ERITREA

Integrated Industrial Policy for Sustainable Industrial Development and Competitiveness

Part I

Industrial Development: – An Analytical Framework

Ministry of Trade and Industry

United Nations Development Programme

United Nations Industrial Development Organization

May 2004

STATE OF ERITREA

Integrated Industrial Policy for Sustainable Industrial Development and Competitiveness

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Industrial Development: – An Analytical Framework

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Recognising the benefit to be derived through public private sector consultations, it was agreed that the industrial policy should be defined through an interactive process bringing together the key stakeholders in government, the private sector, the university and selected development agents in civil society. A national workshop was organised in April 2002 to reflect and deliberate on the industrial structure of Eritrea, challenges and opportunities for a competitive and sustainable industrial sector in an increasingly global economy with a view to defining an integrated industrial policy. The workshop also reviewed international best practices for manufacturing improvement and competitiveness, as well as the enabling environment for private sector-led industrialisation with a focus on export promotion. Subsequently, a sample survey of 56 industrial enterprises was conducted to assess the competitiveness platform in Eritrea. This industrial sector analysis therefore draws heavily on the actual field survey that was conducted in 2002. A Round Table of the stakeholders was held in December 2003 with a view to reaching consensus on the pillars and key actions required for sustainable industrial development and competitiveness in Eritrea.

The Integrated Industrial Policy for Sustainable Industrial Development and Competitiveness is in two parts, namely: Part I: Industrial Development – an analytical framework; Part II: Industrial Policy Framework

The analysis and policy framework were prepared by a core team of international and national experts through an interactive process involving the key stakeholders in Eritrea. Members of the core team include Amaha Kidane, Tadesse Woldeyohannes, Remie Toure, Areef Suleman, Christo van Zyl, Sengal Woldentensae, Iyob Tesfu, Tesfamariam Yosief, Tesfay Haile, Kiflemariam Zerom, Peter de Valk and, Ashley Peterson. Many in Eritrea, in both the public and private sectors, as well as Eritrea's cooperating partners, provided comments and contributions, notably, Berhane Abrehe, Abraham Kidane, Akberom Tedla, Erike Beyena, Simon Nhongo, Cajus Pedersen, as well as senior officers of government ministries, departments and institutions and senior executives of the organised private sectors and industrial enterprises. Ms. Liliane Bruck and Shireen Kajee provided secretarial and administrative support.

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Executive summary

A major prescription that has emerged to address the challenges of globalisation is that of collective responsibility for the design, development, implementation and monitoring of policies and strategies for effective governance, economic management and industrial development.

The Government of the State of Eritrea has defined a macro-economic policy for recovery, reconstruction and development, which emphasises the new role of the Government as a facilitator for private sector development. After years of conflict and war with Ethiopia, during which the economic fabrics of the country were devastated, it is quite apparent that there is a crisis that requires the collective attention of both the Government and the private sector. Such interaction between the two key stakeholders would ensure confidence, create an atmosphere of sharing information and transparency and the emergence of policy decisions that all sides of the economy could live with.

The starting point of this analysis is the macro-economic policies and strategies aimed at transforming the socio-economic landscape of Eritrea by revitalising the productive sectors; increasing production, in particular, export-oriented production; generating employment; eradicating poverty, as well as achieving political and economic stability and sustainable development. Macro-economic policies and stability per se would not ensure sustainable industrial development. Other conditions should be in place for the private sector (expected to be the engine of growth and development) to respond positively to macro-economic stability. The globalisation of economic activities also makes it imperative for the private sector to be competitive.

In Chapter 2 of this analysis, a critical assessment is made of the evolution and current approaches to industrial policy development, while at the same time comparing and drawing from the experiences of other countries in other regions of the world. The emergence of new policy approaches in response to the challenges of a global economy is also analysed only to conclude that each country is unique and that it is now generally accepted that there is no universal definition of an industrial policy. Nevertheless, a common denominator of industrial policies is that such policies should aim at industrial competitiveness.

To successfully define an industrial policy, both the public and private sectors should have a clear picture of the structure and performance of the industrial sector. Chapter 3 of this analysis is therefore an assessment of the macro-economic situation and industry, more specifically, manufacturing. Eritrea's manufacturing sector comprises of large, medium and small enterprises producing a wide variety of products. The sector is faced with structural problems and constraints, ranging from inadequate critical skills for industry, including managerial, technological and engineering capabilities; raw material shortages; weak physical infrastructure and industrial support services; high cost of energy and transportation. Nevertheless, the country has some potential for a dynamic and sustainable industrial development focusing on export-oriented industries. The measures being proposed by the Government for an export-oriented industrialisation are also reviewed in Chapter 3 of this analysis. Existing manufacturers will be obliged to change their strategies,

production methods, corporate management, as well as the way they operate in the domestic market. However, it is recognised that certain prerequisites should be in place for industrial enterprises to grow and compete.

Chapter 4 seeks to understand and analyse competitiveness, the various drivers of competitiveness and Eritreas's competitive platform, which will inevitably provide the ingredients for a realistic integrated industrial policy. The competitiveness analysis draws heavily from a sample survey of 56 existing industrial enterprises representing various sub-sectors in Eritrea with a view to identifying cross-cutting constraints and the factors or drivers of competitiveness and increased industrial production.

In the concluding section of this analysis, a case is made for an industrial policy to be defined in an interactive process. The recommended industrial policy framework is described in Part II of this analysis on Integrated Industrial Policy for Sustainable Industrial Development and Competitiveness.

1 Introduction

1.1 Historical perspective

Unlike other developing countries in Africa, Eritrea has a long history of industrialisation. Following the development of the Suez Canal in 1869, which facilitated the acquisition of the Red Sea coast of Assab by the Italian company Rubatino, Eritrea, with its beautiful landscape and temperate climatic conditions, became an important colony for Italy. The early 1900s was a period of unprecedented growth for Eritrea. The Italian Authorities invested in basic infrastructure by building roads, railways, installing appropriate communication facilities and expanding the harbour at Massawa and Assab, while at the same time establishing some light industries, as well as developing agriculture as a source for some of the raw material inputs for industry. It is believed that by the end of the 1930s, there were about 2000 industrial establishments involved in gold mining and the production of a number of manufactured items, including processed food such as flour, pasta, canned meat, edible oil, bread, etc. Also being produced were hides and skins and tanned leather for the Italian shoe industry, garments, fashion accessories and consumer goods. With a capital investment of 2000 million Liras, some of the industries were, in fact, medium to large-scale industries.

During the Second World War, the expansionist policy of the Italians in Eritrea was disrupted when the British defeated the Italians and the industrialisation process slowed down resulting in the closure of many industrial enterprises. Nevertheless, given its strategic location, the allied forces soon realised that Eritrea could be the main supply base for the Middle East and by 1943, industrial activities in the country were slowly being revitalised.

In the 1950s, it was estimated that there were about 1,600 industrial enterprises employing well over 26,400 Eritreans and 5,600 Europeans. Most of these industries were import-substitution industries producing basic consumer goods and a limited range of intermediate products for both the domestic market and external markets in the Sudan, Yemen, Iran, Egypt, Cyprus, Djibouti and Ethiopia. The Eritrean economy was then market-oriented with private sector-led industrial development. However, the forced annexation of Eritrea by Ethiopia and the long years of struggle to regain its independence, involving war with Ethiopia, devastated the Eritrean economy, in particular, the infrastructure and industrial base of the country. By the mid 1970's, industrialisation, which was the main engine of growth and an instrument for diversifying the Eritrean economy, was in a precarious situation.

The internal problems and constraints on industrial development included, first and foremost, inadequate and inappropriate government policies and too much reliance on central planning and programming without the appropriate administrative machinery. Although the Government was the lead agent for development, it was not in an advantageous position to provide guidance and overall industrial governance was completely skewed. Industries that once relied on domestic

sources for their raw material needs were, by then, importing the bulk of their raw material inputs. There was very little scope for forward and backward integration of industries and of industry with other sectors, more specifically, the agriculture-industry linkage was being narrowed down. As very little attempt was made to develop the engineering industries, as well as capital goods and intermediate goods industries, especially those producing spare parts and components, the country's capacity to choose technology for product design and production, as well as maintenance know-how was limited.

The end of intense hostilities between Eritrea and Ethiopia was a welcome relief for industry and business and heralded fresh hopes for recovery and reconstruction.

The Government of Eritrea has defined a number of policy guidelines and options aimed at recovery, reconstruction and development. The main policy documents are the Macro Policy of 1994, the National Economic Policy Framework and Programme for 1998-2001 and the Transitional Economic Growth and Poverty Reduction Strategy 2001-2002; Macro-Policy of the Government of the State of Eritrea 1994.

1.2 Macro-Policy of the Government of the State of Eritrea

The macro policy broadly addresses all the socio-economic sectors of the economy. It underscores that optimal macro-economic policies had been drawn up to generate and motivate private (domestic and external) initiatives and investments to achieve the desired social and economic transformation of the country. With the premises that Eritrea is endowed with natural resources necessary for industry, it is well positioned to access global and regional markets and possesses a highly motivated, industrious and disciplined people, who have not only a strong aspiration for development, but are also aware of what it takes to develop and have the necessary commitment "to bring it about".[1] Macro-policy acknowledges that a lack of skilled human resource and a weak technological base are critical constraints which should be addressed through, inter-alia, the creation of a modern, technologically advanced and international competitive economy within the next two decades. As a prelude to its analysis of the industrial sector, the Macro Policy reiterates that around the mid 1970's Eritrea had a thriving industrial sector, which accounted for approximately 40% of industrial output of Ethiopia.

1.3 National Economic Policy Framework and Programme 1998-2001, Macro Policy

The National Economic Policy recognises that Eritrea is faced with serious socio-economic problems. The major constraints to growth and development are human resource deficiency, inadequate physical infrastructure, weak institutional capacities and capabilities for effective governance and economic management, inability to earn and mobilise adequate foreign exchange, limited domestic capacities and

[1] Macro-Policy of the Government of the State of Eritrea 1994

capabilities to develop, acquire, alter, modify and adapt new technologies to suit production patterns, demand trends and to utilise available domestic resources. The inadequacy of information and knowledge resources is also a major problem.

The ultimate objective of the Macro Policy is to reduce external dependence, as well as to create wealth and prosperity with social justice[1], in particular, emphasis is on economic growth and employment creation. The overall strategy is one of facilitating a dynamic private sector and market economy, involving the privatisation of public enterprises and increasing the role of the Government as a facilitator, while at the same time establishing strategic alliances with the private sector.

The Macro Policy focuses on the following aspects: fiscal policy, including expenditure policy and Government deficits, monetary policy; financial policy; trade policy and an investment policy. A number of sectoral objectives and strategies are defined, including strategies for agriculture and fisheries development, manufacturing, energy and mining, tourism, infrastructure, etc.

In the area of industry, the country's industrial strategy aims at creating an environment that would facilitate *"The efficient expansion of manufacturing output in industries where Eritrea has comparative advantages[2]"*. Based on some preliminary assessment, the Government holds the view that such industries include those producing textile, garments and leather products, as well as others in agro-processing, metal fabrication, plastic processing and in conversion and construction materials.

Emphasis is given to the development of small and medium scale enterprises for which the Government will take major initiatives toward the establishment of industrial estates, business incubators and ensuring affordable access to credit, training and simple business management skills.

1.4 Transitional Economic Growth and Poverty Reduction Strategy 2001-2002

The Government's commitment to economic development and poverty reduction is enshrined in the constitution as illustrated in the following articles of the constitution:
"The State shall work to bring about a balanced and sustainable development throughout the country, and shall use all available means to enable all citizens to improve their livelihood in a sustainable manner, through their participation (Article 8, para. 2).

Every citizen shall have a right of equal access to publicly funded social services. The State shall endeavour within the limit of its resources, to make available to all citizens health, education, cultural and other social services (Article 21, para. 1).

The State shall secure within available means, the social welfare of all citizens and particularly those disadvantaged (Article 21, para. 2)."

[1] National Economic Policy Framework and Programme 1998-2001.
[2] Ibid.

As for back as in 1994, the Government pursued a poverty reduction strategy by encouraging the development of export-oriented industries in a competitive environment, as well as raising the skills and well-being of the people through investment in education, healthcare, nutrition, water and sanitation systems. In addition, the Government invested heavily in rural infrastructure, agriculture, including livestock development and development of fisheries. These efforts were frustrated with the border conflict with Ethiopia. The immediate objective of the Transitional Economic Growth and Poverty Reduction Strategy, therefore, focuses on addressing the immediate needs for emergency humanitarian assistance (brought about mainly by war and drought), reconstruction and development of infrastructure and demobilising and reintegration of soldiers after the war. However, for the medium term 2003-2005, the Government overarching objectives are *"to attain rapid, sustainable, widely shared economic growth and reduction in poverty in an environmentally sound manner led by a dynamic private sector*[1]*"*.

1.5 Export development strategy

The challenges and opportunities remain the same as previously described above. The main emphasis of the medium term strategy of relevance to industrial development is the export strategy. The strategy aims at developing an export base that will take into consideration the country's abundant supply of relatively low-paid skilled and professional workers, while at the same time utilising production technologies or technological processes that are internationally competitive.

The Government has adopted a crash programme for export take-off. The programme is a pro-active and market driven strategy to diversify the economy and increase export earnings from its current level of about US$ 12 million to approximately US$ 200 million in the next few years.

Being a member of the Common Market for Eastern and Southern Africa (COMESA), which offers opportunities to trade with other countries of the sub-region, Eritrean firms could easily break into some of the high-price export markets of the sub-region. In addition, under the Lomé Convention and, in common with other African countries, Eritrea, in principle, has preferential access to the European Union market. The US Africa Growth and Opportunity Act 2000 (AGOA) also offers a unique opportunity for Eritrea to export garments to the USA without any quota restriction and free of duty. The Government of Eritrea has been facilitating contact between eligible firms and potential buyers, while at the same time providing various incentives to industrial firms to help them modernise and expand.

1.5.1 Measures taken to facilitate export promotion

The Government has introduced a number of important reforms and measures to facilitate export promotion. These include the following:

- Streamlining business license procedures;

[1] Transitional Economic Growth and Poverty Reduction Strategy – Government of the State of Eritrea.

- A move towards a comprehensive legal financial framework;
- Land reform and enacting proclamations relating to export processing zones and industrial estates;
- Rationalisation of import tariff and reduction of tariff rates;
- Streamlining custom administration;
- Expansion of transport and communication facilities, including rehabilitation of the ports of Assab and Massawa;
- Eliminating import licenses and quantitative restriction in raw materials and products except those with health, security and employment implications.

The National Economic Policy Framework and Programme and the Transitional Economic Growth and Poverty Reduction Strategy, per se, may not be quite appropriate to address the challenges and opportunities of globalisation, sustainable industrial development and competitiveness. The country's capacity to attract economic activities, including foreign direct investment in the industrial sector, as well as its ability to retain such investment and develop support industries to sustain the industrial development process are definite signs that it is ready to take advantage of global trends. In the global economy, Eritrea should be able to achieve competitiveness in a few industrial products. To do so, however, the key stakeholders of the economy should have a good understanding of the drivers of competitiveness in the country and initiate measures to improve the competitiveness platform through, inter alia, the definition of an integrated industrial policy framework. (Example of relevant existing policies and instruments are illustrated in Annex III of this document).

2 Industrial policy: evolution and current approaches

2.1 Africa's initial efforts

Industrial policy throughout the 1960s and early 1970s was based predominantly on import substitution. Having acknowledged industrialisation to be the main engine of growth and an instrument for diversifying their economies (which were excessively dependent on the export of agricultural produce and minerals) and for raising standards of living, African countries adopted import substitution industrial policies. The import substitution policies offered a wide variety of measures to accelerate industrial development, including price control, tariff and non-tariff protection. The main flaw with such policies is that they encourage inefficiencies among industries, which operate behind protectionist barriers. The State was the main agent for industrial development with tremendous control over industrial production and, in most cases, the main owner of industrial enterprises. The manufacturing sector grew at an average rate of 7-8 per cent in Africa; the contribution of industry to GDP also rose significantly from 14.5 per cent in 1960 to about 20.4 per cent in 1970 and 25.8 per cent in 1977. Many African countries achieved rapid industrial expansion and manufacturing value added increased significantly in real terms. The increased prosperity in the industrial sector was accomplished by annual population growth rate of over 2.5 per cent and low agricultural productivity, which inevitably reduced the continent's self-sufficiency in food production and the volume of agricultural raw materials for industry.

The import substitution policies in Africa, failed to produce the desired effects in the long run. The concentration on light consumer goods industries as against the production of intermediate and capital goods accelerated the continent's reliance on external sources for its capital goods, intermediate goods, spare parts and components. Such policies also created a wide range of structural problems and distorted Africa's cost structures. The import substitution industries that were established failed to generate the high level of employment envisaged because of the technology and technological process selected. In addition, such policies failed to integrate the agriculture sector and to establish significant linkages with other sectors.

A second type of industrialisation policy or strategy was adopted by some countries in Africa in the early 1970s as a means towards structural change, namely, the export oriented policy/strategy. Much emphasis was put on the processing of domestic resources, both agricultural and mineral, to satisfy domestic needs, as well as for exports. For countries like Egypt and Morocco, which adopted export-oriented policies, manufacturing exports increased considerably. In Egypt for example, growth in manufacturing increased from 19.5 per cent in 1960 to 48 per cent in 1978[1]. The export promotion strategy encouraged the ploughing back of export revenues into down stream processing activities, taking into consideration the demand for such product and the ability to effectively utilise the country's natural

[1] World Bank, Arab Republic of Egypt.

resources and cheap labour. Textiles, cement, agricultural machinery and implements, iron and steel were some of the products being produced for exports. It is true that most of the industries established were subsidiaries of the transnational corporations, TNCs or partly owned by some big foreign firms. The export promotion policy also had its draw back as most of the enterprises established very often maximise the importation of factor inputs, thereby discouraging the local production of basic factor inputs and suppressing the development and growth of indigenous enterprises and technological capabilities. The basic characteristics of such industries were that they were capital intensive with sophisticated technology and subject to economies of large-scale production. The financial implications were enormous. Therefore, it is not surprising that direct foreign investment played and still plays a significant role in building the continent export manufacturing capacities. Because the export-oriented industries had to compete with other industries in Europe and elsewhere, they were also protected at the initial stages of their development with similar tariff and non tariff protection. However, there were other major problems and constraints that were not properly addressed by governments, which accounted far the downturn in industrial production.

On the other hand, countries in Asia adopted similar policies, which revitalised their economies and set them on the path for sustained economic growth and industrial development for over two decades. In common with the African countries, initial industrial policies and strategies of the Asian countries were predominantly import substitution. The difference was that in Asia, import substitution was not limited to consumer durables/goods but included light intermediate goods and capital goods. The emphasis was also on labour-intensive industries. These countries came to realise that the opportunities for import substitution was limited because of the size of the domestic market and inadequacies of certain factor inputs – capital and raw materials, in particular. Policy makers were quick to appreciate that accelerated economic growth would depend on the establishment of export-oriented industries. By pursuing a very vigorous export-oriented industrial strategy with a range of export incentives, a country like Korea for example, was able to increase its export earning from US$ 31.8 million in 1960 to US$ 840 million in 1970. Exports consisted of textiles, wood products, metals, transport and communication equipment, electrical goods, machinery, footwear etc.

It is now generally agreed that the outstanding success of the Asian countries with the export promotion strategy was mainly due to the strong political will of the governments to encourage and promote export processing industries and their willingness to offer and sustain realistic incentives in order to achieve the desired export performance and goals.

2.2 Policy efforts in the mid 1970s and 1980s

In the mid 1970s and 1980s, industrial policies could be defined as deliberate efforts or proposed actions to alter the structure of industry or, as acknowledged by the World Bank, efforts to promote productivity based growth1. Many countries in Asia,

[1] World Bank, The East Asian Miracle, 1993.

including Korea, Singapore, Indonesia and Malaysia pursued that approach. They adopted a number of policy instruments, which enabled them to change production patterns, as well as the composition of industrial products. The countries, however, had different perceptions of industrial policy. Singapore for example, specifically targeted technological upgrading and building its capacity to attract foreign investment. Nigeria, on the other hand, instituted measures aimed at protecting the large infrastructural and industrial projects that were mainly state owned.

The export successes that were achieved by the East Asian countries tended to over shadow the thinking of an industrial policy. The East African miracle was not based purely on the existence of free markets and the withdrawal of government interventions. As indicated earlier, the role of government in guiding and controlling industrial development, as well as the governments' strategic relations with the private sector significantly influenced the development of the industrial sector.

During the 1980s, there were those who believed that an industrial policy is simply a policy towards industry and that the essential ingredients are the specific objectives of the policy, the policy instruments employed and the policy environment. The policy, therefore, was a framework for industrial development, highlighting a number of factors that should be in place for firms to be efficient and be able to compete.

2.3 Policies in response to the real challenges of a globalised economy

The traditional approaches to policy, whereby the government was perhaps the only stakeholder defining policies, were gradually becoming inappropriate to both the government and the private sector. Such policies were considered reactive and bureaucratic. By the early 1990s government and the private sector were beginning to recognise that they cannot promote and develop the industrial sector individually. The rise to prominence of private sector-led development in the developing countries and the acknowledgment by government of its facilitating role and its responsibility for governance and economic management has encouraged the promotion and establishment of public private sector consultative mechanisms and public private sector partnerships.

The growth in the importance of public private partnership will enable both the government and the private sector to collectively address the complexities of economic development, the implications of industrialisation in a global economy and make policy decisions that will improve the enabling environment for sustainable industrial development.

Industry level competitiveness policies emerged in the 1990s, with the main purpose of enabling firms to take advantage of vocational advantages and overcome vocational disadvantages. Policy instruments are designed to improve productivity, facilitate the introduction of new technologies, access to R & D, resources and knowledge, which will inevitably build the capacity of industrial firms to produce good quality products at a price that will attract new customers. Such products should also be able to penetrate and compete in new markets. The limitation of this

approach is that it does not address macro conditions, including macro-economic conditions, institutions and social structures. It has been observed by some economists that some of the projects initiated under such policies were greatly flawed, as macro level fundamentals were not recognised.

Other policy efforts focus on capacity building to transform the industrial base highlighting technology and skills development to venture into and sustain the production of intermediate and capital goods, as well as consumer durables.

2.3.1 Essence of an industrial policy

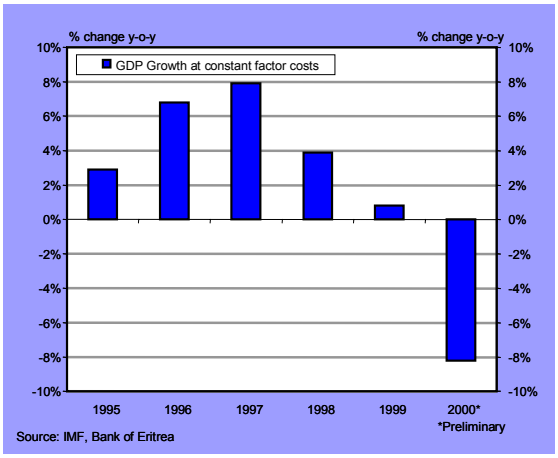
The above analysis on policy approaches illustrates how difficult it is to advance a specific definition of industrial policy, which is acceptable to all countries or groups of countries in different regions of the world. However, by providing countries with various models or development tools, they can define their own policy approaches that are appropriate to the existing realities at the national level, while addressing the countries' position in the global economy. The essential ingredient however, is that the policy should be defined in an interactive process, involving the private sector. An industrial policy should be realistic, functional and other ministries within a country should be able to buy into the various instruments so that the policy is sustainable. In an increasing global economy, such policy should also aim at creating an environment for both domestic and foreign investments to thrive and in which industrial enterprises are encouraged to innovate and improve production processes and product, thereby offering opportunities for employment and empowering people, especially in the rural areas to be integrated in the industrialisation process. An Industrial Policy should also ensure that a country's national and human resources are developed, utilised and managed efficiently. In short, such policy should aim at ensuring industrial competitiveness.

3 Industrial structure and performance

3.1 An overview of total manufacturing

Although Eritrea is basically an agrarian economy, agriculture is not the largest component of the GDP. The reason being that both commercial and peasant farming have been distorted by a series of cyclical droughts and war with Ethiopia. However, agriculture increased its share in the economy from 11.2 per cent in 1995 to approximately 16 per cent in 1999. On the other hand, manufacturing which was approximately 18 per cent in 1994 declined to about 15 per cent and 11.2 per cent in 1996 and 1997 respectively. During the period 1997-1999 the average share of manufacturing to GDP was about 9.8 per cent. The distributive service sector, which include trade, transport and communications accounted for newly a third of GDP in 1999

Figure 3.1: Real GDP Growth



The poor performance of the agricultural sector has deprived the manufacturing sector from a reliable source for the supply and procurement of raw materials, as well as capital, usually generated in the farming sector, for investment in non-farm enterprises. The domestic market for goods and services being produced in the country is also very limited as a result of the low purchasing power of the farming community and rural population. The domestic focus of the industrial sector is a major cause for concern.

The Industrial sector comprises of large, medium and small enterprises producing processed food, including beverages; leather and leather products; textiles and garments; wood and wood products; basic metals; non metallic mineral products; chemical products including plastics and rubber; fabricated metals, machinery and equipment, etc. The industrial sector is, however, relatively small, employing at the time of the survey, approximately 25,000 employees. In 1996, it is estimated that there were 37,000 employees in the industrial sector. Many of those employed in

industry in 1997-2000 were called up for war duties at the Ethiopia Eritrea border. Hence, the reduction in employment at the time of the survey.

The following provides succinct information on total manufacturing trends between 1995 and 2001. The break in the graph signifies that industrial information gathering and data processing were seriously obstructed due to the limited statistical capacity and capabilities.

Figure 3.2: Production

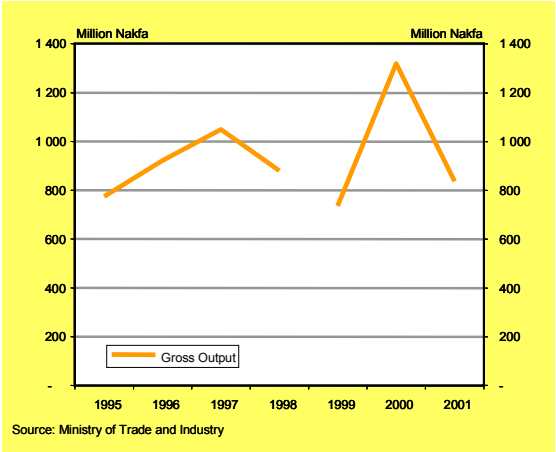


Figure 3.3: Employment

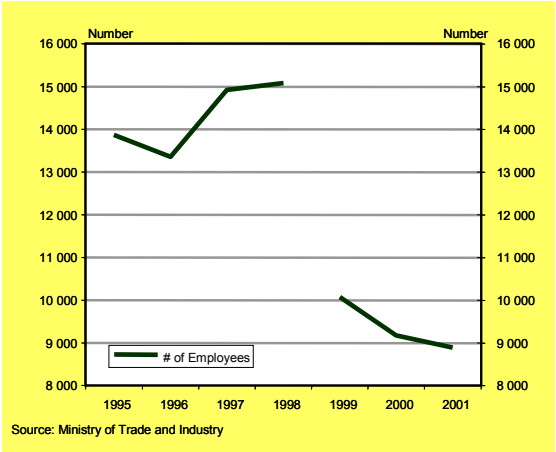


Figure 3.4: International Trade Trends

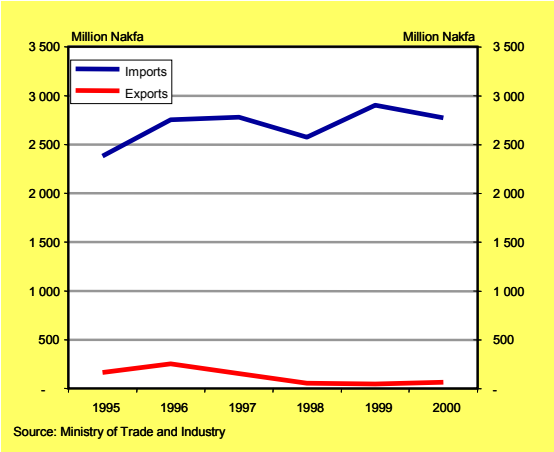
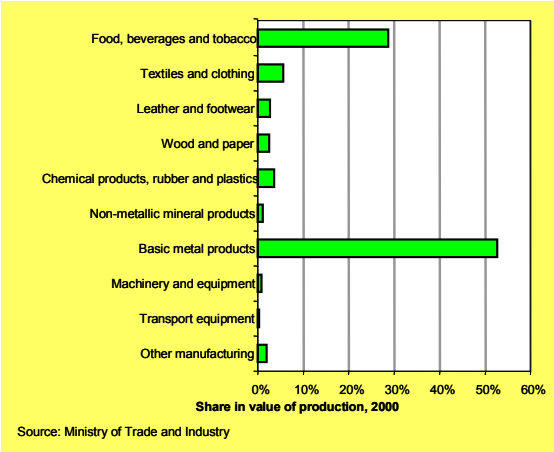


Figure 3.5: Sub-Sector Production



3.1.1 Problems and constraints

The sector is also faced with a wide range of problems, including the lack of a clearly defined industrial policy, weak institutional arrangements for effective industrial governance. The structure of industry is also basically oriented to the production of consumer goods and is overwhelmingly dependent on imported raw materials and other factor inputs. Given that there is a dearth of industries producing durables, non-durables, intermediate and capital goods, there is limited scope for forward and backward integration of industries and of industry in relation to other sectors, in

particular, the agriculture-industry linkage. The lack of engineering industries has also restricted the country's choice of technology be it for product design, production and for maintenance.

Another major constraint to industrial development is the inadequacy of skilled industrial capabilities, including managerial, technological, entrepreneurial and engineering capabilities. This shortage of industrial human resource was aggravated by a number of factors, such as the historical development of labour laws, the education system, the country' struggle to regain its independence, the current system of education and training and the absence of a clearly defined policy for industrial human resource development. Also, with very limited opportunities to develop industrial skills and the low wages being paid to both skilled and unskilled workers, there is little incentive to improve performance and productivity. The existing technological capacities and corresponding capabilities are extremely weak. The country relies heavily on external sources for technology. Unlike other countries in Asia and Latin America, very little attempt has been made to develop the capabilities to master, unpack and adapt such imported technologies in line with the country's needs and resources.

Industrial financing is also a major constraint. The existing banking system is small and serves very limited clients in the capital, Asmara, the main towns Assab and Massawa and a few other towns. Commercial banks are not willing to take the risk inherent in financing small enterprises. However, rural banking schemes are emerging and other credit financing schemes for SMEs are being promoted.

3.2 Food processing industry

The food processing industry in Eritrea is the second largest industrial sub-sector in terms of outputs and accounts for the highest level of employment.

Figure 3.6: Production

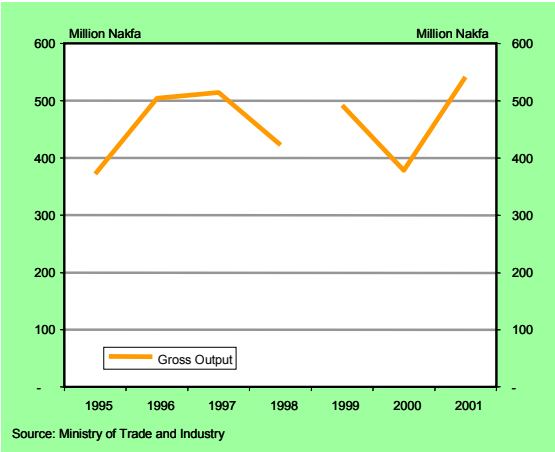
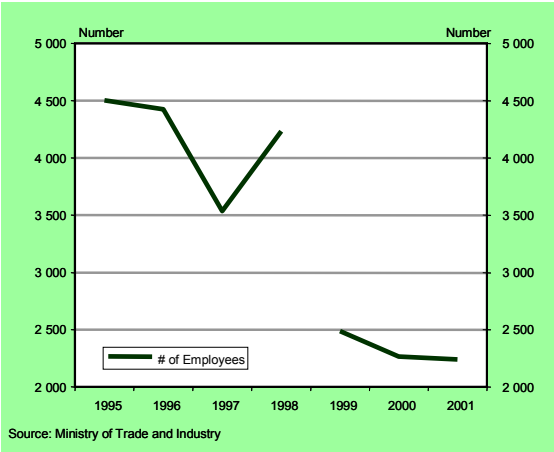


Figure 3.7: Employment



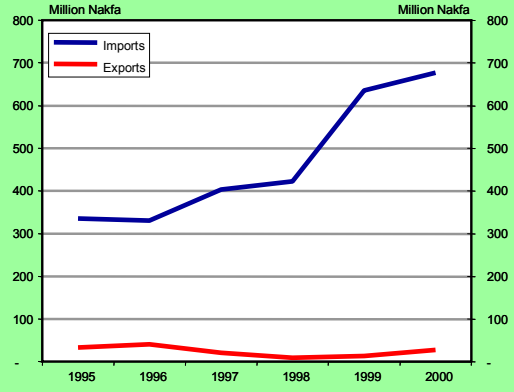
Given the strategic importance of the agricultural sector, the Government is currently implementing an agricultural development strategy aimed at improving food security *"raising factor-productivity through the efficient utilisation of capital, land and labour"* as well as facilitating the establishment of agro-industries[1]. The country produces a wide variety of crops such as, sorghum, millet, barley, wheat, which are being processed into flour and cereals, macaroni, spaghettis and similar products. Before the war with Ethiopia, the country produced an average of 125,000 tonnes of cereal annually. Other agricultural products being processed include linseeds, sesame seeds, pulses, fruits and vegetables. The meat and meat product industry received some boost during the war, producing processed meat for those at the war front, as well as for domestic consumption. Fish processing is also gaining round. In the year 2000, the fish processing industry accounted for approximately 19.2 million Nakfa worth of export earnings. Fish products were mainly exported to Europe.

Figure 3.8: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
034.1	Fish, fresh, chilled or frozen	15.9
048.3	Macoroni, spaghetti and similar products	7.9
034.0	Fish, live	2.7
036.0	Crustacean, molluscs, and aqautic invertebrates, whether in shell or not.	0.2
098.4	Sauces and preparations, mustard flour, vinegar, etc.	0.2
	Total (including others)	**27.8**
	Imports	
046.1	Flour of wheat or meslin	147.7
061.1	Sugar, beet or cane, raw, insolid for, not containing added flauouring or colouring matter	115.8
421.0	Fixed vegetable fats and oils, soft, crude, refined or fractionated	111.1
022.2	Milk sweetened or concentrated	66.0
071.1	Cofee, not roasted	56.1
	Total (including others)	**677.1**

Source: Ministry of Trade and Industry

Figure 3.9: International Trade Trends

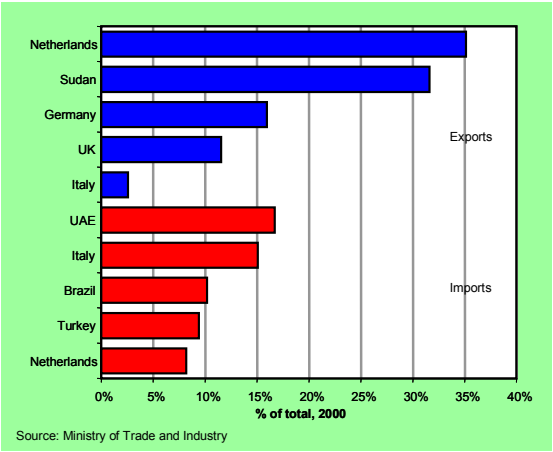


Source: Ministry of Trade and Industry

However, Eritrea continues to rely heavily on food imports. In the year 2000 for example, approximately 677 million Nakfa worth of food was imported.

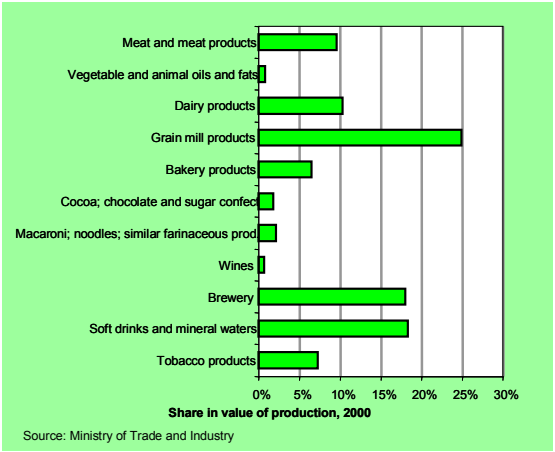
[1] Natural Economic Policy Framework and Programme, 1998 – 2002, Transitional Economic Growth and Poverty Reduction Strategy 2000 - 2002.

Figure 3.10: Important Trading Partners



Source: Ministry of Trade and Industry

Figure 3.11: Commodity Production



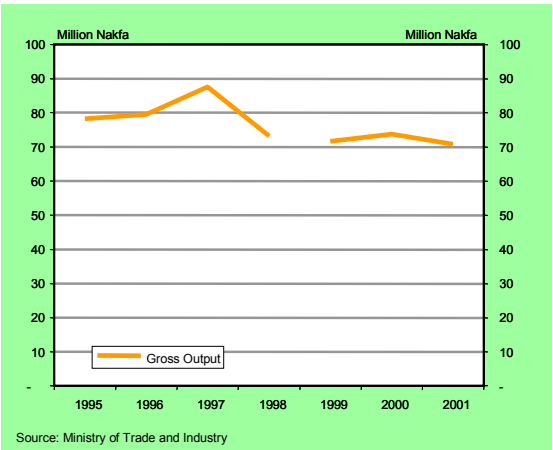
Source: Ministry of Trade and Industry

Beverages, including soft drinks, beer and mineral water are also being produced and represent a significant percentage of commodity production in this sub-sector.

3.3 Textile and clothing industry

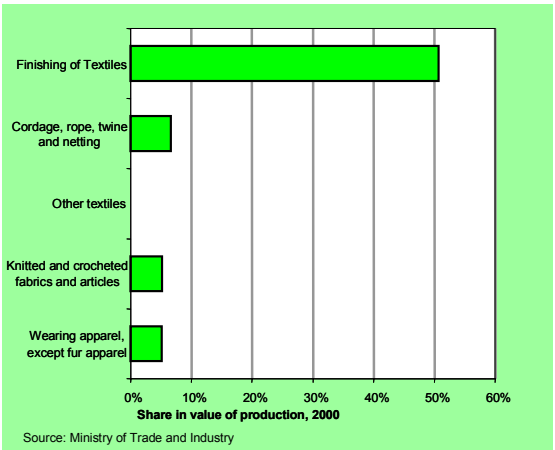
Cotton is grown in plantations, as well as by small holders. The main producing areas are along the western lowlands and the southeastern lowlands of the country. The Government had an interest in textile production by owning factories in the early 1990s, some of which have since been privatised. With the expansion of cotton production, the existing textile industries are able to procure a considerable amount of cotton and other raw material inputs locally. The clothing enterprises produce mainly sweaters, garments, underwear, socks, etc. With the exception of the ex public enterprises, most of the enterprises in this sub-sector are small-scale enterprises. Production has remained relatively stable in recent years.

Figure 3.12: Production



Source: Ministry of Trade and Industry

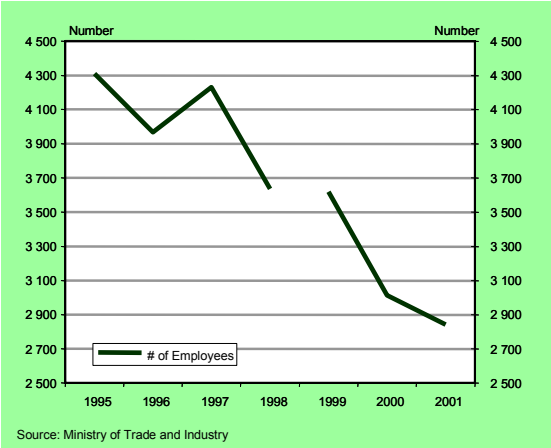
Figure 3.13: Commodity Production



Source: Ministry of Trade and Industry

Employment in this sector fell drastically between 1997-2000, as many employees were recruited for war duties. Even with a reduced number of employees, the level of production was impressive.

Figure 3.14: Employment



A major constraint to the development of the textile and clothing industrial sub-sector is the technology being used. Plant and equipment are antiquated and with the lack of spare parts frequent breakdowns are not unusual. Although the textile industrial sub-sector was badly neglected during the period under Ethiopian rule, the skill base and know-how are still there and can be revitalised. Eritrea is listed as one of the beneficiary countries under the USA African Growth and Opportunities Act 2000 (AGOA), which enable Eritrea to export garments to the USA free of quota restriction up to the year 2008. The Eritrea crash programme for an export take-off has also accorded priority to, among others, the textile industry. The country, however, continues to import large quantities of textile and clothing mainly from Kenya, United Arab Emirates, Pakistan and Italy.

Figure 3.15: Important Trading Partners

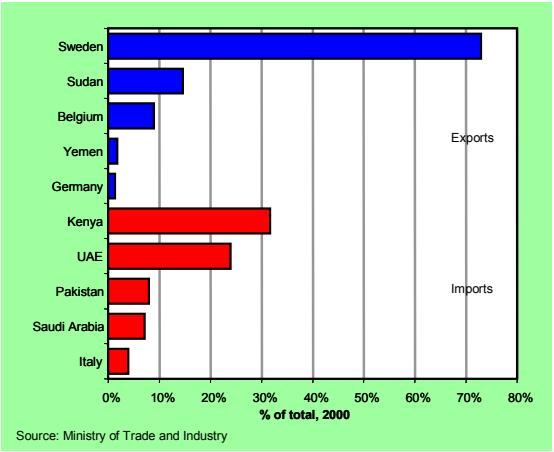
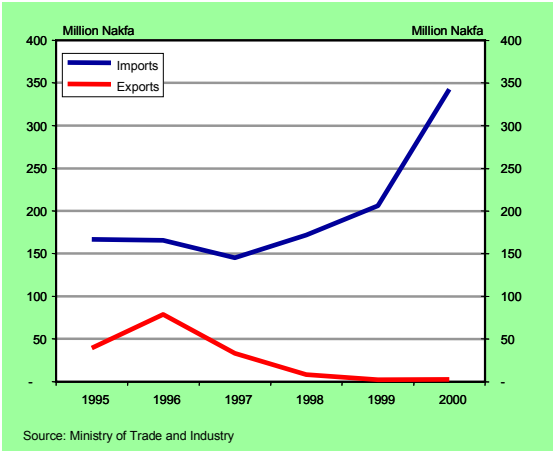


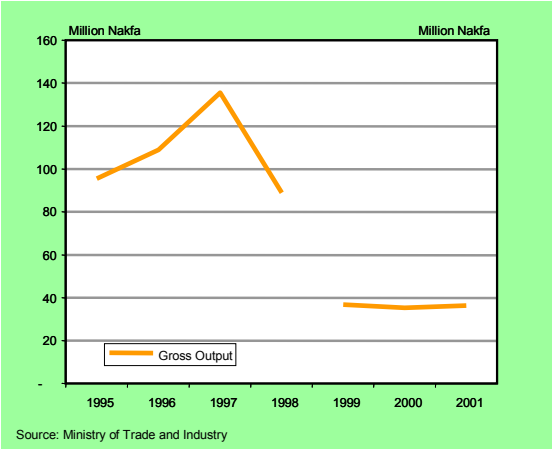
Figure 3.16: International Trade Trends



3.4 Leather and footwear industry

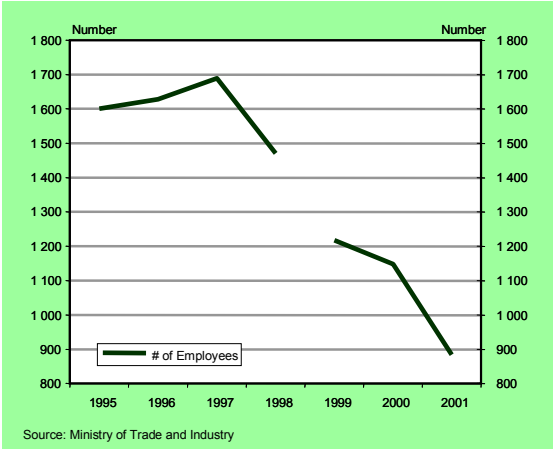
Eritrea is one of a few countries in Africa with a tradition and skill base in leather and leather goods production. The industry was further developed by the Italians in the 1940s who transferred knowledge and skills, as well as provided markets for leather products and footwear of Eritrean origin. Although production diminished during the boarder conflict with Ethiopia, the sub-sector is slowly being revitalised and accounts for approximately 10 per cent of those employed in the manufacturing sector

Figure 3.17: Production



Source: Ministry of Trade and Industry

Figure 3.18: Employment



Source: Ministry of Trade and Industry

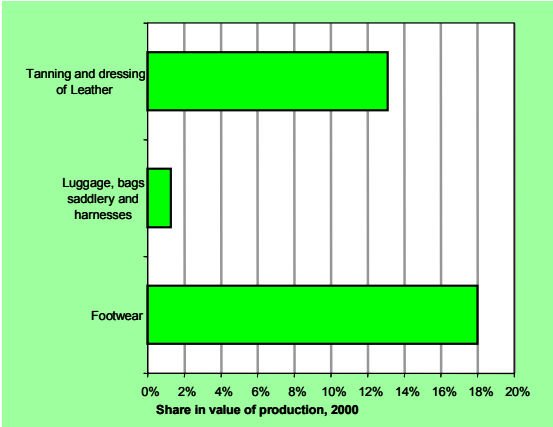
The leather and footwear industrial enterprises are faced with a number of constraints such as the lack of skilled technicians and designers, lack of technological and R & D capabilities. Nevertheless, the quality of goods produced is comparable to those produced by some of the developed countries. Eritrea exports not only sheep, lamb and kid skin leather, but also whole bovine skin leather, footwear and other leather products.

Figure 3.19: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
611.5	Sheep or lamb skin leather	5.9
611.0	Leather (tunned skins and hides)	5.7
611.6	Goat or kid skin leather	3.7
611.3	Whole bovine skin leather	2.4
851.0	Footwear	0.9
	Total (including others)	**18.6**
	Imports	
851.0	Footwear	20.1
851.9	Parts of footwear	7.2
831.0	Traveling bags, hand bags, samsonite and the like	4.5
612.1	Articles of leather or of composition leater, of a kind used in machinery or mechanical applicances or for	0.1
	Total (including others)	**31.8**

Source: Ministry of Trade and Industry

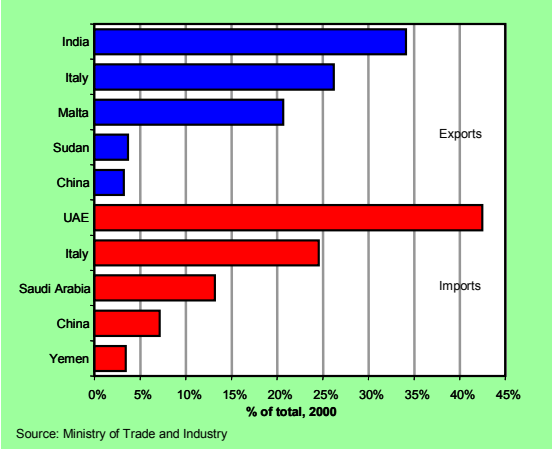
Figure 3.20: Commodity Production



Source: Ministry of Trade and Industry

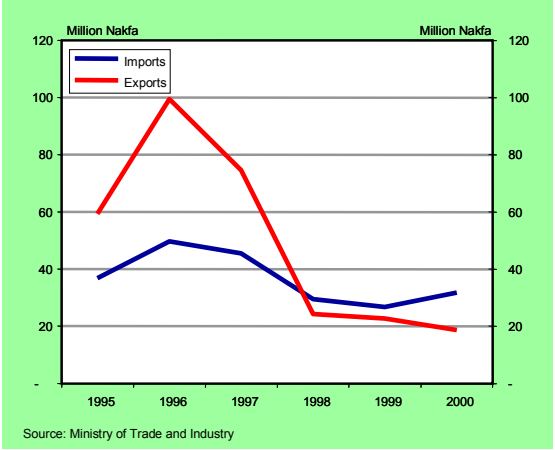
The country, however, continues to import footwear and leather goods mainly from Italy, the United Arab Emirates, Saudi Arabia and China.

Figure 3.21: Important Trading Partners



Source: Ministry of Trade and Industry

Figure 3.22: International Trade Trends



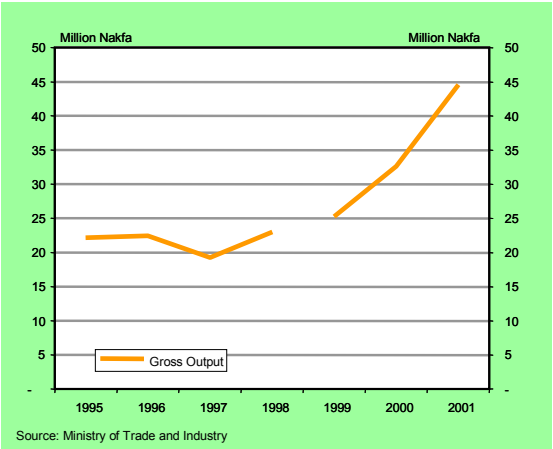
Source: Ministry of Trade and Industry

3.5 Wood and paper industry

Eritrea has experienced cyclical droughts in recent years, which have devastated the country's forest resources. The indiscriminate use of forest resources to provide wood and charcoal energy for rural and urban households has also contributed to the widespread depletion of forest resources. This inevitably led to the shortage of wood for the wood industry.

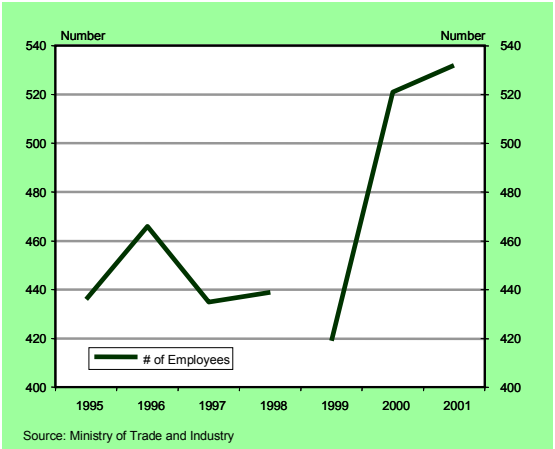
There are about eight or more small enterprises engaged in furniture production, as well as medium-large public enterprises, some of which are yet to be privatised. Although employment in this sub-sector was drastically reduced in 1994, recent improvements in some of the production lines, as well as some new investments have resulted in increased employment.

Figure 3.23: Production



Source: Ministry of Trade and Industry

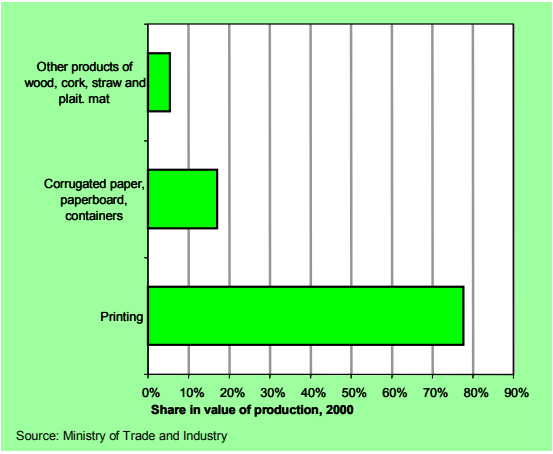
Figure 3.24: Employment



Source: Ministry of Trade and Industry

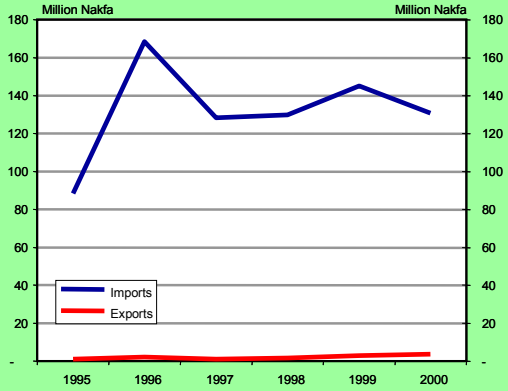
With the increase in production brought about mainly by the expansion in printing, there is some potential for exports to neighbouring countries.

Figure 3.25: Commodity Production



Source: Ministry of Trade and Industry

Figure 3.26: International Trade Trends



Source: Ministry of Trade and Industry

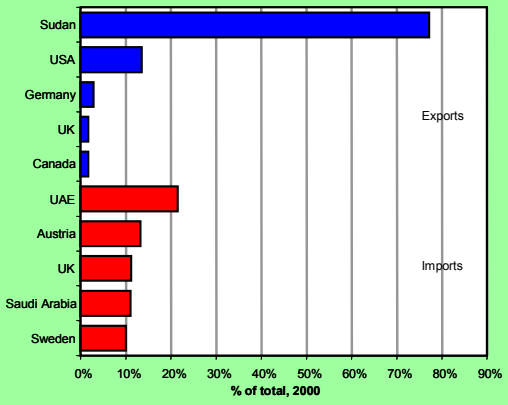
Eritrea however continues to import large quantities of plywood, veneered panels and similar laminated wood, paper, paperboard, etc. During the year 2000, approximately 131 million Nakfa worth of products were imported of which 50 per cent was spent on the importation of plywood, panels, laminated wood and other forms of wood.

Figure 3.27: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
635.9	Manuffactured articles of wood, n.e.s.	2.8
892.1	Books, phamplets, maps & globs, printed (exc.advertising mat)	0.7
892.2	Newspapers, journals and periodicals	0.1
	Total (including others)	**3.7**
	Imports	
634.4	Other plywood venered panels and similar laminated wood	30.9
247.0	Wood in the rough or roughly squared	30.5
641.0	Paper and paper board in rolls/sheets (for printing…)	15.5
642.1	Paper and paperboard for matchboxes, cartones, cases, n.e.s	6.8
641.5	Filtering paper, cigarette paper, uncoated, n.e.s.	5.4
	Total (including others)	**130.6**

Source: Ministry of Trade and Industry

Figure 3.28: Important Trading Partners



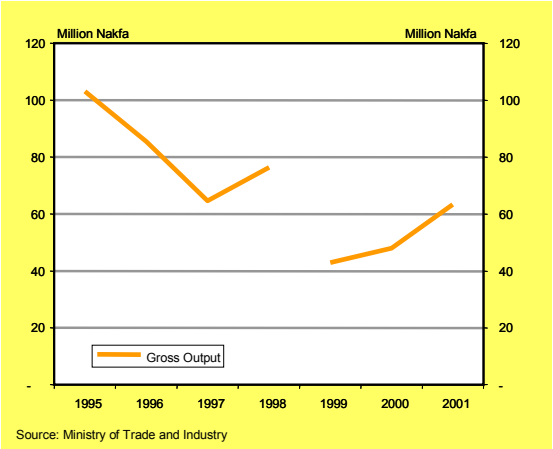
Source: Ministry of Trade and Industry

Most of the country's exports in this sub-sector were destined for Sudan and the USA. The imported items were mainly sourced from the United Arab Emirates, Australia, the UK and Saudi Arabia.

3.6 Chemical industry

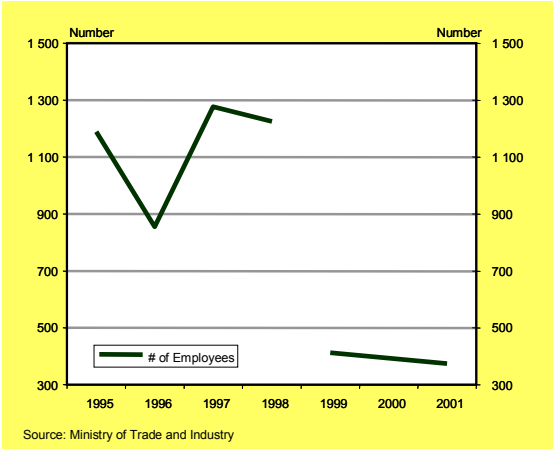
The chemical industrial sub-sector produces a wide variety of products aimed at satisfying basic needs including pharmaceuticals and medical products, toiletries, salts and active ingredients for production of other chemical goods. The country is endowed with potash and phosphate rocks, which could be used to produce fertilisers. The shortage of foreign exchange is one of the major constraints to developing this scientific and technology intensive industrial sub-sector. Production has, however, increased by some 48 per cent since 1994, although the sub-sector experienced some decline in production 1995-1997 as well as in 1999.

Figure 3.29: Production



Source: Ministry of Trade and Industry

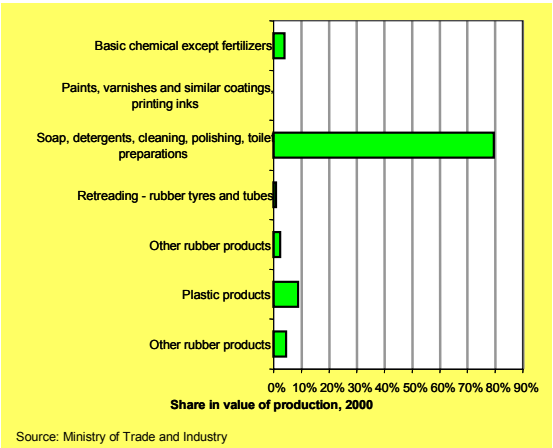
Figure 3.30: Employment



Source: Ministry of Trade and Industry

The chemical product sub-sector is the third largest employer of industrial labour. There is a shortage of skilled workers, technicians, technologists, scientists and chemical engineers. The methods of production are antiquated and the lack of spare parts and difficulty in procuring some of the raw material inputs are also constraining the development of this sub-sector. Nevertheless, the country has been able to sustain the same export markets for some of its commodities.

Figure 3.31: Commodity Production



Source: Ministry of Trade and Industry

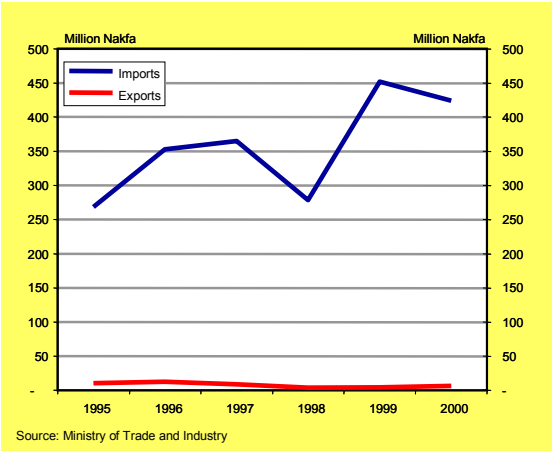
Figure 3.32: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
541.0	Medical and pharmaceutical products, other than medicaments	5.3
553.5	Shaving, bath, toilet preparations; perfumes, cosmotics	0.4
629.9	Articles of hardened rubber /of unhardened rubber, n.e.s.	0.4
554.1	Soap, organic surface-active products and preparations for use as soap, in the form of bars, cakes, moulded pieces or shapes	0.2
625.0	Rubber tyres and inner tubes for wheel of all kinds	0.1
	Total (including others)	**6.4**
	Imports	
541.0	Medical and pharmaceutical products, other than medicaments	102.6
625.0	Rubber tyres and inner tubes for wheel of all kinds	55.9
629.9	Articles of hardened rubber /of unhardened rubber, n.e.s.	53.7
334.5	Lubricating petroleum & oils from bituminous minerals	26.0
523.0	Metal salts and peroxysalts, of inorganic acids	16.9
	Total (including others)	**424.1**

Source: Ministry of Trade and Industry

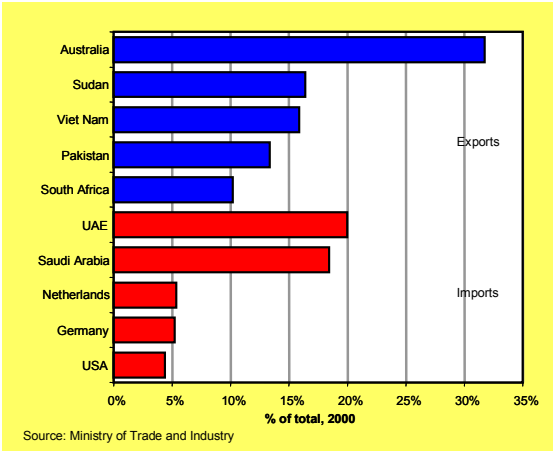
The country continues to rely heavily on imported chemical products, pharmaceuticals, other medical products, tires for motor vehicles, petroleum products and inorganic salts. The main trading partners are Australia, Sudan, Vietnam and Pakistan for exports and the United Arab Emirates, Saudi Arabia and the Netherlands for imports.

Figure 3.33: International Trade Trends



Source: Ministry of Trade and Industry

Figure 3.34: Important Trading Partners

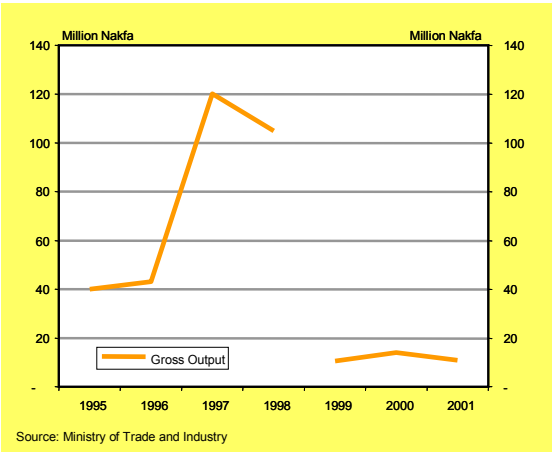


Source: Ministry of Trade and Industry

3.7 Non-metallic mineral industry

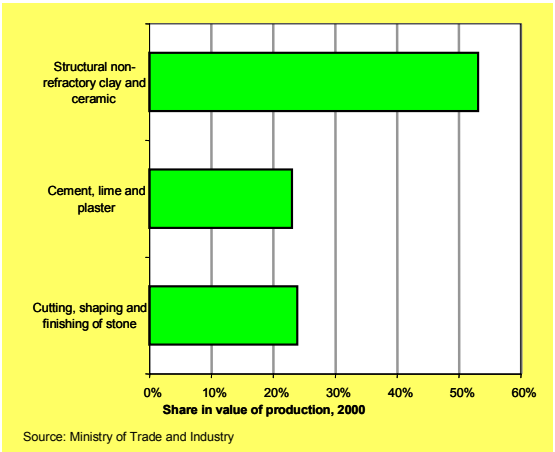
Eritrea is endowed with non-metallic minerals such as granite, marble, slate, limestone potash and silica. The marble industrial enterprises, as well as enterprises manufacturing cement, ceramic products and glass are the most promising as over 80 per cent of the raw materials are produced locally. The cement industry produces mainly for the domestic market. However, a small percentage of its output is exported to neighbouring Sudan. In 1996-1997 total production in the sub-sector increased by over 300 per cent but declined quite significantly in 1998-1999. The level of production has since remained constant.

Figure 3.35: Production



Source: Ministry of Trade and Industry

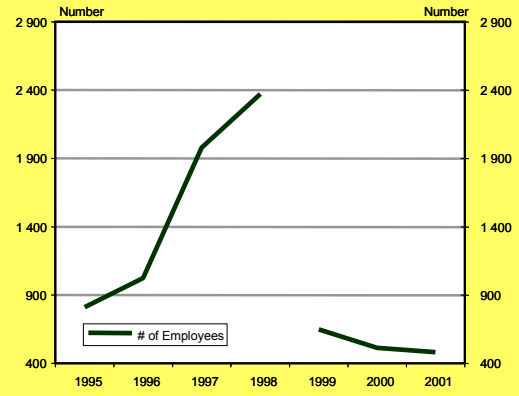
Figure 3.36: Commodity Production



Source: Ministry of Trade and Industry

The potential for growth in this sub-sector is closely linked to the development in the building and construction industry. The national reconstruction programme of infrastructure devastated by war and the rehabilitation of industrial enterprises and other physical infrastructures would require considerable quantities of cement, marble, glass, etc., some of which could be produced by domestic industries.

Figure 3.37: Employment



Source: Ministry of Trade and Industry

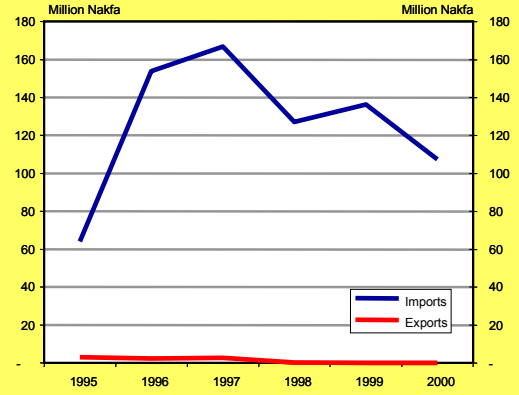
Figure 3.38: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
661.2	Portland cement, aluminous cement, slag cement, spersulphate cement	0.1
	Total (including others)	**0.1**
	Imports	
661.2	Portland cement, aluminous cement, slag cement, spersulphate cement	68.6
662.4	Non-referactory ceramic bricks, tiles, pipes and similar products	12.8
812.2	Ceramic skins, washbasin, bathes, gutter tubes & the like	8.2
665.9	Articles made of glass, n.e.s.	4.8
664.1	Glass in the mass, in balls, rods, or tubes (unwanced)waste and serap of glass	4.0
	Total (including others)	**107.3**

Source: Ministry of Trade and Industry

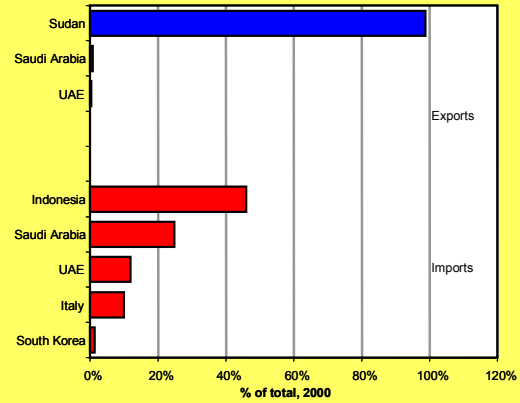
Cement still represents a large percentage of imports in this sub-sector. In the year 2000 it was estimated that approximately 64 million Nakfa worth of cement and other cement based products were imported.

Figure 3.39: International Trade Trends



Source: Ministry of Trade and Industry

Figure 3.40: Important Trading Partners



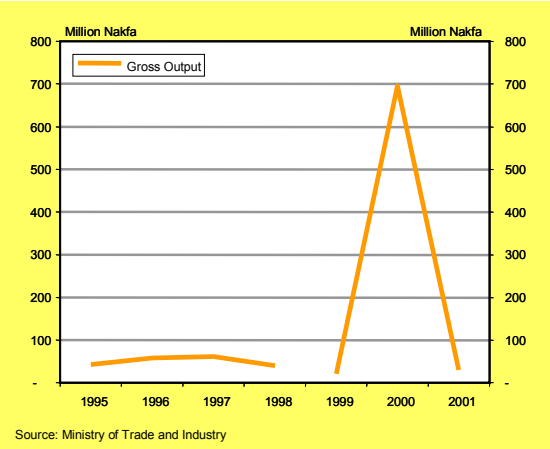
Source: Ministry of Trade and Industry

The main trading partners are Indonesia, Saudi Arabia and the United Arabic Emirates for imports, which also included various types of ceramic products, glass, etc.

3.8 Basic metal product industry

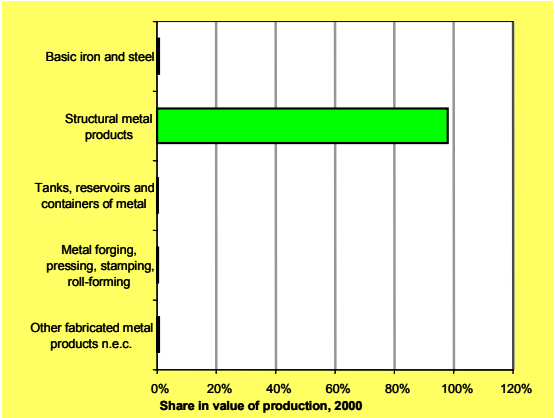
Although Eritrea has known deposits of metallic minerals such as iron-ore, gold, silver, copper, nickel, etc., the processing of these basic metals is limited. The iron and steel industry is not fully developed. The existing iron and steel works and metal-working units produce mainly iron and steel bars, wires, springs, rails, beds, chains, billets and cutlery.

Figure 3.41: Production



Source: Ministry of Trade and Industry

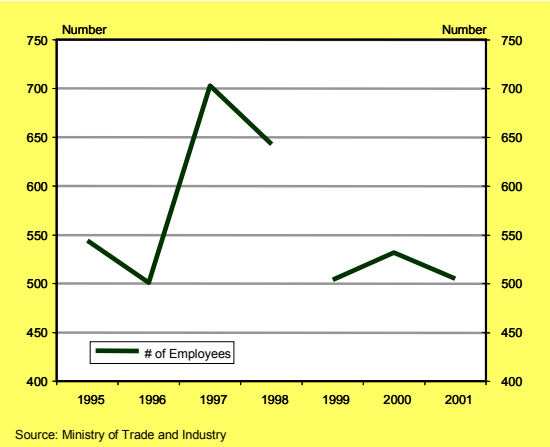
Figure 3.42: Commodity Production



Source: Ministry of Trade and Industry

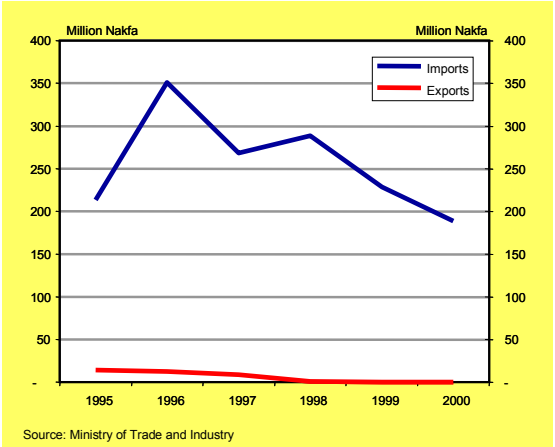
Production in the sector has been erratic, from an extremely low base in the mid 1990s to a peak production year of 2000. The sub-sector experienced a drastic fall in 2001. The same trend was experienced with employment in the sub-sector.

Figure 3.43: Employment



Source: Ministry of Trade and Industry

Figure 3.44: International Trade Trends



Source: Ministry of Trade and Industry

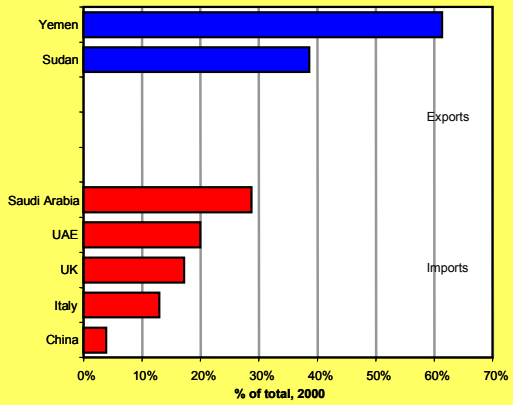
The country imports a wide variety of metal products, including iron and steel bars, rods, angles, aluminium machine tools and household items. These were mainly bought from Saudi Arabia, the United Arab Emirates, the UK and Italy.

Figure 3.45: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
676.0	Iron and steel bars, rods, angles, shapes and sections	0.2
697.4	House hold articles n.e.s of iron and steel	0.1
696.0	Cutlery	0.1
	Total (including others)	**0.4**
	Imports	
676.0	Iron and steel bars, rods, angles, shapes and sections	66.4
679.0	Tubes, pipes and hollow profiles, and tube or pipe fittings of iron or steel	22.8
695.0	Tools for use in the hand or in machines	18.9
697.4	House hold articles n.e.s of iron and steel	14.9
692.0	Metal constainers	9.1
	Total (including others)	**188.9**

Source: Ministry of Trade and Industry

Figure 3.46: Important Trading Partners



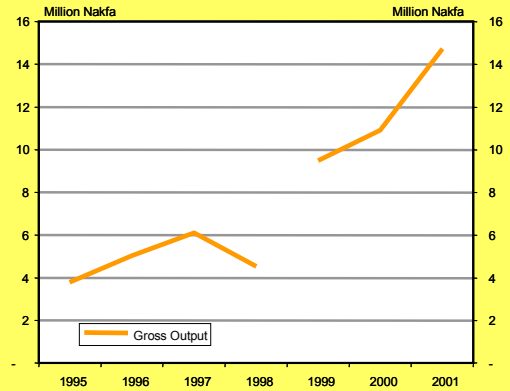
Source: Ministry of Trade and Industry

The imported products are used by some of the existing industries to produce certain goods, including household goods for both domestic consumption and export. Yemen and Sudan are the main destination for the locally produced household articles.

3.9 Fabricated metals, machinery and equipment industry

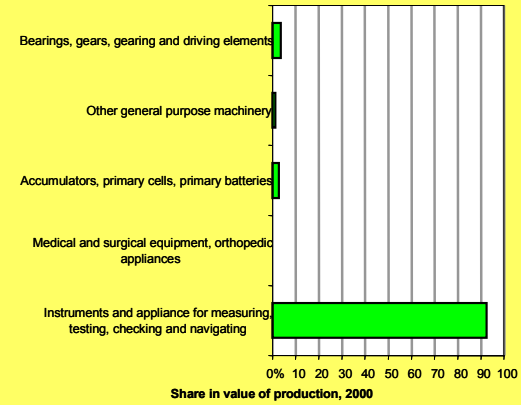
This sub-sector comprises a good number of small-scale enterprises producing fabricated metals for domestic use. Production has increased quite significantly since 1999.

Figure 3.47: Production



Source: Ministry of Trade and Industry

Figure 3.48: Commodity Production



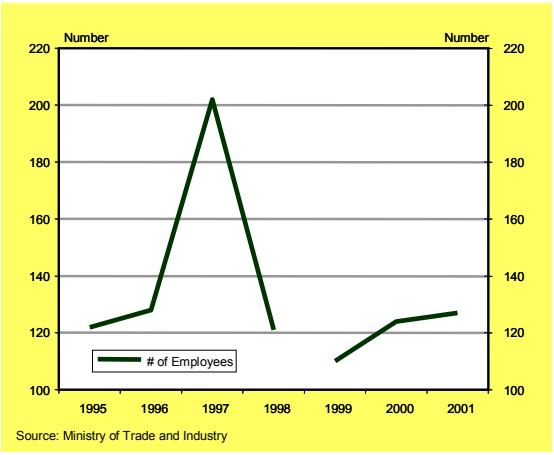
Source: Ministry of Trade and Industry

The number of employees in the sub-sector, however, declined during the same period as most of the workers were recruited in the army to fight at the border with Ethiopia.

As the sub-sector is not well developed, machinery and equipment are imported for use by other industry and services.

The main trading partners are Italy, Saudi Arabia, the United Arab Emirates and Belgium for imports and Sudan, Switzerland and Sweden for exports.

Figure 3.49: Employment



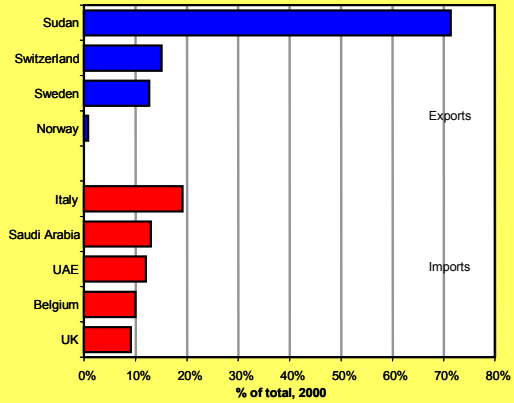
Source: Ministry of Trade and Industry

Figure 3.50: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
	Total (including others)	**0.1**
	Imports	
723.0	Civil engineering and construction plant & equipment	112.5
764.0	Telecommunications equipment & parts thereof, n.e.s	45.6
752.0	Data processing machines (computers and other adp.)	43.2
727.0	Food processing machinery and parts thereof	32.4
778.1	Batteries and electric accumulators and parts thereof	30.0
	Total (including others)	**537.4**

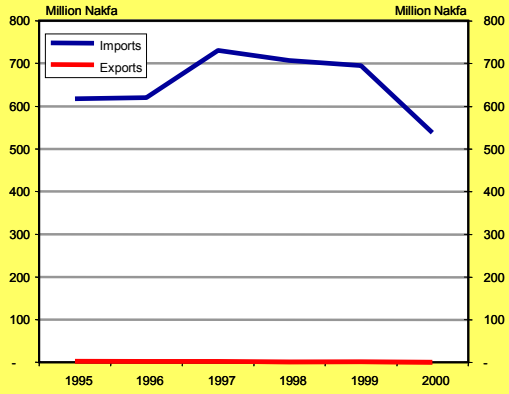
Source: Ministry of Trade and Industry

Figure 3.51: Important Trading Partners



Source: Ministry of Trade and Industry

Figure 3.52: International Trade Trends

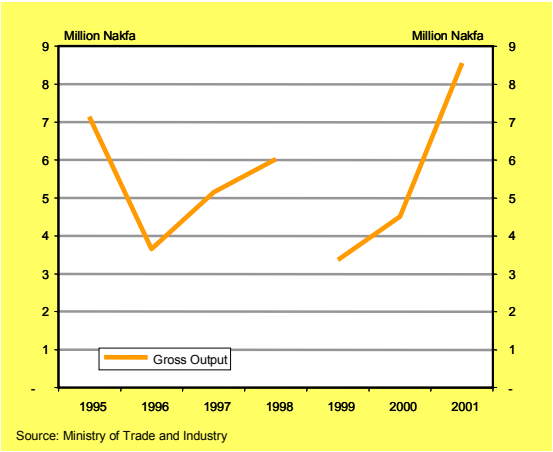


Source: Ministry of Trade and Industry

3.10 Transport equipment industry

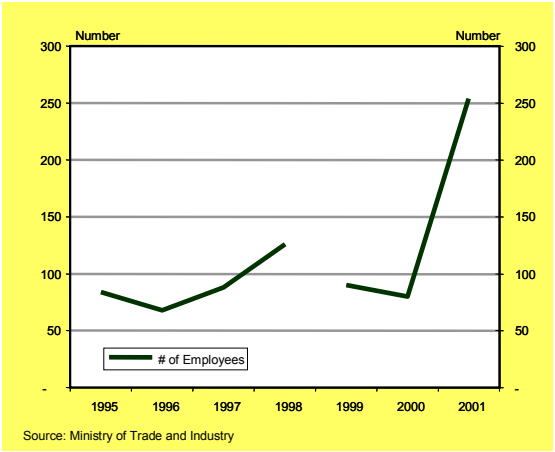
The industrial operators in this sub-sector produce mainly spare parts and other items for after sales services. Quite apart from the significant drop in production in 1996, this sub-sector has registered continuous increases in production and employment with the latter showing an increase of over 180 per cent since 1999.

Figure 3.53: Production



Source: Ministry of Trade and Industry

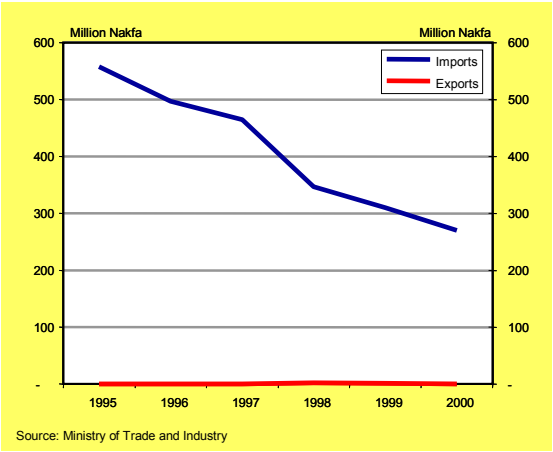
Figure 3.54: Employment



Source: Ministry of Trade and Industry

The country relies heavily on imported transport equipment, spare parts, etc. In the early years of its independence, large quantities of transport equipment were imported. Since 1995, however, imports have been declining gradually. It is recorded that in the year 2000, only 270 million Nakfa worth of transport equipment were imported compared to nearly 500 million worth in 1995.

Figure 3.55: International Trade Trends



Source: Ministry of Trade and Industry

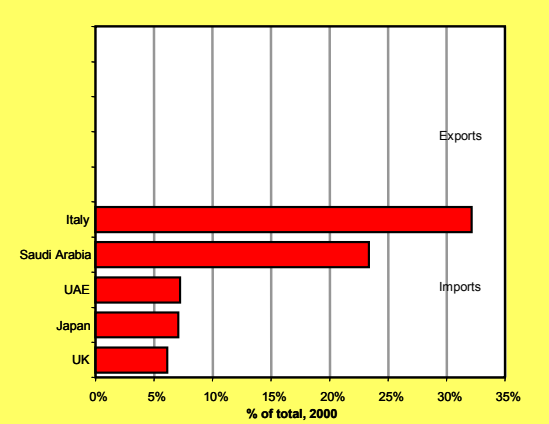
Figure 3.56: Important Traded Products

SITC Code	2000	Million Nakfa
	Exports	
	Total (including others)	-
	Imports	
782.1	Moter vehicles for transport of goods	70.5
781.2	Motor vehicles for transport of persons (small family car)	60.6
784.0	Spare parts and accessories of motor vehicles	47.6
786.0	Trailers and semi-trailers	31.4
782.2	Special purpose motor vehicles (ambulance, fire engine…)	16.4
	Total (including others)	**269.9**

Source: Ministry of Trade and Industry

The sources of imports were Italy, Saudi Arabia, the United Arab Emirates and Japan.

Figure 3.57: Important Trading Partners



Source: Ministry of Trade and Industry

3.11 Export orientated development

Fully conscious of the precarious state of industry in Eritrea and the need to reorient the country's strategy, policies and projects to ensure sustainable industrial development, the Government has adopted a two-pronged strategy to develop its industrial base. The first being the development of labour-intensive manufactured exports based on the country's abundant supply of low paid skilled and professional workers. The second thrust of the strategy is the development of the natural resource base to ensure a sustainable supply of raw material inputs for the export-oriented industry, in particular, the textile and garment industry, leather and footwear industries, as well as the food processing and other industries in which the country has a comparative advantage.

The Eritrean Government has introduced some measures to ensure success in export-oriented industrial development. Some of the important reforms and measures introduced include:

- Opening up all sectors of the economy to private investment, both domestic and foreign, including through build, operate and transfer arrangements;
- Privatising all public enterprises. (It should be noted that the Government has privatised all but 4 public enterprises). The remaining ones to be privatised are now being operated on a commercial basis with strict adherence to market discipline);
- Developing a sound financial system which will include improved capabilities in project appraisal and credit analysis;
- Simplifying the tax structure and reducing the number of income tax rates and corporate tax rates, as well as improving tax and customs administration procedures and management;
- Rehabilitating and developing the physical infrastructure of the country, including the ports of Massawa and Assab, water, electricity, transport and

telecommunication facilities to attract private investment, more specifically foreign private investment;

- Using monetary policy to attract investments, stabilise prices and contain inflation, including the adoption of a managed float exchange rate system, which allows banks and foreign exchange bureaux to set their own existing rates;
- Adopting an investment policy that encourages foreign investment in all sectors, without restriction on ownership, capital structure, access to utilities and other factor inputs and exchange controls.

Although these reforms and measures are laudable, the increasing trends of a global economy have created new challenges for governments and industrial enterprises not only in the developed countries but also in the developing countries, including Eritrea. First and foremost, the globalisation of economic activities with emphasis on a private sector driven economy, competitiveness, environmental management and quality production makes it imperative for governments and industrial enterprises to change the way they operate. The development of global finance and financial markets, as well as information technology offers unique opportunities for industries to grow and compete. However, within a particular country, certain prerequisites should be in place before industrial firms can grow, be able to compete and sustain the industrial production process.

4 Eritrea's competitive platform

4.1 Analysing competitiveness

The national environment in which industries operate plays a key role in their competitive success. Competitive success, however, depends on whether the industries have a competitive advantage in production and productivity growth, in terms of costs, quality, prices and efficiency.

There are various approaches to competitiveness. In the United States for example, the Competitiveness Policy Council defines competitiveness as *"the ability to produce goods and services that meet the test of international markets while our citizens can earn a standard of living that is both rising and sustainable over the long run"*. This is a rather restrictive concept of competitiveness, although it acknowledges that it is firms that compete and not countries. Industrial firms should operate in a dynamic environment, which encourages productivity improvements and innovation and firms should continuously strive to improve their performances.

On the other hand, the World Economic Forum (WEF), which constructs a competitive index of about 60 countries, argues that countries that are competitive are mainly those *"that have the underlying conditions to achieve rapid economic growth for a number of years, taking into account their starting income"*. The argument here is that competitiveness and economic growth are complementary. Some economists have questioned the accuracy and relevance of the competitive index on the grounds that the competitiveness indices have weak theoretical and empirical foundations and of little relevance to policy analysis.

The International Institute of Management (IMD) that publishes the World Competitiveness Yearbook argues that economic growth per se cannot determine a country's competitiveness. Other factors outlined below should also be taken into consideration:

- Domestic economic strength;
- Degree of internationalisation;
- Quality of government;
- Financial and macro-economic stability;
- Infrastructural development;
- Managerial and leadership capabilities;
- Scientific and technological capabilities; and
- Human resources – quality of human skills.

Those who argue that it is firms that compete have also stressed that at the firm level, there are certain factors that determine competitiveness such as the availability of specialised labour, technology and infrastructure, the productivity of the work

force, the efficient utilisation of raw materials, the existence of other competitors, demand factors, the existence of a network of supporting industries, as well as other favourable conditions.

4.2 Drivers of competitiveness

Michael Porter in *"The Competitive Advantage of Nations" (1990)* [1] provides a framework to determine the drivers of industrial competitiveness. This framework, succinctly described as the "National Diamond" refers to determinants, which individually or collectively can create a competitive platform for industry to develop and become internationally competitive. The "National Diamond" illustrates four broad attributes that could influence the environment in which industries compete. These are:

Factor conditions: Basic factor endowments that are prerequisites to efficient and competitive production, such as human resources, physical resources, infrastructure, capital resources and knowledge resources;

Demand conditions: The nature of domestic demand for the products of industries, as well as for services. Of particular relevance are the structure of demand, the size, the rate of growth of demand, specific needs, including Government demand and exports opportunities;

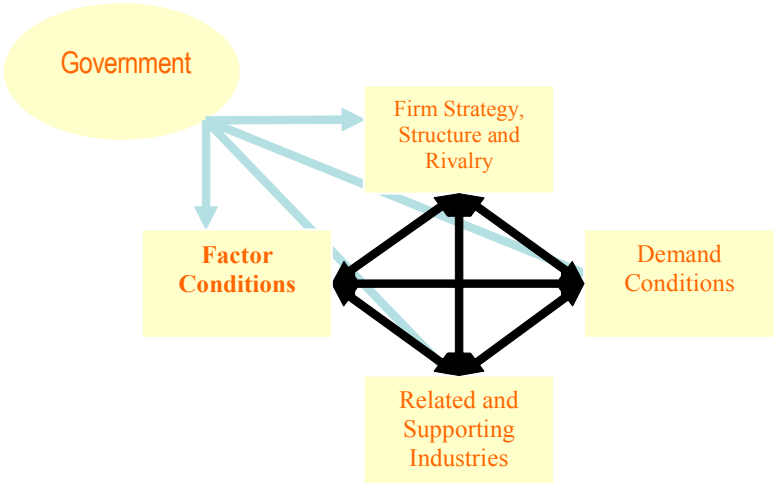
Related and supporting industries: This refers to the presence within a country of competitive industries, namely, supplier industries or related industries. Other support services are also essential such as financial services, the provision of market information and technology information that could transform production;

Firm strategy, structure and rivalry: This determinant actually refers to the condition in a country that governs how companies are organised and managed, including corporate governance and the nature of domestic rivalry.

A fifth determinant is **Government:** The Government's interface with industry – intervention or the absence of intervention. Being the main agent of development, Government can influence all of the above-mentioned determinants through its policies, subsidies, its demand for goods and services and the establishment of support institutions.

[1] Michael Porter, 1990, *The Competitive Advantage of Nations*, New York, Free Press.

Figure 4.1: Porter's Competitive Platform



The different elements of Porter's Diamond are interrelated and mutually dependent. For example, if there is a high demand for a particular product either at home or in neighbouring countries, it is highly likely that the Government will take decisions that will generate the necessary factor creating investments. Where there are a number of dynamic rival industries in a particular sub-sector, the consumers are likely to have more choice and better quality, thereby, improving the level of sophistication of home demand.

It is recognised that competitive advantage based on one or two of these determinants is possible in resource-based industries utilising less sophisticated technologies and skills. However, one cannot rule out competition from strong global industries. On the other hand, Porter argues that when there is an inter play of advantages in several determinants, industrial enterprises are likely to yield benefits and can ward of competition or rivalry from foreign enterprises.

4.3 Other drivers of competitiveness

Variations of Porter's analysis have emerged since the early 1990s. Some of the researchers involved in the analysis of *the Competitive Advantage of Nations* have advanced other variables worth considering when assessing competitiveness in a given country. According to Michael Enright, Porter's analysis provides a framework that has proven useful in analysing competitiveness in the developed countries but not quite appropriate for the developing countries because of the nature, scope and level of development of these countries. For Porter's analysis to be useful, other factors or drivers of competitiveness should be added: Enright therefore suggest the following sets of drivers:

Supranational level drivers: These are elements that are beyond the scope or control of a particular country and are influenced mainly by multilateral organisations, multilateral cooperation, international finance flows, foreign governments and trade

blocks. In assessing industrial competitiveness *"the question is whether the economy in question is favourably or unfavourably positioned with respect to relevant competitors in the supranational drivers that affect the industry under investigation*[1]*"*. The degree to which a country can work closely with international organisations to secure knowledge, best practice, policy advice and finance could influence a country's ability to compete. Eritrea's close ties with Italy is a strong advantage to develop its leather, leather products and footwear industries, areas in which the Italians have a global competitive edge. As a member of the Common Market of Eastern and Southern Africa (COMESA) the country can also enjoy certain advantages, which could contribute to the competitive performance of certain industries.

Macro level drivers[2]**:** These drivers operate at the national level cutting across industry and other sectors. Basically, they are the macro-economic conditions, government policy instruments, policy environment and institutions that should be in place if a country is to succeed in developing its economic potential and achieve competitiveness. The existing macro-economic conditions in a country are crucial as they can impact on competitiveness. The aggregate demand, inflation, interest rates, exchange rates, as well as the existence or non existence of an industrial policy could also have important impacts on the competitiveness of industries. Macro-institutions, in particular, those relating to education and training, R & D and governance are also of equal relevance and could impact positively on the competitiveness of industries.

Micro/industry level drivers[3]**:** These involve factors that are specific to industry, namely competition, cooperation, strategic grouping, the existence of micro-level policies and institution of relevance to the industry. Where there is competition among enterprises of a particular industry, there is a desire to improve on production methods and product quality. Such competition could eliminate inefficiencies and encourage the development of lead firm. Competition could also be disastrous if there is no room for cooperation, especially in terms of sensitive activities such as market intelligence, export promotion, research, training and the provision of certain kinds of infrastructure.

Meso/cluster level drivers[4]**:** These drivers are necessary for industries in the same vertical production chain. They include various inputs that are available to the domestic enterprises, the nature of demand, as well as policies and institutions at meso or cluster level. According to Enright, inputs such as land, labour, capital, infrastructure, knowledge, technologies, raw materials and support services can provide a source of advantage to enterprises and increase their chances of becoming competitive.

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[1] *Public Private Partnership for Economic Development and Competitiveness with special Reference to the African Experience*, UNIDO, 2000.

[2] *Public Private Partnership for Economic Development and Competitiveness, with Special Reference to the African Experience*, UNIDO, May 2000.

[3] Ibid.

[4] Ibid.

Firm level drivers[1]**:** Given that it is firms that compete and not nations, *"firms should be able to exploit locational advantages and overcome locational disadvantages"*. The existence of favourable conditions at the macro-economic level or the supranational level is meaningless if industrial firms are unable to take advantage of their position in the market place. Enterprises that make good use of knowledge resources, improve technological process, create attractive price and performance package will definitely do better than those that continue to produce with the same antiquated methods of production.

In addition, Enright indicates that *"the strategies and organisation of firms can be heavily influenced by the corporate governance system present in the economy. Such system creates numerous influences on the behaviour of firms and managers. Governance systems that reward innovation and improvements, rather than special relationships and non-transparency, are those most likely to send signals to firms consistent with fostering competitive industries and high development potential*[2]*"*.

Most of the elements addressed in the five categories of drivers of competitiveness are also addressed by Porter in his analysis of *The Competitive Advantage of Nations*. In the remaining section of this chapter, Porter's framework and the various drivers introduced above, as they apply to Eritrea will be critically examined.

4.4 Factor conditions

These conditions could be grouped into five broad categories as follows:

- Human resources;
- Capital resources;
- Physical resources;
- Infrastructure; and
- Knowledge resources.

The theory of comparative advantage regards a country's endowment with such factors as one of the most significant indicators of a country's ability to compete. The availability of such factors, however, may not necessarily result in competitiveness.

Porter in his analysis makes a distinction between basic and advanced factors; generalised and specialised factors. Basic factors comprise natural resources, human resources, including skilled and semi skilled labour, which require relatively modest investment. The advanced factors enable a country to produce distinctive products and involve high-level investments in, for example, production technology.

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[1] Ibid.

[2] *Public Private Partnership for Economic Development and Competitiveness, with special Reference to the African Experience*, UNIDO, May 2000

The existence of advanced factors is vital to an industry's capacity to innovate and upgrade its production process, as well as product design to achieve competitiveness. Specialised factors refer to highly specific skills and knowledge resources, as well as specific infrastructure of relevance to the efficient functioning of a particular industry. The generalised factors are those factors that can be employed in a wide range of industries such as a pool of well-motivated engineering graduates.

It is very unlikely for any particular country to create and upgrade all the various factors as there are other determinants that can influence their creation or upgrading, for example, the domestic demand conditions, the nature and scope of domestic rivalry, as well as corporate strategies and goals. The inadequacy of factor conditions need not necessarily be a disadvantage as there have been a number of cases where disadvantage in certain factors has forced some firm or countries to innovate and increase the efficient use of these factors. The Japanese just-in-time delivery system was cited by Porter. This system was adopted to overcome the shortage of land for warehouse and stock piling. Another example is the horticultural industry in the Netherlands, which has developed sophisticated greenhouses to compensate for the lack of sunshine all year round

4.4.1 Human resources

In common with other developing countries, Eritrea is faced with major problems and constraints one of which is the shortage of professional, skilled and semi-skilled human resource. As indicated earlier, the availability of industrial human resource is one of the prerequisites for a competitive and sustainable industrial sector.

Human resource as a labour force is defined as a statistical concept comprising demographic characteristics such as total population with its breakdown to the economically active population, the employed, underemployed and unemployed and the economically inactive population. The country's National Economic Policy Framework and Programme (the Macro Policy) defines a policy framework for human resource development as inter alia:

- Skilled manpower requirements of both the public and private sectors will be met by steadily increasing enrolment at secondary and vocational schools;
- The emphasis of technical and vocational training will be the imparting of multi-craft dexterity and skills that enhance jobs adaptability and re-training potential of the student[1]

The Macro Policy is people-focused and foresees the attainment of a self-reliant and self-sustained economy through, inter alia, a highly professional, skilled and knowledgeable work force.

[1] Government of the State of Eritrea, National Economic Policy Framework and Programme (1998-2001).

i Labour force

The labour force is estimated at around 700,000 of which 55 per cent are in agriculture, 28 per cent in manufacturing (it is estimated that there are around 25,000 employees in the manufacturing sector). The remaining 17 per cent are in the services, trade, transport and communication, as well as in the mining, building and construction industries. The existing labour force cannot be classified as being advanced due to inadequacies in the following:

- Level of education;
- Availability of industry –specific skills;
- Work morale;
- Organised labour;
- Level of productivity; and
- Government's regulatory impact on skill transfer.

ii Education

The adult illiteracy rate in Eritrea is extremely high. It is estimated that approximately 75 per cent of the adult population are illiterate. The Government recognises that the system was seriously undermined during the struggle to regain independence from Ethiopian rule and, on assuming power, adopted a strategy to extend basic education to all in both rural and urban areas. A nation wide campaign was also initiated. In 1999, it was estimated that about 52.2 per cent of male and 47.9 per cent of female children of school going age were enrolled in elementary schools. At the middle school level the figures were 40.1 per cent of male and 36.5 per cent of female. Whereas at the secondary school level, only about 17.4 per cent of male and 13.4 per cent of female were enrolled.

Technical education and vocational training are also provided. There are six institutions focusing on industry and industry-related subjects. The main focus areas are in mechanics, electricity, electronics, woodworking, metalworking, machine shop and construction. The training available is not of specific relevance to the structure of industry in the country. There are no institutions providing specific training in textiles and food processing. It was only recently that training in leather, leather product and footwear was introduced.

The University of Asmara has been restructured and expanded with an enrolment capacity of 1000 new students per annum. In 2001, there were about 4600 university students studying for various degree programmes. With about 29 departments and some 200 academic staff, the University is reasonable well equipped. The University is expected to contribute to national reconstruction and economic development by training people and by contributing to innovation and knowledge. University education is open to all Eritrean nationals with the required

entry qualification and competencies. Women and other disadvantaged groups are encouraged to participate in university education.

The Government is the main provider of education and the Ministry of Education is responsible for the overall educational policy, as well as monitoring of the educational system. The Ministry of Education has introduced a number of adult literacy training programme, life skill training targeting both adults and youth. The Government is also encouraging the private sector to participate in the design, planning, management and financing of vocational and technical education and training.

iii Skills for industry

The Ministry of Trade and Industry in cooperation with UNIDO undertook an industrial human resource survey in 2001/2002. According to the results of the survey of 319 sample enterprises, the total number of skilled and non-skilled permanent workers in industry was 8,377, excluding those who were on national service. About 3,342 of those employed were non-skilled workers, 753 (9 per cent) were skilled technicians, 3,308 (34.5 per cent) skilled operators, 662 (8 per cent) skilled clerks, but only 121 (1.4 per cent) and 191 (2.3 per cent) were at professionals and managerial levels respectively[1]. The situation is not quite different at the whole industrial sector level. It is estimated that approximately 41 per cent of the industrial labour force is unskilled, 47.6 per cent are machine operators and technicians, 8 per cent are clerical workers and only about 3.5 per cent are at the professional and managerial level. There is however a shortage of industrial skills. Although some 63 per cent of the enterprises, believe that they could get the skills needed from within the country, about 21.4 per cent indicate that they could not be able to get the skills required from the country. The existing training institutions are not industry specific. About 53 per cent of the enterprises surveyed offer training to their employees. The training given is basically on-the-job training. A few enterprises, however, do have their own training centres.

The inadequacy of highly technical professional and managerial capabilities is quite apparent in certain industrial sub-sectors. This inadequacy is the direct result of an education system that was state driven, based on set curricula of little relevance to the productive sectors. The policy framework for industrial skills development is also lacking. The University is gradually restructuring its curricula to meet the demand for industrial skills. There is also a shortage of artisanal skills not only in terms of share numbers but also in terms of quality. Artisans who retire or change professions are not easily replaced.

As indicated earlier, skills development has been accorded high priority in the country's Macro Policy. However, concrete measures are yet to be taken to address the problem. The Ministry of Trade and Industry with the assistance of the organisations of the UN System, in particular, UNIDO and the UNDP, has conducted

[1] Human Resource for Sustainable Industrial Development, Part I, Situation, analysis and policy recommendations, MTI, UNIDO, UNDP.

training workshops and training programmes through hands-on-learning process in leather production, textile and garment and in metal working. UNIDO has provided technical assistance resources for the establishment of a leather training institute in Eritrea

iv Work ethics

Work ethics could impact positively or negatively on the competitiveness of industry. The existing wage structure is discouraging. Wages in all the industrial sub-sectors are low and very little incentives are offered to retain skilled and trained workers. Those in the management, professional and higher technical levels are faced with high income taxes ranging from 17 per cent to 38 per cent. It is not unusual for skilled labour to move from one industry to another in search of a better salary package.

The non-availability of social amenities, limited opportunities for promotion and the weak bargaining position of workers are also influencing the level of production in industry. There are no legal or binding wage rates. Wages are determined by the contracting parties – employer and employee. There is, however, a Labour Proclamation that sets out the prevailing daily wages for unskilled workers at US$ 1.2 – US$ 1.5 a day and for skilled workers US$ 5 to US$ 9 a day.

The industrial labour force, however, has some commendable features. With an industrial culture dating back to the early 1930s, the workers tend to be highly industrious and steadfast. As observed earlier, even with a reduced number of workers in some industrial sub-sectors, as a result of the war with Ethiopia, these sub-sectors managed to sustain production levels.

v Collective organisation of labour

Given the historical development during the period under Ethiopian rule with a focus on central planning, it should be expected that organised labour is extremely low and weak. Some economists argue that the absence of strong labour unions could be a positive factor for competitiveness as it increases flexibility in the labour market. There are a few organised private sector institutions such as the Eritrean National Chamber of Commerce (ENCC). The Chamber has been restructured to represent the interest of the entire business community. It provides the private sector with market information, conducts research, organises trade missions and exhibitions and limited training programmes. The Chamber is not a lead player in skills development and, although the Chamber has influenced a number of decisions at the public and private sector levels, it does not actually provide a forum where the specific problems and constraints of individual industries or industrial sub-sectors could be addressed.

Sub-sectoral associations are slowly being formed to address specific issues related to industry. A typical example is the Eritrea Leather Industries Association (ELIA). It

should be noted that ELIA is an association of manufacturers. What is needed in a country like Eritrea is the establishment of organisations where the workers, industrial labour can express their concerns, frustrations and ambitions. The Eritrean Government is sensitive to these issues and has been revisiting the labour laws with a view to improving labour relations, the work environment and revitalising labour productivity.

vi Government regulatory impact on skill transfer

The globalisation of economic activities makes it possible for highly skilled labour not to be confined in one particular country. The demand for such labour is becoming quite competitive. Great Britain and Germany have now made it possible to recruit highly skilled professionals and technicians from the developing countries. Recognising that there is a shortage of critical skills, the Government of Eritrea has encouraged the import of such skills. The legal requirement is that, in the absence of trained nationals, investors and industrial enterprises could employ expatriates at all levels (technical or managerial) with a proviso that they train nationals who will inevitably replace them. However, concrete measures should be taken to ensure that during the contracting period of the expatriates, knowledge and skills are transferred to increase the capabilities of the Eritrean employees.

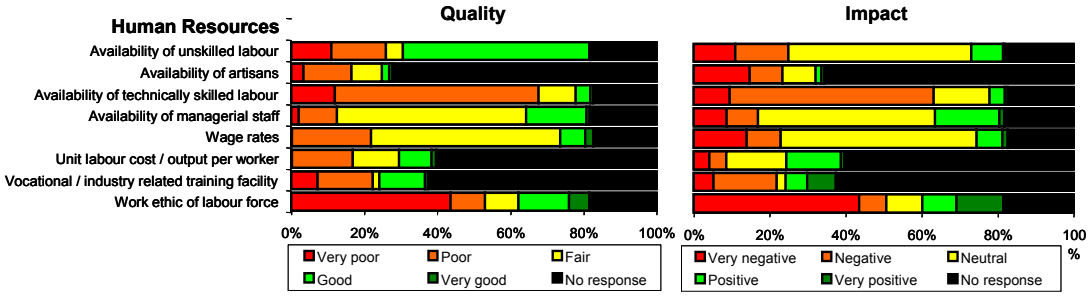
4.4.1.1 Result of sample survey of enterprises

A survey of a selected number of enterprises, representing the various sub-sectors, was conducted during the second quarter of 2002 to determine the country's competitiveness platform.

With regard to human resources, the availability of unskilled labour is considered to be quite good by some 50 per cent of the enterprises surveyed. It is generally agreed that there is an acute shortage of artisans, with negative impact on production. Regarding technical skilled labour, about 18% consider the availability of technical skilled labour to be very poor, while another 55% also rated technically skilled labour as poor. At the sub-sectoral level, industrial operators in the textile and garment industries are concerned about the inadequate supply of unskilled labour. They regard this as an impediment. The same view is expressed by enterprises in the leather and footwear, non-metallic minerals and basic metal industrial sub-sectors. In general, technically skilled workers are in short supply, especially for the leather and footwear, textiles and garment industries. For the wood and wood product industry the availability of technical skilled labour is considered adequate. Managerial skills are also in short supply. This is recognised by all the enterprises except for those in the wood and wood product industry. Other areas of concern to all the enterprises surveyed are work ethics, the availability and effectiveness of vocational industry related training facilities.

The following is a succinct presentation of the survey result on human resources.

Figure 4.3: Survey Results – Human Resources



4.4.2 Capital resources

i Monetary policy and banking system

Capital resources refer to, not only the total amount of capital resources, but also the cost and types of capital available, as well as the conditions attached to securing such resources. Access to capital resources is a major constraint to industrial development. The Government of the State of Eritrea has inherited what is considered by many as an obsolete monetary and fiscal system. With the introduction of a new currency in 1997, the Bank of Eritrea was in a better position to effect a prudent monetary policy to promote economic stability, maintain price stability and influence credit and interest rates. The banking system is still weak. Although the financial system has been liberalised, the financial market is far from being competitive. The Government, within the framework of its Macro Policy, has introduced a preferential exchange rate, which allows the informal financial sector to operate freely. These informal financial operations are involved in different kinds of rotating credit and saving mechanisms. Short and long-term credit are provided by the commercial banks and the Eritrea Investment and Development Bank.

ii Low domestic saving

The propensity to save is low. The low domestic savings is the main reason for the prevailing high real interest rates. The disposable income is very low and with a weak banking system, it is unlikely that this problem will be adequately addressed in the short term.

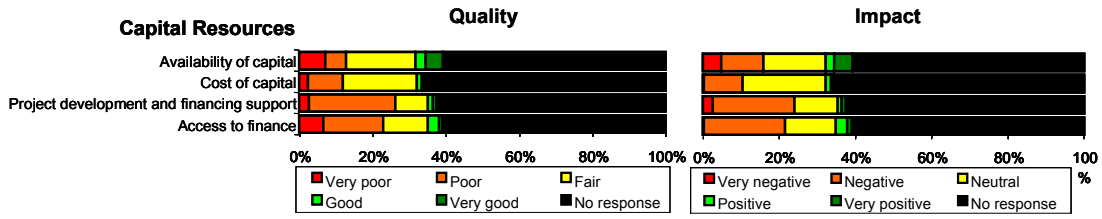
iii Investment incentives

Foreign investment is encouraged in all sectors of the economy, in particular in industry. The legal and regulatory frameworks under which private enterprises should be promoted and developed have been simplified. The Investment Proclamation Law guarantees all investments projects from nationalisation or confiscation. As the country is a signatory to the Multinational Investment Guarantee Act (MIGA), investors are assured certain rights and benefits. To attract foreign investment, however, there are other factors that should be addressed, such as the development of infrastructure, namely, roads, electrical energy, water resources, etc.

4.4.2.1 Result of sample survey of enterprises

Surprisingly, as high as 60 per cent of enterprises surveyed refrain from answering questions about capital resources. Of those that responded, about 20-25 per cent consider all aspects of capital resources to be inadequate or inappropriately addressed.

Figure 4.4: Survey Results – Capital Resources



4.4.3 Physical resources

The availability of physical resources is not the only element influencing competitiveness; access to resources, the quality of the resources, the proximity to markets, ownership, as well as the cost of such resources are elements that can impact positively or negatively on competitiveness.

i Land ownership

Ownership of land is the exclusive right of the Government but land may be granted to nationals and foreign investors. The land, however, is not to be inherited, sold or disposed of. Access to land for investors could also be a cumbersome process in spite of the facilitating role of the Eritrean Investment Centre.

Arable land in Eritrea has gradually diminished as a result of adverse climatic conditions and the indiscriminate use of forest/wood resources. Agriculture accounts for only about 20 per cent of GDP. Whereas in the 1960s and 1970s, the bulk of raw materials for the agro-industries was procured from the domestic agricultural sector, today raw materials are mostly imported.

ii Minerals

Eritrea is endowed with mineral resources, both metallic and non-metallic. Examples of such resources are marble, granite, state limestone, silica etc. Many of the known deposits of minerals remain unexploited. The Government has been conducting geological surveys to determine the nature and scope for the efficient exploration and beneficiation of these resources. The availability of these minerals and their potential for processing could impact positively on the development of the metallurgical and engineering industries in the country. These industries are a sine qua non for a sustained industrialisation process. As indicated earlier, when analysing the existing structure of industry, foreign investors have expressed interest in mining and a few of them have acquired prospecting and exploitation rights.

iii Water

The country's Macro Policy recognises the importance of water especially as a prerequisite for the country's economic development endeavour. Eritrea's geographical and climatic conditions impose certain limitations on its water resources. There is a shortage of water for industry and access to safe drinking water is also limited.

There are a few perennial rivers and lakes. Underground water is known to exist. The Government has invested in a number of new initiatives to improve the water supply. Dams have been constructed, water catchment's facilities have also been erected. Measures are also being introduced for conservation and recycling of wastewater and a long-term national water resource plan is being prepared.

iv Raw materials

Agriculture is a strategic sector and yet this sector is not well developed. Through farming and animal husbandry, a variety of products are produced for household consumption and the domestic market. As indicated earlier, the erratic climatic condition is a problem. However, the methods of farming and animal husbandry are critical problems, which should be addressed by the Government and the private sector.

Farmers are currently being given all sorts of incentives to improve the quantity and quality of products. However, with limited infrastructural facilities not much is being achieved. The alternative is to encourage the development of large-scale commercial agriculture for food production and other raw materials. The effective storage and transportation of these raw materials are also being addressed by the Government and a few operators in the private sector.

Other raw materials such as mineral resources are being investigated and encouraged to develop as already indicated in section ii above.

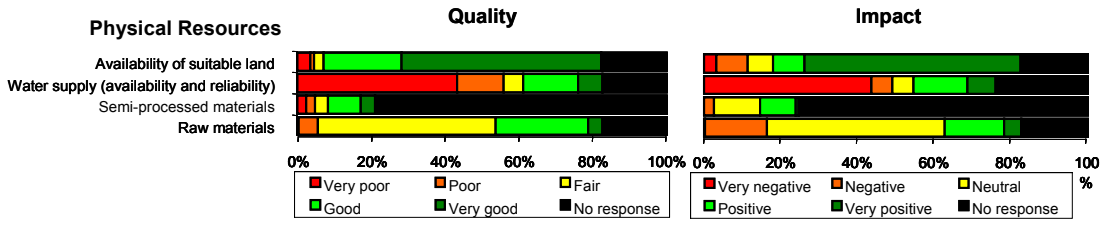
v Tourism

Favourable climatic conditions, historic sights, adequate hotel services, availability of international transport are all factors influencing the development of the tourism sector. Eritrea has a natural scenic beauty, picturesque traditional villages and a marine life that could attract tourists. The Government has developed a strategy to develop the industry, which includes privatisation of hotels, extension of the ports and airports, development of road networks and quality and environmental measures to avoid health hazards and sustain the environment. With political stability, the potential is there for a vibrant tourism sector.

4.4.3.1 Result of sample survey of enterprises

More than 70 per cent of the enterprises surveyed are concerned about the availability of water resources. However, the degree of concern varies. Whereas those in the mining industries are extremely satisfied, enterprises in the food processing, textile and wood industries rate the availability of water as poor or fair. The remaining enterprises consider the availability of water to be very poor.

Figure 4.5: Survey Results – Physical Resources



Most of the respondents are satisfied with raw material availability. The textile, leather and footwear producers have difficulty in getting raw materials locally. It should be noted, however, that some enterprises fail to respond to this question. Interestingly, these are enterprises whose raw materials are imported.

The survey also reveals that the cost of raw materials and water is a constraining element with regards to production with negative impact on competitiveness.

4.4.4 Infrastructure

i Transport and communications

Eritrea once had an impressive infrastructure of road and railway networks built by the Italians to facilitate trade and development. They were destroyed during the long war with Ethiopia. The roads are being rehabilitated and new feeder roads are being constructed to link the productive rural areas to the towns and cities where industries are located. The road from the capital Asmara to the port of Massawa has been rehabilitated.

Eritrea's main network of roads connects Massawa and Asmara, Massawa and Assab, Asmara and Decamhare, Egenaite and Zala Ambessa. Other road links include Asmara-Keren, Afabet and Nakfa in the North, as well as the Barertu Tessanai road, which leads to Kassala in Sudan. The quality of the road linking villages and cities is extremely poor, the construction of rural and feeder roads would ensure a definite and reliable linkage between the productive regions for agricultural and mineral raw materials with the urban areas where such raw materials are processed. Transport cost remains high and is a constraint to competitiveness.

The two ports of Massawa and Assab are being connected through the construction of a coastal highway. Transportation by sea is highly desirable to transport bulky raw materials and finished products to neighbouring countries and other trading partners in Africa and elsewhere. The domestic sea route has tremendous potential but so far only a handful of sea transport operators use this mode of transport.

Sea transport is also however, a major problem. The two ports of Assab and Massawa are being restructured. Warehouses and other storage facilities are in short supply. The Port of Massawa has a total of 4,600 square meters of warehouse space, an additional 46,000 square meters of open sheds and 60,000 square meters of open space. The total storage capacity of the port is 385,930 metric tons. The Port of Assab has warehouse facilities covering 25,960 square meters, open sheds of about 40,354 square meters and 209,005 square meters of open yard. The overall storage capacity is over 400,000 metric tons. However, the Port handles over 3 million tons of cargo every year.

The railway network, which was built in the 1930s, was badly damaged during the war years. The railway, if properly developed, is capable of transporting bulk raw materials and finished products at relatively cheaper rates than road transport.

Air transport was until recently operated by foreign countries. The country now has its own national airline, which operates from Eritrea to selected countries in Europe, Africa and the Middle East.

The airports at Asmara and Assab have been upgraded to handle both passenger and cargo jets. The installed facilities for cargo are inadequate because of the limited number of airlines linking Asmara and Assab with the outside world. Direct access to export markets or to suppliers is extremely limited. The costs of air cargo services are therefore excessive and non competitive.

Transport network is clearly inadequate but progress is being made to improve on the existing network.

Telecommunication services are available in the country but not quite reliable. The cost of telecommunications is extremely high. The availability of Internet access has created an efficient avenue for business to access industrial information and be connected with suppliers and clients worldwide. The cost of telecommunication, however, remains very high.

ii Electricity and energy

The most important sources of energy in Eritrea are biomass and from petroleum products. Fuel wood represents more than 70 per cent of biomass energy. Imported petroleum accounts for about 20 per cent. Petroleum products are essential for industrial energy and for thermal energy generation. The Macro Policy calls for the development of the energy sector. The energy generating facility at Hirghligo is being reconstructed with a new 84 M.W. power station. The possibility of exploiting and developing alternate sources of energy are being explored. Measures are being taken to address the supply and high cost of electricity.

iii Social infrastructure

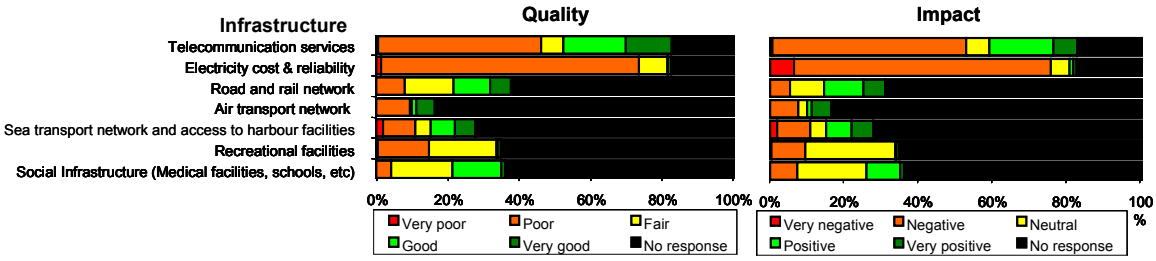
The social infrastructure is also being developed. New schools are being built and the private sector is being encouraged to invest in education and training. Vocational and technical schools are also being upgraded. The Government is aware of the status of the nation's health. It is estimated that over 50 per cent of the rural communities lack basic healthcare facilities. Nation-wide, there are only about 20 hospitals, most of which are not well equipped. Health centres are unevenly distributed and basic healthcare is in a precarious state. The country's National Healthcare Programme aims at providing healthcare services for all, including the establishment of health promotion services. With the rise in HIV/AIDS infections, a comprehensive national HIV/AIDS programme is being developed.

4.4.4.1 Result of sample survey of enterprises

The inadequacy of infrastructural facilities and the high cost of transportation and energy are detrimental to industrial development. Most of the enterprises surveyed

refrain from responding to the questions raised about infrastructure. However, of those who responded, more then 70 per cent identify electricity cost and availability as a major constraint; 55 per cent consider telecommunication services to be poor. Telecommunication and electricity cost and availability are considered to have very negative impacts on industrial development and the ability of industry to compete.

Figure 4.6: Survey Results – Infrastructure



4.4.5 Knowledge resources

Porter contends that knowledge resources are to be found in the universities, research institutions both government and private sector owned, in market research etc. The global economy relies heavily on knowledge resources and information and communication technologies. It is a knowledge driven economy in which knowledge is an important factor of production, a means to improve the economic performance of countries or to transform industrial processes. The increasing speed of continuously revolutionising information and communication technology has made it possible to disseminate R & D results, as well as codified and tacit knowledge much more rapidly around the globe. Knowledge is also about know-how, creativity and intelligence, in particular, the intelligence to be found in various software and technology.

Some economists believe that unlike other factors of production, knowledge does not diminish in value but rather increases its value upon use[1]. The information revolution driving the global economy has, therefore, widened the range of human resources which now include research and applied development, the use of computer aided design and computer aided manufacturing (CAD/CAM) techniques, as well as sophisticated marketing techniques. It is not unusual for a firm established in Britain or in the USA to have some of its transactions being processed in Bangalore or New Delhi in India and business transactions concluded in a matter of minutes through the fusion of information and communication technologies.

The impact of knowledge resources on competitiveness will depend, not only on the research capacity and accumulated knowledge found in the universities and other business information providers, but also on the country's or firm's ability to master,

[1] B. Arthur "Increasing Returns and the New World of Business" Harvard Business Review, July/August 1996.

absorb and utilise knowledge to transform production process, improve the quantity and quality of products and encourage more and more innovations.

i Institution infrastructure

The University of Asmara aims at becoming a centre of excellence for academic research and specialised knowledge, while at the same time establishing strategic alliance with the private sector. A major problem, however, is resource allocation between discovery and generation of knowledge on the one hand and dissemination on the other. The priority appears to have been given to the latter. The research being done by the University in a university setting is not demand driven. In conducting its research, the University does not respond to market signals. What the country needs desperately is to sustain industrialisation in business and professional services.[1] The University with its pool of specialised talents could provide such services. In addition to the University, the individual line ministries have established research and human resource development divisions, that are expected to provide training, disseminate knowledge to other divisions within the ministries, as well as conducting research, including applied research in specific fields.

There is a dearth of R & D institutions and facilities in Eritrea. A few industrial enterprises have installed laboratory facilities, which are not so well equipped. There is a definite need to establish R & D facilities to support the industrialisation process. Whatever research programme exists in the country, it hardly addresses the issue of competitiveness.

ii Market and product information

The Eritrean National Chamber of Commerce appears to be the only source of market information and, to a limited extent, industrial and technological information. There is definitely a dearth of industrial and technological information in the country. Internet/satellite connectivity was only approved by the Government in 2001, therefore certain information are not yet in place. The information provided by the Chamber is considered good but is available at irregular intervals. Relevant information on industry is either inadequate or simply not available. The statistical capacity and capabilities need to be strengthened, in particular, to collect and process industrial information of relevance to trends analysis, policy development, implementation and monitoring.

[1] Human Resource for Sustainable Industrial Development Part I – Situation analysis and policy recommendations. MoTI, UNIDO, UNDP, 2003.

iii Low connectivity and networking

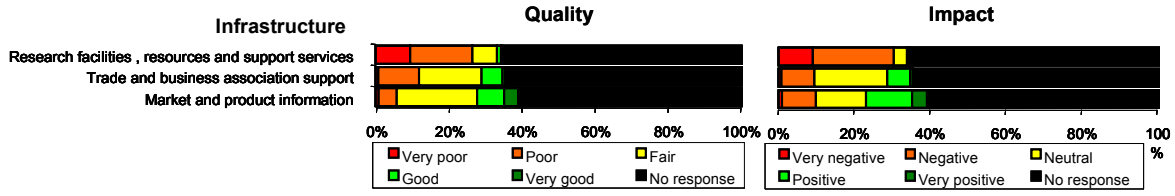
As indicated earlier, the global economy is a knowledge driven economy, therefore, countries and industrial enterprises must get on-line. Information and telecommunication technology have proved useful in transforming products, processes and marketing in the developed and developing countries. However, very few businesses/industries have Internet access in Eritrea. Even government departments are not adequately switched on to the Internet. Without the requisite information, infrastructure and Internet connectivity, Eritrea's industry will be at a disadvantage. It is imperative that the private sector, Government and the educational institutions develop more capabilities in the use of computers.

4.4.5.1 Result of sample survey of enterprises

Of the industrial enterprises surveyed, many are not so concerned about knowledge resources and tender in a no response. The few respondents consider knowledge resources a major problem. Over 80 per cent of the enterprises that responded think that what is available is deplorable with very little impact on industrial activities.

Enterprises in the wood and wood product industrial sub-sector are impressed with the knowledge resources made available to them. A similar response is given to the availability of market and product information. Those engaged in leather, leather good and footwear production are dissatisfied with the market and product information services or have limited access to market and product information by virtue of not being properly wired to the Internet. The industrial enterprises in the non-metallic mineral and basic metal industries, as well as those producing fabricated metal, machinery and equipment are reasonably satisfied with the information available.

Figure 4.7: Survey Results – Knowledge Resources`



4.5 Demand conditions

The focus is on the nature, scope, size and patterns of growth of domestic demand for industrial goods and services. Demand conditions at home often impact on the pace and type of innovation that could, inevitably, increase competitiveness. Porter,

in his analysis, argues that in the pursuit of competitiveness, the nature and quality of domestic demand are of greater significance than the absolute size of the domestic market. In his view, when there is a dynamic domestic demand for a particular product or products, domestic enterprises are constantly under pressure to come out with new and better quality products and services or improve packaging. In short, they have to innovate, thereby, providing better value for money.

Examples of elements of domestic demand that can encourage competitiveness are:

- A particular demand for an industry's product or services that represent a significant share of the total national demand;
- The increasing presence of sophisticated and demanding local buyers; and
- Domestic demand that anticipates and leads to international demand.

Porter argues that segments of an economy that are important globally and represent a higher share of local consumption would provide domestic industries with a source of advantages in that these segments will receive earlier and more attention by manufacturers and are more likely to become competitive.

The size and pattern of growth in domestic demand could lead to competitive advantage and where there are economies of scale, there is a tendency for industries to invest more in innovation, technology, etc., to improve production. The very presence of a large number of independent buyers with sophisticated demand or specific ideas on product requirements could encourage manufacturers to invest more on innovation. In time a dynamic environment will emerge for innovation, with a view to improving the quantity and quality of products. Other investors will be prepared to enter the industry, restructure and expand existing enterprises. On the other hand, Porter also reveals that if the domestic market shows early signs of saturation, manufacturers are obliged to lower prices and introduce new product features, as this will stimulate demand. There is also a tendency for manufacturers to look elsewhere for new markets, especially in neighbouring countries.

The composition of domestic demand, therefore, could influence competitiveness, but more important is the size and pattern of growth of domestic demand which could strengthen competitive advantage by encouraging more investments and innovation.

4.5.1 Eritrea's demand conditions

It is estimated that the population of Eritrea is about 3.8 million with an annual growth rate of 2.7 per cent. Per capita GDP is approximately US$ 200 per annum. The size of the domestic market is therefore very limited. Demand is mainly influenced by private consumption expenditure. Although Government expenditures for basic consumer items, more specifically food, increased quite substantively during the years of conflict with Ethiopia, the consumer demand is unsophisticated. People are

more concerned with purchasing food, fuel energy and clothing. Therefore, the emphasis is on survival and subsistence.

A World Bank report in 1996, indicated that 69 per cent of Eritreans were unable to obtain sufficient food and essential goods and services. Approximately 80 per cent of those who could be considered poor live in the rural areas where agricultural productivity had declined tremendously as a result of war and adverse climate conditions. Many families rely on remittances from abroad and food aid.

Eritrea being a young state, government demand and investments are highly dependent on foreign funding. These are usually not without onerous terms and conditions. The domestic market is also penetrated with important goods, such as food, textiles, beverages, tobacco, leather products, wood and wood products, non-metallic and basic metal products, etc. The existing enterprises have a strong domestic focus, but are being encouraged by the Government to venture into export production. Marketing and distribution services and infrastructure are extremely weak, knowledge resources are also not adequate to have a positive impact on demand conditions and competitiveness.

The Macro Policy has given priority to promoting an export culture, while at the same time expanding domestic demand. The crash programme for an export take-off is a real challenge. Producers will move on from producing low quality goods for an unsophisticated domestic market to high quality goods for an external market. The textile, leather, leather product and footwear industries are primary candidates to benefit from the incentives being offered to go into export oriented manufacturing.

As Eritreans living abroad gradually return home, a dynamic environment will emerge, demand will become more sophisticated and manufacturers will invest more to improve the quality and range of products.

HIV/AIDS

The number of people living with HIV/AIDS in Eritrea is increasing annually. It is estimated that about 2-3 per cent of the population already have HIV/AIDS. In common with other African countries, those affected are mostly between the ages of 15-50 years. There are also thousands of children infected with HIV/AIDS. In 1996, HIV/AIDS was ranked as the tenth major cause of death. By the year 2000, HIV/AIDS was ranked as the first major cause of death of the adult population.

HIV/AIDS is slowly distorting production and consumption patterns, as well as sustainable livelihood. Both, urban and rural areas have seen life expectancy reduced, productivity diminishing slowly and sustainable livelihood being eroded. The United Nations Development Programme, UNDP, and the co-sponsors of UNAIDS are also taking major initiatives to help the Government in its efforts to contain the spread of the disease.

The HAMES project was launched to address HIV/AIDS, Malaria, sexually transmitted disease and tuberculosis. The aim is to provide proactive, cost effective

and safe disease control measures. The main priority is, of course, HIV/AIDS. Emphasis will be on curbing the spread of the disease, primarily through behavioural change. However, it is imperative that the long-term perspective of HIV/AIDS be addressed. Therefore, while awareness, creation, prevention and care are important issues to be addressed, more consideration should be given to the impact on production in agriculture and industry, work practices and the use of technology to ensure sustainability in production.

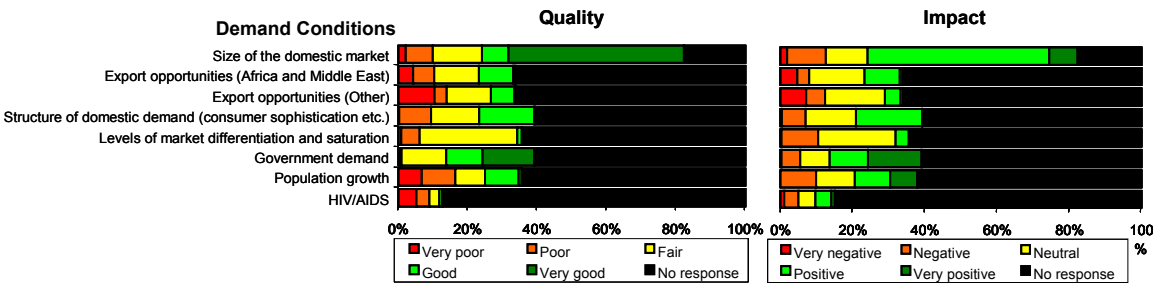
4.5.1.1 Result of sample survey of enterprises

Given the limited domestic focus of industrial enterprises, it is not surprising that over 60 per cent of those surveyed consider the size of demand to be good or very good. Poor ratings emerge from those surveyed in the leather and leather product sub-sector, as well as enterprises producing basic metal and fabricated metal products. The structure of demand receive poor to fair ratings, but some 60 per cent of those surveyed express no views on this element of the questionnaire.

Regarding export opportunities, some 60 per cent of those surveyed are not interested in exploiting exports potentials and, therefore, give no response. The remaining 40 per cent are not that convinced that there is a tremendous potential for export of manufactured goods. In general, only about 15 per cent of manufacturers think that export opportunities are good.

Regarding government demand, over 40 per cent of those surveyed consider government demand to be quite good. Their responses range from fair to very good. Very few responses emerge on HIV/AIDS. The majority of manufacturers in the various sub-sectors are of the view that there is no impact on their activities. Only about 5 per cent of those interviewed are convinced of the negative impact of HIV/AIDS on production activities. Another five per cent believe HIV/AIDS is disastrous for industrial development and sustainable development.

Figure 4.8: Survey Results – Demand Conditions



4.6 Related and supporting industries

The existence of a number of industries, in a particular country coordinating and sharing activities, augurs well for competitiveness. These industries form strategic alliances to source raw materials and other related inputs for production. These industries also establish very close working relationships and help each other in many aspects of the production process, such as in the application of technologies, accessing information that could improve the quality of products identifying possible new markets and sharing R & D results.

For example, the fashion industry in Italy, covering garments, leather products and footwear, as well as jewellery, has established networks of related and supporting industries through forward and backward integration. The design trend in the footwear industry could trigger specific designs among clothes manufacturers to correspond with the styles and colours of the shoes being produced. The footwear manufacturers in turn would have to rely on the leather producers to produce appropriate types of leather. The leather industries in Italy are internationally competitive and could be relied upon to supply good quality leather to shoe manufacturers. Porter in his analysis states that *"competitive advantage emerges from close working relationships between world class suppliers and the industry"*. It is not surprising, therefore, that Italian shoe manufacturers are among the best in the world.

Eritrea, with its close ties with Italy, has acquired some critical skills in leather goods and footwear production. The manufacturers of leather goods and footwear procure leather from the domestic leather industries whose plant and machinery are extremely old and whose outputs have declined to the extent that finished leather has to be imported into the country. As indicated earlier, a major constraint to industrial development in Eritrea is the lack of appropriate mechanisms for the flow of industrial and technological information, which could help manufacturers improve production techniques and the quality of their products.

The successful development of the food processing industry also depends on the availability of cold storage facilities and efficient transport facilities. The agricultural lowlands could be extremely hot and most of the fruits and vegetables being processed in the country are perishable goods. These products should be properly stored in cold storage facilities as raw materials and finished products. Cold storage facilities are inadequate in Eritrea. Related and supporting industries of relevance to Eritrea's industries should be identified and promoted.

4.6.1 High dependence on imported supplies of intermediate and capital goods

Although the country does have a few enterprises producing intermediate goods to be used by other industries, there are very few shared activities in the value chain. The country imports a wide variety of raw materials, intermediate and capital goods,

especially for the food processing, textile, non-metallic minerals basic metal and chemical industries.

The lack of engineering industries also makes it practically impossible for the country to produce certain types of intermediate and capital goods, spare parts and components. Engineering industries are the main suppliers of a whole range of products that can be used in other industries such as the food processing industries, metallurgical, chemical ant transport equipment industries. In addition, repair and maintenance facilities are inadequate.

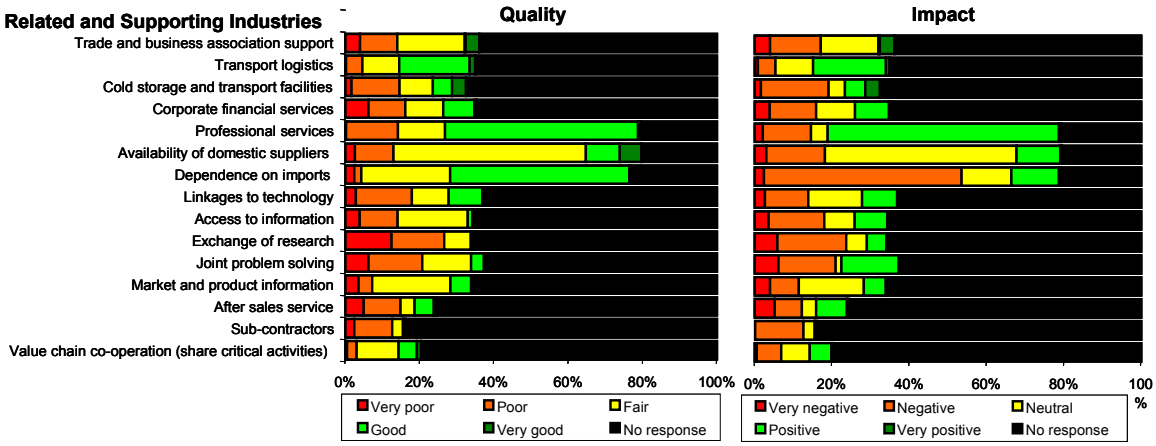
4.6.1.1 Results of sample survey of enterprises

The survey reveals that there are very few advanced value chain links in the industrial sector and cooperation along the value chain is negligible. In the food processing industries cooperation is considered to be good. The same applies to the wood and wood product industry. Overall, some 30 per cent of industries rate cooperation as poor to fair. Over 55 per cent of those surveyed provide no response to this question. This is understandable as the tendency is for individual manufacturers to go it alone in the production process.

There are a number of consulting firms offering professional services in engineering, management, production planning, etc. Their services are appreciated by about 50 per cent of those surveyed.

As there are only a few companies offering after sales services, buyers of plant and machinery have to ensure that provisions are made for such services. The quality of after sales services is extremely poor in Eritrea.

Figure 4.9: Survey Results – Related and Supporting Industries



4.7 Firm strategy, structure and rivalry

According to Porter, firm strategy, structure and rivalry are the condition in a nation relating to how companies are established, organised and managed. The way firms are managed depend on the social history, educational and cultural systems of a country. In a public sector driven economy with government ownership of industries, such industries will be managed in exactly the same way as the civil service. This was particularly true of Eritrea in the 1970s and 1980s. The successful privatisation process has reinstated the private enterprise culture. The environment in which these enterprises operate is, however, not that conducive to attract investment in innovation, human resource and in the production processes.

The number of industrial enterprises in a specific sub-sector of relevance for competitiveness is quite small, there is therefore no significant domestic rivalry. Given the low rivalry between industrial enterprises, manufacturers would rather establish alliances within a specific pipeline with other manufacturers producing upstream or down stream products. In the leather, leather product and footwear industry, there is some degree of cooperation and the manufacturers have come together to form the Eritrea Leather Industrial Association.

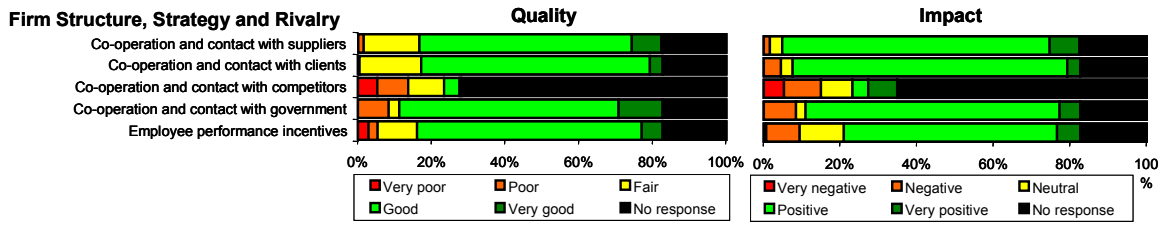
4.7.1 Result of sample survey of enterprises

The survey reveals that cooperation among enterprises is very rare. Industrial enterprises are not worried about issues affecting firm strategy, structure and rivalry. They are more concerned about macro-level drivers.

Cooperation and contact with suppliers are considered to be quite good with positive impact on production and the delivery of services. In the leather sub-sector, however, about 45 per cent of manufacturers' view both, cooperation and contact with suppliers as poor.

Regarding cooperation with competitors, the responses are few. In general, manufacturers in all the sub-sectors consider cooperation with competitors deplorable. It should be noted, however, that for manufacturers in the wood and wood product and metallic mineral sub-sectors, cooperation with competitors have a positive impact on production. A few manufacturers in the leather and leather product industrial sub-sector are also optimistic about cooperation with competitors. A significant number, approximately 65 per cent, are extremely pleased with the level of cooperation with Government. The continuing support of the Government, especially as a major consumer of goods and services has a positive impact on production. Some believe that the Government should do more to create an enabling environment for private sector-led industrialisation.

Figure 4.10: Survey Results – Firm Structure, Strategy and Rivalry



4.8 Government

The four broad determinants, namely factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry can be influenced by Government. As rightly pointed out in the country's National Economic Policy Framework and Programme: *"the Government has a clear vision, unity of purpose and strong commitment to development of a private sector–led market economy"*[1] The Government has taken concrete decisions to improve factor conditions, in particular, to increase and upgrade the educational and skill training opportunities in the country; improvement of labour law and work conditions; making land available for enterprises in the industrial sector, including foreign owned enterprises and restoring and expanding transport and communications networks devastated by war.

The Government has also introduced realistic macro-economic policies, such as taxation policy, monetary policy including an exchange rate policy, as well as an investment policy, all aimed at facilitating private sector-led industrialisation. Although government interactions and interventions are critical for industrial competitiveness, the Government's interface with industry has not succeeded in improving the competitiveness platform or industrial competitiveness.

Governments worldwide have limitations and very often lack the financial resources, technological know-how and administrative machinery to address critical issues of development and competitiveness. Therefore, the Government will have to work closely with the private sector. The private sector in Eritrea is weak and lacks the capacity to join forces with the Government to provide public goods such as infrastructure, education, training, knowledge and information. Nevertheless, it is desirable that the Government and the private sector participate as equal partners in development and in addressing industrial development and competitiveness.

[1] National Economic Policy Framework and Programme 1998-2001, Government of the State of Eritrea.

4.9 Quality, environmental management and sustainable development

The National Economic Policy Framework and Programme recognises the need for the following:

- Enhancement of production efficiency and quality of products and services;
- In promoting export oriented industries, rigorous quality standards will be required by the international market, therefore, quality and standards in institutions and facilities should be upgraded and established to provide reliable and continuous services for inspection, testing and certification; and
- The Government being committed to sustainable economic development has an environmental element in its National Economic Policy, which stipulates that sound environmental standards will be established and appropriate measures will be introduced to ensure sustainable environmental practices in the use of the nation's diverse resources, in particular, in the processing of agricultural and mineral resources.

4.9.1 Quality

The reality in Eritrea is that the quality of products and quality performance of industrial enterprises are relatively poor. Quality means different things to different people and for consumers and producers. Nevertheless, it is generally accepted that quality refers to the degree to which a set of inherent characteristics fulfils the requirements of the domestic and external markets.

With the establishment of the Eritrea Standards Institution in 1995, it is assumed that the promotion of standardisation, quality assurance and metrology in the country will be assured. The Eritrea Standards Institution has as its main objectives the following:

- Protect the safety, health and other interests of domestic consumers and customers;
- Safeguard domestic markets from inferior quality products;
- Secure wider markets abroad for Eritrean products; and
- Assist enterprises to achieve sustainable global competitiveness for their products.

In particular, the Eritrea Standards Institute is committed to promoting standardisation by developing Eritrean standards for products, processes and practices, by improving quality assurance methods and introducing state of the art metrology services. The Institute has developed approximately 720 national standards of which 334 have been published and are legally binding. Given the complexity of the productive base of the country, these standards are too few for nation wide quality assurance. The quality assurance department of the Institute

promotes quality awareness and assist in introducing quality management systems in industrial enterprises, as well as accrediting testing laboratories. The inspection, testing, certification and training activities of the quality assurance department are very limited. The metrology department conducts legal, industrial and scientific metrology activities to verify and calibrate measuring instruments. The department, however, lacks the critical expertise, equipment and other facilities.

Some of the line ministries have also established their own quality control laboratories. For example, the Ministry of Fisheries has its own quality control laboratory in Massawa that conducts microbiological and chemical analysis for fishery products and the marine ecosystem. The laboratory is well equipped with modern equipment and a core of trained staff. The laboratory services are opened to all fishery plants in the country. The Central Laboratory in the Ministry of Health provides services to the productive sectors covering chemical and microbiological analysis.

Individual industries have their own laboratory facilities and basic quality infrastructure and services. In general, these facilities and quality management are not well developed. Although they could get some help from the Ministry of Health, the Ministry conducts random tests on foodstuff and beverages and is itself not adequately equipped for continuous quality assurance.

Regarding the quality of certain goods being exported, such as semi finished leather, salt, oil seeds, fishery products, etc., these products have been proved to be competitive in international markets. Other goods such as textiles, leather products, etc. are being exported, however, the lack of modern and reliable testing facilities makes it impossible to regularly verify the quality.

4.9.2 Environment

Industrialisation and the intensive exploitation and processing of a country's resources could easily destroy sustainable livelihood if such resources are not utilised in a sustainable manner. Eritrea's Macro Policy acknowledges that the country's *"natural resources, including soil, forest, water and wildlife have been exploited and degraded"*. Therefore, the sustainable use of renewable and non-renewable resources is a priority objective of the environmental element of the Macro Policy.

The Government is committed to establishing sound environmental standards, as well as introducing sustainable management practices. To ensure that its objectives are achieved, the Government established a new Ministry of Land, Water and Environment. The National Environment Management Plan provides basic policy guidelines on environmental management, guidelines on impact assessment and rules and regulations to protect and sustain the environment. However, there is no specific industrial sector environmental policy. Environmental impact assessment is only applicable for new investments. Existing manufacturing enterprises are not screened to determine their compliance to the guidelines. Industrial and solid waste is not treated and is usually streamed into the municipality' solid waste without any

pre-treatment. As there is no legal enforcement on environmental issues, industries will continue to discharge untreated waste and pollute the air and land with hazardous substances.

The textile, leather and leather product industries have tremendous potential, but the production processes are not energy or resource efficient. In addition these are industries are known for polluting land, water and air. Appropriate effluent standards should be defined and legally enforced to protect the environment.

4.9.2.1 Result of sample survey of enterprises

The quality of raw material inputs is considered to be quite good or very good by approximately 60 per cent of enterprises covered in the survey. They also believe that the quality of raw material input has tremendous impact on the quality of goods produced. It should not be forgotten, however, that these industrial enterprises produce mainly for the domestic market – a very unsophisticated market. The quality of final products for the export market is far from being competitive and very few enterprises are interested in this aspect of the questionnaire. Of the 20 per cent that bothered to respond 50 per cent believe that the quality is good, whereas another 50 per cent are convinced that the quality of final products for export are fairly poor or fairly good, depending on which industrial sub-sector they are in. Manufacturers in the basic metals, fabricated metal product, machinery and equipment industrial sub-sectors clearly indicate that the quality was poor and therefore limit the degree to which they can compete with other producers in the Eastern and Southern African region or locally.

Furthermore, over 60 per cent of manufacturers are not concerned about complying to standards and the impact on production. Manufacturers in the leather and leather product industrial sub-sector are fully aware of the implications of not adhering to certain standards.

On environmental issues, it is not surprising that manufacturers are not taking such issues seriously. About 70 per cent refrain from responding to questions on pollutants in the production environment, as well as on cost of compliance to environmental legislation. There is no responsible Government authority to monitor and inspect factory operations in the context of environmental management and protection.

Figure 4.11: Survey Results – Quality and Environment

5 Concluding remarks

In the preceding chapters an attempt is made to construct the competitiveness platform of Eritrea based primarily on Porter's Diamond and variations thereof, in particular, the drivers of competitiveness as defined by inter alia, Michael Enright. Given the nature and level of development in Eritrea some of the attributes were not considered relevant. The Macro-level drivers are considered necessary but insufficient for a sustained and competitive industrialisation. The same factors that influence development also influence the competitiveness of industry. However, in an increasingly global economy, a multi-level approach is deemed necessary for economic development, as well as for industrial competitiveness.

The role of the different stakeholders in the process should be clearly understood and mutually appreciated. As the Government gradually redefines its role as a facilitator of private sector-led development, while at the same time being the guardian of overall economic management, the Government's role becomes clearly one of selective intervention to ensure a conducive environment for the private sector to develop through, inter alia, investments; acquisition of technologies, including competitive technologies; R & D; human resource development; standardisation and quality improvement; support services; etc.

A major prerequisite for sustainable industrial development and competitiveness is, therefore, the existence of an industrial policy defined in an interactive process. In Part II of this study on Integrated Industrial Policy for Sustainable Industrial Development and Competitiveness in Eritrea, an industrial policy framework is presented.

Annex I – Competitiveness survey questionnaire

Competitiveness Factors

Quality of Competitive Drivers
1 – Very poor
2 – Poor
3 - Fair
4 – Good
5 – Very good

Impact on Business
1 – Very Negative
2 – Negative
3 – Neutral
4 – Positive
5 – Very Positive

Rate the factors below according to their impact on your competitiveness

	Quality	Impact
FACTOR CONDITIONS		
Human Resources		
Availability of unskilled labour		
Availability of artisans		
Availability of technically skilled labour		
Availability of managerial staff		
Wage rates		
Unit labour cost / output per worker		
Vocational / industry related training facility		
Work ethic of labour force		
Other Resources		
Availability of suitable land		
Water supply (availability and reliability)		
Semi-processed materials		
Raw materials		
Research facilities , resources and support services		
Trade and business association support		
Market and product information		
Availability of capital		
Cost of capital		
Project development and financing support		
Access to finance		
Telecommunication services		
Electricity cost & reliability		
Road and rail network		
Air transport network		
Sea transport network and access to harbour facilities		
Recreational facilities		
Social Infrastructure (Medical facilities, schools, etc)		
DEMAND CONDITIONS		
Size of the domestic market		
Export opportunities (Africa and Middle East)		
Export opportunities (Other)		
Structure of domestic demand (consumer sophistication etc.)		
Levels of market differentiation and saturation		
Government demand		
Population growth		
HIV/Aids		

Quality of Competitive Drivers

1 – Very poor
2 – Poor
3 - Fair
4 – Good
5 – Very good

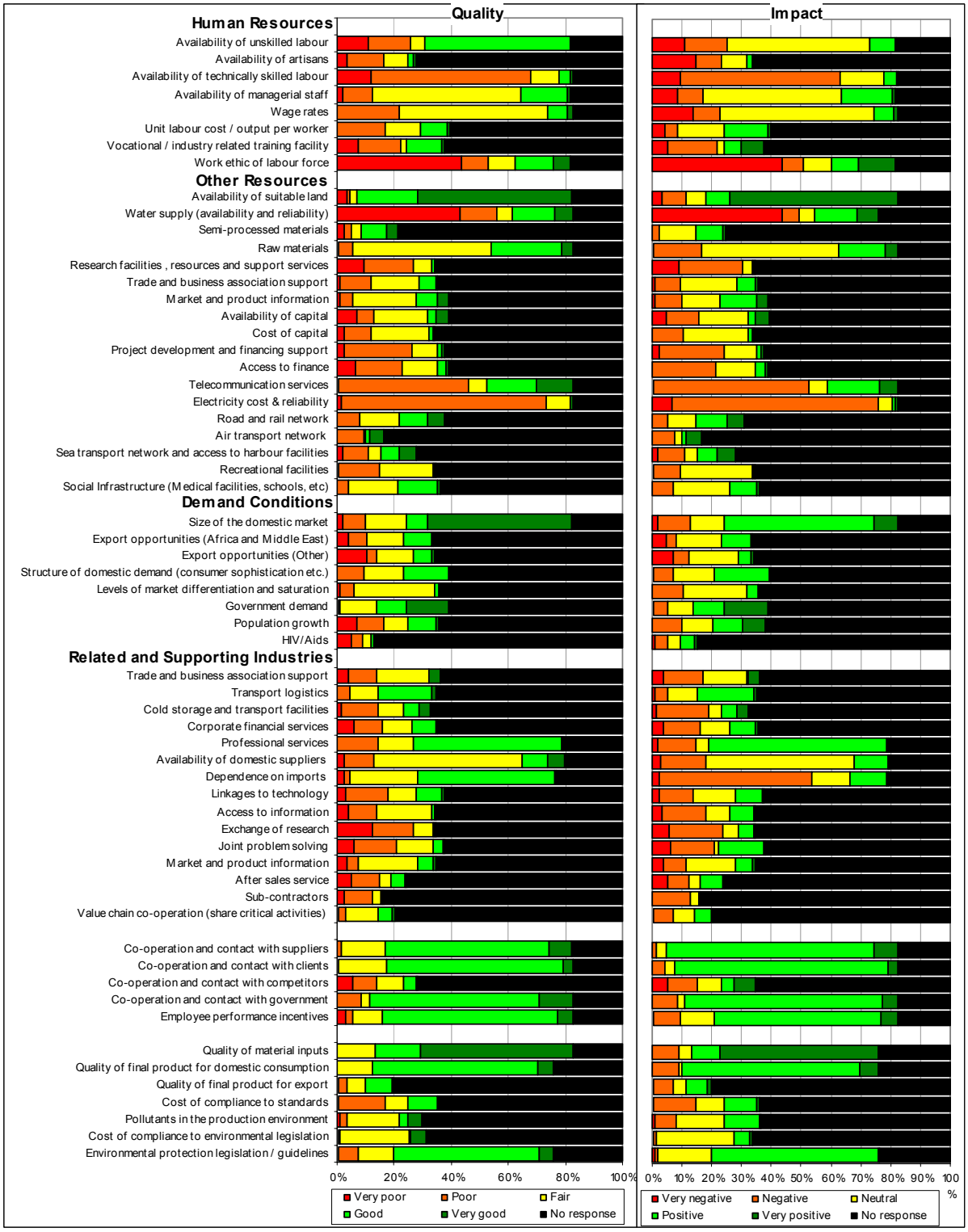
Impact on Business

1 – Very Negative
2 – Negative
3 – Neutral
4 – Positive
5 – Very Positive

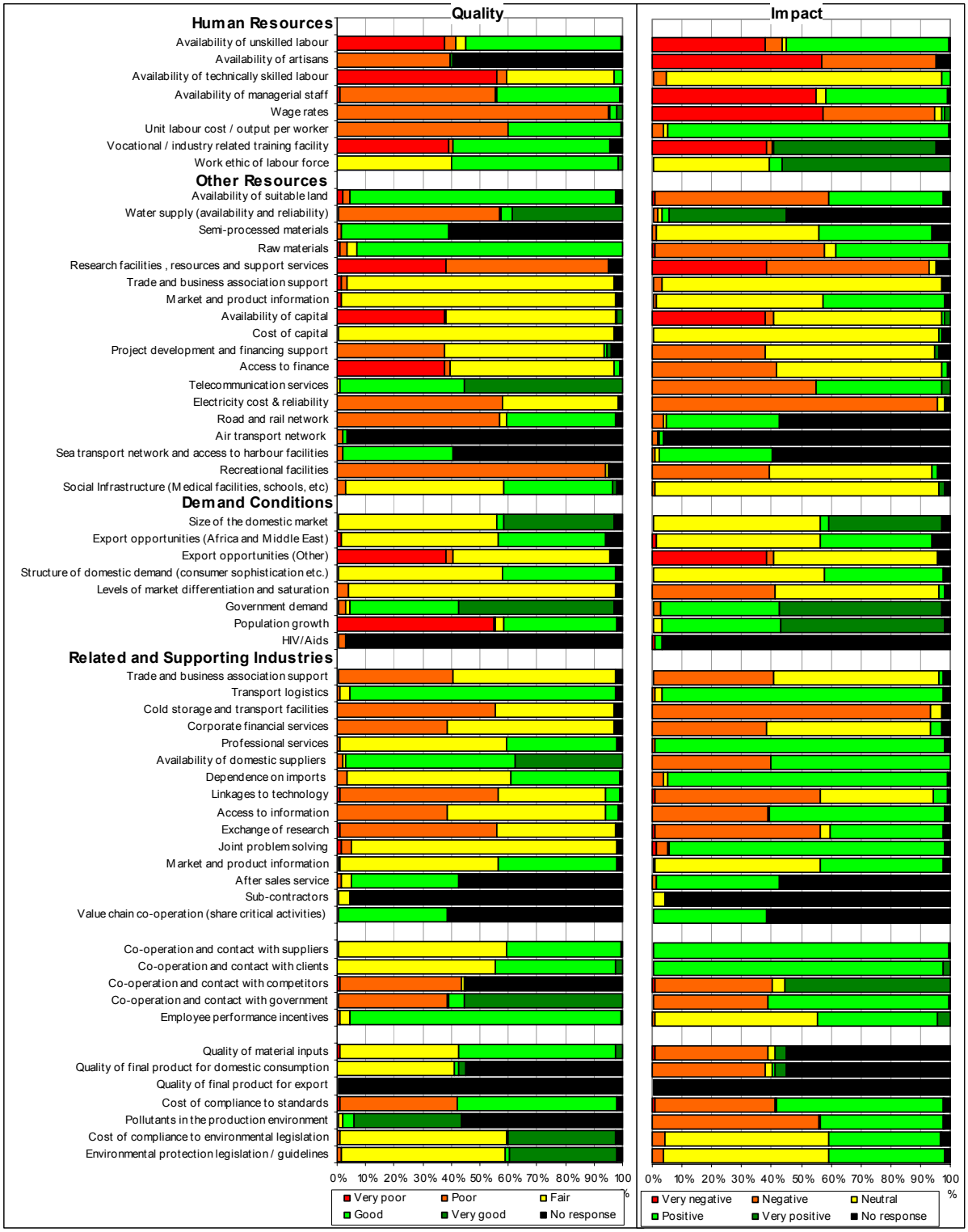
Rate the factors below according to their impact on your competitiveness	Quality	Impact
RELATED & SUPPORTING INDUSTRIES		
Trade and business association support		
Transport logistics		
Cold storage and transport facilities		
Corporate financial services		
Professional services		
Availability of domestic suppliers		
Dependence on imports		
Linkages to technology		
Access to information		
Exchange of research		
Joint problem solving		
Market and product information		
After sales service		
Sub-contractors		
Value chain co-operation (share critical activities)		
FIRM STRATEGY, STRUCTURE & RIVALRY		
Co-operation and contact with suppliers		
Co-operation and contact with clients		
Co-operation and contact with competitors		
Co-operation and contact with government		
Employee performance incentives		
QUALITY & ENVIRONMENT		
Quality of material inputs		
Quality of final product for domestic consumption		
Quality of final product for export		
Cost of compliance to standards		
Pollutants in the production environment		
Cost of compliance to environmental legislation		
Environmental protection legislation / guidelines		

Annex II – Competitiveness survey results

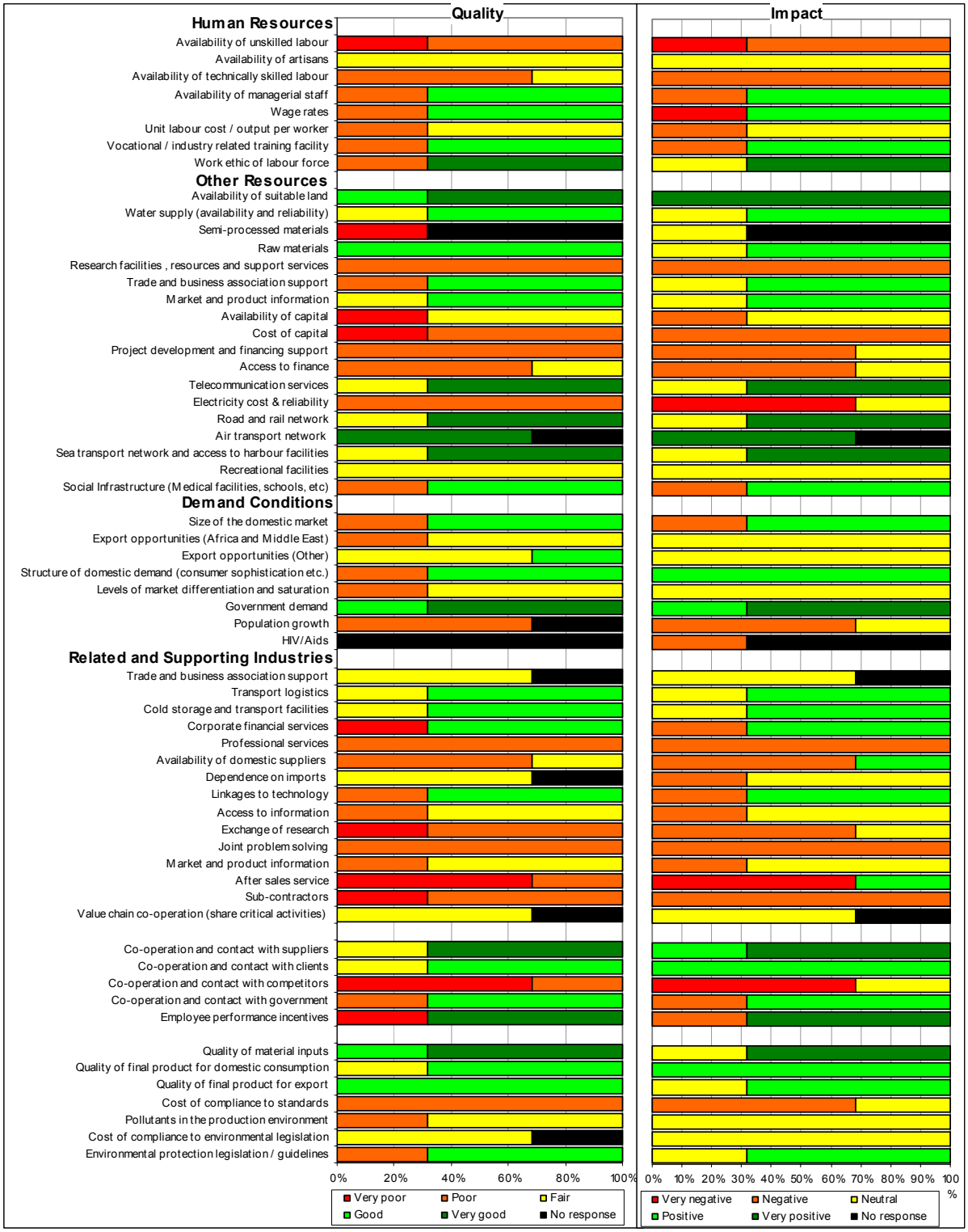
Total manufacturing



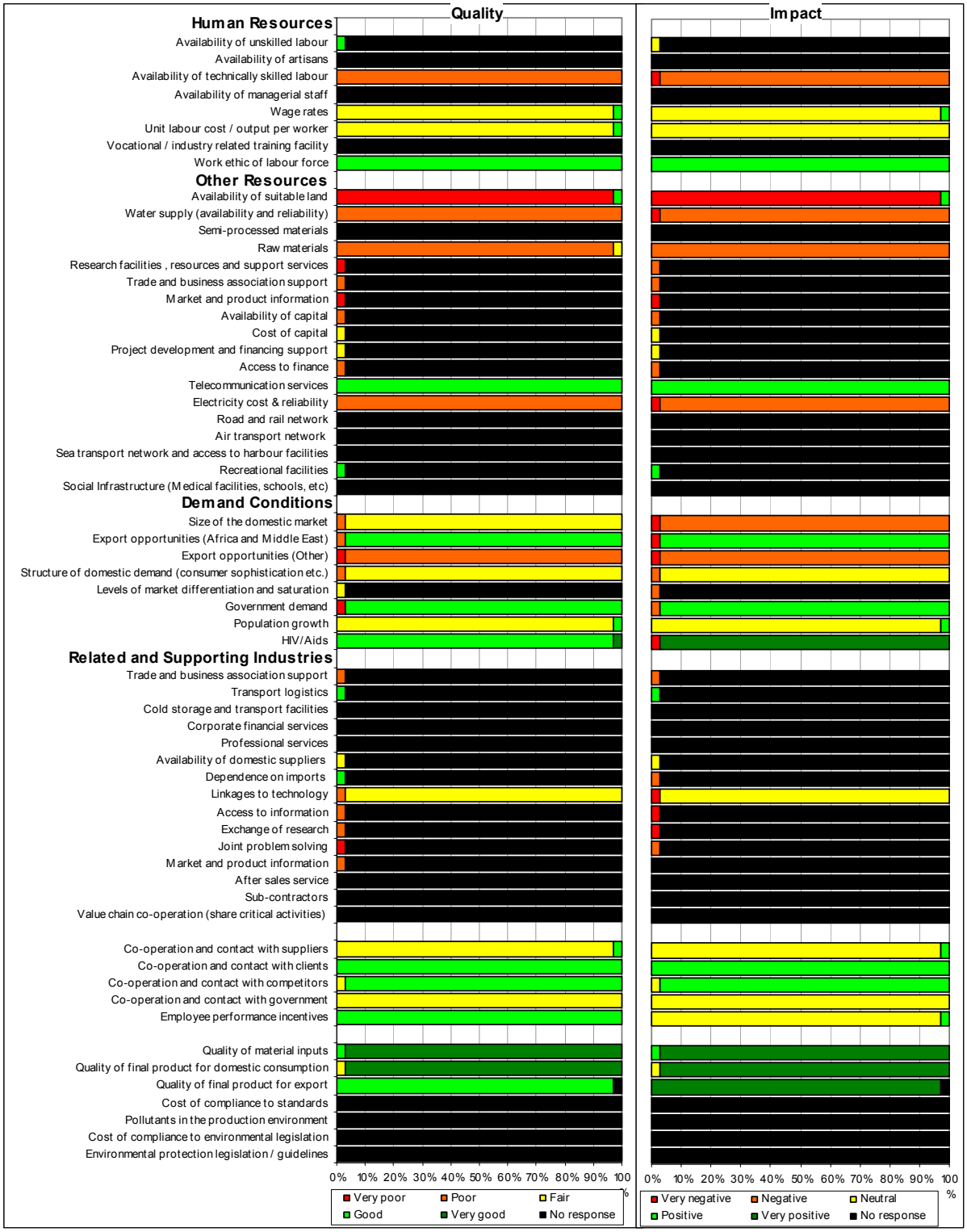
Food processing industry



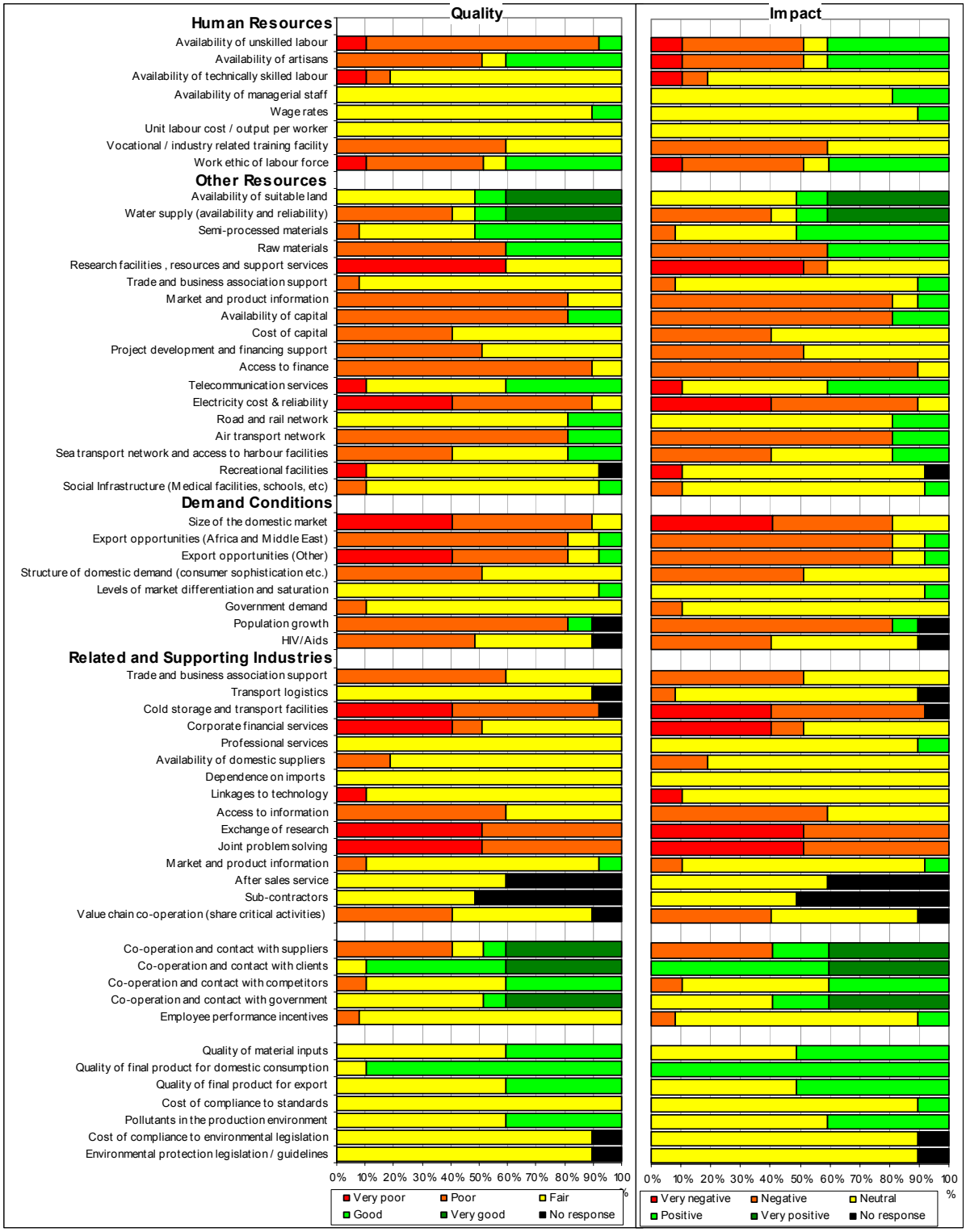
Textile industry



Clothing industry

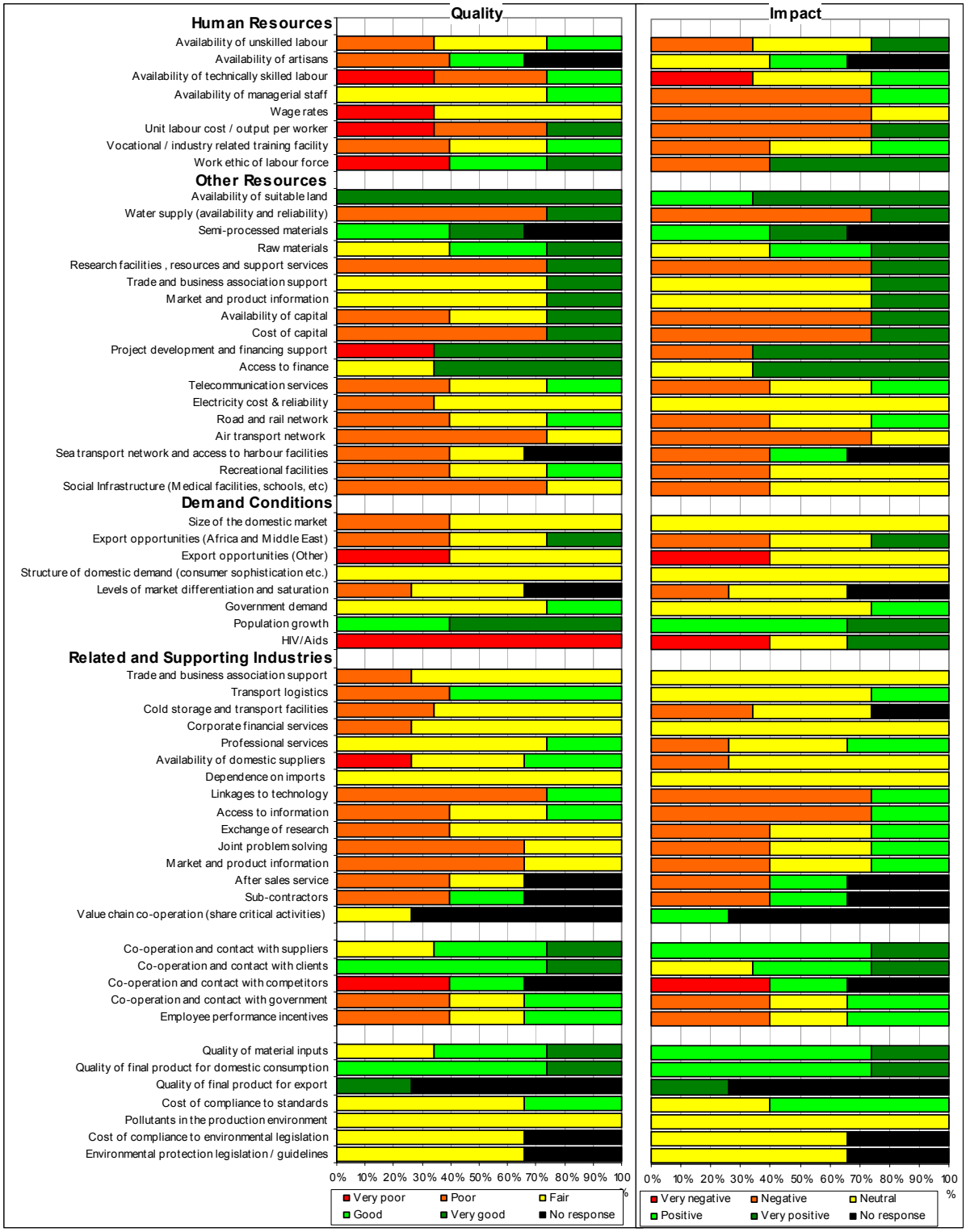


Leather and footwear industry



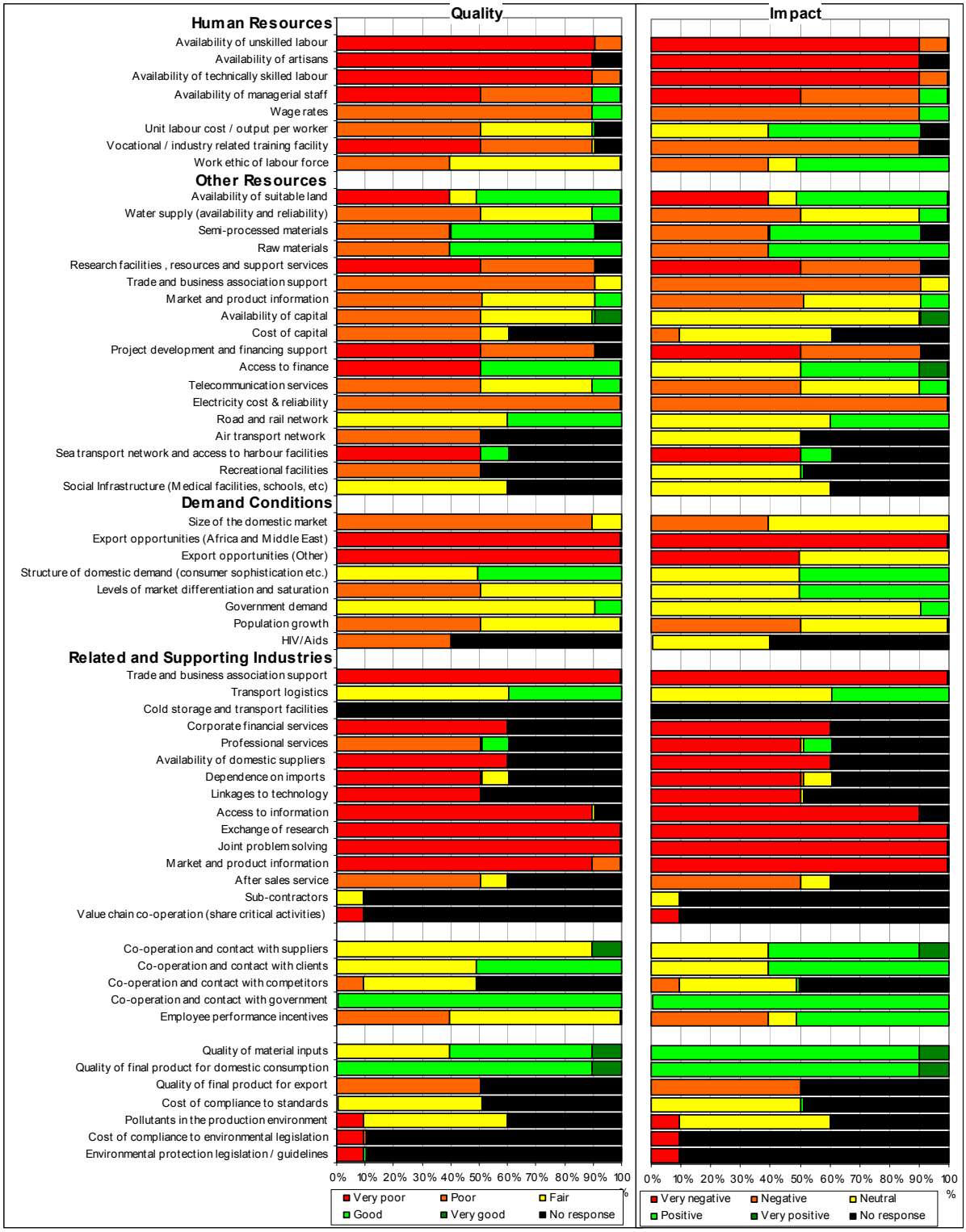
Wood and paper industry

Chemical industry



Non-metallic mineral industry

Basic metal product industry



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