downstream value added to its resource-based products, such as tea, coffee, and mining, with only a small proportion of the output of these sectors being processed in the manufacturing sector. Figure 2 illustrates that, when compared to other countries in the world including in the Eastern Africa region, Rwanda's MVA remains very small, particularly relative to industrialised countries, such as South Korea and China. Figure 3, however, shows that, in comparison to other countries in the region, some progress has been achieved by Rwanda since 2000, with its MVA per capita performance surpassing that of both Ethiopia and Burundi and recently (2011) even outstripping Uganda.

Both Table 2 and Figure 3 also show that Rwanda's manufacturing sector has been relatively unaffected by the 2008 global financial crisis, as opposed to Kenya, where a clear dip in MVA is visible at this time. The low capital intensity of manufacturing activities and the low development of the financial sector in Rwanda are among the factors explaining this. In fact, Rwandan banks raise funds mainly on the domestic market, while the interbank market between Rwanda and other countries is still small.²²

²¹Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. Manufacturing value added (MVA) per capita is the basic indicator to measure a country's level of industrialization.

²⁰Gathani and Stoelinga, Understanding Rwanda's Agribusiness and Manufacturing Sectors.

²²"Financial crisis spares Rwanda, but indirect effects expected," The Rwanda Focus, 27 October 2008 (<u>http://focus.rw/wp/2008/10/financial-crisis-spares-rwanda-but-indirect-effects-expected/).</u>









Employment statistics for the Rwandan manufacturing sector are available only to a limited extent. Employment figures are taken from the 2010/11 Integrated Household Living Conditions Survey, EICV3,²³ which extrapolated data based on a sample of 14,308 households. Since only three such surveys were undertaken, the first in 2000/01, the second in 2005/06, and the third in 2010/11, manufacturing sector employment data are only available for these years in this study. $^{\rm 24}\,\rm EICV3$ data shown in Table 3 allow the following observations:

- Manufacturing sector employment has increased from 2001 to 2011, from 30,000 to 112,000; and
- Manufacturing sector employment remains a very small proportion of the total labour force at 2.26%.²⁵

 $^{\mbox{\tiny 22}}$ Source: National Institute of Statistics Rwanda, EICV3 Thematic Report: Economic Activity, 2010/11.

²⁴EICV stands for Enquête Intégrale sur les Conditions de Vie des Ménages.
²⁴Government of Rwanda, National Institute of Statistics Rwanda, EICV3 Thematic Report: Economic Activity, 2010/11 (published online: Government of Rwanda, August 2012).





Table 3: Employment	in the man	ufacturing s	sector in Rw	vanda, 2000	-2012			
	2001	2006	2007	2008	2009	2010	2011	2012
Employment in the manufacturing sector ('000)	30	-	80	-	-	-	112	-
Share of total labour force	0.84%	-	1.86%	-	-	-	2.26%	-
Labour force ('000)	-	4,638	4,776	4,919	5,069	5,228	5,372	5,529
Total formal sector employment	-	157,557	167,778	177,470	179,475	177,418	296,417	309,648
% formal / total labour force	-	3.40%	3.51%	3.61%	3.54%	3.39%	5.52%	5.60%

Source: Employment in the manufacturing sector for 2001, 2007, 2011: National Institute of Statistics Rwanda, EICV3 Thematic Report: Economic Activity, 2010/11. All other figures taken from Rwanda Labour Market Information Service, http://www.lmis.gov.rw.

Table 3 also shows that, for the Rwandan economy in general, informal employment remains dominant. Even if data is not available for the manufacturing sector specifically, the issue of informal employment remains important for this sector.

Low employment in manufacturing confirms that Rwanda's economy still largely relies on agriculture, which employed 70% of the workforce in 2012. The trend towards non-subsistence

production is, however, discernible, as non-farm jobs have increased by 50-60% during 2008-2012. The majority of new off-farm jobs were created in rural areas in micro, small, and medium enterprises in the informal economy. The sectors with the largest non-farm growth in the past five years have been retail, construction, government, and transport, none of which is part of manufacturing.²⁶

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total manufactured exports, million USD	20.1	17.6	15.0	23.0	35.2	28.2	43.2	67.0	70.8	n.a.	110.4	187.4
Share of manufactured exports in total merchandise exports	10.7%	32.4%	29.3%	23.4%	23.6%	20.0%	23.7%	16.8%	27.2%	n.a.	26.4%	37.1%
Total manufactured exports as % of ndustrial GDP	8.5%	7.5%	6.3%	7.9%	9.7%	6.6%	8.3%	9.6%	9.3%	n.a.	10.6%	16.6%

Total manufacturing exports have increased significantly from 2001 to 2012, rising nearly tenfold (Table 4). The biggest increase occurred from 2009 to 2012, when exports rose by more than 250%. Compared to other industrialised countries, such as South

Korea or China, as well as relative to the Eastern Africa average, the share of manufacturing exports in commodity exports remains low in Rwanda, as shown in Figure 4.

²⁶The Republic of Rwanda, Economic Development and Poverty Reduction Strategy 2013-2018. "The definition of "many fact yings" applied to determine many fact ying avants in this table.

[&]quot;The definition of "manufacturing" applied to determine manufactured exports in this table is based on the ISIC classification (specifically, ISIC Rev. 3), i.e. chapter D – Manufacturing (sections 15–37). Other sources for international trade data – such as WDI – apply a more

restricted definition of "manufactures", which comprise "commodities in SITC sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals)". In other words, they exclude processed agricultural products, beverages and others.



According to Gathani and Stoelinga, from 2004 to 2010, total exports averaged about 12% of GDP.²⁸ This figure is, however, largely the result of a significant increase in service exports, making up 55% of the total from 2000 to 2010. Merchandise exports, including manufacturing, have remained constant at 4-5% of GDP.29

Manufacturing exports are dominated by resource-based products, having undergone light manufacturing, particularly agroprocessing. The production of high-end resource-based products in tea and coffee have especially increased in recent years. Relative to total merchandise exports, the share of Rwandan manufacturing exports has risen steadily. Value addition in manufacturing sector output is, to a larger extent, destined for export.³⁰

Rwanda relies heavily on imports for middle- and high-tech products. Its trade balance in such products is negative, with a deficit between 15% and 20% of GDP from 2000 to 2012.³¹ The GoR has, therefore, identified increasing manufacturing exports as

²⁸All figures in this section are for 2010.

particularly important to increase revenues. Further increase of exports is intended to reduce Rwanda's dependence on foreign aid and debt and thus to achieve long-term economic stability. The Rwanda National Export Strategy foresees closing this gap through the "expansion of production and creation of niche products", with a particular focus on manufacturing sectors, such as agroprocessing and construction materials.³²

1.2.2 Structure of the manufacturing sector

Table 5 confirms the predominance of resource-based products in Rwandan manufacturing and a still relatively low level of diversification of the Rwandan manufacturing sector. In 2012, food, beverages, and tobacco products accounted for more than 70% of total manufacturing output. The composition of Rwanda's manufacturing sector output has changed over the past decade. All seven segments listed in Table 5 saw their output rise from 2000 to 2012. By far, the strongest rise occurred in food output, which increased by a factor of about 6.5 and nearly doubled its share in total manufacturing from 23.25% in 2000 to 43.79% in 2012. All

Milliguides in this section and the local constraints and the sector (London: Mathani, S. and Stoelinga, D., Understanding Rwanda's Export Sector (London: International Growth Centre, November 2012). "GoR, Ministry of Trade and Industry, National Industrial Policy; Gathani and Stoelinga, Understanding Rwanda's Export Sector.

The Global Economy (http://www.theglobaleconomy.com); GoR, Ministry of Trade and

Industry, National Industrial Policy, ³²Government of Rwanda, Ministry of Trade and Industry, Rwanda National Export Strategy (Kigali: Government of Rwanda, April 2011).





other sectors saw their share in total manufacturing drop, with the exception of wood, paper, and printing, which saw a moderate rise from 2.79% in 2000 to 3.98% in 2012. The furniture and other sector, while seeing its output rise overall from 2000 to 2012, recorded a sharp drop from 2011 to 2012, with output halving from 39.12 to 18.04 MUSD. This can be explained by the expiry of government subsidies for the housing market, which led to decreasing demand for furniture.

Table 6, meanwhile, outlines the fifteen first manufacturing exports in 2012 in terms of value. Resource-based products dominate with eight product groups, and even more in terms of value, taking up the top three: products of the milling industry, beverages, hides and skins. Tea, rice, cereal products and vegetable oils and fats also feature in the top 15. The remaining export products mainly fall into the low-technology segment: footwear, construction materials (cement and fabricated metal products), and plastic products; cosmetics and beauty products are the only product in the top 10 requiring medium-technology manufacturing processes. For comparison, Table 6 also illustrates the top five merchandise exports in 2012 in terms of value, all of which are resource-based non-manufacturing: coffee, tea, and minerals. Together they make up about 55% of all merchandise exports, though from 2004 to 2011, this figure was even higher at over 60-70% (including re-exports).

Table 5: Manufacturing outp	ut, per su	ib-sector	(2000-2	012), at c	urrent U	SD (millio	on) and s	hare in to	otal man	ufacturir	ig output	(%)	
Manufacturing output at current USD (mn)	2000	2001	2002	2003	2004	20.05	2006	2007	2008	2009	2010	2011	2012
Food	28.11	30.00	29.88	35.42	52.24	70.76	87.64	89.98	118.59	141.60	158.49	181.12	184.48
Beverages and tobacco	46.23	42.28	49.25	41.18	40.81	48.89	50.61	56.84	74.96	97.88	102.91	107.45	120.54
Textiles and clothing	9.82	8.11	8.93	9.14	10.41	12.64	14.66	16.48	18.70	17.60	18.60	21.45	20.68
Wood, paper and printing	3.38	3.13	3.99	4.97	5.57	8.53	10.78	13.04	14.14	14.43	16.77	15.56	16.78
Chemicals, rubber, plastics	7.34	6.69	7.52	7.86	9.05	11.16	13.40	14.28	16.99	16.11	17.32	20.43	22.38
Non-metallic minerals	11.29	12.60	14.18	14.69	15.92	18.41	19.06	20.96	24.97	26.10	29.86	34.76	38.39
Furniture and other	14.75	12.86	11.84	12.13	11.66	11.26	12.98	16.42	21.72	21.40	29.53	39.12	18.04
Total manufacturing	120.91	115.67	125.59	125.39	145.65	181.67	209.14	228.00	290.07	335.13	373.48	419.89	421.28
Share intotal manufacturing output (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Food	23.25%	25.94%	23.79%	28.25%	35.87%	38.95%	41.91%	39.46%	40.88%	42.25%	42.44%	43.13%	43.79%
Beverages and tobacco	38.23%	36.55%	39.22%	32.84%	28.02%	26.91%	24.20%	24.93%	25.84%	29.21%	27.55%	25.59%	28.61%
Textiles and clothing	8.12%	7.01%	7.11%	7.29%	7.15%	6.96%	7.01%	7.23%	6.45%	5.25%	4.98%	5.11%	4.91%
Wood, paper and printing	2.79%	2.70%	3.18%	3.96%	3.82%	4.70%	5.16%	5.72%	4.87%	4.31%	4.49%	3.71%	3.98%
Chemicals, rubber, plastics	6.07%	5.78%	5.99%	6.27%	6.21%	6.15%	6.41%	6.26%	5.86%	4.81%	4.64%	4.87%	5.31%
Non-metallic minerals	9.33%	10.89%	11.29%	11.72%	10.93%	10.13%	9.11%	9.19%	8.61%	7.79%	8.00%	8.28%	9.11%
Furniture and other	12.20%	11.12%	9.43%	9.67%	8.01%	6.20%	6.21%	7.20%	7.49%	6.39%	7.91%	9.32%	4.28%
Total manufacturing	100%	100%	100%	1 00%	1 00%	100%	1 00%	100%	100%	1 00%	1 00%	1 00%	1 00%
Source: National Institute of Statistics of Rwa	nda												

1964 2014
50 YEARS SERVING AFRICA



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מאון מממי דכו הרמש	Catadory	1000	0000	2003	NOOC	2005	0000	2000	BUUC		0100	0011	0010
	00000	-	1000	1	F 000	1	200		0	200			1
Top 15 manufacturing exports													
Milling industry products	RB	0	e	5	232	51	36	443	1,985	169	1	8,863	24,626
Beverages	RB	53	35	5	335	289	74	1,337	3,1581	2,820	ı.	6,049	12,608
Hides and skins	RB	80	1,854	2,206	2,988	3,383	1,784	3,159	2,504	1,913	i.	7,506	7,261
Footwear	LT	29	58	45	Q	12	54	647	1,018	1,500	1	1,7941	6,855
Processed tea (black and green)	RB	14,270	0	7,910	9,488	10,971	13,064	15,030	6,810	699		1,311	5,895
Fabricated metal products (bars, rods, flat rolled prod)	LT/MT	142	48	6	62	144	112	445	2,715	2,378	ī	1,792	5,270
Processed rice	RB	0	0	0	0	28	20	10	36	13	ı	116	2,963
Cereal products (biscuits, bread, doughs, etc.)	RB	87	23	5	124	53	19	20	129	19	ı.	1,011	2,644
Cement and cement products	LT		0	0	14	20	16	887	1,359	2,144		945	2,548
Vegetable fats and oils	RB	19	0	31	273	0	24	6	1	113		94	2,544
Plastic products (boxes, cases, bags, plastic film, bathroom inventory, etc.)	LT	6	67	21	15	49	244	508	1,302	493		1,599	2,528
Sugar	RB	0	12	-	0	e	22	71	4	97		36	2,466
Travel sets for personal toilet (960500)	LT	0	0	0	0	0	0	0	16	86	ı.	569	2,333
Cosmetic and beauty products (including essential oils)	LT/MT	128	109	89	23	370	598	775	1,079	1 ,087	ī	1,359	1,703
Furniture	LT	Ø	27	28	54	91	18	31	421	1,114	ı	547	971
TOTAL TOP 15 MANUFACTURING EXPORTS		14,828	2,236	10,353	13,619	15,466	16,095	23,421	50,988	14,644	I.	49,738	83,215
Top 5 merchandise exports (non-manufacturing)													
Black tea (fermented) & partly fermented tea in packages exceeding 3 kg (090240)	RB	2,341	0	3,988	4,832	12,530	12,269	15,313	118,577	74,829	,	51,447	80,713
Coffee, not roasted, not decaffeinated (090111)	RB	15,029	0	13,916	32,882	37,005	48,252	32,323	54,632	32,984		75,580	70,449
Niobium, tantalum and vanadium ores and concentrates (261590)	RB	9,361	14,398	5,588	5,621	12,490	11,053	19,654	37,611	18,030		39,000	56,698
Tin ores and concentrates (260900)	RB	2,196	1,413	5,110	20,176	43,711	22,520	39,526	80,153	34,235		101,921	52,912
Tungsten ores and concentrates (261100)	RB	95	401	96	38	2,038	8,868	17,975	14,852	6,283		11,677	21,354
TOTAL TOP 5 MERCHANDISE EXPORTS (NON-MANUFACTURING)	,	29,022	16,212	28,697	63,549	107,774	102,962	124,791	305,825	166,361		279,625	282,126

DEODLICT % OF TOTAL MEDCHANDISE EXPORTS	Catodory	1000			NOO C	2005	9000	2006	anne		0100	0011	0010
	Categol y	1007	ZUUZ	2000	1001	0007	2000	2001	2000	2003	20102	1 1 0 4	2016
Top 10 manufacturing exports													
Milling industry products	RB	0.0%	0.0%	%0.0	0.2%	%0.0	%0.0	0.2%	0.5%	0.1%	ı.	2.1%	4.9%
Beverages	RB	0.0%	0.1%	%0.0	0.3%	0.2%	0.1%	0.7%	7.9%	1.1%	i.	1.4%	2.5%
Hides and skins	RB	0.0%	3.4%	4.3%	3.0%	2.3%	1.3%	1.7%	0.6%	0.7%	I.	1.8%	1.4%
Footwear	Ц	0.0%	0.1%	0.1%	0.0%	%0.0	%0.0	0.4%	0.3%	0.6%	ı	4.3%	1.4%
Processed tea (black and green)	RB	7.6%	0.0%	15.4%	9.7%	7.4%	9.3%	8.2%	1.7%	0.3%	i.	0.3%	1.2%
Fabricated metal products (bars, rods, flat rolled prod)	LT/MT	0.1%	0.1%	%0.0	0.1%	0.1%	0.1%	0.2%	0.7%	0.9%		0.4%	1.0%
Processed rice	RB	0.0%	0.0%	%0.0	0.0%	%0.0	%0.0	0.0%	%0.0	0.0%	i.	0.0%	0.6%
Processed cereal products	RB	0.0%	0.0%	%0.0	0.1%	%0.0	%0.0	0.0%	%0.0	%0.0	ī	0.2%	0.5%
Cement and cement products	LT	0.0%	0.0%	%0.0	0.0%	%0.0	%0.0	0.5%	0.3%	0.8%	ı.	0.2%	0.5%
Vegetavle fats and oils	RB	0.0%	0.0%	0.1%	0.3%	%0.0	%0.0	0.0%	%0.0	0.0%	i.	0.0%	0.5%
Plastic products (boxes, cases, bags, plastic film, bathroom inventory, etc.)	LT	0.0%	0.1%	%0.0	0.0%	%0.0	0.2%	0.3%	0.3%	0.2%		0.4%	0.5%
Sugar	RB	0.0%	0.0%	%0.0	0.0%	%0.0	%0.0	0.0%	%0.0	%0.0	ı	0.0%	0.5%
Travel set for personal toilet, sowing	LT	0.0%	0.0%	%0.0	0.0%	%0.0	%0.0	0.0%	%0.0	%0.0	ı.	0.1%	0.5%
Cosmetic and beauty products (including essential oils)	LT/MT	0.1%	0.2%	0.2%	0.0%	0.2%	0.4%	0.4%	0.3%	0.4%		0.3%	0.3%
Furniture	Ц	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.4%	ı	0.1%	0.2%
TOTAL TOP 10 MANUFACTURING EXPORTS	i.	7.9%	4.1%	20.2%	13.9%	10.4%	11.4%	12.8%	12.8%	5.6%		11.9%	16.5%
Top 5 merchandise exports													
Black tea (fermented) & partly fermented tea in packages exceeding 3 kg (090240)	RB	1.25%	0.00%	7.78%	4.92%	8.40%	8.72%	8.38%	29.77%	28.71%	i.	12.33%	15.96%
Coffee, not roasted, not decafteinated (090111)	RB	8.05%	0.00%	27.14%	33.49%	24.82%	34.28%	17.68%	13.72%	12.65%	ı	18.11%	13.93%
Tin ores and concentrates (260900)	RB	1.18%	2.61%	9.97%	20.55%	29.32%	16.00%	21.63%	20.12%	13.13%	i.	24.42%	10.46%
Niobium, tantalum and vanadium ores and concentrates (261590)	RB	5.01%	26.61%	10.90%	5.73%	8.38%	7.85%	10.75%	9.44%	6.92%	I.	9.34%	11.21%
Tungsten ores and concentrates (261100)	RB	0.05%	0.74%	0.19%	0.04%	1.37%	6.30%	9.83%	3.73%	2.41%	I	2.80%	4.22%
TOTAL TOP 5 MERCHANDISE EXPORTS (NON-MANUFACTURED)		15.54%	29.96%	55.96%	64.73%	72.29%	73.15%	68.27%	76.78%	63.82%	,	67.00%	55.78%





Gathani and Stoelinga point out that if the WDI definition of manufacturing, which excludes all tea, coffee, and mineral products, is used, Rwanda's export of manufactured products averaged only 0.5% of GDP from 1996 to 2010. In per capita terms, this would amount to a mere 1.5 USD in real terms (at constant 2000 USD), or 30 million USD in total. Since re-exports are included in these figures, actual manufacturing exports were even lower. In 2010 the top 20 Rwandan manufacturing firms (excluding tea, coffee, and mining) exported about 12 million USD worth of products. One of the reasons for these low export figures is that Rwandan manufacturing firms (in this case, excluding all coffee, tea, and mining products) are oriented towards the domestic market and export, on average, only 10% of (non-commodity) products.33

Rwanda's private sector is still nascent and dominated by micro and small firms. Compared to other African countries, Rwandan firms are relatively young. Around 80% of existing firms today were created between 2006 and 2011 and a further 17% between 1995 and 2005. In total, the industrial sector accounts for 4,752 firms, of which 97% are manufacturing firms.³⁴ As Table 7 illustrates, microenterprises comprise the significant majority of manufacturing firms, accounting for 94.27% of total manufacturing firms. On average, microenterprises have about 2 employees each, SMEs about 64.

The largest manufacturing exporter in 2010 was Bralirwa, exporting about 3.5 million USD worth of beer and soft drinks, and Pembe Flour Mills exporting about 2.3 million USD worth of wheat bran. Two major players have entered the Rwandan export market since 2011: Steelrwa, producing reinforced steel bars and exporting about 3.2 million USD worth of products, and Bakhresa Grain Milling, which exported about 11 million USD worth of products to the Democratic Republic of Congo.³⁵

Table 7: Firm Structure in Rwanda's Manufacturing Sector, 2010

	10 or fewer (micro)	Share of total firms / employees	10-100 (SMEs) ³⁶	Share of total firms / employees	>100 (large)	Share of total firms / employees	Total
Number of manufacturing firms	4,347	94.27%	264	5.73%	-	-	4,611
Average size of manufacturing firms ³⁷	2.11	35.11%	64.19	64.89%	-	-	5.66
Number of firms (industrial sector)	4,427	93.16%	287	6.04%	38	0.80%	4,752

Source: Rwanda Industrial Survey 2011

According to the Rwanda Industrial Survey of 2011, 14% of manufacturing firms are foreign-owned (Table 8). The share of exporting firms is small, accounting for only 14% of all manufacturers. For large firms (more than 100 employees), 40% have some form of foreign ownership, while, for SMEs (10-100 employees), this figure is lower at 13%. Geographically, industrial firms (including manufacturing) are evenly split across the five provinces of Rwanda. However, when low-productivity micro-firms, which constitute the vast majority of the total, are taken out, the picture changes: 40% of SMEs (more than 10 employees) and 51% of large firm (more than 100 employees) are located in Kigali.³⁸

Framework

umber of firms / number of employees.

³⁰Gathani and Stoelinga, Understanding Rwanda's Export Sector; United Nations Conference on Trade and Development (UNCTAD) and the Ministry of Trade and Industry of Rwanda, Rwanda's Development-Driven Trade Policy Framework (New York and Geneva: United Nations, 2010).
³⁴Kamarudeen, S. and Söderborn, M., Constraints and Opportunities in Rwanda's Industrial Sector (London: International Growth Centre, February 2013).
³⁵Gathani and Stoelinga, Understanding Rwanda's Export Sector; UNCTAD and the Ministry of Trade and Industry of Rwanda, Rwanda's Development-Driven Trade Policy

⁶For manufacturing sector firms, data was available for SMEs and large firms grouped together.

Kamarudeen and Söderbom, Constraints and Opportunities in Rwanda's Industrial Sector.

Indicator	Manufacturing
Share of industrial employment	56%
Median number of employees	21
Manager (secondary education)	66%
Employee (secondary education)	17%
Foreign ownership	14%
Firm age (median)	4
Exporters	14%
Any investment in 2010	71%
ISO certified products	14%
Received any credit	39%

1.2.2.1 Sector analysis

The characteristics of four manufacturing subsectors: tea, diary, beverages, and construction materials in Rwanda are outlined in further detail. Given the scarcity of readily available data at the subsector level, the choice of sectors has been made on the following grounds:

- The government's priority sectors as identified in its industrial policy/strategy;
- The weight in total manufacturing output of the sector to which each subsector belongs (2012 figures³⁹):
 - Food: 43.79% selection of tea and dairy sectors, the former being one of the main export earners for Rwanda, the latter in contrast hardly showing any exports at all but benefiting from strong government support;
 - Beverages and tobacco: 28.61% selection of the beverages sector;
 - Non-metallic minerals: 9.11% selection of the construction materials sector.

Tea^{₄₀}

Tea production in Rwanda was started in the 1950s by European and Asian investors. However, it was not until the late 1970s that tea production took off properly, as tea became a priority in the Second Development Plan and the creation of OCIR-Thé in 1978. Eight tea factories were constructed during the late 1970s and 1980s, increasing the total to eleven; these still comprise the industry today.

Plantations in Rwanda cover close to 17,000 hectares in Byumba,

Cyangugu, Gikongoro, Gisenyi, and Kibuye. Rwanda tea is planted at high altitudes between 1,900 and 2,500 meters, and on welldrained marshes at an altitude of 1,550 to 1,800 meters. Tea plantations are located close to a tea factory, since the harvest must be processed within hours of picking. The most common tea variety in Rwanda is bulk black tea, also referred to as CTC (curltear-crush).

On average, tea production increased by 14% per year from 2006 to 2010 and exports nearly doubled during the same period. Output reached over 24,000 tons in 2011 and 70,000 people are employed in the sector. Approximately 97% of tea is exported in raw form. In 2011, 77% of Rwandan tea was sold at auction in Mombasa, and 23% was sold directly to international buyers.

Rwanda's tea sector has changed dramatically in recent years. In particular, the National Tea Strategy, which aimed to privatise the sector, has been largely implemented. As a result, tea production in Rwanda is now predominantly private, with the last two government-owned tea factories, Mulindi and Shagaha, having recently been auctioned.

Given that local production capacity in Rwanda is limited, producers attempt to compete on quality and by targeting the highend market by moving to speciality tea, such as organic, green, orthodox, and white tip tea. Estimates suggest speciality tea obtains a premium of up to 75% over CTC; however, the market for value addition and specialty teas remains to be proved. Rwandan tea production thus still focuses on boosting smallholder yields and quality improvements.

Agribusiness and Manufacturing Sectors; National Agricultural Export Development Board (http://www.naeb.gov.rw); World Bank, Rwanda Economic Update (Washington, D.C.: The World Bank, April 2011); The New Times, "Tea farmers reap from govt privatisation programme," The New York Times 30 October 2012.

³⁰Source: National Institute of Statistics of Rwanda.
⁴⁰The tea industry in Rwanda (<u>http://www.ifad.org</u>); Government of Rwanda, Ministry of Agriculture and Animal Resources (MINAGRI), A Revised Tea Strategy for Rwanda (Kigali: Government of Rwanda, August 2008); Gathani and Stoelinga, Understanding Rwanda's





Tea factory	Green leaf production (000s kg)	Made tea production (000s kg)	Export sales (000s USD)
Mulindi	15,749	3,508	7,796
Gisovu	9,408	2,254	7,129
Sorwathé	14,129	3,295	7,096
Rwanda Mountain Tea (RMT) - Rubaya	8,970	2,207	6,857
Pfunda Tea Company	9,447	2,274	6,539
Kitabi Tea Company	8,248	1,988	6,320
Gisakura	10,084	2,373	5,425
Mata	9,133	2,136	5,187
Shagasha	9,418	2,047	3,878
Nshili-Kivu	3,720	978	3,030
Rwanda Mountain Tea (RMT) - Nyabihu	4,226	1,005	2,645
TOTAL	102,531	24,066	61,911

. . . .

Source: NAEB 2011 Statistics, taken from Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and Manufacturing sectors, International Growth Centre, 2013.

The major constraint affecting Rwanda tea production is underutilisation of capacity of tea factories as a result of limited supply and poor quality of green tea leaves. Some private tea factories have invested in raising green tea leaf yields mainly through fertilisers. However, yields remain low compared to Asia and neighbouring African countries and further investments are required. Low yields are also related to a strong dependence on smallholder leaf, which has lower yields than estate leaves.

Despite low yields, Rwandan tea is considered one of the highest quality products. At the 2011 Tea Convention in Mombasa, the Rwanda Gisovu Tea Company was awarded the top spot among 35 competitors, with the third spot also being awarded to the Rwandan company Kitabi.

Two main structures exist in the Rwanda tea sector:

- Tea investment groups comprise several subsidiaries and investments in the tea sector. The largest player is Rwanda Mountain Tea, an investment group; and
- The embedded tea factories are the predominant structures found in the Rwanda tea sector. Sorwarthé is an example of an embedded tea factory; 86.7% of it is owned by American investors and 13.3% by a local cooperative.

Agro-processing - dairy⁴¹

The Rwandan dairy sub-sector was badly affected by the 1994 genocide, which sharply reduced dairy cattle populations. Since then, cattle stocks have been gradually rebuilt by returning Rwandans and through various government initiatives and import measures.

Cattle get most of their dry matter intake from annual pastures, communal grazing land, or crop residues. Annual stocking rates often exceed the recommended annual limit and communal land is consequently overgrazed. Extensive production is mostly practiced in the Eastern Province. Cattle farming is taking the form of mixed crop/livestock systems, cut and carry systems, or dairy ranching, the latter being rarely practiced due to land scarcity. A few private and government pastures are, however, found in the Southern Province.

The dairy industry in Rwanda is still nascent and growing rapidly. About 25% of Eastern Africa's raw milk is produced in Rwanda, which represents about 0.02% of global production. In 2007, this amounted to approximately 160 million litres of fresh milk from a cattle population of about 1.2 million, about 15% of which are milk cattle. Around one third of raw milk is wasted due to spoiling before being processed. Close to half of the milk is produced in traditional or extensive grazing systems in the Eastern Province. The distribution of cattle is highest in the Eastern Province, which keeps about half the total cattle population; other important cattle areas are the Southern Province and the suburbs of Kigali. It is lowest in the Northern and Western Provinces and in Kigali's urban centre. The predominant cattle breed is Ankole, accounting for over 80% of the total cattle population.

³Sources: Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and Manufacturing sectors, International Growth Centre, 2013; Investment Opportunities in the Dairy sub-sector of Rwanda, Final Report, SNV and IFAD; TechnoServe Rwanda, The

Dairy Value Chain in Rwanda, Heifer International, East Africa Dairy Development, October 2008; Rwanda Industrial Master Plan 2009-2020, Ministry of Trade and Industry, December 2009.

Milk production estimates in Rwanda vary from 0.7 to 3.2 litres per cow per day, which is equivalent to 253 to 1,177 litres per cow per year. By comparison, developed countries can achieve up to 8-9,000 litres per cow annually. The main reason for low productivity in Rwanda is the use of local breeds, which are of lower yield.

The majority of the milk is consumed unprocessed (raw). Estimates suggest that in 2008 96% of milk was marketed in the informal market. Furthermore, due to supply chain challenges, on-farm consumption, and price differentials between processed and raw milk, at least half of produced milk did not reach the market at all.

There are few milk processing plants in Rwanda. The largest processors in the dairy sector are Inyage Industries (the largest milk processing plant), Nyanza Dairy (Laiterie de Nyanza), Rubirizi Dairy, and Masaka Farms. For the first three, dairy products constitute only one product of their product pallet, many of them also producing juices, water, and other agro-food products. Invage produces pasteurised milk products, including fresh whole and skimmed milk, UHT milk, fresh cream, and yoghurt. Nyanza Dairy produces curd milk, cheese, and butter products. Masaka focuses on luxury cheese and also produces yoghurt, crème fraiche, and soft cheeses.

Normally, in dairy value chains, farmers produce milk, which is then moved by transporter to a milk collection centre (MCC), which chills the milk, preventing spoilage. The MCC then sells the milk to a processor, which adds value by extending its shelf life or producing by-products, which are then sold to the end customer through retailers. Milk production in Rwanda, however, takes place mainly at a micro or small scale level by farmers with few cows. Milk is delivered to the closest town, where it undergoes a test for basic qualities, such as acidity. If it passes successfully, the milk is then sold by informal roadside vendors. Given very limited knowledge about farming practices and available resources, agricultural input for dairy farmers is low. MCCs are few and, since they are a new concept, are not well established. MCCs are expensive to establish, especially due to the high cost of chilling tanks and quality control requirements.

Larger players in the dairy sector, such as Inyange Industries, have been able to address value chain challenges by, for example, negotiating supply contracts with farmers up-stream in the value chain and by expanding their chilling facilities. For smaller producers, the costs related to such measures remain a major challenge.

The vast majority of milk produced in Rwanda is consumed locally. The dairy sector has difficulty meeting local demand and exports are minimal, as indicated in Table 10.

Product (HS Code)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Milk and cream powder sweetened exceeding 1.5% fat (040229)	74	0	0	51	0	0	0	0	0		50	48
Milk and cream unsweetened, nes (040291)	0	0	0	0	0	0	0	0	0		0	30
Dairy spreads (040520)	0	0	0	0	0	0	0	0	0		0	30
Buttermilk, curdled milk and cream, kephir and	0	0	0	0	0	0	0	0	0		0	20
ferm, or acid milk and cream nes (040390)												
Milk and cream not concentrated and	0	0	0	0	0	0	0	0	0		10	18
unsweetened exceeding 6% fat (040130)												
Milk not concentrated and unsweetened not	0	0	0	0	0	0	0	0	0		26	11
exceeding 1% fat 040110)												
Milk and cream powder unsweetened exceeding	0	0	131	141	358	233	14	0	0		0	4
1.5% fat (040221)												
Cheese nes (040690)	0	0	0	0	0	0	0	0	0		1	4
Milk powder not exceeding 1.5% fat (040210)	0	0	2	0	34	0	0	1	0		47	1
Milk and cream nes sweetened (040299)	0	0	4	0	8	0	0	0	0		14	0
TOTAL	74	0	137	192	400	233	14	1	0	0	148	166

Several support programmes exist for the dairy sector including the Girinka or "one cow per family" programme, and the Dairy Cattle Development Project (PADEBL) which furthered the establishment of milk collection centres (MCC) and milk processing plants. The Rwanda Dairy Competitiveness Programme, run by Land O Lakes, has also been supporting the dairy sector all along the value chain. The import of exotic cattle from abroad has also been pushed. In 2013 the Rwanda National Dairy Board (RNDB) was established

within the framework of the Dairy Competitiveness Programme to support the dairy industry to "reach [its] full potential."⁴² The RNDB is comprised of milk producers, processors and sellers. It aims to foster market growth, monitor industry trends and facilitate coordination among stakeholders.

The Dairy Quality Assurance Laboratory (DQAL) was also established within the framework of the Dairy Competitiveness

⁴²Open for Business: Rwandan National Dairy Board and Dairy Quality Assurance Laboratory, PRWeb, 29 October 2013, http://www.prweb.com/releases/prweb8529751.htm.





Programme in 2013. It holds state of the art milk quality testing equipment enabling it to offer an extensive range of quality assurance services to the dairy industry. A purchasing agreement between DQAL and Inyange Processors was established which pays farmers and MCCs a higher premium for raw milk that meets quality standards which will be checked by DQAL.

Agro-processing - beverages⁴³

The formal beverages subsector in Rwanda dates back to 1957 when Bralirwa was established. Bralirwa still is the largest company in Rwanda and dominates the subsector. The beverages subsector is the largest agribusiness sector in Rwanda, with revenues exceeding 150 million USD.

For decades, Bralirwa was the sole brewer and manufacturer of soft drinks for the Rwandan market. However, new players have recently entered the market, such as Brasserie des Mille Collines (BMC), which started operations in 2009, Inyange Industries, and Enterprise Urwibutso, which produces various traditional drinks and mineral water.

Bralirwa and BMC are the only companies producing beer domestically in Rwanda. Both face competition from Kenyan and Ugandan beers, which are being imported by East Africa Breweries Ltd. Bralirwa is also the sole manufacturer of carbonated or sparkling drinks; it acquired a license for Coca-Cola products in 1974.

The two major fruit juice producers are Inyange Industries and Enterprise Urwibutso, both facing competition from Kenyan imports from the Del Monte Group. Enterprise Urwibutso is also the leading traditional drinks manufacturer, though smaller players also exist in this subsector. Inyange Industries is the largest producer of mineral water. Another local water producer is Sulfo Industries.

The breweries import most of their raw materials, such as sugar, malt, hops, and packaging. Both Bralirwa and BMC are foreignowned (by Heineken and Unibra, respectively) and so can rely on an extensive international sourcing network. Both have developed comprehensive distribution networks in Rwanda, allowing their products to reach all parts of the country. Smaller producers normally do not have the financial resources to establish such distribution networks and rely instead either on sales agents or on direct sales from their factory.

The beverages subsector produces predominantly for domestic consumption. Relative to its size of about 150 million USD, exports remain small (Table 11).

Table 11: Beverage exports, i	n '000	USD										
Product (HS Code)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beer made from malt (220300)	28	0	0	0	8	24	656	16,611	1,300	-	3,432	8,915
Non-alcoholic beverages nes, excluding fruit/veg juices of heading No 20.09 (220290)	0	0	0	0	5	0	5	3	834	-	2,312	2,943
Fruit and vegetable juice nes (exc mx) unfermented and unspirited, whether/not sugar/sweet (200980)	0	0	1	5	2	6	45	3	8	-	132	323
Waters incl mineral and aerated, containing sugar or sweetening matter or flavoured (220210)	0	0	0	299	181	0	590	12,694	597	-	17	463
Mineral and aerated waters not containing sugar or sweetening matter nor flavoured (220210)	13	20	0	0	7	16	31	40	19	_	61	226
TOTAL	41	20	1	304	203	46	1,327	29,351	2,758	-	5,954	12,870

Source: International Trade Centre's TradeMap.

⁴³Except where indicated differently, the main source for this section is: Gathani and Stoelinga, Understanding Rwanda's Agribusiness and Manufacturing Sectors; National Agricultural Export Development Board (<u>http://www.naeb.gov.rw); World Bank, Rwanda</u> <u>Economic Update.</u>

The beverages subsector faces various constraints. The informal nature of the horticulture sector represents a potential impediment to beverage producers, since raw materials are not available consistently. This can lead to serious disruptions in production due to, for example, insufficient or bad quality fruit being delivered. Inputs, such as bottles and containers for juice, also can be difficult to obtain, which also leads to disruptions.44

Bottlenecks also arise as a result of currency fluctuation, and high energy and transportation costs. In response to these rising business costs, Bralirwa raised factory prices on three locally brewed beer brands in 2013.45

Construction Materials⁴⁶

The construction materials subsector has its origins mainly in the 1980s, when a few pioneering firms entered the market, producing such products as roofing sheets, paints, and clay products. It has been strongly influenced by the post-1994 genocide reconstruction, experiencing large demand when reconstruction began. In 2006, only 2% of all Rwandan firms were in the construction sector; by 2010, this figure had risen to 16% and the sector generated revenues of 70 million USD. Firms were established in the post-genocide period by both local and regional investors. Recent entrants to the market include Ufametal (2001), Master Steel (2005), and Safintra and Steelrwa (2007). Both Rwanda's cement manufacturers, Cimerwa (2006) and Kigali Cement Company (2007) also were created in the post-genocide era. A large proportion of construction materials are, however, still being imported. Main construction materials demanded in Rwanda are quarry products, such as cement and clay, iron and steel products, as well as industrial sands and other materials used in buildings and road construction.

Cement is produced locally by three companies in Rwanda. The sole local cement producer is Cimerwa, which has been active for 2 years; the other two cement plants produce cement by importing clinkers from the region or the African continent. Cement production is very energy intensive, which constitutes a problem in Rwanda, where energy supply is low. Fossil fuels are imported through the ports of Dar es Salaam and Mombasa. But energy supply still is too low for cement production to run at full capacity.47 Cimerwa's production capacity is intended to expand from 100,000 to 600,000 tons per annum by 2014. Rwandan demand for cement is expected to lie at 350,000 tons per annum; regional demand is expected to rise to 1 million tons within the coming ten years, leaving extensive potential for revenue gains.⁴⁸

The supply of raw materials is a significant challenge to the Rwanda construction materials subsector. Limestone is used locally for the production of cement, for which demand exceeds supply. Only two companies, Cimerwa and Ruliba Clays, are able to source their raw materials (cement clinker, clay, and kaolin) locally. Rwanda also has a brickmaking industry, which has evolved from local rural wood-fire brickmaking kilns to more advanced factories.

Transportation times and clearance problems at the Mombasa and Dar es Salaam ports are major constraints to construction materials manufacturers. High energy prices and fluctuating demand for construction materials also contribute to low capacity utilisation in the construction sector. These capacity utilisation issues are addressed differently by firms in the sector. Those under foreign ownership are able to draw on raw materials relatively quickly by leveraging parent companies in the EAC region. Others, which cannot rely on regional distribution networks, tend to diversify their production to decrease risk exposure in certain sub-sectors.

Management and technical positions in the construction materials subsector tend to be filled by foreign experts, indicating a skills shortage.

Rwandan construction material exports tend to be small. Only Kigali Cement, Steelrwa, and Master Steel export more than 10% of their product. The number of exporting firms is increasing though, from two in 2006 to approximately 64 in 2010.

1.3 Estimate of competitiveness and comparative advantage

1.3.1 Overall competitiveness of the manufacturing sector

There are many possible ways in which to assess the competitiveness of manufacturing. Two competitiveness indicators are presented in Table 12:

- · Labour Productivity (MVA/employment) measures the average output per employee and is calculated as the ratio of manufacturing value added to employment; and
- Revealed comparative advantage (RCA) is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services, as evidenced by trade flows. The RCA is calculated here as the share of the country's

⁴⁴Rwanda Eye, "Gakenke: Juice factory lacking raw materials," Rwanda Eye, 23 December 2011. ⁵Rwembeho, Stephen, "New juice processing technology launched," The New Times, 5

⁴⁶Except where indicated differently, the main source for this section is: Gathani and

Stoeling, Understanding Rwanda's Agribusiness and Manufacturing Sectors; Government of Rwanda, Ministry of Trade and Industry, Rwanda Industrial Master Plan

and Policy 2010-2020 (Kigali: Government of Rwanda, 2010). "Senthil Kumaran, G., Nsesheye Susan Msinjili, Wolfram Schmidt, Miruna V.A. Florea, Paul Nibasuba, "A Study on Sustainable Energy for Cement Industries in Rwanda," Advances in Cement and Concrete Technology in Africa: Proceedings & Conference Contributions: 1169-1175.

^ahttp://www.ppc.co.za/images/downloads/2013%2003%20ML%20Presentation2.pdf





manufactured exports in the country's total exports, divided by the share of manufactured world exports in total world exports (Béla Balassa 1965). For this calculation, manufactured exports were determined using a definition based on the ISIC classification, as specified in section 1.2.1. A comparative advantage is "revealed" if RCA>1. If RCA is less than 1, the country is said to have a comparative disadvantage.

Table 12: Indicators on the (Overall	Comp	etitiver	ness of	Rwan	da's Ma	anufac	turing	Sector			
Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Labour Productivity: MVA/Employment (USD)	3,857	-	-	-	-	-	2,850	-	-	-	3,750	-
RCA, Manufacturing, Rwanda/World	0.14	0.41	0.37	0.30	0.31	0.27	0.29	0.21	0.34	-	0.34	0.47
Source: World Bank, WDI for MVA data; Rwa	nda Natior	al Bureau o	of Statistics	s (EICV3) fo	r employm	ent data;						

As outlined in section 1.2, employment data for Rwanda's manufacturing sector is scarce. Table 12 shows that labour productivity decreased from 2001 to 2007 by about 1,000 USD. The reason for this is a doubling of MVA, while employment figures rose faster by a factor of 2.67. In 2011, labour productivity rose again by 900 USD to reach nearly the level of 2001; MVA nearly doubled compared to 2007, while employment figures only rose by a factor of 1.4. Hence, over the whole period of 2001 to 2011, labour productivity has remained relatively unchanged. This finding can be seen as related to the continuous reliance on resource-based products of the Rwandan manufacturing sector, though productivity improvements can be achieved in these products as well (even if medium to high technology products have greater value adding potential).

Table 12 also illustrates that the Rwandan manufacturing sector as a whole has a comparative disadvantage. In fact, exports in services are much stronger, which could be interpreted as Rwanda

developing according to its comparative advantage. Alternatively, it could also be seen as manufacturing exports not reaching full performance. In certain manufacturing products though, Rwanda does have a comparative advantage:⁴⁹

- Processed coffee and tea;
- Beverages (beer, milk, water, and fruit juices);
- Construction materials (cement, flat-rolled steel products, bricks, tiles, and barbed wire);
- Plastic products (plastic tanks);
- Raw hides and skins;
- Products of the milling industry (cereals flours, starch, and dry vegetable meals);
- Essential oils, parts of plants, and vegetable saps and extracts (including Pyrethrum);
- Beauty products (hair and skin);
- Plastic shoes; and
- Some textile products.

³ Gathani and Stoelinga, Understanding Rwanda's Export Sector.



Figure 5 illustrates that Rwanda's MVA / Employee is low compared to a selection of industrialised countries and to Eastern Africa. Not surprisingly the gap to a highly industrialised country like South

Korea is large since high tech manufacturing processes there are much more capital intensive and allow for higher labour productivity.







Figure 6 compares Rwanda's Revealed Comparative Advantage to a selection of industrialised countries and to Eastern Africa for the year 2012. Rwanda's position relatively far behind Burundi and Kenya should be considered with caution since its RCA was significantly lower in 2012 than in any of the other preceding eleven years with the exception of the year 2007. For example, in 2011 Rwanda's RCA was 0.76 which would put it ahead of Kenya's and Burundi's 2012 RCA. The significant gap between Rwanda's RCA and that of industrialised countries such as the Republic of Korea or China is not surprising since it reflects the stronger development of the manufacturing sector in these countries and stronger reliance on manufacturing exports.

To benchmark national industrial performance, UNIDO has developed the CIP index, which assesses industrial performance using indicators of an economy's ability to produce and export manufactured goods competitively. The CIP index comprises eight indicators classified in six dimensions:

- Industrial capacity, measured by MVA per capita;
- Manufactured export capacity, measured by manufactured exports per capita;
- Impact on world MVA, measured by an economy's share in world MVA;
- Impact on world manufactures trade, measured by an economy's share in world manufactured exports;
- Industrialization intensity, measured by the average of the share of MVA in GDP and of medium-and high-technology activities in MVA; and
- Export quality, measured by the average of the share of manufactured exports in total exports and of medium- and high-technology products in manufactured exports.
The CIP index confirms that Rwanda still stands at the beginning of its industrialisation process. Interestingly, Rwanda's CIP has barely changed since 2005, except for an increase in 2009, which was

reversed immediately the following year. Except for Tanzania, this is in line with the Eastern African trend where no major CIP improvements were achieved during this period.

Table 13: Overview of UNIDO's Competitive Industrial Performance (CIP) Index for Rwanda and Benchmark Countries

Indicator	2000	2005	2006	2007	2008	2009	2010	
CIP Rwanda	0.001	0.002	0.002	0.002	0.002	0.003	0.002	
CIP Eastern African countries:								
Average CIP Eastern Africa	0,002	0,004	0,004	0,004	0,004	0,005	0,005	
CIP Burundi	0.000	0.001	0.000	0.001	0.001	0.001	0.001	
CIP Ethiopia	0.000	0.001	0.001	0.002	0.002	0.002	0.002	
CIP Kenya	0.008	0.010	0.010	0.009	0.009	0.011	0.010	
CIP Seychelles	n.a.							
CIP Tanzania	0.003	0.004	0.005	0.005	0.007	0.008	0.009	
CIP Uganda	0.002	0.003	0.004	0.004	0.004	0.004	0.004	
CIP Benchmark countries:								
CIP Chile	0.060	0.069	0.072	0.071	0.072	0.073	0.072	
CIP China	0.162	0.239	0.257	0.274	0.291	0.318	0.329	
CIP India	0.045	0.056	0.059	0.060	0.064	0.073	0.075	
CIP Indonesia	0.077	0.074	0.074	0.072	0.075	0.082	0.082	
CIP Malaysia	0.197	0.190	0.192	0.183	0.169	0.184	0.183	
CIP Philippines	0.084	0.075	0.075	0.072	0.070	0.071	0.073	
CIP South Africa	0.072	0.076	0.076	0.076	0.080	0.077	0.077	
CIP Rep. Korea	0.318	0.356	0.364	0.366	0.373	0.399	0.404	
CIP Thailand	0.136	0.151	0.155	0.157	0.160	0.168	0.171	
CIP Turkey	0.096	0.121	0.124	0.128	0.132	0.130	0.128	
CIP Vietnam	0.025	0.035	0.038	0.041	0.045	0.051	0.054	

1.3.2 Competitiveness of key manufacturing subsectors

In this section, we assess the RCA of the sub-sectors analysed in Section 1.2.2.1 above.

The tea sub-sector has been the major export earner in Rwanda for many years and has only recently been overtaken by tin ores and coffee. The main manufactured tea export of Rwanda is fermented and partly fermented black tea in packages not exceeding 3kg. Not fermented green tea is also exported, but in negligible quantities. Given tea is one of Rwanda's three main exports it seems logical the country has a strong comparative advantage here. The dairy sub-sector is still nascent and mainly feeds local demand. Milk is predominantly sold in its raw form through informal channels. Dairy exports are hence negligible, but include the following products: milk, milk powder, cream, buttermilk, curdled milk and cream, kephir, dairy spreads, and cheese. Given its very small exports, Rwanda's dairy sector has a strong comparative disadvantage.

The beverages sub-sector has a long tradition in Rwanda. Table 14 indicates that, as of 2007, this has translated into a comparative advantage for the sector. Indeed, malt beer and water exports





surged from 2007 onwards, though water exports became negligible again after 2009. The fact that exports of non-alcoholic beverages increased significantly from 2009 onwards explains why Rwanda's comparative advantage increased further, even after 2009.

Since 2007, Rwanda's RCA for the non-metallic construction materials sub-sector has been increasing, and, from 2009 onwards, it has revealed a comparative advantage in this field. One important factor contributing to this development is the export of Portland cement, which surged from 2007 onwards.

Table 14: Indicators on the Overall Competitiveness of Rwanda's Processed Tea, Dairy, Beverages, and **Construction Materials Sectors**

Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
RCA, Processed tea ¹ , Rwanda/World	395.88	0.00	991.41	650.91	532.60	657.23	619.52	128.17	14.42	n.a.	19.88	82.53
RCA, Dairy products ² , Rwanda/World	0.080	0.000	0.567	0.422	0.613	0.416	0.030	0.003	0.002	n.a.	0.077	0.082
RCA, Beverages ³ , Rwanda/World	0.039	0.083	0.005	0.455	0.269	0.083	1.041	10.799	1.284	n.a.	2.047	3.291
RCA, Cement and building materials ⁴ , Rwanda/World	0.012	0.007	0.000	0.028	0.043	0.029	0.882	0.657	1.542	n.a	2.152	1.063

Source: International Trade Centre's TradeMap.

1. For this calculation, the HS codes used were "090210 - Green tea (not fermented) in packages not exceeding 3

Contrais Calculation, the ISC code used was "152 – Manufacture of dairy products".

3. For this calculation, the ISIC code used was "155 - Manufacture of beverages".

For this calculation, the ISIC codes used ware "2692 - Manufacture of refractory ceramic products", "2693 -Manufacture of structural non-refractory clay and ceramic products", "2694 - Manufacture of cement, lime and plaster", "2695 - Manufacture of articles of concrete, cement and plaster", "2696 - Cutting, shaping and finishing of stone", "2699 - Manufacture of other non-metallic mineral products n.e.c.".







2. EXPLAINING COMPETITIVENESS AND COMPARATIVE ADVANTAGE

2.1 Enablers for the Manufacturing Industry

2.1.1 Overview

The enabling environment for private sector development and, as such, for manufacturing has improved significantly in Rwanda since 2001. Substantial reforms have been implemented with the aim to support a private sector-led development model.⁵⁰ Key to this achievement has been good governance, which has led to peace and stability. The rule of law has been strengthened and the GoR has introduced a zero tolerance approach to corruption. These factors contributed significantly to making the country attractive to investors, even if foreign direct investment (FDI) inflows have so far been relatively low.

A solid legal and regulatory framework has been established through the passing of numerous laws and regulations, such as the 2005 Rwanda Investment Code. Institutions have been streamlined and restructured to ensure better provision of public services and support to investors. Most prominently the Rwanda Development Board (RDB) unites all necessary services for investors under one roof. Policies and sectoral strategies have been developed to spur the development of industry. The manufacturing sector has been identified as key to further economic diversification. As a result of numerous business reforms, Rwanda's position in the World Bank's Doing Business ranking has improved significantly, making it the top reformer of recent years in Africa.

As Table 15 illustrates, Rwanda has made impressive progress in improving its business climate. Its position in the World Bank's Doing Business ranking has improved from 148th to 32nd from 2008 to 2014, making it the second best reformer worldwide since 2005.

Table 15: Overview of	Doing Business	indicators ⁻	for Rwanda⁵¹
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Indicators	DB 2014 Rank	DB 2013 Rank	Change in Rank
Starting a Business	9	8	-1
Dealing with Construction Permits	85	122	+37
Getting Electricity	53	52	-1
Registering Property	8	62	+54
Getting Credit	13	24	+11
Protecting Investors	22	32	+10
Paying Taxes	22	25	+3
Trading Across Borders	162	160	-2
Enforcing Contracts	40	40	No change
Resolving Insolvency	137	166	+29
Overall Ease of Doing Business	32	54	+22

Rwanda gives high importance to regional integration: it is part of the EAC since 2007 and a founding member of COMESA.52 Furthermore, due to its status as least developed country (LDC), it enjoys preferential access to EU and US markets through the Everything but Arms (EBA) Programme and the America's Africa Growth and Opportunity Act (AGOA). Problems exist, however, when it comes to meeting non-tariff barriers, in particular phytosanitary standards for its food products. Capacity constraints, lacking awareness and funding to meet standards are underlying reasons for the problems encountered by food producers in meeting SPS measures.

Nevertheless, various factors slow the manufacturing sector down.

Limited access to finance hampers investments. Rwanda's landlocked status raises transport costs for importers and exporters. Similarly, poor transportation infrastructure, in particular a bad road network, raises transport times and costs. Energy supply remains problematic with shortages and frequent cuts causing costly consequences for manufacturing production lines. Customs clearance procedures, particularly at the ports of Mombasa and Dar es Salaam, also remain cumbersome. Many manufacturing firms also state a skills gap as lowering growth potential.

This chapter will assess the progress made so far in Rwanda in improving the enabling environment for manufacturing. While the

when it was founded. The PTA was transformed into COMESA in 1994, with the main aim to establish a free trade area (FTA). The FTA was started by nine member states in 2000. Rwanda joined the FTA in 2004.

¹⁰World Bank, Rwanda Economic Update.

[&]quot;Wolld Ball in, hwal ida Ecol ion iii o Douge." "This table lists the overall "Ease of Doing Business" rank (out of 185 economies) and the rankings by each topic.

²Rwanda joined the Preferential Trade Area for Eastern and Southern Africa (PTA) in 1981,

Doing Business criteria will be taken into account, other criteria not covered by Doing Business will also be considered. Where relevant and possible, stakeholder views and other studies will also flow into the analysis.

2.1.2 Legal and regulatory environment

The legal and regulatory environment has changed significantly over the past ten years. The regulatory framework and enforcement have improved, which facilitates business activity and provides transparency in government-private sector interactions. A strong anti-corruption stance has simplified and reduced the cost of business transactions. This has contributed to Rwanda improving its ranking in Transparency International's "Corruption Perception Index", from 102nd position in 2008 to 50th in 2012. From 2010 to 2012, Rwanda has also been ranked "least corrupt" country in Eastern Africa in the index. Improvements have also occurred in safety, security of property, and transparency of government procurement, which are not included in the World Bank's Doing Business. Rwanda, in becoming a member of the EAC, also has to undergo various measures to align its legislative and regulatory framework with that of other EAC members.

Rwanda has no specific laws and regulations for the manufacturing sector. However, several legal documents are relevant for the manufacturing sector, including the following:

- Law N° 07/2009 of 27/04/2009 Relating to Companies ("companies act");
- Law N° 26/2005 of 17/12/2005 Relating to Investment and Export Promotion and Facilitation ("investment law");
- Organic Law N° 04/2005 of 08/04/2005 Determining the Modalities of Protection, Conservation and Promotion of Environment in Rwanda ("environmental protection law");
- Law Nº 16/2005 of 18/08/2005 on Direct Taxes and Income:
- Law N° 25/2005 of 04/12/2005 on Tax Procedures;
- Organic Law N° 08/2005 of 14/07/2005 Determining the Use and Management of Land in Rwanda ("land law"); and
- Ministerial Order N° 001/2008 of 01/04/2008 Determining the Requirements and Procedures for Land Lease.

The Company Act of 2009 revised previous legislation from 1988. It deals with companies, their registration, and consequential matters.⁵³ It significantly simplified company registration procedures and extended its reach to include, for example, allowing a person to register a company as an individual.

Rwanda has significantly improved its business environment. In particular, it has streamlined the process for starting a business, which can now be done at the Office of the Registrar General (ORG), which is housed in the RDB as a division under the Investment Promotion and Implementation Department. It provides a one stop shop for business registration. Procedures to register a business have been reduced to two (down from 9 in 2008); days for registration have been cut to three (down from 18 in 2006); registration cost amounts to 4.3% of income per capita (down from 235.3% in 2004); and the required paid in minimum capital is 0. Business registration application forms are automatically transferred to the Rwanda Revenue Authority and social security services so that the newly registered company receives all necessary identification numbers. The registration certificate is then ready for pick up within one to three days of application, which puts Rwanda in eighth place worldwide and in highest place in the region.54

Rwanda's Investment Law of 2005 fixes the minimum capital investment required for official registration, which qualifies a business for tax and other investment incentives: for domestic investors 100,000 USD, for foreign investors 250,000 USD, is required. However, investors may set up a business irrespective of the initial capital requirement and there are no legal requirements for private firms to adopt articles of incorporation or association, limiting or prohibiting foreign investment, participation, or control. The Investment Law grants foreign investors permanent residence and access to land if they deposit 500,000 USD in a commercial bank in Rwanda for at least six months. There is no mandatory provision for screening foreign investment; the Rwanda Development Board does, however, evaluate business plans of investors seeking tax incentives. By law, equal treatment of foreign and local firms is foreseen with regards to taxes, access to licenses, approvals, and procurement. Statutory limits on foreign ownership or control in Rwanda do not exist.⁵⁶

The Environmental Protection Law of 2005 aims to protect the environment from damage resulting from "acts relating to fishing, hunting and capture of animals, mining of valuable minerals and quarry as well as activities carried out in a critical ecosystems".56 Investors and companies are required to carry out an Environmental Impact Assessment (EIA) to obtain a certificate of clearance from the Rwanda Development Board.

The corporate tax year in Rwanda is based on the calendar year. Corporate losses may be carried forward for up to five years; the deduction of earlier losses precedes later losses. Pay as you earn (PAYE) taxes and value added tax (VAT) may be paid on a quarterly basis, if a company earns less than 200 million Rwandan Francs (RWF). If earnings are higher than 200 million RWF (approximately 226,000 EUR⁵⁷), payments must be made on a monthly basis. The VAT rate is 18%, though exports of goods and services are zerorated. Varying withholding tax rates are applied to various items, including payments such as management and technical fees or performance payments (15%), imports (5% on the Cost, Insurance,

 ⁵⁵Law N° 07/2009 of 27/04/2009 editing to Companies, Article 1.
 ⁵⁴World Bank, "Economy Profile: Rwanda," Doing Business 2013 (Washington, D.C.: International Bankfor Reconstruction and Development, 2013.
 ⁵⁵Embassy of the United States, Kigali, Rwanda, "Investment Climate Report 2013," http://rwanda.usembassy.gov/investment_climate_.html.

⁵⁶Organic Law N° 04/2005 of 08/04/2005 Determining the Modalities of Protection, Conservation and Promotion of Environment in Rwanda, Article 9 ⁵⁷Official InforEuro exchange of October 2013: 1 EUR=884,709,

⁽http://ec.europa.eu/budget/contracts grants/info contracts/inforeuro/inforeuro de.cf m).





and Freight – CIF – of goods imported for commercial use), public tenders (3% of the sum of the invoice), and quarterly prepayment (25% of previous income tax declared).

The Land Law of 2005 lays out the utilisation of land in Rwanda. All land is owned by the GoR and falls into two categories:

- Public land is earmarked for public use or environmental protection; and
- Private land is allocated by the GoR to natural or legal persons and may be leased for a period of up to 99 years through a lease contract and on an annual lease. It is then referred to as individual land. An ownership certificate may be obtained if ten years of lease are paid up front and if a building is constructed on the land. Private land rights may be transmitted through sale, inheritance, or donation. If individual land is deemed to have been degraded or unexploited for three years without reasons, the government may requisition it.⁵⁸

Land registration has been adapted through the Rwanda Investment Climate Project, which aimed to build the capacity of the national land registration office. The Office of the Registrar of Land Titles has also been created. Despite recent improvements, obtaining construction permits is still cumbersome and, according to Doing Business 2013, it takes 164 days on average.⁵⁹

Land disputes are heard by competent courts. It is expected that, at first, the dispute issue is referred to the authority that took the decision, which has to respond within fifteen days. If the response is not satisfactory, the issue is referred to the next highest authority, which again has to respond within fifteen days. If, again, no acceptable solution is found the case may be brought forward to the competent court.⁶⁰

Rwanda developed its legal infrastructure and set up specialized commercial courts, which started working in 2009 in Kigali, the Northern Province, and the Southern Province. As a result, a significant backlog of cases has been cleared. The Heritage Foundation's 2012 Economic Freedom Index, however, still raises concerns about the independence and capacity of the judicial system; issues about political interference are also raised. Investors too have raised concerns that the courts do not always respect the sanctity of contracts.

New bankruptcy regulations and arbitration laws were enacted in 2008 and a new Intellectual Property Law in 2009. Investor protection was strengthened in 2009 through requirements for greater corporate disclosure, raising the liability of directors and improving shareholders' access to information. In 2011, the GoR reformed the tax payment processes, introducing online payment,

and additional insolvency and arbitration laws were enacted in 2011. The 2012 Penal Code empowers the government to obtain proprietary information from firms in the case of a criminal investigation of fraudulent bankruptcy or other alleged criminal offense.

These changes are reflected in Rwanda's Doing Business position, where it is currently ranked 39th in the field of enforcing contracts. This criterion measures the efficiency of the judicial system in resolving commercial disputes. According to Doing Business, it costs 78.7% of the value of the claim and requires 23 procedures to enforce a contract in Rwanda. The most pronounced change has occurred in the time needed to enforce a contract, which dropped from 395 days in 2004 to 230 in 2013. Only Tanzania is better placed in the region (in 36th place), while the Sub-Saharan average ranking is 120.

Insolvency proceedings remain a weak point in Rwanda's business environment. Even if recent reforms have improved Rwanda's insolvency procedures, notably through a law aimed to streamline reorganisation procedures for distressed companies in 2010. Rwanda still only ranks in 167th place out of 185 in Doing Business. According to Doing Business, it takes 3 years to resolve insolvency in Rwanda and costs on average 50% of the debtor's estate. The most likely outcome of insolvency is the selling of the company as a piecemeal sale. Further improvements are required, since clear bankruptcy procedures are important to ensure a quick return to business of a company and to reassure investors that their investment will not be lost in case of a company not performing as expected. Insolvency is problematic in the Eastern Africa region in general, with Kenya as the best performer placed in 100th position, Tanzania 129th, and Burundi 161st.

According to Doing Business a minimum wage does not exist in Rwanda. Fixed term contracts are permitted for permanent tasks and are not limited in duration. Worker redundancies need to be notified to government, but no third party approval is required. The notice period for redundancies is 4.3 salary weeks, irrespective of the duration of employment. Severance pay for redundancy dismissal is between 4.3, 8.7, and 13.0 salary weeks, depending on whether the worker was employed for 1, 5, or 10 years. Overall, employment regulations seem to give a fair amount of flexibility to employers, while only playing a minor role in Rwanda, given the prevalence of informal employment.

2.1.3 Industrial and manufacturing sector policies

As mentioned in Chapter 1 Vision 2020 spells out the long term development goals for Rwanda, while EDPRS 2 is the current medium term implementation for Vision 2020. In order to meet the private sector development goals of EDPRS 2, the GoR has

⁵⁸Guide Rwanda: An investment geode to Rwanda, "Why invest in Rwanda?" http://www.theiguides.org/public-docs/guides/rwanda.
⁵⁰World Bank, "Economy Profile: Rwanda," Doing Business 2013; GoR, Ministry of Trade and Industry, National Industrial Policy.
⁶⁰Guide Rwanda, "Why invest in Rwanda?"

developed the Private Sector Development Strategy (PSDS).

The Government of Rwanda has however also developed several other policies and strategies that impact on the manufacturing sector. The Rwandan National Industrial Policy (NIP) aims to diversify the economy by increasing the share of industry in GDP. Its vision is for Rwanda to have "competitive industrial and advanced services sectors producing over 1.5 billion USD of exports by 2020, while increasing the number of off-farm jobs."⁶¹

The NIP rests on the two economic pillars of domestic production and export competitiveness. As a foundation to these two pillars, a strong enabling economic environment will be developed. The NIP is intends to "foster growth, value addition and dynamic expansion into new areas of comparative advantage where market failures would otherwise prevent or slow development." The NIP takes an issue specific approach, tackling hindrances to Rwanda's industrialisation and targeting key clusters with growth potential.⁶²

The GoR selected ten key sectors to benefit from support measures

under the NIP. It differentiated between sectors with immediate growth potential – feasible sectors – and sectors that are not yet feasible, but might become so in the future – desirable sectors. In the short run, feasible sectors are promoted, while the feasibility of desired sectors is improved. In the medium term, desirable sectors that have become feasible are supported; and, in the long run, support to successful sectors is reduced, while new feasible sectors are supported. The sectors identified by the GoR are the following:

- Short term: agro-processing, ICT, high-end tourism, textiles, and minerals processing;
- Medium term: construction materials, pharmaceuticals, and chemical products;
- Long run: building materials, bio-plastics, and other high-tech industries.

Figure 7 illustrates Rwanda's NIP which aims to foster value addition in existing sectors in the short run and developing new ones with greater value addition in the medium to long run.



⁶¹GoR, Ministry of Trade and Industry, National Industrial Policy. ⁶²Ibid





Nearly all the identified sectors are in the manufacturing sector, with the exceptions of ICT and tourism, which are in the service sector. As Figure 7 shows, the strong diversification and value addition potential of manufacturing activities are the underlying reasons for this.

The NIP does not formulate sector specific activities. Rather, it articulates policy actions at the horizontal level to improve infrastructure, human resources, access to finance, trade facilitation, technology, research and innovation, raw materials and industrial inputs, regulatory environment, and environmental sustainability. To further technology, research, and innovation, the NIP foresees a Science, Technology, and Innovation (STI) capacity programme. It pursues a two stage approach:

- 1. STI capacity-building needs assessment and action plans (NAAPs); and
- 2. Bank and donors finance the implementation of NAAPs.63

It is to date however not entirely clear to what extent implementation of the NIP has progressed or is indeed still being pursued. It would seem that it is the PSDS which is now being pursued as the key private sector and as such manufacturing development programme.

The Rwanda National Export Strategy (NES) aims to "transform Rwanda into a globally competitive export economy". This is to be done through "prioritised actions"⁶⁴ to improve Rwanda's competitiveness by developing high value-added products in key export clusters. It targets eight priority sectors, many of which comprise manufacturing activities:

- Tourism;
- Tea;
- Coffee;
- Minerals and mining services;
- Business process outsourcing (BPO);
- Horticulture;
- Home décor and fashion; and
- Greenfield industries (pyrethrum and biotech).

The NES is complementary to the NIP. It intends to align with other policies and strategies throughout the implementation, monitoring, and evaluation stages. It aims to complement existing sectoral strategies through cross-cutting measures aiming to increase exports. It does not replace any of the standalone sector strategies. The NES thus intends to build institutional capacities by coordinating the many policies and stakeholders involved in export promotion.

The NES formulates concrete policy measures in ten cross-cutting issues: market opportunities, trade facilitation, monetary and fiscal policy, business environment, finance and investment, infrastructure, branding, leveraging technology, human capital, leveraging gender, youth, and environment. It also formulates policy measures for each priority sector identified.

The NES intends to make better use of preferential trade agreements. Rwandan exports currently target almost exclusively destinations to which the country has been exporting before 2000. It does not reap the benefits of preferential access through trade agreements, such as the EU's EBA Programme or the US's AGOA. Even at the regional level, it does not trade extensively with COMESA, though trade with EAC countries has recently increased. The NES hence foresees:

- Utilising and monitoring market access where it is available, mainly through sensitising producers to their existence;
- Developing market entry strategies, based on high demand for Rwandan exports; and
- Aligning foreign policy and commercial interests.

Several other policies have been developed that also impact on the manufacturing sector. **The Rwanda Trade Policy (2010)** aims to support Rwandan businesses "growing sustainable and diversified quality products and services" for trade.⁶⁵ It pursues five objectives: increasing traditional exports, especially coffee, tea, minerals, and tourism; diversifying exports into areas, such as services, silk, and minerals; facilitating trade and support conformity with standards; raising investment to mitigate supply-side constraints; improving the business environment. In line with Vision 2020 and EDPRS, the trade policy puts particular emphasis on the importance of developing the manufacturing sector to diversify the Rwandan economy.

The SME Development Policy aims to support SMEs by providing business support services, improving access to finance, and creating a conducive legal and institutional framework. This includes various measures particularly tailored to manufacturing, including facilitating access to finance, notably through the consolidation of all existing funds available to SMEs, supporting technological innovation among SMEs, simplifying the taxation system, and sensitising SMEs to environmental protocols, standards, and health regulations.⁶⁶

The Special Economic Zone Policy (2010) guides the development and setting up of Special Economic Zones (SEZs) in Rwanda. SEZs are seen as a tool to address shortcomings in the Rwandan business environment by developing infrastructure, streamlining business regulations, and offering incentives to

⁴³GoR, Ministry of Trade and Industry, National Industrial Policy.
⁴⁴GoR, Ministry of Trade and Industry, Rwanda National Export Strategy.

⁶⁵Government of Rwanda, Ministry of Trade and Industry, Rwanda Trade Policy (Kigali: Government of Rwanda, 2010), 6.
⁶⁵Government of Rwanda, Ministry of Trade and Industry, Small and Medium Enterprises (SMEs) Development Policy (Kigali: Government of Rwanda, June 2010).

investors and businesses. The policy defines policy recommendations across six areas, based on international best practice in developing SEZs. It also foresees establishing an SEZ Authority.67

The Intellectual Property Policy (2009) is an important instrument for Rwanda to spur STI in the manufacturing sector. Enforcement of Intellectual Property (IP) laws, however, remains difficult, due to lacking administrative capacities (skills and number of staff).68

The Rwanda Competition and Consumer Protection Policy (2010) furthers fair competition, paying particular attention to the impact of Rwanda's membership in the EAC and COMESA. It sets up a Competition Authority, which aims to stop anti-competitive trade practices and monitor market concentration (such as monopolies).69

Rwanda also implemented a number of sector specific strategies relevant to manufacturing, including the Rwanda Handicraft Strategic Plan (2009-2013), the Rwanda Coffee Strategy (2008), the Rwanda Tea Strategy (2008), and the Rwanda Hides and Skins Policy (2009).

To ensure the successful implementation of Rwanda's complex policy environment, the effective coordination of all policies and strategies is important. Clear attribution of responsibilities is crucial. This has been recognised by the Ministry of Trade and Industry in its 2009-2012 Strategic Plan, which states "low coordination with other Ministries meaning bottlenecks are not addressed" and "duplication of some activities with other Ministries and agencies" are threats to the implementation of its strategic objectives.⁷⁰ The NIP also highlights that private sector actors experience difficulties in keeping track of policies and rapidly-changing regulations. Information on new pro-business reforms is also not always satisfactory. To remedy these shortfalls and ensure the effective implementation of the NIP and the NES, a high level coordination body, the Industrial Development and Export Council, has been set.71

2.1.4 Innovation policies and measures

Rwanda's innovation system is relatively underdeveloped having suffered greatly from the 1994 genocide. The Government of Rwanda has hence made science, technology and innovation a cross-cutting focus in its Vision 2020 and has developed a Policy on Science, Technology and Innovation in 2006.72 Rwanda currently stands in 134th position (out of 146) in the World Bank's Innovation Index.⁷³ This nonetheless represents an improvement to the year 2000 when it was ranked 10 places lower.

The guiding document for STI development is the 2006 STI Policy. The key institution overseeing the implementation of the STI Policy is the Ministry of Education, Department of Science, Technology and Research. The STI comprises four concrete policy objectives: (i) knowledge acquisition, (ii) knowledge creation, (iii) knowledge transfer, and (iv) innovation culture. A National Council for STI (NCSTI) is to support cross-sectoral planning and coordination while District Innovation Centres (DICs) aim to support SMEs and in particular manufacturing in rural areas. Furthermore each federal ministry is to have an STI representative. The STI policy identifies thirteen sectors in which STI should be used to increase productivity: education, energy, transport, agriculture, ICT, geoinformation, water and sanitation, biotechnology, industry, private sector, tourism, environment, and health. Agriculture and ICT are singled out for the highest priority.

Even if rollout of the STI has been slow in the first years, it has recently gathered pace. In 2012, the Rwanda Innovation Endowment Fund (RIEF) was launched. It aims to support individuals and Research and Development (R&D) centres to bring their products to the market. RIEF provides both technical and financial support to qualifying projects, prioritising agriculture, manufacturing, and ICT.

Up to 50,000 EUR are available for each project, and the current pilot is intended for up to ten projects in total. Project durations are intended for one to three years. As Table 16 illustrates uptake of RIEF has been high. In May 2013, eight winners were selected from among the many applicants: two from the ICT sector, three from manufacturing, and three from agriculture.⁷⁴

Type of application	Number	Female	Male	Online applications	Hard copies	Both online and hard copies
Manufacturing	136	17	118	79	95	39
Agriculture	138	20	118	66	98	28
ICT	96	10	86	56	62	22
TOTAL	370	47	322	201	255	89

Table 16: DIFE Applications received⁷⁵

Source: World Bank / World Development Indicators (WDI)

72LINK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012. ⁷³http://info.worldbank.org/etools/kam2/kam_page5.asp.

¹⁷Best innovation projects receive financial life, The New Times, 4 May 2013, http://www.newtimes.co.rw/news/index.php?a=66576&i=15347. ¹⁷Rwanda Innovation Endowment Fund (RIEF), an example of strategies to implement the National STI Policy in Rwanda, Remy TWIRINGIYIMANA, Director of Research and Development Unit, Directorate of Science, Technology and Research(DSTR), Ministry of Education Republic of Rwanda, Lima, Peru: 7th -9th January, 2013.

⁶⁷Government of Rwanda, Ministry of Trade and Industry, Special Economic Zone Policy (Kigali: Government of Rwanda, May 2010). Government of Rwanda, Ministry of Trade and Industry, Rwanda Intellectual Property

Policy (Kigali: Government of Rwanda, November 2009).

Consumer Policy (Kigali: Government of Rwanda, July 2010). ⁷⁰Government of Rwanda, Ministry of Trade and Industry, Strategic Plan 2009-2012: Moving Up the Value Chain (Kigali: Government of Rwanda, August 2009). 'GoR, National Industrial Policy.





ICT is one of the key drivers of socio-economic development and the Government of Rwanda has placed ICT at the centre of its socio-economic, political and academic development efforts. The 2000 ICT-led Integrated Socio-economic Policy (ICT4D) draws out the country's plan to develop into a knowledge-based economy by the year 2020. Significant investments into the ICT network have led to the completion of the nationwide 2,300 kilometre fibre optic cable in 2011.

Significant spillovers may be achieved from ICT as a driver of technological innovation. Furthermore, ICT business support services to the manufacturing sector also raise productivity. Quick and effective communication improves tailor made delivery systems and meeting client demands. The application of ICTs to business and government services also facilitates doing business.

Another important factor for innovation are Intellectual Property Rights (IPR). In Rwanda IPR are governed by private law and hence the government is not charged with their defence. Civil action may be taken against infringements. The 2009 IPR policy integrated IPR administration into RDB. Following low capacity, low patent application rates and the high cost of IPR examination and registration, Rwanda joined the African Regional Intellectual Property Organisation (ARIPO) in 2011. Patents registered in ARIPO member states are hence also valid in Rwanda.

Knowledge spillovers through foreign investors are encouraged by the Government of Rwanda, but no legal obligations exist on this matter. Both the NIP and the NES refer to the importance of knowledge transfer and investment incentives to support this process. Internal knowledge transfers have been a weakness of the Rwandan innovation system. It appears that, while Rwanda is able to attract foreign investment, it is less capable of catalysing such investments into domestic innovation. The large majority of advanced technologies used in Rwanda is imported, which is typical for developing countries. However, the fact that only 1.31% of Rwandan firms used technology licensed from foreign companies questions whether Rwanda exploits the potential from foreign knowledge transfer fully. Several knowledge transfer initiatives have recently been launched following calls from President Kagame to integrate knowledge transfer into the mission of universities:76

- National University of Rwanda: several faculties integrated community outreach plans into their annual plans;
- RDB: offers knowledge transfer partnerships making available technical expertise, adequate business and university partners, and assistance in the development of business plans and proposal writing;

- Technology transfer centres: have been set up but their effectiveness has been limited;
- Agricultural Research Institute: established a knowledge transfer unit to increase linkages between researchers, end users and entrepreneurs.

Among the key reasons for the lacking internal knowledge transfer are insufficient staffing of knowledge transfer facilitators at public institutions, and isolation of sectors, though the DICs (among others) address this issue.⁷⁷

The government is the most active and by far the largest promoter of collaborative innovation. However, various other public institutions exist which support innovation and technological development. They include inter alia:⁷⁸

- Institute of Scientific and Technological Research (ISTR): among other focuses on phyto-medicine, biodiversity alternative energy sources, and environmental studies. It also has a knowledge transfer unit;
- National Agricultural Research Institute (ISAR): is Rwanda's leading agricultural R&D institution. It was rebuilt after 1994 which included modern scientific equipment;
- National University of Rwanda (NUR): is the biggest university in Rwanda. It puts particular emphasis on scientific innovation, though high student to staff figures limit the university's capacity to carry out research;
- Kigali Institute of Science and Technology (KIST): was established as a technology and engineering public technological institute in 1997.

2.1.5 Incentives for the manufacturing sector

Numerous incentive measures have been devised for the manufacturing sector, a selection of which is presented in this section.

The Rwandan tax system is often criticised as cumbersome and tax levies as too high. Many different taxes are paid by businesses, including the following: corporate income tax, PAYE, VAT, excise duty, and withholding taxes, all levied by Rwanda Revenue Authority (RRA); and property tax, trading licenses, and rental tax income administered by District Processes. Furthermore the administration does not seem to provide incentives to SMEs to pay taxes. Badly trained tax officials are also often not able to apply new rules adequately, adding to business uncertainty. Streamlining the taxation system is hence a priority of the NES and the PSDS.

While investors do not face performance requirements for establishing or developing a business, tax and investment

⁷⁸Simiyu, K., Daar, A.S, Hughes, M. and Singer, P.A, Science-based health innovation in Rwanda: unlocking the potential of a late bloomer, http://www.biomedcentral.com/1472-698X/10/S1/S3#B7.

⁷⁶UNK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012. "UNK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012.

incentives are given on certain conditions. Investors that credibly exhibit the capacity to invest and add value in priority sectors may qualify for tax and investment incentives, such as VAT exemptions on imported raw materials and a write-off on research and development (R&D) costs. If a company exports products of at least 5 million USD a 5-7% reduction in corporate income tax may be obtained. A company exporting products valued at 3-5 million USD may qualify for duty exemption on equipment and a favourable accelerated rate of depreciation of 50% in the first year. Investors may obtain government grants and special access to credit if they develop rural areas. Furthermore, investors do not face import quotas. The GoR strongly encourages foreign investors to transfer knowledge and technology to local staff, even if there are no legal obligations on this matter. But both the NIP and NES refer to the importance of knowledge transfer and investment incentives to support this process. According to the 2013 Investment Climate Report of the US Embassy, difficulties in obtaining visas for expatriate staff is an important limitation for doing business in Rwanda for foreign investors.79

The Rwanda Development Board (RDB) has been developing incentives and marketing investment opportunities abroad to attract foreign investors. Incentives include exemptions from VAT and duties when importing machinery, equipment, and raw materials. However, investors cited the inconsistent application of tax incentives and import duties as a challenge to doing business in Rwanda. In certain instances, investors reported that the Rwanda Revenue Authority (RRA) still assessed duties or taxes on registered investments, despite RDB assurances that the respective investment qualified for tax exemption.⁸⁰ This would suggest that coordination between the RDB and the RRA needs to be improved in certain cases, the former pursuing investment maximization interests and the latter aiming to increase revenues to the government.

Tax incentives may also be obtained for investors who create export oriented growth. Eligibility for such tax incentives is determined on request and must fulfil the following criteria: exports total at least 80% of production (or at least 10% if manufacturing under bond)⁸¹; and a minimum capital investment of 100,000 USD for local and COMESA investors or 250,000 USD for non-COMESA investors.

There are signs that FDI is now increasing, having reached 160 million USD in 2012, after hovering at 100 million USD in three out of the four preceding years.⁸²

The RDB offers various business development services to manufacturers, free of charge. These include business plan analyses and foreign market studies. Through its Trade Point, RDB offers trade information, trade promotion, and facilitation services to SMEs. RDB also offers business incubation programmes to support entrepreneurs in starting their businesses.

The RDB Manufacturing Growth Program provides technical assistance to the manufacturing sector on a cost-sharing basis. Technical assistance covers a wide array of fields related to increasing the competitiveness of companies. Companies that apply will undergo a diagnostic test to establish their eligibility to take part in the program.

The Kigali SEZ in Gasabo, which merges the Kigali Free Trade Zone and Kigali Industrial Park, and four Industrial Parks located in Bugesera, Huye, Nyabihu, and Rusizi districts are being established to spur manufacturing development, in particular. The Kigali SEZ is being implemented in three phases and will cover over 400 hectares. The Bugesera Industrial Park will stretch over 200 hectares, the other three over 50 hectares each.⁸³ Phase 1 of the Kigali SEZ started operations in 2013. The SEZs and Industrial Parks provide various incentives to manufacturers, such as access to infrastructure (roads, energy, ICT, etc.) and tax incentives.

An indirect form of support to the manufacturing sector was provided by a government programme for building houses for lowincome households. This led to strong growth rates of 43.7% and 33.4% in Rwandan furniture production in 2010 and 2011 respectively due to increasing demand. As a result, the manufacturing sector as a whole grew by 9.3% in 2010 and 8.1% in 2011. In 2012, when the government programme expired, the furniture sector contracted by 54.6% and manufacturing output returned to pre-2010 levels.⁸⁴

 ⁷⁹Embassy of the United States, "Investment Climate Report 2013.".
 ⁸⁰According to the Embassy of the United States' "Investment Climate Report 2013," this particularly concerned importing machinery and equipment in from 2011 to 2012.
 ⁸¹Manufacturing under bond refers to "an incentive extended to manufacturers import[ing] "Manufacture of goods for export." See East African Community: CUSTOMS, "Manufacture Under Bond (MUB)," accessed 24 October 2013,

http://eac.int/customs/index.php?option=com_content&id=48&Itemid=95. [®]The Republic of Rwanda, Economic Development and Poverty Reduction Strategy 2013-2018.

 ⁵⁵African Review of Business and Technology, "Rwandan economic zone to boost industrial sector," African Review of Business and Technology 27 June 2012.
 ⁵⁶World Bank, Rwanda Economic Update, 4th ed. (Washington, D.C.: The World Bank, May 2013)





Box 1: Overview of Investment Incentives & Tax Codes

Approved investors are entitled to a range of benefits and incentives provided in the Investment Law, including the following:

- Exemption from import duties and sales taxes on imports of plant, machinery, and equipment. Items that are zero-import-tax rated are exempted from sales tax otherwise payable on those goods, while, for items that are not zero-import-tax rated, a single flat fee of 5% of the value of the imported items is payable in lieu of all taxes and duties that would normally be imposed on such goods;
- Investment allowances of 30% of the value of invested capital during the first year of operations;
- Additional deduction from taxable income of 50% of training, research, and product development costs;
- The right to fully offset the cost of providing infrastructure to the site of the business operations;
- Duty drawback for all duties and taxes paid on imported raw materials if the investor is an exporter operating outside a free export economic zones;
- 100% write off of R&D costs;
- Common external tariff (CET): 0% on raw materials and capital equipment, 15% on intermediate goods, and 25% on finished goods;
- Constitutionally-protected free repatriation of capital and profits;
- Additional fiscal incentives in strategic sectors; and
- Investors who demonstrate the capacity to add value, transfer technology, and invest in priority sectors may also receive enhanced tax and investment incentives, while there are additional incentives for an investor operating in a Free Export Economic Processing Zone, including greater tax benefits.

Source: Rwanda High Commission United Kingdom: http://www.rwandahc.org/trade-and-investment/investment-incentives-and-tax-codes/

2.1.6 Support institutions

Several institutions or bodies exist to support manufacturing. On the public side, they comprise the following:

The Ministry of Trade and Industry (MINICOM) is responsible for private sector development within the GoR. In particular, this includes the formulation and transposition of industrial policy, including for manufacturing. It oversees the implementation of the EDPRS and the PSDS. A Single Project Implementation Unit (SPIU) was established in 2011 within the Ministry to coordinate the implementation of economic development projects across the government.

The Industrial Development and Export Council (IDEC) oversees and coordinates the implementation of the NES and the NIP. It is chaired by MINICOM and also comprises Ministers from key Ministries. Heads of other key institutions and from the privates sector are also part of IDEC. The RDB fulfils the secretariat function of the IDEC. The IDEC relies on Public Private Dialogue (PPD) as a consultation mechanism. The IDEC submits an annual report on the implementation of the NIP and NES to the Kivu Retreat.⁸⁵

The RDB was established in 2008 based on Law N° 53/2008 of

02/09/2008 Establishing Rwanda Development Board (RDB) and Determining its Responsibilities, Organisation and Functioning. It aims to fast track development projects and to attract investment. Several government agencies are consolidated in RDB to provide investors with a one-stop shop, supporting investors in obtaining approvals, certificates, work permits, tax incentives, and land registrations. The institutions brought together under RDB include the following: the Rwanda Investment and Export Promotion Agency (RIEPA), the Rwanda Commercial Registration Service Agency (RCRSA), the Human Resource and Institutional Capacity Development Agency (HIDA), the Rwanda Information and Technology Agency (RITA), and the Rwanda Office of Tourism and National Parks (ORTPN). RDB is a government institution providing private sector advocacy and support. It was modelled on international best practices for economic development agencies, such as those in Singapore and Costa Rica. Its services include trade and market information provision to current and potential exporters. It also makes recommendations to government on furthering export trade.

The RDB's Trade and Manufacturing Department performs various tasks in support of manufacturing:⁸⁶

• Developing and implementing the NES;

^{es}GoR, Ministry of Trade and Industry, Rwanda National Export Strategy; stakeholder consultations.

⁸⁵GoR, Ministry of Trade and Industry, Rwanda National Export Strategy; stakeholder consultations.

- Developing and implementing strategies to produce goods • with a large domestic market efficiently within Rwanda;
- Improving the quality of products and services to meet standards:
- Implementing an appropriate trade information system that improves access to information on national and international trade flows:
- Facilitating trade by removing barriers and fostering greater integration into regional and international trading networks; and
- Providing sector-specific support for viable new industries: silk, textiles, processed fruits and vegetables, and dairy products, as well as value addition in existing sectors, such as horticulture and leather production.

RDB's Office of the Registrar allows businesses to register within 24 hours. It combines all registration requirements: incorporation, taxes, and employee social security.

RDB's One-Stop Centre unifies all investor services under one roof. It issues investment certificates, facilitates access to utilities, processes exemptions on imported goods, ensures collection of non-fiscal revenues, provides notary and immigration services, and oversees and issues environmental compliance. It also assigns an after care officer to help solve problems that might arise, especially between an investor and government.

The Rwanda Bureau of Standards (RBS) is developing a one-stop shop for export standardisation services, including SPS testing, certificates of origin, and other export standard support, which are also relevant to the manufacturing sector. It is envisaged in the National Quality Policy, as well as the Bureau of Standards Strategic Plan. The facility is supposed to be fully operational in 2015, with services offered on an electronic platform. The process of setting up the one-stop shop has started, but it is not yet operational. Firms may make use of one-stop shop services by accessing the platform on a subscription basis.

On the private sector side, support institutions include the following:

The Private Sector Federation (PSF) Rwanda is the apex organisation of the private sector in Rwanda. It is a member-based institution that represents private sector interests vis-à-vis the government. It carries out advocacy work, based on studies and surveys, such as the Business Investment Climate Survey. The PSF provides business development services through a network of independent BDS providers. Most recently, it facilitated the First

Regional Manufacturers Dialogue in Kigali in July 2013, which was hosted by COMESA and the GoR: 120 companies, associations, and SME manufacturers took part in the conference.⁸⁷

The Chamber of Industry of Rwanda promotes and represents the interests of its members - the economic operators of the Rwandan industrial sector. It also aims to strengthen the capacity and competence of its members, making them competitive on a regional and international level.

The Rwanda Manufacturing Association was created in 1990 and after having lost momentum was revived in July 2013. It seeks to represent the interests of the manufacturing sector towards the GoR. Amongst others, its aims include spurring quality in the manufacturing sector, reducing costs of doing business for the manufacturing sector by lobbying government, and offering business development services to its members.

1.1.2 Infrastructure: Energy, Transport and Communication

Various infrastructure gaps hamper the development of the manufacturing sector in Rwanda. Energy supply is a major constraint with 55% of businesses surveyed in the 2008 Rwanda Business Investment Climate Survey stating energy outages were major impediments to growth. The average business experienced 5 power outages per month. This figure has since increased to 10 per month, as established in the Rwanda Prosperity Ecosystem Survey 2013.88

Furthermore the cost of electricity to firms is high. The cost lies at 0.24 USD/kwh, compared to 0.15 for Kenya, 0.17 for Uganda, and 0.05 for Tanzania.⁸⁹ A 20% rise in electricity costs contributed to manufacturing output falling by 2.9% in 2012, compared to 2011.⁹⁰ Current capacity stands at 112 MW, whereas foreseen need lies at 563 MW. The 2008 Business Climate Survey found that access and cost of electricity was a major constraint for 64% of businesses.⁹¹ These high energy costs represent a significant competitive disadvantage, especially for the manufacturing sector, which tends to be energy intensive. A seven-year energy electricity development programme was put in place to close the energy gap. A Power Sector Steering Committee assists the Ministry of Infrastructure to implement this programme, which aims for a capacity of 1,000 MW and a population access rate of 50% by 2017.92

Rwanda's transport infrastructure also needs improvement, since it has not grown in line with trade. Roads between urban areas tend to be well maintained while for regions lying outside such thoroughfares this is much less the case. A differentiation also has

⁸⁷Government of Rwanda, PSF, COMESA, and COMESA Business Council, Report of the 1st COMESA Manufacturers' Regional Dialogue: Linking Business to Markets: Unlocking the Potential of the Manufacturing Sector in the COMESA Region (Kigali: GoR, COMESA,

 ²⁴⁻²⁵ July 2013).
 Private Sector Federation, Rwanda Prosperity Ecosystem Survey 2013: Evaluating Rwanda's Business and Investment Climate (Kigali: PSF, 2013).

[®]Ibid.; GoR, Ministry of Trade and Industry, National Industrial Policy.

World Bank, Rwanda Economic Update 4th ed.
 The Republic of Rwanda, Economic Development and Poverty Reduction Strategy 2013-2018; iGuide Rwanda, "An investment geode to Rwanda."
 GoR, Ministry of Trade and Industry, Rwanda National Export Strategy, 11.





to be made between paved (about 8% of total roads) and unpaved roads (about 92% of total roads); while for paved roads more than 95% are in good condition, this figure lies at 66% for unpaved roads for the period 2012/2013.⁹³ Hence of the 3,245 USD it costs to export a container from Rwanda, more than half is incurred through inland transport and handling costs.

As a landlocked country, Rwanda is dependent on its neighbours to access the ports of Mombasa and Dar es Salaam. From Kigali, the distance to Mombasa is 1,740 km; to Dar es Salaam it is 1,480 km.⁹⁴ The poor quality of roads further increases transport costs.⁹⁵ A one-day reduction in inland transport time could boost exports by up to 7%.96 It is estimated that road transport makes up 15% of production costs; for micro businesses, this figure rises to 25%. The fact that only 22% of industrial firms cited the cost of transport as low or very low in 2010 shows that transport is considered an impediment by most. Air, rail, and sea infrastructure also need to be developed. Average transport costs lie at 165 USD/ton/km, which is almost twice the regional average of 95 USD/ton/km.⁹⁷

Of the six Rwandan airports, two are international. A total of 150,000 passengers are handled by air transport each year in Rwanda.

Transport infrastructure projects are being developed, such as the railway connecting Kigali to Dar es Salaam, and a new airport at Bugescera. Another project will develop the road from Kampala to Gatuna (440 km).98

The telecommunication infrastructure has expanded significantly over recent years. Since 2007, mobile phone penetration has increased from only 6.2 households and less than 4% of Rwandan adults having mobile phone service in 2006; while at the end of 2012, there were nearly 5.7 million mobile phone subscribers, which amounts to 53% of the population.99

Three mobile phone operators compete in Rwanda: MTN Rwanda since 1998. TIGO established in late 2009, and Airtel launched in March 2012. Increased ICT and mobile use has also led to the development of mobile banking services, which were being used by approximately 1.5 million subscribers by the end of 2012.¹⁰⁰

In 2010, high-speed internet was introduced through the National Fibre Optic Backbone project, which gave Rwanda the fastest internet connection in the region, with access to good telecommunication also being improved. The 2,300 km fibre optic cable was completed in 2011. Through better use of ICT industries, linkages to exports and networks, as well as for the manufacturing sector, should be improved.

2.1.8 Trade logistics

Efficient trade logistics parameters are important for importing and exporting at competitive costs. The World Bank's Logistics Performance Index (LPI) measures a country's efficiency in trade logistics based on six criteria:¹⁰¹

- Customs: efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs;
- Infrastructure: quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology):
- International shipments: ease of arranging competitively priced shipments;
- Logistics competence: competence and quality of logistics services (e.g., transport operators, customs brokers);
- Tracking and tracing: ability to track and trace consignments:
- Timeliness: timeliness of shipments in reaching destination within the scheduled or expected delivery time.¹⁰²

³African Development Bank, African Development Fund, Rwanda Transport Sector Review and Action Plan, Final Report,

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Rwanda%20-

^{%20}Transport%20Sector%20Review%20and%20Action%20Plan.pdf. The Republic of Rwanda, Economic Development and Poverty Reduction Strategy

GoR, Ministry of Trade and Industry, National Industrial Policy.

[&]quot;Turnwebaze, Peterson, "Improving customs efficiency enhances trade – WB report," The New Times 7 August 2013.

Varian Development Bank and African Development Fund, Rwanda: Bank Group Strategy Paper 2012-2016 (Tunisia: Regional Department East A (OREA), October

⁸⁶GoR, Ministry of Trade and Industry, National Industrial Policy.

⁵⁰LINK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012.

¹⁰⁰Wold Bank, Rwanda Economic Update, 4th ed..
¹⁰¹The Logistics Performance Index is based on a worldwide survey of operators on

the ground (global freight forwarders and express carriers), providing feedback on the logistics "friendliness" of the countries in which they operate and those with which they trade

Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work, data collected for 155 countries.

[&]quot;Source: World Bank Logistics Performance Index (http://www1.worldbank.org/PREM/LPI/tradesurvey/mode1a.asp).

ndicators	2012 Rank (out of 155 countries)	2010 Rank (out of 155 countries)	Change in Rank
Customs	126	153	+27
Infrastructure	148	151	+3
International shipments	138	67	-71
Logistics Competence	147	152	+5
Tracking & tracing	122	149	+27
Timeliness	124	154	+30
Overall LPI Rank	139	151	+12

The LPI gives a good indication of the prevalence of non-tariff barriers (NTBs), which hamper trade. NTBs can fulfil the purpose of safeguarding health through, for example, sanitary regulations. Such product standards often are difficult to meet, especially for Rwandan food product exporters to the EU. Traditional technologies have proven inept at responding to EU requirements of HACCP, and private voluntary standards often are even more demanding.103

Table 17 shows that Rwanda has improved its trade logistics in certain fields over the past two years. Its ranking is, however, still low at 139 out of 155 countries. Its position would be higher if it had not deteriorated in international shipments, where its position dropped from 67th in 2010 to 138th in 2012. This suggests that the cost of exporting is still very high. This is also confirmed in the World Bank's Doing Business 2014, which found the cost of shipping a container for exporters in Rwanda is priced at 3,245 USD, and for importers at 4,990 USD. Rwanda's figures lie significantly above those of its regional competitors: in Kenya, the cost of shipping a container for exports is 2,255 USD and for Tanzania it's 1,090 USD; while, for imports, these figures are 2,350 USD for Kenya and 1,615 USD for Tanzania.¹⁰⁴ High transport costs of containers are a form of de facto protection for local producers, which can hamper competition and raise efficiency concerns. Rwanda is investing in infrastructure, particularly railways, to lower container transportation costs. Furthermore, various initiatives exist to develop the Central and Northern Transport Corridors. Such developments do, however, take time.

The NES identifies NTBs as a major constraint to exporters. Lengthy bureaucratic procedures for customs, health, and standards clearance are cumbersome for exporters. Delays at ports and lack of harmonisation in documentation and processes increase the costs of exporting and importing. This is felt in particular in the long time it takes for containers to reach Kigali from Dar es Salaam or Mombasa.¹⁰⁵

Higher costs of international shipments are also a direct consequence of Rwanda's landlocked geographic location. This means longer distances to seaports, waiting times, costly border crossings, roadblocks, and weighbridges along the way. For example, there still are more than thirty roadblocks on the way from Mombasa to Kigali, each costing about 1.3 USD per truck. Despite the existence of a programme to eliminate such NTBs in the EAC, progress in removing weighbridges has not progressed as guickly as desired by Rwandan traders. Illegal NTBs, such as corruption, have also been cited as problematic, especially along the Northern Corridor.¹⁰⁶ Greater cooperation at border crossings among neighbours and streamlining of border procedures could ease the burden on exporters and importers. Even though Rwanda removed all of its roadblocks in 2008, the removal of roadblocks remains difficult across the EAC, with some countries wanting to keep them for security concerns.¹⁰

Many NTBs constitute a means of protection equivalent to a tariff, such as, for example, a weighbridge in Kenya that charges a fee on trucks bound for Rwanda. Indeed, NTBs levied on certain Rwandan products in Kenya, Uganda, and Tanzania can have an impact equivalent to a 60% outright tariff.¹⁰⁸

Another inhibiting logistics issue is high packaging costs. In many cases, Rwandan exporters have to import packaging material, since they are not produced to the required standards locally. Packaging is a constraint to all sectors, but particularly so in food exports. The ban on import of plastics in Rwanda means that exporters are having trouble importing adequate packaging

³IGoR, Ministry of Trade and Industry, National Industrial Policy.

World Bank, Doing Business 2014

 ¹⁰⁰ GoR, Ministry of Trade and Industry, National Industrial Policy.
 ¹⁰³ Argent, Jonathan, "Price Incentives to Rwanda's Exporters: Trade Policy Priorities," IGC Rwanda Policy Note Series 2 (July 2011).

⁷Majyambere, Gertrude, "Rwanda most expensive for trading in region," The New Times 14 May 201

³Argent, "Price Incentives to Rwanda's Exporters."





material. In the short term, exporters may obtain special authorisation to obtain plastic packaging by applying to the Rwanda Environment Agency (REMA). For the medium to long terms, the RDB supports local producers to develop their own packaging material production through investment incentives.¹⁰⁹

However, the prevalent trade logistics problems of a landlocked country, such as Rwanda, might not provide an adequate picture of the trade facilitation reforms being undertaken. Even if NTBs are reduced, Rwanda's products still rely on long international transit routes through Tanzania, Kenya, and Uganda.

2.1.9 Access to finance

Access to credit is a major impediment to Rwandan manufacturers and has been consistently rated within the top three constraints to growth, particularly for MSMEs. This has also been mirrored in onsite consultations carried out during this study. A very low savings rate (8% of GDP¹¹⁰), which results from low banking service outreach and low deposit rates, is one problem of the financial sector. Use of financial services has, however, increased from 1.4 million citizens in 2007 to 2 million in 2009. Bank reserve requirements were reduced from 8% to 5%, and lending interest rates from the National Bank of Rwanda (BNR) have also decreased. This should have resulted in greater availability of credit. but uptake remains low. According to the 2011 Industrial Survey, only 39% of Rwandan manufacturers obtained credit.

The 2010 Investor Perception Index found access to finance to be the single most important impediment to domestic investment. Similarly, over two thirds of companies queried in the PSF's 2008 Business Investment Survey cited finance as an impediment. Lack of collateral is mentioned as the biggest challenge, as are high interest rates and a lack of detailed business plans.¹¹¹ The 2013 Rwanda Prosperity Ecosystem Survey found the following main impediments to obtaining financing:

- 1. High interest rates charged by banks and other lenders;
- 2. Collateral requirements (Rwanda's are the most stringent in the region) - asymmetric information often leads to high collateral demands, as banks do not have sufficient information on their clients' ability and willingness to repay a loan;
- З. Availability of alternative financing sources, such as private equity and venture capital;
- 4. Availability of financing from banks and guarantee schemes; and
- 5. Detailed business plan or investment plan requirements.

In addition to the above, the cost of accessing finance has been rated as prohibitive, especially by MSMEs. Administrative fees can amount to 12% of the credit value and additional requirements for minimum cash reserves in the firm's bank account further burden the company. In addition to this, financial management skills within firms are often insufficient to ensure en effective uptake and subsequent management of credit.¹¹²

Both the NIP and NES list the financial sector as a key area for support to generate industrial development and exports. The introduction of additional financing schemes, such as a consolidated SME fund, is foreseen. Consolidation is necessary, as the multiplicity of funds leads to a lack of clarity regarding which funds serve which segment. The NES also provides for the BNR to develop financing schemes targeting key sectors to drive export growth. This could take the form of venture funding to support noncollaterised loans, such as for research and development. Three major financial tools have been created to boost access to finance:

- A Credit Guarantee Fund of 13.1 billion Rwandan Francs (20.1 million USD). Currently this still focuses a lot on agriculture, but it is foreseen that other sectors, particularly manufacturing, will be encouraged to make use of the fund;
- A grant facility of 4 billion Rwandan Francs (6.4 million USD) to provide incentives for financial institutions and for entrepreneurs to spur investments in agriculture; and
- A quasi equity fund of 1.2 billion Rwanda Francs (1.9 million USD). This is particular interesting for young companies and start-ups. This is a hybrid debt and equity product bundled with business development assistance services. It has been launched in response to private equity and venture capital still being relatively underdeveloped.

The three funds are being run by a newly formed government institution, the Business Development Fund (BDF).

2.1.10 Education, training and skills level

Education levels in Rwanda have improved over recent years, though important gaps remain. Primary school net enrolment rose to 96.5% in 2012 (95% boys, 98% girls), with the overall completion rate for primary education at 72.7% (up from 52.5% in 2008). The secondary net enrolment rate stood at 28% in 2012.¹¹³ Tertiary enrolment rates are much lower at 7% in 2011.¹¹⁴

The large majority of employees in the industry sector has a primary level education (59.2%), followed by secondary education (20.1%), and university education (5%), while 15.7% of employees have no education at all.¹¹⁵ A 2008 PSF census found that 28% of permanent enterprise staff had a university degree, 35% secondary education, and 37% primary education or less.¹¹⁶

Employers also complain of a skills mismatch of graduates as

⁰⁹GoR, Ministry of Trade and Industry, National Industrial Policy

¹⁰GGR, Ministry of Trade and Industry, Rwanda National Export Strategy. ¹¹GGR, Ministry of Trade and Industry, National Industrial Policy. ¹²Private Sector Federation, Rwanda Prosperity Ecosystem Survey 2013.

¹¹³http://www.unicef.org/rwanda/education.html

⁴http://data.worldbank.org/indicator/SE.TER.ENRR ⁵Establishment Census 2011.

¹¹⁶GoR, Ministry of Trade and Industry, National Industrial Policy.

curricula are not well aligned with working conditions in practice. Put differently, the qualifications obtained do not match the skills needed on the labour market. Capacity of the technical and vocational education and training (TVET) system is also a problem. Approximately 170,000 Rwandans enter the labour force unqualified for work each year, yet TVET schools can only accommodate 50,000 students.¹¹⁷

The RDB Skills Survey 2012 identified a technical skills gap of 7,568 labour units within the manufacturing sector. The Artisan cadre was most affected with 5,980 units (79.0%), followed by Managers with 842 (11.1%), Associates Liberal Professionals with 334 (4.4%), Technicians with 267 (3.5%), and Scientists Professional with 144 (1.9%). Soft skill training is also needed, covering qualitative aspects such as leadership, human resource management, business communication, and innovation.¹¹⁸

High staff turnover and lack of adequate training were main impediments to skills development within firms. The 2013 Rwanda Prosperity Ecosystem Survey further highlights that not only finding, but also retaining employees is difficult. This creates a continuous and costly need to train new staff. Attitude problems of graduates are also cited as problematic. Employers complain that university graduates lack the practical knowledge required to work effectively in their companies. They thus need to train them from scratch.¹¹⁹

This situation is also highlighted in the 2012 EDPRS 2, which states that private sector growth is hampered by a skills and labour productivity gap that has more than doubled since 2006. Particularly large firms with more than 100 employees are affected, with 45% reporting insufficiently educated workers in 2011. The 2009 National Skills Audit reported an average of 61.5% skills deficit and severe skills gap in the Rwandan private sector.¹²⁰

The Workforce Development Authority and the National Council for Higher Education were created to oversee the improvement of the country's TVET and higher education systems. The Technical Vocational Schools Association (TEVSA) groups together private TVET schools. It allows a partnership approach between TVET schools to improve the quality of TVET in Rwanda. It also consults the private sector to ensure curricula address the needs of employers. The Kigali Employment Service Centre (KESC) provides match making services between employment seekers and employers.121

Skill Sector Councils (SSC) bring together all relevant stakeholders to develop skills and workforce of all those employed in the respective sector covered by the SSC. Stakeholders are the private sector (working via chambers) together with PSF, RDB, WDA and TVET and higher educational institutions. SSCs fulfil the following functions:

- Increase sector skills and workforce development;
- Share labour market intelligence; •
- Influence planning and funding of education and training across Rwanda;
- Build linkages between employers and training providers;
- . Support young people in their career decisions;
- Propagate best practice on skill development and investment in capacity building.

To lower the skills gap the NES singles out youth to be targeted in education program, since approximately 67% of the Rwandan population is under 25. In particular, this is to develop skills in entrepreneurship and management. Furthermore, since many citizens are not enrolled in secondary education, they could benefit from TVET. Currently, TVET schools only have around 40,000 students enrolled per year, with 17,000 of them leaving school each year. In order to further TVET development, the Workforce Development Authority created a Skills Development Fund, which can be used by firms showing sufficient export potential and having aligned their training plans with those outlined in the NIP.¹²² In addition to this, the Workforce Development Authority, together with PSF and other associations, aims to upgrade TVET skills, among others, of manufacturing companies. This is undertaken with the support of the German development agency, GIZ, under its Promotion of Economy and Employment Programme. The programme builds the capacity of technical schools, putting a focus on TVET, rather than university education, in response to private sector needs.

The RDB Skills Survey 2012 suggests further measures to improve skill levels among manufacturing sector employees:

- Promote university-industry linkages in Rwanda;
- Launch and manage a national science congress and • competition;
- Develop a National Internship Policy;
- Require public education on Labour Market Information Systems (LMIS);
- Promote public-private partnerships (PPP) for internships and attachment programs;
- Explore, with relevant stakeholders in the public and private sectors, the possibility of establishing a Textiles Training College in Kigali to further act as a Centre of Excellence in the region; and
- Expand the capacities of TVET institutions, IPRC, and selected VTC.

¹¹⁷Forward-Looking Joint Review of the Education Sector, Summary Report, Ministry of Education, Republic of Rwanda, April 2012, http://www.mineduc.gov.rw/IMG/pdf/Foward_looking_report_EDPRS1.pdf.

Report (Kigali: RDB, 2012).

¹²⁰The Republic of Rwanda, Economic Development and Poverty Reduction Strategy

 ²⁰ I3-2018.
 ²¹ Forward-Looking Joint Review of the Education Sector, Summary Report, Ministry of Education, Republic of Rwanda, April 2012, http://www.mineduc.gov.rw/IMG/pdf/Foward_looking_report_EDPRS1.pdf.
 ¹²² GoR, Ministry of Trade and Industry, National Industrial Policy.





2.2 Product Diversification and Structural Transformation of the Manufacturing Sector

2.2.1 Product diversification

As outlined in chapter 1, the Rwandan manufacturing sector is dominated by resource-based products, particularly food and beverages. For merchandise products overall, this situation is even more pronounced since tea, coffee, and minerals (in particular tin and ore) dominate merchandise output.

Table 18 illustrates the concentration of the Rwandan manufacturing sector, based on the concentration ratio and on the Herfindahl Hirschman Index (HHI) for exported products. For both

the concentration ratio and the HHI, scores go from 0 (the most diversified) to 1 (the least diversified). Table 18 shows that Rwandan manufacturing exports have become more diversified, since both the concentration ratio and the HHI have decreased from 2001 to 2012. The fact that the decrease in the HHI is much more pronounced than in the concentration ratio can be explained by a different calculation method; specifically, the HHI looks at all manufacturing exports, while the concentration ratio only considers the ten most important exports. So the decrease in the product concentration ratio illustrates that Rwandan manufacturing exports have become less dependent on its ten main manufactured products. The decrease in the HHI shows that diversity of all manufactured products has increased.

Table 18: Concentration of Rwanda's Manufactured Exports, by Product												
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Concentration ratio	0.87	0.80	0.81	0.75	0.66	0.73	0.63	0.69	0.50	n.a.	0.66	0.63
HHI	0.5107	0.2893	0.2937	0.1935	0.1224	0.2260	0.1352	0.1130	0.0420	n.a.	0.0608	0.0624

Source: International Trade Centre's TradeMap.

Note: The concentration ratio is calculated here as the share of the 10 most important manufactured export products (at HS 6-digit level) in total manufactured exports. The HHI is calculated as follows: $HHI = \sum s_{i}^{2}$, where s_{i} is the share of export product *i* in total manufactures.

By international comparison, Rwanda's export product concentration ratio and HHI still are far behind those of industrialised countries, such as South Korea, Indonesia, and China, as Figure 8 and Figure 9 illustrate. Within the EAC, Rwanda also still has a lot of catching up to do to reach Kenya, Uganda, and Tanzania.

¹²³Figures used in this table include all manufacturing products, including re-exports. The calculated concentration ratio and HHI thus may not reflect a fully-accurate picture of products manufactured in Rwanda. However, the general trend towards export diversification remains valid.



One of the reasons for Rwanda's still relatively high concentration ratio is its strong reliance on a few resource-based products. As the country's post genocide industrialisation process gathers pace, it is likely that the concentration ratio of exported manufacturing products will decrease further as manufacturing develops into more diverse and sophisticated products.

¹²⁴ For Burundi, 2003 data has been used instead of 2001 data.







The Manufactured Product Diversification Index (MPDI) is another approach to calculating a country's product diversification. The MPDI analyses the extent to which a country depends on specific products, relative to world exports. Put differently, it compares a country's export structure with the world's export structure by looking at all manufacturing exports of the country with a manufacturing export share of 0.5% or higher. Values obtained range from 0 (most diversified) to 1 (least diversified). Similar to the concentration ratio and HHI, the development of Rwanda's MPDI, as shown in Table 19, indicates that Rwanda's product diversification increased from 2001 to 2012. Figure 10, however, also shows that, when compared to neighbouring and international countries, Rwanda's manufactured product base remains relatively concentrated and lies above the EAC average.



¹²⁵For Burundi, 2003 data has been used instead of 2001 data.

¹²⁸ The Manufactured Product Diversification Index (MPDI) is computed by measuring absolute deviation of the country share from world structure, as follows: $mpl_1 = \frac{2m-1}{2}$ (where k_1 is the share of product *i* in total manufactured exports; only those manufactured products whose share in a country's total manufactured exports; o.5 percent or above are considered).



To explain Rwanda's product diversification patterns, the product space, as outlined by Ricardo Hausmann on numerous occasions, is a useful tool. The product space is derived from the observation that certain products are more similar in the skills and inputs required than others. Hence, if a country produces a certain product, it is more likely to produce new products that are closely connected (or linked) to the initial one, i.e., requiring similar skills and inputs. Put differently, "the probability that a country will develop the capability to be good at producing one good is related to its installed capability in the production of other similar, or nearby goods for which the currently existing productive capabilities can be easily adapted."128 This also brings us back to the issue of path dependency (Section 1.2) in Rwanda's economic development, since skills and capabilities acquired in the past will influence which products Rwanda produces in the future.

Gathani and Stoelinga point out that Rwanda's main merchandise

exports (tea, coffee, and mining - tin and tungsten), are located at the periphery of the country's product space. This implies that there are relatively few connections to new products in these sectors. In other words, the skills and inputs already available in these sectors only allow for limited diversification. Hence, producers in these sectors might diversify within their sectors; it is, however, unlikely they will move into new sectors altogether. Indeed, Rwandan coffee producers have moved from producing semi-washed to fullywashed coffee; similarly, tea companies have moved from producing black tea to green and white tea.¹²⁹

When looking at all new merchandise exports from 2000 to 2010 (Table 20), Gathania and Stoelinga¹³⁰ found that fully-washed and roasted coffee and minerals make up close to 70% of all new discoveries. While roasted coffee has undergone light manufacturing processes, mineral extraction is generally not considered a manufactured product.

¹²⁷ For Burundi, 2003 data has been used instead of 2001 data.
¹²⁸Hausmann, R. and Klinger, B., "Structural Transformation and Patterns of Comparative Advantage in the Product Space," CID Working Paper No. 128 (August 2006), 5.

²⁹Gathani and Stoelinga, Understanding Rwanda's Export Sector. ¹³⁰lbid.





In terms of export value, most export product discoveries happened at the periphery of Rwanda's product space. This development is not surprising, since this is where Rwanda's comparative advantage is strongest. It also confirms Hausmann's analysis that structural transformation of a country depends on the density of the product space near the area where it has developed its comparative advantage.¹³¹

As seen in Table 20, besides coffee products, the main manufactured product discoveries from 2000 to 2010 occurred in light manufacturing, including hides and skins, beverages, processed foods, furniture, plastics products, and construction materials. However, their share remains small, compared to new coffee products and minerals, even if overall the proportion of noncommodity (i.e., non-coffee, tea, and minerals) exports in total merchandise exports rose, from 6% in 2006 to 12% in 2010.¹³²

Table 20: Main New Product Discoveries in Rwanda, 2000-2010							
New Manufactured Export Product	Number of products	Share of new products	Value (MUSD)				
Fully-washed and roasted coffee	1	41%	5.5				
Minerals (tungsten and chromium)	2	26%	9.8				
Live animals and raw hides and skins	7	17%	6.4				
Beverages (fruit juices)	2	4%	1.60				
Plastic shoes	1	3%	1.20				
Beans (dried and shelled)	3	2%	0.90				
Smoked and dried fish	2	2%	0.80				
Plastic tanks	1	1%	0.30				
Props for scaffolding	1	1%	0.30				
Furniture	3	1%	0.20				
Other		3%	1.00				
Totals		100.00%	38				

Gathani and Stoelinga, Understanding Rwanda's Export Sector

Rwanda has also been introducing more complex products into the export market, such as paints, aluminium tanks, and beauty products. Their share is, however, so small that they have not been listed in Table 20.

In order to determine which products Rwanda is likely to export in the future, a combination of the RCA and the product space can be used. Gathani and Stoelinga (2012) did this by looking at products with an RCA of 0.5 to 1, i.e., products that Rwanda is already exporting, but in which it does not yet hold a comparative advantage. Furthermore, they used Hausmann et al.'s (2006) product density concept, which establishes how close a certain product is to another on Rwanda's product map. In manufacturing, they found that the following products would be particularly likely to see a rise in exports:

- Processed food and beverages (cereals, confectionary, and iuices):
- Apparel (various garments including trousers and T-Shirts);
- Packaging products (glass containers);
- Rubber products (inner tubes of tires);
- Wood products (sawn wood and wood charcoal);

- Construction materials (rebars, marble, or other stone based construction materials): and
- Extraction of the essence of coffee and tea.

Interestingly, only certain of the above products are listed in the priority sectors of the NIP: processed food and beverages, apparel (textiles), construction materials, and tea and coffee products. This suggests that a different approach in selecting priority sectors may have been used in the NIP; alternatively, a re-evaluation of prevalent priority sectors in the Rwandan manufacturing sector may be required. This latter case is accommodated for anyway in the NIP, which states that the sectors selected are "adaptable and responsive to changes in the operating environment and should not be seen as static."133

In the same way as Rwandan exports have become more diversified, the number of exporting firms (all merchandise exports) has increased, from 160 in 2006 to about 400 in 2010. So, in parallel to product diversification, firm diversification has increased as well, though overall the number of exporting firms remains small. The largest increase in the number of exporting firms has occurred

¹Hausmann and Klinger, "Structural Transformation and Patterns of Comparative Advantage

¹³²Gathani and Stoelinga, Understanding Rwanda's Export Sector.
¹³³GoR, Ministry of Trade and Industry, National Industrial Policy, 28.

in three sectors:

- Vegetables, including tea and coffee;
- Constructions materials/metals; and
- Animal/animal products.

The big majority of exports is destined for the EU, Switzerland, Kenya (mainly to the Mombasa tea auction, which then exports to European, Asian, and US markets), the US, and China, all of which import Rwanda's main commodity products: tea, coffee, and mineral products. Other exports feed, in the big majority of cases, the EAC and the Democratic Republic of Congo (DRC). Gathani and Stoelinga estimate that 91% of non-commodity exports go to the DRC and the EAC. 76% of export growth between 2005 and 2010 came from products Rwanda was already producing and to destinations it was already exporting to before 2000. New products to old destinations accounted for 22% of growth, old products to new destinations for 1-2% of growth, while new products to new destinations were negligible. Even if these figures are given for merchandise exports, as a whole, they illustrate that export growth of manufactured products also occurred almost exclusively to old destination countries. This suggests growth potential exists for Rwanda to expand its exports to new destinations, which has also been noted in the NES. Table 21 illustrates the main export destinations of Rwanda exports in 2010.

Country	Share of exports
EAC / regional destinations	
DRC	6.5%
Uganda	2.5%
Burundi	1%
Kenya	1%
Europe, Asia, USA	
Switzerland	19.5%
Belgium	13%
UK	5%
Germany	1%
China and Hong Kong	16%
US	3%
Other	3%

2.2.2 Structural transformation

Table 22 provides an illustration of the underlying reason for Rwanda's low product diversification.¹³⁴ Resource-based products dominated exports, accounting for 76% in 2012, significantly more than the Eastern African average of 60%, not to mention the 8.4% for China or 25% for South Korea (Figure 11). Table 22, however, also shows the proportion of resource-based products in manufacturing exports to be strongly volatile,¹³⁵ varying between

90.2% (2008) and 52.6% (2002) from 2001 to 2012. At the same time, however, low-technology exports increased from 2.8% in 2001 to 10.6% in 2012. The other two products categories only saw moderate changes to their export share: medium-technology products fell from 14.8% in 2001 to 12.1% in 2012; high-technology products remain negligible at 1% in 2012, up from 0.5% in 2001.

¹³⁴Re-exports are included in .

¹³⁵As indicated above in Chapter 1, one of the major problems of commodity products, such as tea and coffee, is that world markets for these products are highly volatile.





able 22: Change in Rwanda's manufacturing exports by technology classification, 2001-2012136												
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Resource-based exports	82.0%	52.6%	69.0%	83.7%	79.5%	81.7%	81.0%	90.2%	56.7%	n.a.	76.9%	76.3%
Low-technology exports	2.8%	4.2%	7.3%	5.3%	5.3%	3.6%	3.6%	2.9%	7.6%	n.a.	12.0%	10.6%
Medium-technology exports	14.8%	13.2%	14.9%	8.7%	13.0%	11.4%	12.4%	5.4%	19.3%	n.a.	8.7%	12.1%
High-technology exports	0.5%	30.1%	8.7%	2.4%	2.1%	3.3%	3.0%	1.5%	16.4%	n.a.	2.5%	1.0%

Figure 11: Structure of manufactured exports by technology classification for Rwanda and comparator countries, 2012137



Based on the figures in Table 22, it is difficult to establish with clarity whether the dominance of resource-based products has decreased over the indicated timespan. Nevertheless, a certain trend towards greater product diversification seems to be discernible, away from resource-based products mainly towards low-technology exports.

2.3 SWOT analysis of the manufacturing sector in Rwanda

2.3.1 Tea sector

The tea sector is one of the three major export sectors of Rwanda. Currently Rwanda produces mostly bulk black tea (CTC), which

used elsewhere in the report. ¹³⁷Idem.

¹³⁶The figures for this table were calculated following UNIDO's technological classification of manufactured exports according to SITC revision 3 (for the detailed classification of SITC sections per category, please see Annex 1 of UNIDO's Tanzania Industrial Competitiveness report (UNIDO 2012: 104)). Please note that the definition of "manufactured export" according to this classification is narrower than the definition we

suffers from oversupply on international markets. Rwandan green leaf tea is regarded as high quality on world markets, but output is constrained due to high fertiliser costs and sometimes inefficient farming practices. The costs of production are higher in Rwanda than in competing (e.g., Asian) countries due to higher labour, energy and transport costs.¹³⁸

The Rwanda Tea Strategy, adopted in 2003 for the period 2003-2010, and revised in 2008, increased the competitiveness of the tea sector. In particular, the industry was privatised and the parastatal OCIR-Thé was restructured. Furthermore, the good leaf percentage of tea harvests was raised, tea productivity yields increased, the total area of tea fields was expanded, tea product portfolio was expanded, and the proportion of blended and packaged teas in exports was increased.

 Strengths Strong government support in tea sector development; Tea strategy has increased yields and quality of tea products; OCIR-Thé has been restructured removing certain constraints to tea sector growth; Good climatic and soil conditions; Certain Rwandan tea products are highly regarded and achieve highest prices at Mombasa auction; Certain factories achieve very high yields at 4,000 kg/hectare. 	 Weaknesses Fertilizer costs higher than in neighbouring countries (e.g. 50% higher than in Kenya); Fertilizers not specific to soil needs and not applied regularly; Growers trade off quantity ahead of quality; Poor plucking and pruning reduces yields; Growers show inconsistency in minimum green leaf quality standards; Poor quality of roads and overloading of lorries of cooperatives reduces quality; Overuse of factory lines; Expensive electricity: 0.20 USD per KWh in Rwanda, 0.10 USD per KWh in Uganda; High cost of international transport: up to 140 USD per ton vs. 95 USD for Uganda; Overdependence on Mombasa; Lack or marketing and branding of Rwandan teas; No quality mark for Rwandan tea; Need to bring in expert buyers for visits to Rwandan factories.
 Opportunities Potential for higher domestic market demand as incomes rise; World demand for high quality and niche tea products increasing; Overreliance on Mombasa auction: branding and direct sales would raise revenues. 	 Threats Volatile commodity markets lead to inconsistent returns; Oversupply of bulk tea on world markets; Low consumption on local market.
Source: World Bank / World Development Indicators (WDI).	

2.3.2 Agro-processing - dairy¹³⁹

The dairy industry in Rwanda is still nascent but growing rapidly and demand is projected to rise by 4.4% annually. Dairy production increases household incomes and also supports higher value agroprocessing activities and small businesses.¹⁴⁰

¹³⁸IThe tea industry in Rwanda (<u>http://www.ifad.org</u>); <u>Gathani and Stoelinga,</u> <u>Understanding Rwanda's Agribusiness and Manufacturing Sectors.</u>
 ¹³⁹Sources: Investment Opportunities in the Dairy sub-sector of Rwanda, Final Report, SNV and IFAD; TechnoServe Rwanda, The Dairy Value Chain in Rwanda, Heifer International, East Africa Dairy Development, October 2008, Rwanda Industrial Mater Plan 2009-2020, Ministry of Trade and Industry, December 2009.
 ¹⁴⁰Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and

Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and

Smallholder farmers are the most likely source of increase in milk supplies, as they have labour and access to land. The dairy industry in Rwanda is generally constrained by land scarcity. Furthermore, production inputs, such as feed and good quality cattle, are in short supply. 141

Manufacturing sectors, International Growth Centre, 2013; East Africa Dairy Development Annual Review and Planning Meeting, Kigali-Serena Hotel, 30.11.2011, http://eadd.wikispaces.com/file/view/Rwanda+OPB-2012-2013-Presentation.pdf. ¹⁴¹Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and Manufacturing sectors, International Growth Centre, 2013; TechnoServe Rwanda, The Dairy Value Chain in Rwanda, Heifer International, East Africa Dairy Development, October 2009





The dairy sector has the potential to contribute to employment-led growth. Employment in the sector is, however, constrained by missing regulatory requirements (such as for example the reluctance to support a regulated traditional market which limits marketing options for MCCs) and by low local demand for processed dairy products.¹⁴²

Over 90% of milk in Rwanda is sold locally through informal channels. Quality tends to be poor for various reasons including:

low level of production, which leads to adulteration of milk with spoilt water; limited storage times due to high ambient temperatures and limited and high cost energy for cooling; lacking equipment for pasteurisation; and neglected hygiene measures.¹⁴³

Customer orientation is lacking and processors often produce what is easiest and at the maximum price. This leads to large parts of the population not being able to afford processed milk products.

 Strengths GoR has put in place enabling environment for empowering the poor to keep dairy cattle; High cattle penetration per capita; Climate (temperature) and altitude favour milk production; Long culture of milk consumption in Rwanda; Presence of anchor firms to develop the sector; Growing demand for milk and other dairy products; Strong mobile telecommunication network enable effective communication for inputs and services; Presence of business development services at provincial level; Small country size: makes it possible to transport milk across the country within one day; allows for value chain control; Culture of discipline; Low corruption; Strong capacity to promote quality standards and regulations. 	 Weaknesses Land scarcity; Low milk supply to milk collection centres; Low milk supply to processing plants which in consequence operate at 20% of capacity; Informal and unregulated vending channels; Low hygienic standards for handling of milk; Poor infrastructure: roads, electricity, etc.; Lack of input service providers in rural areas; Limited use of animal feed which reduces farm output; Expensive packaging material difficult to obtain in Rwanda and hence needs to be imported.
 Opportunities Increasing demand for milk products; Presence of DRC and Burundi markets for Rwandan dairy products; Dairy farmers are demanding for services and inputs; Harmonisation of standards will facilitate and increase trade; Increasing clients for service and input providers as cattle population rises; Donor support available in the dairy sector. 	 Threats Insufficient adherence to quality standards might inhibit trade and reduce profits for farmers; Disease from neighbouring countries; Tradition of overutilization of resources with too large numbers of cattle; Finance institutions (in particular microfinance) still hesitant to provide credit based on cattle as collateral; Insurers opposed to insuring cattle; Strong tradition of consuming raw milk limits resources available for dairy processing; Poor organisation and management capacities of dairy cooperatives.

⁴³Gathani, S and Stoelinga D., Understanding Rwanda's Agribusiness and Manufacturing

sectors, International Growth Centre, 2013; East Africa Dairy Development Annual Review and Planning Meeting, Kigali-Serena Hotel, 30.11.2011, http://eadd.wikispaces.com/file/view/Rwanda+OPB-2012-2013-Presentation.pdf.

¹⁴²East Africa Dairy Development Annual Review and Planning Meeting, Kigali-Serena Hotel, 30.11.2011, http://eadd.wikispaces.com/file/view/Rwanda+OPB-2012-2013-Presentation.pdf.

2.3.3 Agro-processing - beverages

The beverages sub-sector is the largest agribusiness sector in Rwanda, generating annual revenues of about 150 Million USD. Its main products are beer, fruit juices, traditional drinks, and mineral water.

The sector is dominated by a few companies: Bralirwa (beer and carbonated and sparkling drinks), BMC (beer), Inyange Industries (fruit juices and mineral water), and Enterprise Urwibutso (fruit juices and traditional drinks).

Distribution networks remain a challenge for most producers, except the largest ones. The two brewing companies rely on imports for the majority of required raw materials. Fruit juice and traditional drinks producers rely to a greater extent on local raw materials. Packaging is a challenge for the industry and is mostly imported.

The fruit and mineral water beverage sub-sector faces various constraints. In particular, raw materials are not available consistently and sometimes the quality of fruit is insufficient. Disruptions in the production cycle are a consequence. Currency fluctuations and high energy and transportation costs also pose a challenge, especially to larger producers relying on imports.¹⁴⁴

The beverages sector is still largely oriented towards domestic consumption.

 Abundant cheap labour force; Culture of discipline; Existing Anchor firms (Bralirwa, etc.); Existing knowledge about growing vegetable and fruit crops; Favourable climate (temperature, rain) allows production of a number of horticultural products; Stable government and security; Low corruption; Sufficient water resources. 	 Weaknesses Limited access to finance; Bad infrastructure: energy, roads, etc.; Costly transport for exports; Production oriented primarily for domestic consumption; Costly packaging.
 Opportunities Potential export markets in the region; Potential for increase in productivity through introduction of new technologies; Strong domestic market. 	ThreatsStrong competition from the region.

2.3.4 Construction materials

The construction materials sector has been growing rapidly in the aftermath of the 1994 genocide and has a relatively diverse set of products: roofing sheets, clay products (bricks, tiles, and blocks), cement, paints, steel tubes, steel reinforcement bars (rebars), and accessories (gutters, wire, ridges, and nails).

Except for cement and clay products, the sector largely relies on imported raw materials. Transport costs and clearance issues at the Mombasa and Dar es Salaam ports constitute constraints to construction material manufacturers. High energy costs and fluctuating demand also contribute to rising production costs and often low capacity utilisation.

In most sub-sectors, local demand exceeds local production, implying there still is room for expanding local production. Exports also remain low, giving room for regional expansion.

A skills shortage exists for managerial and technical positions, which tend to be filled with foreign experts.

 $^{^{\}rm 144}{\rm Rwanda}$ Eye, "Gakenke: Juice factory lacking raw materials," Rwanda Eye, 23 December 2011..





 Strengths Limestone is already used locally in particular for the production of cement, for which demand exceeds supply; Existence of anchor firms; The construction and agriculture sector expansion creates demand for lime-based products; Rwanda already has a brickmaking industry which has evolved from local rural word-fire brickmaking kilns to more advanced factories; Rwanda has a small pottery industry that could be leveraged; Relative diverse set of construction material producers. 	 Weaknesses Lime quarrying methods are labour intensive; Venture capital is difficult to obtain for local quarry businesses; Insurance is said to be given on unfair terms and based on arbitrary procedures; Few clays are currently extracted and knowledge of location and value of reserves is limited; Many raw materials have to be imported; Energy costs are high.
 Opportunities Buoyant construction sector; Strong local and regional demand for construction materials. 	 Threats Current small scale lime quarrying is environmentally damaging; Alternatives to clay such as calcium carbonate and talc, are available for filler and extender applications; Fluctuating demand for construction materials.

2.3.5 SWOT analysis of manufacturing sector in Rwanda

The Rwandan business environment has undergone significant changes over the past ten years. A strong and continuing commitment from the GoR has made Rwanda one of the most attractive investment destinations on the Sub-Saharan part of the continent. A strong anti-corruption stance and many business reforms were crucial in achieving this. Rwanda has established various institutions to facilitate investments and support the manufacturing sector, notably the Rwanda Development Board. This has had positive impacts on the manufacturing sector, even if the sector as a whole still has a comparative disadvantage; certain

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sub-sectors, though, enjoy a comparative advantage.

Rwanda is a member of EAC and COMESA, which represent an opportunity to reach new markets. However, it also exposes the country to competition from these markets.

Despite significant improvements, several problems persist. Energy costs are high and the road network is insufficiently developed. Skills shortages make it difficult for manufacturers to hire adequate staff. Rwanda's landlocked situation means its import and export transport costs are high. Roadblocks and cumbersome customs procedures at the ports of Dar es Salaam and Mombasa further increase transport costs.

Peace and Political Stability:	 Landlocked situation with high transport costs;
 Investor-friendly government committed to the market economy: 	 Low skill levels, aggravated by the consequences of the 1994 genocide:
Low incidence of corruption;	High energy costs;
 Preferential access to several developed-country markets (EU, US); 	 High trade logistics costs (customs, roadblocks, etc.);
Higher percentage of paved roads than that of its	Difficulties in meeting quality standards;
Eastern African neighbours;	Limited access to finance;
Access to EAC and COMESA markets;	Branding of products insufficiently present;
Culture of discipline;	High supply costs (imports).
Good reputation of Rwanda Bureau of Standards.	
 Opportunities Comparative advantage in coffee and tea, beverages, construction materials, plastic products, raw hides and skins, milling industry products, essential oils, beauty products, plastic shoes, certain textile products; Manufacturing for the Rwandan and DRC markets; Export growth potential to EU, US and regional markets: 	 Threats Competition from neighbouring countries in similar sectors (similar comparative advantage); Similar strategies/policies by EAC neighbours; Volatile world commodity markets.

Maakmaaaaa







3. POLICY OPTIONS: HARNESSING OPPORTUNITIES AND EASING THE CONSTRAINTS TO MANUFACTURING IN RWANDA

"Growth entails a structural transformation of the economy, from agriculture to manufacturing, from a rural workforce to an urban one."¹⁴⁵ This entails both moving up the value chain in a country's major products and seizing market opportunities at the global level. As outlined in Chapters 1 and 2 this has been recognised by the Government of Rwanda which is pursuing an ambitious plan to transform the country from a least developed country (LDC) into a middle income country. However, Rwanda faces many challenges on its development path, including demographic pressures, decreasing productivity of the soil and arable land, the landlocked nature of the country, the high cost of production, the narrowness of the economic base, and inadequate infrastructure (roads, energy, schools, health centres, water and sanitation, etc.).

The Commission on Growth and Development (CGD) assessed 13 countries that achieved annual growth rates of seven per cent or more for at least 25 years since 1950. While the 13 countries showed very diverse paths to development, five key patterns could be identified which were crucial in spurring high and continuous growth:

- They fully exploited the world economy: globalisation was crucial to allow these countries to exploit (i) knowledge of more advanced economies and (ii) demand from world markets for their products;
- 2. They maintained macroeconomic stability: inflation

remained relatively low and fiscal policy was prudent;

- 3. They were future-oriented: savings rates (at about 20-25%) and investment rates were high, allowing the build-up of necessary infrastructure, as well as education and health facilities;
- 4. They let markets allocate resources: functioning market systems provided price signals, decision making was decentralised, and incentives were there to supply whatever was in demand. The strength and clarity of their property rights varied, but in each assessed country entrepreneurs thought their assets were sufficiently secure to invest heavily in them;
- 5. They had committed, credible, and capable governments.

Additional important components to transforming the industrial sector included: mid- to long-term visions for development strategies; flexibility in responding to a changing environment; close ties between the government and the private sector; and a mobile labour force moving from traditional agriculture into more productive work in urban areas.¹⁴⁶

3.1 Long term vision plan

Many of the success factors identified in the CGD report can be found in Rwanda. The Government of Rwanda has formulated overall targets in its Vision 2020 which stretch over the period of 2000 to 2020. In particular, Vision 2020 sets Rwanda on a path to economic transformation from a "subsistence agriculture economy to a knowledge-based society".¹⁴⁷ One of the key objectives of Vision 2020 is to expand the industry sector to reach 20% of GDP by 2020. Table 23 illustrates a selection of the main economic indicators of Vision 2020.

Sustained Growth and Inclusive Development, The International Bank for Reconstruction and Development / The World Bank, 2008. ¹⁴⁷Rwanda Vision 2020.

¹⁴⁵Commission on Growth and Development, The Growth Report, Strategies for Sustained Growth and Inclusive Development, The International Bank for Reconstruction and Development/The World Bank, 2008, page 6.
¹⁴⁸Commission on Growth and Development, The Growth Report, Strategies for

ndicator	Status in 2000	Current status	Vision 2020 target	Average LMIC	Proposed new Target
	Econo	omic and Financ	ial Sector		
Average GDP growth rate (%)	6.2	8.2 (average from 2000- 2010)	8	5.9 (average from 2000- 2010)	11 (Required to achieve USD 1,240 per capita by 2020)
Growth rate of the agricultural sector (%)	9	5.8 (average from 2000- 2010)	6	3 (average 2000-2010)	8.5 (with 25% of GDP)
Growth rate of the industry sector (%)	7	8.8 (average from 2000- 2010)	12	5.7 (average 2000-2010)	14 (with 20% of GDP)
Growth rate of the service sector (%)	7	10.5 (average from 2000- 2010)	11	7.1 (average 2000-2010)	13.5 (with 55% of GDP)
Domestic credit to private sector (% of GDP)	None	12.8	None	34	30
Gross national savings (% of GDP)	1	10.5	6	25	20
Gross national investment (% of GDP)	18	21	30	28.5	30
GDP per capita, in US \$	220	540	900	1,750	1,240
Poverty reduction and inequality					
Poverty (% under poverty line)	60.4	44.9	30	32.2	20
Gini Coefficient (income disparity)	0.454	0.49	0.350	None	0.350
Employment					
Number of off-farm jobs	200,000	500,000	1,400,000	None	1,700,000
		Regional integra	ation		
External Trade (% of GDP)	None	41.5	None	58.4	60
Export Growth (average)	None	24	None	10	28

In the initial period after the 1994 genocide, the Rwandan government aimed to re-establish stability and to reconstruct the country through the PRSP. In the ensuing period, policies and strategies formulated within the framework of the EDPRS 1 and 2 as of 2008 focused on economic growth and diversification by strengthening the role of the private sector. High economic growth figures of above 8% from 2000 to 2010 indicate that the GoR has been successful in stabilising the economy and in spurring growth. Indeed the CGD states that one of the major conducive factors in Rwanda was the GoR with its approach of "long-term planning guided by a vision for the future direction of the economy." A strong focus on monitoring and evaluation also were important driving factors.

Many of the targets of Table 23 have shown above expectation achievements and have hence been revised upwards in 2012. However, the initially intended size of the industrial sector of 26% of GDP was revised downwards to 20% in 2012. The sector has recorded only modest growth rates on the first ten years of Vision 2020 and the proportion of manufacturing in GDP has in fact decreased.

3.1.1 Structural transformation

Chapters 1 and 2 outlined the importance the Government of Rwanda attributes to structural transformation. They also showed how the historic predominance of certain commodity sectors has influenced policy choices to date. The development of the manufacturing sector has been relatively restrained, especially if tea and coffee are left aside.

3.1.1.1 Agricultural base

The agricultural sector dominates the Rwandan economy and is a crucial contributor to manufacturing development, notably in food products. The Government has recognised the importance of rural development in the EDPRS 2 and the Plan for Strategic Transformation of Agriculture Phase III (PSTA 3). Table 24 shows the Vision 2020 indicators related to agriculture.





Indicator	Status in 2000	Current status	Vision 2020 target	Average LMIC	Proposed new Target
Growth rate of the agricultural sector (%)	9	5.8 (average	6	3 (average	8.5 (with 25 % of
		from 2000- 2010)		2000-2010)	GDP)
Financial credit to the agricultural sector (%)	1	5	20	None	20
Agricultural population (%)	90	71.6	50	49	50
Agricultural production kcal/day/person	1612	2,806	2,200	None	2,900
Food Consumption Score (CFSVA)	None	Poor FCS: 4% (2009)	None	None	Poor FCS: 0%
	None	Borderline:17% (2009)	None	None	Borderline: 5%
Percentage of agricultural operations mechanized	None	7	None	None	50%

EDPRS 2 formulates the following objective related to agriculture: "Sustainable poverty reduction is achieved through broad-based growth across sectors in rural areas by improving land use, increasing the productivity of agriculture, enabling graduation from extreme poverty, and connecting rural communities to economic opportunity through improved infrastructure." EDPRS 2 also recognises that "Rural Development emphasises the foundations and linkages of rural growth and the coordination between sectors such as land, infrastructure, agriculture and rural finance, while at the same time understanding the need for broader urban and rural linkages. Off-farm job creation and large-scale investment to open up the economy are also essential."¹⁴⁸

The development of the rural sector is crucial to eradicate poverty in Rwanda as 85% of the population lives in rural areas. Poverty in rural areas stands at 48.5% versus 22.1% in urban areas.

Land in Rwanda is scarce. The very large majority (nearly 98%) of

land in Rwanda is categorised as rural; of this 54% is classified as arable (around 1.4 million hectares). Smallholders dominate in agriculture with average land sizes of only 0.59 hectares. The situation is however even more pronounced if one considers that 36% of the population own only 6% of farm land at an average land size of 0.11 hectares per household. As a consequence, productivity levels are relatively low; low yielding crops and low fertilizer utilisation are additional factors behind low yields.

The situation improved however during EDPRS 1 (2008-2012) when agricultural production per household increased. Furthermore, on average, households sold approximately 25% of their output, a rise from 18% in 2005. The importance of off-farm jobs in rural household income also rose during this period.

The Government of Rwanda foresees various interventions in the agricultural sector in the period of 2013-2018 in EDPRS 2, which are further defined in the PSTA 3.

¹⁴⁸Economic Development and Poverty Reduction Strategy 2013-2018, Shaping Development, the Republic of Rwanda, page 54.

able 25: GoR agriculture development interventions in EDPRS 2, 2013-2018					
Programme	Thematic Outcomes	Interventions			
Economic transformation, Priority Area 2: External connectivity of Rwanda's economy and boosting exports Rural development, Priority Area 1: Integrated approach to land use and rural settlements	 Accelerated growth of exports. Improve land rights and land administration; Enhanced rural settlements which facilitate access to basic services, farm and off-farm economic activities through integrated district land-use plans. 	 Invest in a large scale tea expansion programme (six new factories, 18,000 hectares of new production area); Intensify capacity building in research in the coffee sector. Securing land tenure for all land claimants through systematic land administration; Coordinated land use planning through District Land Use Master Plans; Layout plans of villages designed through a consultative process Monitoring and enforcement of land use planning; Supporting the growth, quality and affordability of rural housing 			
Rural development, Priority Area 2: Productivity and sustainability of agriculture	 Increased Productivity and Sustainability of Agriculture; Increased Private and Public Advisory Services to Farmers, especially women and youth, for Agriculture Skill Development; Farming models scaled up to link farmers and cooperatives to agro- processing. 	 Irrigation developed by public and private sector; Land husbandry approach promoted across Rwanda; Farmer field school scaled up; Training of GoR extension workers; Setting up farmer promoters and animal health works; Promote private extension/ advisory services in fertiliser and seed to support privatisation; Models of bulking production implemented. 			
Rural development, Priority Area 3: Graduation from extreme poverty	 Increased and sustained graduation from core social protection programmes for male and female headed households by connecting them to economic opportunities and financial services. Improved targeting & effectiveness 	 Multi-sector graduation opportunities are promoted; Understanding and monitoring graduation; Supporting effective informal financial services that are useful for the poorest to increase inclusion; Supporting financial products for the rural poor; National financial education and literacy strategy; Strengthen Umurenge SACCOs. Increasing the coverage of the extreme poor 			
Rural development, Priority Area 4: Connecting rural communities to economic opportunities with improved infrastructure	 of social protection especially for women- and child-headed households. Quality road network & rural feeder roads extended and in good condition. Increased access to electricity for rural households. 	 Feeder road construction; Capacity and knowledge for communities in road works. Targeted grid electrification; Encourage rapid growth in private sector solar 			
	 Increased rural household use of efficient cooking sources and methods. 	 products; Scale-up of off-grid micro hydro generation; Ensure energy education for the population. Improve sourcing of wood and charcoal sector support; Promote biogas and alternative sustainable biomass sources; Promotion of improved cooking stoves. 			
	 Increased connectivity of rural communities, particularly rural women and youth farmers, to relevant information including market information. Increased access to water & sanitation facilities in rural areas. 	 Pilot SMART Village; Support ICT expansion and different types of products in rural areas; Support agriculture information systems in reach of farmers. Quality of water delivery improved; Private sector management of water supply increased: 			





As Table 25 illustrates, the GoR puts significant emphasis on rural development through improving land administration (Rural development Priority Area 1), raising social inclusiveness (Rural development Priority Area 3), and improving infrastructure (Rural Development Priority Area 4). Most directly related to manufacturing, it also aims to develop skills and productivity levels and in so doing to spur agro-processing activities (Rural development Priority Area 2). Two export sectors are targeted through specific interventions: tea and coffee (Economic transformation, Priority Area 2). Besides increasing resource-based manufacturing output levels, EDPRS 2 interventions will also increase the domestic market size for Rwandan products if an increasing number of people is lifted out of poverty.

3.1.1.2 Population growth and urbanisation

Rwanda has a total population of about 10.5 million, of which about 5.5 million are part of the labour force (52.47% of the total population). The labour force participation rate stands at 86%, the annual population growth rate at 2.6%.¹⁴⁹

Urbanisation has not progressed far in Rwanda with only about 15% of the population living in cities. Urbanisation is considered by the Rwandan government to be an important factor in raising productivity and spurring economic transformation. EDPRS 2 (see Table 26) hence addresses urbanisation under a separate heading which was not the case in EDPRS 1.

Programme	Thematic Outcomes	Interventions
Economic transformation, Priority Area 4: Transform the economic geography of Rwanda by facilitating and managing urbanisation and promoting secondary cities as poles of economic growth.	 Physical development planning and economic development planning combined and coordination of all development sectors strengthened. A network of cities and urban centres created that provide services and attract economic activities countrywide. 	 An in depth review of the urban planning system; Clear urban planning and management guidelines. National investments in infrastructure planning and development; Develop integrated public transport systems in major urban areas:
		 Develop funding mechanisms, especially related to affordable housing, and develop the mortgage finance industry.

EDPRS 2 intends to transform the economic geography of Rwanda by facilitating and managing urbanisation and promoting secondary cities as poles for economic growth. This will include:

- Integrated development planning and management to ensure a well-balanced and managed urbanisation process;
- Develop secondary cities as poles for growth: public service provision will be improved in six cities currently not as well connected as Kigali: Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi. Services to be improved include road connectivity and strengthening the system for local revenue collection:
- Public transport system will be installed for Kigali to strengthen its position as a regional hub;
- Housing shortages exist among low income earners. To spur the urban development financing and supply options for affordable housing are to be improved.

Through the urbanisation process, it is expected that manufacturing growth will accelerate. This will drive both increased productivity for existing products and new product discoveries.

3.1.1.3 Resource sector development

Natural resources are an important factor underpinning manufacturing development. Mineral exploitation is an important contributor to economic growth and amounted to 47.5% of principal exports in 2012.¹⁵⁰ Minerals mined in Rwanda include tantalum (15% of world production in 2011), cassiterite (tin ore accounted for 21% of Rwandan exports), columbite tantalite (accounting for 8% of total exports) and wolframite (tungsten ore accounting for 3% of total exports). Rwanda also exploits gold and has resources of limestone, pozzolanic materials, sandstone, clay, and gypsum, which it uses for the production of cement. It is estimated that there are about 60 billion cubic meters of natural gas under Lake Kivu which are currently being exploited. Peat production is also intended to feed into expanding cement

¹⁴⁹All data from the Rwanda Labour Market Information System: http://www.lmis.gov.rw.

All data for the year 2012. ¹⁵⁰Ministry of Natural Resources, Potential for Investment in Rwandan Mining Sector, London, 25-26 June 2013,

http://www.cbcglobal.org/images/uploads/library/2013.06.26_Rwanda_Presentation_ Mining_on_Top.pdfAfrica_London_Summit.pdf

production by Cimerwa to about 700,000 tons per year, up from 100,000. New discoveries for exploitation include rare earth elements, tungsten, gold, tin, zinc, copper, lead, and silver.¹⁵¹

. . . .

Energy generation in Rwanda is largely based on biomass (84%), followed by petroleum products (11%) and electricity (5%). Electricity generation is through hydropower (59%), thermal generation (40%) and methane (1%). Use of hydropower is being extended - for example, through the construction of the 28 MW Nyabarongo Power Station which is due to be finalised in 2014.

Natural	resources	aiso	contribute	towards	energy	generation.	

Table 27: GoR mining development interventions in EDPRS 2, 2013-2018				
Programme	Thematic Outcomes	Interventions		
Economic transformation, Priority Area 2: External connectivity of Rwanda's economy and boosting exports	Accelerated growth of exports.	 Overhaul of Rwanda's mining sector through new regulations, systems and an enhanced understanding of mining resources. 		
Source: EDPRS 2				

To develop the mining sector the GoR foresees to finalise the implementation of the new mining regulations which will lead to a revision of the concessions strategy (Table 27). Prospecting and exploration licenses will also be merged. Investments in exploration will also be increased in prospective target areas.

3.1.2 The manufacturing development framework in Rwanda

As seen above the overall policy framework in Rwanda is well developed but complex. In term of overall policy framework, the Government of Rwanda has formulated targets in its Vision 2020 which stretch over the period of 2000 to 2020 formulating long term development goals. In particular, Vision 2020 sets Rwanda on a path to economic transformation from a "subsistence agriculture economy to a knowledge-based society". One of the key objectives of Vision 2020 is to expand the industry sector to reach 20% of GDP by 2020.

A number of policies and strategies have been formulated to implement Vision 2020. In the initial period after the 1994 genocide, the Rwandan government aimed to re-establish stability and to reconstruct the country. The Poverty Reduction Strategy (PRSP) which covered the period 2002-2006 was key in achieving this and focused on "managing the transition from emergency relief to rehabilitation and reconstruction."¹⁵² In the ensuing period, policies and strategies formulated within the framework of the EDPRS 1 and 2 as of 2008 and 2013 respectively focused on economic growth and diversification by strengthening the role of the private sector.

In its National Industrial Policy (NIP), adopted in April 2011 and covering the period 2011 to 2015, the GoR selected key sectors to benefit from support measures to increase the export base and to reduce its reliance on imports. In doing so, it followed a pragmatic approach, differentiating between sectors with immediate growth potential - feasible sectors - and sectors which are not yet feasible but might become so in the future - desirable sectors. In the short run, feasible sectors are promoted while the feasibility of desired sectors improved. In the medium term, new desirable sectors are supported as they become feasible. In the long run, support to successful sectors is reduced while new feasible sectors are supported. The sectors identified by the Government of Rwanda are.

- Current: Tea, coffee, minerals, tourism;
- Short term: agro-processing, ICT, high-end tourism, textiles, minerals processing;
- Medium term: construction materials, pharmaceuticals, chemical products;
- Long run: building materials, bio, plastics, and other high tech industries.

The dual approach of the NIP which draws on the country's current strengths in resource-based products (feasible products) while also creating a conducive environment for more sophisticated products (desirable products) ensures sustainable economic development. Industrial development based solely on commodities would bring success in the short run but would also leave the country exposed to market fluctuations in the longer term. On the other hand, developing more sophisticated manufacturing products requires time. It is important, however, since it allows for more product discoveries, diversification and improvements in the complexity and sophistication of manufactured products.

The Rwanda National Export Strategy, also adopted in April 2011, features both horizontal, cross-sectoral interventions and vertical sector-specific interventions to support clusters with export potential.

Progress in implementing the NIP seems to have been limited and it

 ¹⁵¹2011 Minerals Yearbook, USGS Science for a Changing World, May 2013, http://minerals.usgs.gov/minerals/pubs/country/2011/myb3-2011-rw.pdf.
 ¹⁵⁵The Republic of Rwanda, Economic Development and Poverty Reduction Strategy and order of the second 2013-2018.





is now the 2013 Private Sector Development Strategy (PSDS) on which the focus of implementation lies. In opposite to the NIP the PSDS does not prioritise subsectors since it considers that these should develop on a competitive basis through market forces.¹⁵³ Furthermore the NES is currently being reviewed which suggests that its initial form did not bring the desired results in terms of export promotion. So the overall policy framework for manufacturing seems uncertain in terms of the importance attributed to the NIP and to the content of the NES.

The policy framework currently present seems to be sufficient to meet the country's development goals also for manufacturing. To support implementation the following measure is recommended:

• Ensure coordination of manufacturing related policy implementation to avoid duplication of efforts. IDEC goes in the right direction but should be strengthened further.

3.1.3 Harnessing technology, innovation, productivity, and linkages

In order to diversify its economy and produce more sophisticated products, technology and innovation are important factors. Indeed, the Government of Rwanda is counting heavily on science, technology and innovation (STI) to reach the goals of Vision 2020. Skills shortages have been a sensitive issue encumbering economic transformation. Furthermore Rwanda has a weak scientific base since most of its scientific infrastructure and a large proportion of its human capital were destroyed during the 1994 genocide. Technology improvement and innovation hence have remained limited.

3.1.3.1 Technology and Innovation

The Rwandan Government has recognised that "Continuous technological change and innovation are among the main determinants of productivity growth and as such are necessary conditions for the welfare of nations and regions."

Rwanda has made significant progress with such measures as granting universal free access to primary school education and expanding access to higher education. It has also established collaboration and training programmes with foreign universities. Higher education enrolment stood at only 1,000 in 1994. This figure has now risen to over 40,000.

RDB efforts to create a conducive investment climate, making it easy to create a business, simplifying dealing with construction permits and registering trade barriers across borders have also contributed positively to the enabling environment for innovation. Creativity in cyber organisation has also been ranked positively.¹⁵⁴

Expansion of formal enterprise is critical to successful innovation. Rwanda's informal sector featured over 600,000 private household enterprises in 2006. Integrating these enterprises into formal value chains will be important to capitalise on their innovation potential.

Table 28: GoR innovation development interventions in EDPRS 2 and PSDS, 2013-2018

Programme	Thematic Outcomes	Interventions
EDPRS 2 Economic Transformation, Priority Area 5: Green growth	 Increased level of green investment and environmentally sustainable urban development. High environmental standards and sustainable green innovations. 	 Developing an Environment and Climate Change Innovation Centre. Piloting promising green technologies.
Productivity and youth employment, Priority Area 3: Entrepreneurship, access to finance and business development	 Increased MSME businesses. Higher productivity among MSMEs. Better linkages between large and small firms. 	 Removing barriers to entry for microenterprises; Mentoring, information and awareness. Integrated business development services; Business training; Encouraging cooperatives and associations; SME Product Clusters. Proactive targeting of labour intensive investment; Supply chain linkages;
PSDS		Knowledge transfer partnerships.
Programme 5: Private sector linkages for skills and innovation	 Introduce Business Innovation/ Linkages Challenge Fund Cluster development 	 Establish business linkage challenge fund (BLCF); Market multiple rounds of BLCF. Formation of 8 SME clusters in designated regions; Develop cluster support and interventions.

¹⁵³Government of Rwanda, Rwanda Private Sector Development Strategy: Unleashing the Private Sector in Rwanda, Draft Final Report (Kigali: Government of Rwanda, December 2012).

¹⁵⁴Rwanda: Ninth for creating business, third creativity in cyber-organization-Gil-2012, Great Lakes Voice, 5 August 2012, http://greatlakesvoice.com/rwandaninth-forcreating-businessthird-creativity-in-cyber-organization-gii-2012.
As seen in Chapter 2 knowledge spillovers through foreign investors are encouraged by the Government of Rwanda, but no legal obligations exist on this matter. This is in our view critical: one of the key contrasts between Southeast and Northeast Asian economic development was the relatively weaker development of indigenous innovative firms in Southeast Asia, where growth was heavily dependent on FDI. Both the EDPRS 2 and the PSDS address many issues related to STI (Table 28). Measures that could further support the Rwandan manufacturing sector include:

- Review the STI Policy putting a stronger focus on knowledge transfer. Particular emphasis should be put on linkages between research institutes with the private sector. Furthermore, academic institutions and technology / innovation institutes pull on one string when developing curricula/research projects;
- Examine the structure, capabilities, and relevance of technology / innovation institutes, including R&D support and technology financing. Priority should be given to a small selection of sectors deemed as strategic to allow for well-targeted interventions;
- Examine the possibility to promote knowledge spillovers among private sector operators. This is being done by such interventions as the Supplier Development Program which aims to exploit backward linkages by upgrading capacities of suppliers. Further measures should be envisaged for example through tax advantages to those companies clearly aiming to transfer knowledge in country.

3.1.3.2 Education and training

The central role of education in sustainable economic development is recognised by the Government of Rwanda. Vision 2020 pursues the following objective for education: "All Rwandans will be able to read and write and have diverse professional and technical skills. Rwanda will be endowed with an education system that is well adapted to the socio-economic problems of the country, and ICT skills will be widespread." ¹⁵⁵ The Government has developed numerous policies and strategies addressing shortages in the education sector, including: Education Sector Policy (2003), TVET Policy (2008), Higher Education Policy (2008), Girls Education Policy (2008), ICT Education Policy (2008), Nine Year Basic Education Policy (2008), Education Sector Strategic Plan (2008-2012).

As seen in Chapter 2, skills shortages are particularly prevalent in technical qualifications which are particularly important for the manufacturing sector. The GoR hence accords particular importance to TVET and aims to have 60% of upper secondary level students pass through the TVET system by 2017. The adoption of a national qualification framework is seen as crucial. TVET sector measures need to be developed and implemented in close consultation with the private sector, in particular PSF, and all relevant public bodies and institutions.

In its 2012 Forward-Looking Joint Review of the Education Sector, the Government of Rwanda formulates various measures for the education sector: ¹⁵⁶

- Construction of class rooms and laboratories, alongside equipping schools with learning equipment, and recruiting additional teachers;
- Extending ICT facilities in all schools;
- Continuous up-skilling of teachers;
- Increase enrolment in teacher training colleges and Colleges of education;
- Increase number of TVET graduates in key sectors, develop TVET infrastructure, alongside an awareness campaign for TVET not to be seen as a second option for students;

Establish business incubation centres at higher learning institutions, and the development of a national qualification framework for all education levels (primary, secondary, TVET, and higher education).

Programme	Thematic Outcomes	Interventions		
EDPRS 2				
Productivity and youth employment, Priority Area 1: Critical skills and attitudes for services and industrial sectors	 Curriculum of educational institutions meeting skill requirements of employers. 	Review of secondary school curriculum;Create SSC for manufacturing.		
	 Male and female graduates prepared for job market with critical skills needed. 	 Expansion of available quality TVET; Internships and apprenticeship development. 		
	 Access to skills training for adults, particularly male and female youth and women. 	 Measures to improve adult literacy; Short courses; Tri-partite funding system for employee training. 		
	Decreased critical skills gap among men and women.	Attract diaspora and international talents;Scholarships for critical skills development.		
	Changing attitudes to work.	National youth mentorship programme;Campaign to improve women's position in the labour market.		

Table 29: GoR education and training development interventions in EDPRS 2 and PSDS. 2013-2018

⁸⁶http://www.mineduc.gov.rw/IMG/pdf/VISION_2020_IN_EDUCATION-2.pdf.

¹⁶⁶Forward-Looking Joint Review of the Education Sector, Summary Report, Ministry of Education, Republic of Rwanda, April 2012, http://www.mineduc.gov.rw/IMG/pdf/Foward_looking_report_EDPRS1.pdf.





Programme	Thematic Outcomes	Interventions
Economic transformation, Priority Area 3: Transform the private sector by increasing investment in priority sectors	• Strengthened business environment through regulatory reform to spur medium and large enterprise growth and attract large investors in priority and emerging sectors of the economy.	• Flow of highly skilled labour from within and outside the EAC facilitated.
PSDS		
Programme 5: Private sector linkages for skills and innovations	 More business responsive higher education and TVET system. 	 Expanding of RDB's Skill Sector Councils which bring together the private sector via chambers with PSF, RDB, WDA and TVET and higher educational institutions; Identifying and addressing skills gaps; Promoting private sector provision of training and work experience through tax incentives; Expanding internship placement in existing firms.
	• Financing package available for TVET.	 Amending the tax system to allow enterprises to deduct the cost of training from their income as a business cost before taxes; Allow private sector firms to develop own TVET centres.
	 Full monitoring system for performance of TVET system including Tracer Surveys. 	 Extend TVET Tracer Survey currently implemented at the IPRC North to a larger sample of TVET institutions; Undertake surveys of private sector to assess the quality of TVET graduates; Continue to improve RDB collated Labour Market Information System to add tracer elements.
Programme 7: Market access for export development	• Free flow of skilled labour enhanced	 Collect information on flows of EAC skilled labour and other foreign labour; Review laws in place to ensure they match EAC Protocols and requirements for other foreign nationals; Regular meetings of key ministries and agencies to ensure compliance; Collaboration with Sector Skills Councils on skills deficit and private sector feedback.

EDPRS 2 (Table 29) identifies the creation of basic skills such as literacy and numeracy as important for the development of light manufacturing. A work-focused school system is also seen as crucial to ensure the employability and productivity of the workforce. This will require the revamping of all education curricula. An SSC is to be established as a forum for discussion between public and private sector actors of the manufacturing sector (among eight such councils in total). Adult education providing basic skills is to increase labour supply in the short run. EDPRS 2 also aims to facilitate the flow of highly skilled labour from within and outside the EAC by extending immigration policy, pushing for free trade in services allowing sole traders to set up business in Rwanda, easing access to work visas for people with skills in areas where gaps exist in Rwanda. $^{\rm 157}$

Further measures in the field of education that could further support the Rwandan manufacturing include:

 Identify means of knowledge transfer to students, for example through partnerships between local and international universities. After consultation with local manufacturers and technology / innovation centres, academics would be seconded from abroad to teach key

¹⁵⁷Economic Development and Poverty Reduction Strategy 2013-2018, Shaping

subjects while ensuring that after one to two years the course could be taught by locals;

- Promote the development of local professional services. This could be done by offering a university degree program which involves starting a professional business services firm, with students from various disciplines (e.g., lawyers, accountants, engineers, architects, business management, etc.);
- Promote linkages between industry and universities/TVET institutions, notably to develop adequate curricula meeting manufactures needs. This seems to be addressed in particular through the SSC;
- Explore possibilities to launch an internship programme with a special focus on TVET. EDPRS 2 and PSDS foresee developing work experience opportunities which includes internships, apprenticeships and industrial attachments;
- Further develop TVET schools. This seems to be well covered, notably by the recent EUR 12.5 M made available by the German Financial Cooperation (EUR 7 M) and KfW (EUR 5.5 M) for a TVET fund. Funds will be applied to rehabilitate schools, investments in equipment, extension of existing facilities within the coming year.¹⁵⁸

3.1.4 Improving the Business Enabling Environment (infrastructure, finance, trade logistics, legal / regulatory environment, etc.)

The business enabling environment in Rwanda has undergone significant changes, particularly over the past ten years. The legal and business environment has seen considerable improvements as a result of which Rwanda's World Bank Doing Business ranking has improved significantly. Nevertheless, while Rwanda's infrastructure has been strengthened in areas such as broadband Internet access, it remains weak in certain key areas such as transport and energy. Various NTBs also have a negative impact on trade logistics. The finance sector is still in its infancy and is hampered by low savings rates.

3.1.4.1 Infrastructure

Energy and electricity supply are deficient in Rwanda. 85% of Rwandans used wood as their source of energy,¹⁵⁹ while only 16% of households had access to electricity.¹⁶⁰ Power cuts and high electricity costs raise production costs, in particular to manufacturing sector firms which tend to use energy intensive production processes. Table 30 illustrates a selection of measures which the GoR intends to undertake and shows that the issue of energy supply is taken very seriously.¹⁶¹

Programme	Thematic Outcomes	Interventions		
EDPRS 2				
Economic transformation, Priority Area 1: Interconnectivity of Rwanda's	 Increased electricity generation capacity to 563 MW. 	 Create roadmap for improving electricity access; De-risk electricity infrastructure projects for the private sector by allocating public funds. 		
economy through investments in infrastructure	 Accelerated access to electricity, water, roads, and land to priority sectors of the economy and/or large investors. 	 Fast track the provision of electricity, water, roads and land to priority investments; A national policy to fast track the provision of electricity, water, roads and land to priority investments. 		
Rural development, Priority Area 4: Connecting rural communities to economic opportunities through improved infrastructure	 Increased access to electricity for rural households. 	 Targeted grid electrification; Encourage rapid growth in private sector solar products; Scale-up of off-grid micro hydro generation; Ensure energy education for the population. 		
PSDS				
Programme 1: Infrastructure for growth	 Key investment agencies in PPPs in Rwanda under aegis of MINECOFIN. 	 Develop PPP policy, which is important to mobilise funding for large infrastructure projects (transversal across all infrastructure sectors including energy); Develop regulatory structure clarifying risk framework and price certainty for energy PPPs. 		
	 Incentives for self-generation of energy capacity provided to investors. 	 Develop policy and establish subsidised for companies generating own energy; Establish mix of subsidies. 		
	 Energy connectivity established with EAC energy pool. 	 Seek to capitalise on regional energy initiatives and promote connectivity with EAC energy pool; Improve connectivity with the EAC: develop Rusomo- Kigali and Birembo-Mbarara electricity lines. 		
Energy Sector Strategic Plan	(2012, developed for EDPRS 2)			
		 3.2 billion USD of investments to increase capacity by 900 MW by 2017; 387 million USD to improve transmission system; 15 million USD to improve distribution system. 		

Table 30: GoR energy supply interventions in government programmes

¹⁵⁸Development, the Republic of Rwanda.

Development, the Republic of Rwanda. http://www.wda.gov.rw/content/germany-funds-tvet-linked-projects-18-million-euros. ¹⁵UNK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012. ¹⁵⁰African Development Bank, African Development Fund, Rwanda Energy Sector Review and Action Plan, Final Report,

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-

http://www.aidb.org/illeadiniii/upioads/aidb/boourine.its/ringeot-aid-Operations/Rwanda%20-%20Energy%20Sector%20Review%20and%20Action%20Plan.pdf ¹⁶¹LINK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012.





Rwanda's transport infrastructure is weak in certain respects. Roads are the main mode of access for Rwanda's domestic and export markets. As seen above roads between urban areas tend to be well maintained. This is however much less the case for regions lying outside these thoroughfares where poor and sometimes even non-existent roads make in particular rural areas difficult to access. air traffic hub for up to three million passengers each year. Its finalisation is planned for 2017. There is currently no railway in Rwanda. It is envisaged to build a railway line between Isaka (Tanzania) to Kigali. The costs of about 5 billion USD are to be covered through Public Private Partnerships (PPPs).¹⁶²

Bugesera International Airport is to be the new major international

Table 31 illustrates key measures foreseen by EDPRS 2 and PSDS.

Programme	Thematic Outcomes	Interventions
EDPRS 2		
Economic transformation, Priority Area 2: External connectivity of Rwanda's	Increased trade through improved air and rail services to and from	Complete Phase I of Bugesera airport;Expand RwandAir;
economy and boosting exports	Rwanda.	• Finalise plans for railway connections before the end of EDPRS 2.
Rural development, Priority Area 4: Connecting Rural Communities to Economic Opportunities Through Improved Infrastructure	Quality road network & rural feeder roads extended and in good condition.	 Feeder road construction; Capacity and Knowledge for communities in road works.
PSDS		
Programme 1: Infrastructure for Growth	 Key investment agencies in PPPs in Rwanda under aegis of MINECOFIN 	 Develop PPP policy, which is important to mobilise funding for large infrastructure projects (transversal acros all infrastructure sectors including energy).
Transport Sector Strategic Plan (2012	2, selection of largest projects)	
		 338 km of unpaved roads upgraded to paved; Acquisition of 780 km of roads reserve for national roads; Upgrading 400 km of feeder roads to gravel standards.

Rwanda's telecommunication infrastructure has improved considerably. In terms of ICT infrastructure the whole nation is covered by a 2,300 km fibre optic cable which was completed in 2011. Mobile phone utilisation has also increased, reaching 5.7 million subscribers (53% of the population) in 2012.¹⁶³

Further support measures to improve the telecommunications infrastructure are foreseen as illustrated in Table 32.

Programme Thematic Outcomes Interventions					
EDPRS 2					
Productivity and youth employment, Priority Area 2: The role of ICT	A more productive private sector.	 Investment in IT infrastructure through PPPs; Ensure all education facilities connected to ICT infrastructure. 			

¹⁶²LINK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012.
¹⁶³LINK Analysis Rwanda, Critical Insights for Forging Purpose-Driven Knowledge Networks, Global Knowledge Initiative, January 2012.

Fable 33: GoR finance interventions in government programmes			
Programme	Thematic Outcomes	Interventions	
EDPRS 2 Economic transformation, Priority Area 3: Transform the private sector by increasing investment in priority sectors	 Accelerated structural changes in the financial sector, in particular measures to increase long-term savings and access to international finance, with the objective of increasing credit to the private sector to 20% of GDP by 2017. 	 Enactment of pension law; Enactment of the trust law; Consolidation of the Rwanda Social Security Board; Developing the bond market, to give banks greater access to long-term funds through regular issuance of government bonds; Increase commercial bank lending to strengthen the current credit guarantee scheme and reduce collateral obligations; Create a creditor profile electronic system that will enable commercial banks to verify potential lenders' credit history. 	
PSDS			
Programme 3: Entrepreneurship Development	Develop Mentoring and Counselling Facility.	 Set up Mentoring and Counselling Facility for promising borrowers, funded by a special component of the BDF, delivered by banks; Establish mechanism within BDF to work with banks providing services to SMEs; Link Mentoring and Counselling facility with RDB and BDF quasi-equity scheme, and other BDS support schemes. 	
Programme 4: Credit expansion	Expand the Credit Guarantee Scheme.	 Review performance and expand Credit Guarantee Scheme (CGS); Develop capacity in SME lending by requiring CGS participating banks and microfinance institutions to develop their skills base. 	
	 New outreach models, risk appraisal methods and monitoring systems for SME lending development. 	 Develop an Innovative Financial Outreach Challenger Fund (IFO) providing risk capital to MSMEs through grants; Include window if IFO to develop improved approaches to appraising borrowers and innovative credit reference systems for micro enterprises; Run at least three rounds of fund. 	
	 Instrument for impact investing including private equity and quasi- equity established for medium to large enterprises. 	Review and expand the existing Quasi Equity Fund and leverage regional players.	
Financial Sector Devel	opment Program (FSDP II, 2012, large	ly taken up in EDPRS 2 PSDS)	
		 Building capacity of the financial sector; Strengthening the capacity of the Rwanda Social Security Board. 	

EDPRS 2 and PSDS suggest numerous measures to reduce infrastructure gaps in Rwanda, as do the Energy Sector Strategic Plan and the Transport Sector Strategic Plan. Measures aim to extend the country's transport (roads, rail and air) and energy (hydro, geothermal, methane and peat) networks. Both EDPRS and PSDS aim to draw among others on Public Private Partnership (PPP) arrangements to implement large infrastructure projects. In addition to the required infrastructure improvements already proposed the following measures are suggested:

- A training programme for key public institutions on PPPs, covering key aspects of PPP projects;
- Measures to involve the local private sector in PPP projects

should be identified.

3.1.4.2 Finance

Access to finance has been consistently rated as a major constraint, particularly by MSMEs in Rwanda. A very low savings rate is one reason behind limited access to credit. Firms cite high interest rates, onerous collateral requirements, and lacking alternative financing sources as main impediments to accessing finance. The EDPRS 2 set a target of increasing credit to the private sector to 20% by 2017 (Table 33), which is an ambitious but possibly realisable target given that the current savings rate is 14.9% of GDP.¹⁶⁴

¹⁶⁴The Africa Competitiveness Report 2013, The World Bank, 2013.





Programme	Thematic Outcomes	Interventions
EDPRS 2 Economic transformation, Priority Area 2: External connectivity of Rwanda' economy and boosting exports	 Transformed logistics system with a strategic focus on exports and re-exports to Burundi and Eastern DRC. 	 Establish an integrated logistics system based on a Kigali logistics platform, linked to regional logistics centres and supported by an e-freight exchange system; Build off-dock container depots at Mombasa and Dar es Salaam to improve sea-land logistics; Build one stop border posts at every border post; Institutionalise the monitoring of NTBs.
PSDS		Ť
Programme 7: Market access for development	 System for monitoring NTBs established. NTBs on the Northern and Central Corridors reduced. All Rwandan borders covered by one stop border posts. 	 Develop monitoring system for NTBs along the Northern and Central Corridors and along routes to DRC. Work with EAC forum to reduce NTBs along Northern and Central Corridors; Lobby for removal of NTBs. Undertake bilateral agreements for removal of NTBs. Establish one stop border posts at the border of Kasenyi and Nemba; Fully implement one stop border posts at the Gatuna and Kagitumba Hills borders (Uganda) and at Rusomo (Tanzania).
	international standards.	certification processes for international standards.
Logistics distribution	and services strategy (2012):	
		 Air cargo centre and commercial mall; Regional logistics centre; Inland container terminal for Rwandan operators at Mombasa and Dar es Salaam.

Various programmes aim to improve access to finance, several of which are outlined in Table 33. Measures address both the availability of funds to firms and the technical capacities of firms and banks to manage funds. Furthermore, the Business Development Fund aims to make financing available to the private sector. Access to credit is however still considered as insufficient by many manufacturers, which may be a result of the BDF not having a financial mechanism destined explicitly for the manufacturing sector. A further measure for support could hence be:

• Establish a manufacturing development fund making funding available to manufacturers, for example through a guarantee scheme.

3.1.4.3 Trade logistics

Rwanda's performance in trade logistics leaves room for improvement. As seen in Chapter 2 both the LPI and Doing Business ranking indicate high trade logistics costs for Rwanda. In particular, the high cost of importing and exporting a container in and out of the country underscores this. Various non-trade barriers lie at the root of this, including:

- The landlocked nature of Rwanda, which increases transport costs due to long distance to ports and poor road infrastructure;
- Lengthy bureaucratic procedures for customs, health and standards clearance;
- Delays at ports due to lack of harmonisation of required documents for importing and exporting;
- Road blocks, weigh bridges, and corrupt practices at such roadside checks;
- High packaging costs.

Of course Rwanda's landlocked situation means that some cost factors are outside of its control.

Table 35: GoR regulatory and incentive interventions in government programmes			
Programme	Thematic Outcomes	Interventions	
EDPRS 2 Economic transformation, Priority Area 1: Interconnectivity of Rwanda's economy through investments in hard and soft infrastructure	 Increased private sector investment targeted at strengthening value chain inter-linkages in priority sectors. 	 Establish a Business Linkages Challenge Fund which gives grants to large business to support linkages with SMEs; Supplier development programme in inter alia the agribusiness sector to address supply constraints of large firms through company support and FDI promotion; Domestic supply constraints and value chain inter- 	
Economic transformation, Priority Area 2: External connectivity of Rwanda's economy and boosting exports	Accelerated growth of exports.	 Support an increase in the export orientation of firms in the agro-processing and manufacturing sectors by establishing an export growth fund within RDB, continuing the Trade Linkages Programme, linked to Export Councils. 	
Economic transformation, Priority Area 3: Transform the private sector by increasing investment in priority sectors	 Strengthened business environment through regulatory reform to spur medium and large enterprise growth and attract large investors in priority and emerging sectors of the economy. 	 Tax reforms to attract further investment enacted in conjunction with the new Investment Code. Double taxation agreements with all strategic partners; Business reforms at district level to alleviate licensing constraints, access to land (the process of land allocation is to be clarified by developing a clear mechanism between RDB), Ministries and districts and land owners and construction permits Simplification of insolvency proceedings; Enhance Public Private Dialogue Forum to review sector specific regulations 	
Productivity and youth employment, Priority Area 3: Entrepreneurship, access to finance and business development	Increased MSME businesses	Removing barriers to entry for microenterprises	
PSDS Programme 2: Investment Promotion Taskforce	Core Marketing Department set up within RDB.	 Set up core marketing department within RDB to undertake market research and identify targeted opportunities; Coordinate investment opportunities. 	
	 Establish taskforce for Investment Promotion under RDB to target key markets. 	 Undertake pro-active targeting of key markets; Outsource to expert providers targeting activities in markets starting with 2-3 sectors in London and moving to 2-3 additional centres such as Shanghai; Work closely with the commercial attaché based in the location, as well as with RDB. 	
	Investment Code revised.	 Develop new Investment Code Revision; Deliver incentive regime when investors are operating in the country; Put legal safeguards in place to ensure that the investment code investors sign-up to is adhered to. 	
	Investor after care improved.	 Establishing Key Account Managers as contact point for all registered investors; Establish system for KAMs to feed into a structured investor aftercare team within RDB; Implement issue escalation as they arise to pre-empt serious difficulties later on; Where RDB cannot resolve issues, escalate to the IDEC. 	
Programme 3: Entrepreneurship Development	Liberalise informal sector enterprise.	 Regulatory reforms to rules regulating micro informal enterprises; Design areas of exception; Sensitise public servants and institutions and the genera public. 	





Programme	Thematic Outcomes	Interventions
	Hanga Umurimu business plan competition expanded.	 Expand the Hanga Umurimu business plan competition to promote entrepreneurship, including greater mix of prizes.
Programme 6: Better Regulation	• SME turnover tax reformed.	 Review SME turnover tax on considerations of revenue raised and equivalent rate of tax on profits; Amend SME turnover tax.
	 Tax Business Advisory Panels (TBAPs) created and operational. 	 Establish TBAPs to provide a forum for business taxpayers to voice their concerns over tax administration procedures; Periodically review sectoral taxation; Make necessary amendments to tax code.
	Supporting Infrastructure for Land Market Deepening developed.	 Develop land market programme using the Making Markets Work for the Poor (M4P) approach; Establish markets for private sector realtors, and surveyors.
	Insolvency process improved.	 Develop and implement a programme of reform and implement; Include expediting bankruptcy procedures; Developing a framework for out-of-court debt negotiations; and how insolvency laws can be applied to unincorporated entities, such as sole proprietorships, etc.
	Concessions for Key Sectors reviewed.	 Implement periodic review of concessions by GoR; Include allocation of mining permits in Rwanda for much longer periods; Review forestry concessions procedures, amend where necessary.
	Sector Specific Regulations continually reviewed.	 Establish regular review mechanisms for sector specific regulations; Review packaging legislation and revise to ensure constraint not placed on manufacturing or agroprocessing sectors; Pursue additional sector-specific reforms as raised through review mechanisms.
Special Economic Zone Pro	gramme (2012)	
		Phase I: 100 hectares in Masoro;Phase II: 178 hectares in Kayumba;Phase III being planned.
National cross border trade	e strategy (2012)	
		 Investment promotion activities targeting investors in Kenya, Tanzania, and Uganda including development of promotion materials and sponsoring investor trips to Rwanda; Pilot programme to establish a small traders finance facility through the Business Development Fund.

Table 34 outlines some of the major planned government interventions to upgrade trade logistics in Rwanda. A particular focus lies on reducing NTBs along the Northern and Central Corridors at EAC level. This was also one of the recommendations of the NES under Market Opportunities measures.

In addition to measures suggested in EDPRS 2 and PSDS, support should be provided to manufacturers in meeting international standards to facilitate the exporting of goods. This should be done through an intermediary organisation (IO) providing support / consulting services to manufacturers in meeting required standards. This would include the following measures:

- Identifying intermediary organisations (most likely a private sector organisation, such as chambers of commerce) able to provide support services to manufacturers in meeting standards. This organisation should be independent of the institution issuing the required certificate in the end;
- Training of consultants in key standards, both public (e.g. ISO, HACCP) and private (e.g. GlobalGAP, BRC, etc.), which will provide services to manufacturers through the identified IOs;
- IOs to identify manufacturers with export potential and raise

awareness about export opportunities and the relevant standards this would require;

• Trained consultants to accompany manufacturers in obtaining certification of relevant standards.

In order to avoid duplication of efforts close collaboration in standardisation activities will need to be sought with the Rwanda Bureau of standards and the one stop shop it is currently establishing to support exporters in obtaining certification.

3.1.4.4 Legal/ regulatory environment and incentives

The Government of Rwanda has considerably improved the business environment in the country making it the second top reformer of the World Bank's Doing Business rankings. As a result, its Doing Business ranking has improved from 142nd position in 2008 to 32nd in 2014. In particular the speedy business registration process and investor care have made starting a business and investing easier. Of paramount importance was the creation of the one stop shop at the Rwanda Development Board which unites all relevant functions for investors under one roof. The Government of Rwanda has also installed various incentive measures to promote investments, notably through tax advantages and the creation of Special Economic Zones (SEZs). Furthermore EDPRS 2 and PSDS foresee to revise and implement new incentive measures over the 2013-2018 period, such as the revision of the Investment Code which aims to rationalise tax incentives while keeping those that are important for attracting investment.165

As shown in Table 35, EDPRS 2 and PSDS foresee numerous measures aimed to improve the regulatory environment in Rwanda, such as liberalising informal sector enterprises, reforming the SME turnover tax, improving insolvency processes, establishing sector specific regular review mechanisms for sector specific regulations.¹⁶⁶ Given the number of measures proposed, no further recommendations are made within the framework of this study.

3.2 Scope for benefits from regional integration

Regional integration plays an important role in Rwandan government policy. The country is part of several regional trading blocs: the East African Community, the Common Market for Eastern and Southern Africa, and the Economic Community of the Great Lakes Countries (ECGLC). Rwanda is also a member of the World Trade Organisation (WTO) and as a member of the EAC takes part in the negotiations of an Economic Partnership Agreement (EPA) with the European Union. Since Rwanda is an LDC it enjoys duty and quota free access to EU and US markets through the Everything but Arms Programme and the America's Africa Growth and Opportunity Act (AGOA).

The logic behind furthering regional integration is that it opens new

market opportunities. In doing so it gives Rwandan firms access to scale effects and learning by doing. This is of particular interest to Rwanda which is based in a region with small economies with relatively low technology levels and small markets. When determining the impact of regional integration it is important to determine whether regional trade is more manufacturing intensive than international trade. In the former case manufacturing development would be furthered by regional integration.

As outlined in Chapter 1, Rwandan exports are dominated by three main resource-based products where its current revealed comparative advantage lies: coffee, tea and minerals. All three areas involve mostly non-manufacturing products. Together these made up between 55% and 76% of total merchandise exports (including re-exports) between 2003 and 2012. Output of coffee, tea and minerals is almost exclusively destined for export; markets fed are international (EU, US, Asia) rather than regional. Exports not falling into the three above categories (including most manufacturing exports) are much smaller in size and are destined almost exclusively for regional markets. More specifically, two countries took 90% of these exports (or 10% of total merchandise exports) in 2010: DRC and Burundi.¹⁶⁷ Rwandan exports hence fall into two categories:

- Global exports: tea coffee and minerals which are destined for international markets hence feeding global value chains;
- Regional exports: including beverages, construction materials, shoes, plastic products, which are destined for regional markets hence feeding regional value chains or final demand.

Rwandan global exports reach a relatively diverse selection of countries including Belgium, China, Germany, Great Britain, South Africa, Switzerland, and the USA. However, it seems feasible that exports could be extended to additional destinations, for example by taking advantage of Rwanda's preferential access to EU markets. Diversifying into higher quality products such as speciality coffee and higher grade and premium tea products would make Rwanda's products more attractive to customers in these markets. Potential for learning by exporting and linkages are however weak in these two sectors.

Rwanda's regional exports are more diverse in terms of products exported but much more concentrated in terms of export destinations. The rise in exports to the EAC (Burundi) can be seen as a positive result of regional integration, even if merchandise exports to the EAC still only make up about 5% of total merchandise exports. Extending regional exports has allowed Rwanda to diversify its export base into new products not so exposed to volatile commodity markets.

Many of the products currently being manufactured in Rwanda – beverages, construction materials, processed food, furniture,

¹⁶⁵ http://www.hope-mag.com/news.php?option=lnews&ca=1&a=497. ¹⁶⁹ Source: Rwanda Private Sector Development Strategy (2013).

¹⁰⁷Gathani, S. and Stoelinga, D., Understanding Rwanda's Export Sector, International Growth Centre, 2012.





plastic products, shoes and other fast moving consumer goods – are in demand on DRC and Burundian markets. Exporting to regional markets can serve several benefits:

- Scale effects, even if much more moderate than if larger markets were also being fed;
- Learning by doing: Rwandan manufacturers can develop expertise in new products which are competitive in Burundi and DRC. As production scale and quality improve exports can be extended to markets where these products might currently not be competitive.

One major advantage of regional integration for Rwanda is that it reduces the cost of doing business of manufacturers which results from its landlocked status. This is important for global exports because it reduces the cost of exporting tea and coffee products via the ports of Mombasa and Dar es Salaam. For regional exports this is relevant since it reduces supply (import) costs of production inputs on which Rwandan producers are dependent. Furthermore export costs to the region are of course also reduced.

Regional integration cuts two ways: it provides Rwandan firms access to markets that they have a stronger chance to successfully contest than in the more advanced countries; at the same time, it exposes Rwandan manufacturers to competition from neighbouring countries, also premised on the same facts. Many of Rwanda's manufactured products are indeed also being produced by its neighbours leading to very strong competition on regional markets. This should generally be considered to be a good outcome of regional integration as it is only through competition that stronger firms can emerge that are ready to take on larger and more sophisticated firms in the major industrial countries.

Overall regional integration can, accordingly be a driver for the development of the manufacturing sector. Supply of production inputs, which is currently a major constraint on production, can be improved if trade logistics (customs procedures, etc.) and infrastructure gaps (in particular transport networks) are improved. The elimination of tariff and non-tariff barriers in regional trade reduces production and exporting costs. However, current export levels of Rwandan manufacturers are small and hence benefits from regional integration remain limited. Increasing exports seems to be more an issue of scale than diversification as product discoveries increased in recent years. It is large manufacturers in particular those part of larger regional or international groups which have considerable capacities for raising their exports to benefit from the preferential access they have to the EAC market. Measures to spur exports include:

- Attracting regional and international investment from large companies / groups – this has been covered above under improvements of the regulatory environment;
- Smaller companies wishing to increase their capacities to export should be supported. Consulting services and access to finance should be provided to local producers wishing to explore the possibility of exporting. This is being

done by the Market Linked Programme and the Export Growth Fund.

3.3 Lessons of experience

As described in particular in Chapter 2, the Government of Rwanda has undertaken numerous reforms to strengthen the private sector. Given that most of these reforms were implemented very recently it is difficult to value their full impact. The following experiences have been positive to date:

- Stable and committed government: since the 1994 genocide, a stable and committed government has been the key factor ensuring stability and economic growth. A strong anti-corruption stance has given credibility to the government and has also been a positive driver in attracting FDI;
- Doing Business Reforms: Many reforms have simplified the business registration and investment process which have made Rwanda one of the top reforming countries worldwide. In Sub-Saharan Africa, it is now deemed to be among the countries with one of the most favourable investment climates. Company creations and FDI inflows have risen in recent years, though given most reforms are still young their full impact has not been seen yet;
- Rwanda Development Board: a one stop shop was created under the roof of the RDB unifying all government agencies responsible for the investment process. This includes business registration, investment promotion, environmental clearances, privatisation and also specialist agencies supporting the priority sectors of ICT and tourism as well as SMEs and human capacity development in the private sector. This has significantly simplified investing in Rwanda;
- Targeted sectoral policies in Tea and Coffee: both the tea and coffee sectors have benefited from sectoral strategies which aimed to raise productivity and quality levels of their products. Privatisations were a key component of these strategies. Both sectors have successfully introduced new quality products of high reputation.

Despite these positive effects, development of manufacturing activities has remained relatively limited to date, in particular for non-commodity products. Several factors can be mentioned:

- Low export orientation of manufacturers: Rwandan manufacturers produce mainly for the domestic market. One of the reasons is that many firms have been newly created and hence do not have the resources to export. However, even among the bigger players exports remain low. Targeting these bigger firms with further export incentives and support programmes could be a first step towards increasing exports;
- Limited export destinations: non-commodity manufacturing exports are highly concentrated on two countries – Burundi and DRC. This means significant export opportunities await to be taken up by Rwanda, in particular in neighbouring EAC countries. This has been recognised in

the country's NIP and NES which pursue the diversification of export destinations at policy level;

- Taxation system: according to the 2013 Rwanda Prosperity Ecosystem Survey Rwanda's taxation system remains cumbersome and complex. This issue is addressed in the EDPRS 2 and the PSDS;
- Landlocked status: Rwanda has recognised high transport and logistics costs as an impediment to importing and exporting. Numerous reforms and programmes have addressed these issues and continue to do so. The cost of

doing business in Rwanda related to its landlocked status is hence likely to decrease. However, Rwanda will always retain its status as a landlocked country implying that some form of competitive disadvantage will remain related to this.

Overall the Rwandan example is positive and recognised as such worldwide. It is difficult to determine the full impact of reforms undertaken given they have been implemented only recently and will need time to fully trickle through.













4. CONCLUSIONS AND ACTION PLAN

4.1 Conclusions

Since the start of the millennium, Rwanda's manufacturing sector has shown a mixed performance: while manufacturing value added (MVA) increased significantly from 2000 to 2012, by a factor of 3.5, from 120.9 MUSD to 421.3 MUSD, the share of manufacturing in GDP declined over the same period, from 7.0% of GDP in 2000 to 5.9%. Diversification of the sector is relatively low. Manufacturing is dominated by resource-based products with food, beverages, and tobacco products accounting for more than 70% of total manufacturing output in 2012. Total manufacturing exports have increased significantly from 2001 to 2012, rising nearly tenfold. The biggest increase occurred from 2009 to 2012, when exports rose by more than 250%. Overall however exports remain small since most manufacturers produce for the domestic market.

In terms of competitiveness of Rwanda's manufacturing sector, labour productivity is low compared to a selection of industrialised countries and to the Eastern African average, and has remained relatively unchanged over the period of 2001 to 2011: MVA/employee was 3,857 USD in 2001 and 3,750 USD in 2011. The revealed comparative advantage (RCA) of Rwanda's manufacturing sector also shows an overall comparative disadvantage.

The business environment in Rwanda has improved significantly in recent years, as evidenced by a marked change in position in the World Bank's Doing Business, where Rwanda's ranking has improved from 148th in 2008 to 32nd in 2014, making it the second best reformer worldwide since 2005. However, foreign direct investment (FDI) inflows have remained relatively low in Rwanda, despite recent increases. The country's small, relatively isolated geographic position make Rwanda less attractive to FDI. Furthermore, infrastructure gaps, in particular energy and transport, the same as costly trade logistics and a skills gap also mean that given a scarce amount of contestable FDI, Rwanda has problems of attracting the amount of FDI needed to meet its development targets.

In order to address these challenges, Rwanda has developed a number of well-thought-through and interlinked development strategies. The Government has identified the manufacturing sector as a key driver of economic transformation and has implemented numerous reforms which have improved the business climate for manufacturers. Most recently, the EDPRS 2 set out the medium term strategic goals for the period 2013-2018 towards meeting the Vision 2020 targets. EDPRS 2 is complemented by several concrete sector strategic documents:

- Private Sector Development Strategy (2013);
- National Industrial Policy (2011);
- National Export Strategy (2011);
- Special Economic Zone Programme (2012);
- National cross border trade strategy (2012);
- Logistics distribution and services strategy (2012);
- Financial Sector Development Program (2012);
- Energy Sector Strategic Plan (2012);
- Transport Sector Strategic Plan (2012).

All these documents define concrete measures which – even if not always targeted exclusively at manufacturing – will raise the competitiveness of the sector. Given the exhaustiveness of these policy documents and the fact that the rollout of proposed activities in them has only just started, there is limited necessity to define further actions. Actions described in the following section are hence supposed to be complementary to those suggested in the above listed documents.

4.2 Action Plan

In response to the identified challenges and to ensure that opportunities for the manufacturing sector can be turned into actual benefits, a strong manufacturing base needs to be developed, nurtured and maintained over the longer term. This requires stable and supportive macroeconomic and micro framework policies at the general (horizontal) and at the sector levels. The actions recommended in the following table and below are suggested to complement those already defined in Rwanda's policies and strategies.

Action	What needs to be done	Expected outcome/	Responsibility
1. Manufacturing		comment	
sector framework			
1.1. Ensure coordination of manufacturing related policy implementation to avoid duplication of efforts and proper delivery	 Establish a coordination mechanism which monitors the implementation of all policy and strategy documents. The PSDS Sector Working Groups currently fulfil this role but do not have an enforcement mandate. Two possibilities drawing on existing structures: (i) PSDS Sector Working Groups report to IDEC Council (or a newly created intermediate organ within IDEC) whose mandate would be extended to enforce also lower policy level measures; (ii) IDEC Secretariat takes over the monitoring of all industrial development related policies and strategies and reports to IDEC Council (or a newly created intermediate policies and strategies and reports to IDEC Council (or a newly created intermediate organ within IDEC). 	Well-functioning policy coordination.	MINICOM
2. Innovation			
2.1. Review the STI Policy putting a stronger focus on knowledge transfer	Particular emphasis should be put on linkages between research institutes and the private sector, also in developing curricula / research projects.	Stronger focus on knowledge transfer and innovation in STI Policy measures.	MINEDUC, MINICOM
2.2. Examine the structure, capabilities, and relevance of technology / innovation institutes	The revision should include R&D support and technology financing. Priority should be given to a small selection of sectors deemed as strategic to allow for well-targeted interventions.	Revamped technology institutes	MINEDUC
2.3. Examine the possibility to promote knowledge spillovers among private sector operators	This is being done by such interventions as the Supplier Development Program which aims to exploit backward linkages by upgrading capacities of suppliers. Further measures should be envisaged for example through tax advantages to those companies clearly aiming to transfer knowledge in country.	Increased knowledge transfer from backward linkages	MINICOM
3. Education, training			
3.1. Identify means of knowledge transfer to students	Partnerships between local and regional / international universities should be sought. After consultation with local manufacturers and technology / innovation centres, academics should be seconded from abroad to teach key requirements for PPP	Better focus on manufacturing sector demands in curriculum development. Development of new	MINEDUC, MINICOM
4.3. Identify measures to involve the local private sector in PPP projects	 In order for the local community to benefit measures should be identified to involve the local private sector in PPP projects by: (i) Raising awareness among the local community about the opportunities presented by PPP projects; (ii) Encouraging consortium leaders to involve local companies in infrastructure projects where possible. 	Possibility of private sector taking part in PPPs (e.g. small scale energy PPPs)	MINICOM, MINECFIN, MININFRA





5. Access to finance			
5.1. Improving access to finance for manufacturers	Establish a Manufacturing Development Fund giving access to local companies on conducive terms. This could be housed within BDF or an alternative organism.	Better access to finance for manufacturers.	MINICOM
6. Trade logistics and NTBs			
6.1. Improve trade logistics for importers and exporters	In particular inland transport costs should be reduced, customs procedures improved. The Trade Logistics Strategy and Cross border Trade Strategy address these issues and should be supported.	Cheaper import and export costs for Rwandan manufacturers	MINICOM
6.2. Support to manufacturers in meeting international standards to facilitate the exporting of goods	 (i) Identifying intermediary organisations (most likely private sector organisations, such as chambers of commerce) able to provide support services to manufacturers in meeting standards. Organisations should be independent of the institution issuing the required certificate in the end; (ii) Training of consultants in key standards, both public (e.g. ISO, HACCP) and private (e.g. GlobalGAP, BRC, etc.), which will provide services to manufacturers through the identified IOs; (iii) IOs to identify manufacturers with export potential and raise awareness about export opportunities and the relevant standards this would require; (iv) Trained consultants to accompany manufacturers in obtaining certification of relevant standards. 	Manufacturers supported in meeting relevant standards	MINICOM, RDB, MINAGRI
 Legal/regulatory environment and incentives 			
7.1. Legal / regulatory environment should be improved in particular to attract investment	EDPRS 2 and PSDS address the regulatory environment sufficiently and should be supported.	Regulatory environment more conducive for doing business / investing.	MINICOM
8. Regional integration and export development			
8.1. Attracting regional and international investment from large companies / groups	This is covered by improvements in the legal / regulatory environment.	Increase potential for scale economies, learning effects, and reduced dependence on commodity markets.	MINICOM
8.2. Smaller companies wishing to increase their production capacities to be able to export should be supported	Consulting services and access to finance should be provided to local producers wishing to explore the possibility of exporting. This is being done by the Market Linked Programme and the Export Growth Fund.	Improved production scales of smaller manufacturing firms and capacity to export.	MINICOM

Without a doubt, the defining characteristic of the transcendentally successful developing countries in Northeast Asia in terms of rapidity of development was the singular focus on technology acquisition. Two famous examples are Japan and China: the former studied and reproduced technology developed in the industrialising West; the latter invited in foreign firms to invest and transfer technology. Rwanda can do both, and also has a third option: it can buy.

Rwandan firms license minimal amounts of modern technology. However, pre-1990 technology carries no licensing requirements since patents have expired and is freely available to be copied. Rwanda could accordingly industrialise to a level consistent with early 1990s technology, without licensing costs. This would be a leap forward relative to its current state of technological advance. However, it would be no mean feat to move from disclosed knowledge to implementation. The commercialisation of available technology is what the entrepreneurial firms bring to the table. Rwanda is contemplating building those firms and inducing foreign investors to transfer modern technology to them. The third option is for Rwanda to buy firms that own and apply technology.

Providing incentives to winners (e.g., multinational firms) is the standard approach. Countries compete fiercely to attract winners and it is expensive in terms of tax concessions and other public incentives, precisely because of the competition. Further, small, relatively isolated countries like Rwanda are less attractive to FDI than larger well connected countries such as for example the BRICS states. Given a scarce amount of contestable FDI, Rwanda hence risks losing out. Meanwhile, creating incentives for private sector start-ups is critical but it is proving to be a slow process. As an analogy, one might think of gardening: providing incentives is like preparing the ground, fertilizing it and watering it – and then waiting for nature to populate it with flowers. Gardeners of course do not wait for nature, but transplant or seed.

Every year, tens of thousands of manufacturing firms worldwide go bankrupt. Plants are shuttered or sold. These firms possess firmspecific knowledge - including often patented and non-patented proprietary knowledge (industrial secrets they are not prepared to publish to obtain a patent). The plants embody established technology. The problems they face may be technological obsolescence in competing for advanced country markets - or they may no longer be viable under the cost and exchange rate conditions that have emerged in their home country - for example, the European Central Bank has followed a policy of allowing the Euro to be substantially over-valued relative to the US dollar and has thus driven many European firms that compete in price elastic sectors into bankruptcy. Rwanda could buy a handful of these firms, resettle them in industrial parks in Kigali, provide generous terms to management to continue in a mentoring mode, and use these firms, their techniques and their machines, to study and learn. The industrial wreckage in Europe's Mediterranean fringe could become industrial gold for Rwanda.

The legal framework for such a relocated firm would be a stateowned enterprise statute. The institutional framework would be an industrial holding company created under that statute. Management of these firms should be enticed to stay with the firm as it relocates to manage them while bringing along new Rwandan employees in the firm. The intent is to privatise as quickly as possible. So the intent of the policy is not to replace private sector with government but to fill a gap the private sector is not filling.

It is important to stress that the argument is that many firms in the West have technology which is a major upgrade over what is presently being applied in Rwanda. The appropriate way to think about this is "accelerating" private sector development, as opposed to "crowding out" or "crowding in". Some firms which fail have world class technology – for example Siemens and Bosch recently shut down solar panel operations because of cost-based competition from China. By buying the firm, its incentives are now shaped by its shareholders' objectives – which in this case would be a Rwandan Industrial Holding Co. Note that MNEs have the exact opposite incentive: they want to keep proprietary knowledge to themselves. That is why governments have to extract promises of technology transfer from them. "Buy relocaters" mode is actually superior in that regard.

This approach of leapfrogging technology transfer would also allow Rwanda to participate in global value chains which in general is problematic because of its landlocked status and resulting high transport costs in both time and money to major ports. Air transport is hence the only feasible option and that is only feasible for highvalue components such as electronics. The likely target areas would be global technology for local markets, where Rwanda could seek to capture industrial activity in emerging consumer or industrial goods for sale into the EAC. Buying relocaters would fit well with this since, for example, the acquisition of failing refrigerator plant in, say, Europe would provide the basis for a partnership deal with European suppliers of that firm to continue to provide the inputs that Rwanda would turn into fridges for the EAC market.

Rwanda should experiment in the art of quantum leaps in technology by setting up a state-owned industrial holding company that buys select failures in the industrialised world. The criteria for selecting losers should be roughly as follows:

- The firms failed largely for macroeconomic reasons (e.g., exchange rate over-valuation);
- The firms embody a relatively high level of technology and possibly possess proprietary technology;
- The firms operate in sectors where there are backward and forward linkages to Rwandan and EAC supply chains;
- The firms supply goods that are in growing demand in Eastern Africa more generally, providing the firm the opportunity to profit from its geographical transplant;
- The firms can be consolidated with existing but backward Rwandan enterprises, with the state-owned industrial holding company retaining ownership of its share of the





consolidated firm.

The Government can then sell high by privatising the firm and use the proceeds to repeat the process and seed another industry.

There are many examples where governments have intervened to nationalise failing firms and privatising them after turning them around. Canada, for example, twice nationalised Canadair before successfully selling it to Bombardier which used it to become a major force in the regional jet industry. Britain nationalised Rolls Royce after it went bankrupt due to cost overruns on a jet engine it had designed for Lockheed. In this case, Britain spun off the successful automobile operation immediately but held the jet engine operations as an industrial holding for some eight years while the bugs were worked out and the operations could be privatized. The Rolls Royce jet engine went on to capture onequarter of the global market. The United States nationalised a number of failing railroads and consolidated them into Conrail which it sold after the restructured firm returned to profitability; a few years after the sale Conrail stock was worth multiples of the amount for which it was privatized. In each of these cases, governments in the West had strategic reasons to intervene; they normally do not for the vast number of other firms that shut their doors. Some of these might however be strategic for Rwanda.

Box 2: Relocating the coking plant Kaiserstuhl III from Dortmund, Germany to Shandong province, China

After five years construction time the coking plant Kaiserstuhl III in Dortmund started operating in 1992. The plant which cost EUR 650 million was the most advanced of its kind worldwide. It was built to provide the neighbouring steel mill of the Hoesch AG with coke, in line with a long term agreement which foresaw that German steel mills would buy coke from German producers. In 1999 however the agreement ended and the Hoesch AG was taken over by the Krupp corporation, and Krupp merged with the Thyssen corporation. Furthermore the price for steel fell significantly. This change in demand side conditions implied that there were no longer any takers for the coking plant Kaiserstuhl III, since Thyssen-Krupp relocated its steel production to Dusseldorf and bought its coke from China and Poland where the ton was EUR 15 cheaper per ton.

Hence in the beginning of 2003 the coking plant was sold to a Chinese broker, for as a little as EUR 30 million, and eventually rebuilt by a Chinese mining company, Yanzhou Coal Mining, and rebuilt in the province Shandong. Coke production started in June 2006. The decision to sell the coking plant had proven to be wrong since following increases in demand for steel from China the price for coke rose significantly, from USD 30 to USD 550 per ton.

Buying and rebuilding the German coking plant allowed the Chinese coking industry to quantum leap its technological development in coking production by decades.

Sources: http://de.wikipedia.org/wiki/Kokerei_Kaiserstuhl#Stilllegung_und_Abbau; http://www.deutschlandradiokultur.de/bittere-pointe-der-globalisierung.1013.de.html?dram:article_id=166774; http://www.brandeins.de/archiv/2007/selbststaendigkeit/der-entruempler.html

Other examples which are close to what we have in mind are described in Box 2 and Box 3. Another one is the acquisition by China of a failed Ukrainian project to build an aircraft carrier. China purchased the unfinished ship, studied and finished it as the

Liaoning. China had previously purchased a decommissioned Australian aircraft carrier for study purposes. By buying, China leapfrogged in development capability. The principle is exactly the same as we have in mind for industrial firms.

Action	What needs to be done	Expected outcome/ comment	Responsibility
9. Experimental			
9.1. Buy plants in the industrialised world which had to close down for macroeconomic reasons (e.g. over- valuation of exchange rates)	 (ii) Create state holding operating under corporate law; (iii) Identify foreign company for relocation to Rwanda based on predefined selection criteria; (iv) Transfer plant, machinery and key staff to Rwanda; (v) Operate relocate firm while training locals; (vi) Sell company to private investors. 	Leap-frog the waiting stage for the private sector to respond to incentives.	MINICOM

Box 3: Relocating the German motorbike manufacturer Zündapp from Munich, Germany, to Tianjin, China

In 1984 the 68 year old German moped manufacturer Zündapp went bankrupt. Competition from japan and a non-profitable product pallet had rendered the company unprofitable. The Chinese state owned company Tianjin Bicycle Industry Company bought the whole plant in Munich for 16 million Deutsch Marks. About 15,000 tons of machinery, tools and instruments were deconstructed and rebuilt in Tianjn, China under the name of "Zündapp Tianjin".

Ironically the Chinese had initially intended to look for a partner for a joint venture to build light motorised bikes. The insolvency of Zündapp offered them the opportunity to relocate a whole plant to China and gain the technology know-how they needed.

The relocation effort was being undertaken by a company specialised in deconstructing and rebuilding plants and belonging to the Ministry of Mechanical Engineering at the time. Before the Zündapp plant the company had already relocated whole automobile plants and had worked in countries such as the Republic of Korea, Vietnam, Pakistan, Thailand and Romania.

About 25 to 28 of the German Zündapp employees moved with the plant to Tianjin to provide support in the reassembly of machinery and the relaunch of production.

Demand for mopeds in China was much larger than in Germany and would come mainly from the large peasant population.

In the 1980s relocating insolvent or derelict plants from Europe and in particular Germany to China was common practice and helped China quantum leap its technological development. This included poultry farms, carpeting plants, ship building yards, refrigerator plants (Bauknecht plant in Saint-Avold, France). The focus lay on products requiring and hence allowing the acquisition of know-how.

Source: http://www.spiegel.de/spiegel/print/d-13512501.html.





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