



the dti

Department:
Trade and Industry
REPUBLIC OF SOUTH AFRICA

A

NATIONAL INDUSTRIAL POLICY

FRAMEWORK

DEPARTMENT OF TRADE AND INDUSTRY

NEW DIRECTIONS IN INDUSTRIAL POLICY:

EXECUTIVE FOREWORD BY THE MINISTER OF TRADE AND INDUSTRY

In the past few years it has become evident that South Africa's economy is capable of higher levels of economic performance. Consequently government aims – principally through the Accelerated and Shared Growth Initiative of South Africa (ASGI-SA) – to push purposefully towards its 2014 vision to achieve six percent gross domestic product (GDP) growth from 2010 onwards, and to reduce unemployment and poverty by half. In order to achieve this higher growth and development trajectory the South African economy needs to undergo some fundamental restructuring. ASGI-SA explicitly recognises the central role of a strong and coherent industrial policy in driving this process.

The growth spurt of the past few years has been underpinned by two key factors. The first is a household consumption drive facilitated by relatively low interest rates, low inflation, a broadening middle class resulting from employment equity, and the growth of social grants to the poor. The second has been the high global demand for commodities. In the medium to long term South Africa cannot rely so heavily on either consumption or commodities as the basis for our growth and development. Consumption growth is sustainable only when strongly underpinned by growing productive capacity, while commodity prices are inherently volatile, making the economy vulnerable to external shocks such as “dutch disease”. Consequently, the major weakness identified in the South African economy is the relatively poor performance of non-traditional tradable goods and services that are generally the most low-skill intensive sectors and hence have a central role to play in addressing our unemployment problem.

In order to contribute towards government's goals for 2014 – and beyond – the National Industrial Policy Framework (NIPF) vision for South Africa's industrialisation trajectory is:

- **To facilitate diversification beyond our current reliance on traditional commodities and non-tradable services. This requires the promotion of increased value-addition per capita characterised particularly by movement into non-traditional tradable goods and services that compete in export markets as well as against imports.**
- **The long-term intensification of South Africa's industrialisation process and movement towards a knowledge economy.**
- **The promotion of a more labour-absorbing industrialisation path with a particular emphasis on tradable labour-absorbing goods and services and economic linkages that catalyse employment creation.**
- **The promotion of a broader-based industrialisation path characterised by greater levels of participation of historically disadvantaged people and marginalised regions in the mainstream of the industrial economy.**

- **Contributing to industrial development on the African continent with a strong emphasis on building its productive capabilities.**

It is important to stress that the NIPF is a *Policy Framework* and not a blueprint for the industrial economy. Its core objective is to set out government's approach to South Africa's industrialisation trajectory and hence help align both private and public sector efforts towards this end. Although the NIPF aims to improve growth and employment conditions across much of the economy generally, its primary focus is on the relatively low-skill intensity industries: non-traditional tradable goods and services in the primary, manufacturing and services sectors of the economy. By 'tradable' we mean both exportable and import competing goods and services.

Industrial policy is not the domain of a single government department but requires intensive coordination across a range of government departments. It can only be implemented successfully if it is aligned with four associated and supporting sets of policies. First, a stable and supportive macroeconomic and regulatory environment. Second, appropriate skills development and education systems which are increasingly integrated with the needs of the industrial economy. Third, sufficient, reliable and competitively priced traditional and modern infrastructure. Fourth, adequate support for various forms of technological effort within the economy.

The NIPF adopts and extends the same methodology as ASGI-SA. Rather than a 'one-size-fits-all' approach to industrialization it focuses on identifying and addressing the cross-cutting and sector-specific constraints and opportunities prevailing in the industrial economy through thirteen strategic programmes. These are:

SP1: Sector Strategies

SP2: Industrial Financing

SP3: Trade Policy

SP4: Skills and Education for Industrialisation

SP5: Competition Policy and Regulation

SP6: Leveraging Public Expenditure

SP7: Industrial Upgrading

SP8: Innovation and Technology

SP9: Spatial and Industrial Infrastructure

SP10: Finance and Services to Small Enterprises

SP11: Leveraging Empowerment for Growth and Employment

SP12: Regional and African Industrial and Trade Framework

SP13: Coordination, Capacity and Organisation

The quality of the design and implementation of our sector strategies will play a decisive role in realising the vision of the NIPF and indeed ASGI-SA's objectives. This requires a much more focused use of government's limited human and financial resources. South Africa has a relatively diversified and complex industrial base that needs ongoing consolidation and renewal. Therefore we will always have to engage across substantial parts of manufacturing, services and primary sectors of the economy. In this regard, the NIPF does not seek to explicitly identify what these sectors should be although it does highlight five sector groupings where our analysis tells us much of our opportunities lie: natural-resource based, medium technology, advanced manufacturing and certain labour-intensive and tradable services sectors. However – from time-to-time – government will single out sectors for particular focus where substantial potential exists for growth, employment generation and the diversification and growth of exports.

We therefore focus rather on key *principles* and *processes* through which such sector strategies will be developed and prioritised. They will be developed and strengthened through improved processes of 'self-discovery'. This involves enhancing both the underlying sector research as well as the quality of interactions with business, labour and other stakeholders. These processes will lead to Key Action Plans (KAPs) for the relevant sector that contain measurable key performance indicators.

High quality priority KAPs that emerge from sector strategies and cross-cutting programmes will receive appropriate and sufficient support. This will take two main forms: regulatory changes and industrial financing. The latter – in particular – cannot be assumed and the support mechanisms for each KAP will be determined fundamentally by the underlying economic constraints and opportunities that inform it. Industrial financing will be based on certain core principles. It should be focused on new as opposed to existing activities and wherever possible have spill over and demonstration effects. It must operate for a specified period of time and be dependant on the achievement of measurable benchmarks by firms. This implies much stronger systems for the design, management, monitoring and evaluation of industrial financing.

Trade policy remains an instrument of industrial policy in a context of narrowing options under multi-lateral and bi-lateral trade arrangements. Trade policy will be informed much more closely by sector strategies, at both the negotiating and administrative levels. A particular focus will be on lowering input costs into labour-absorbing and value-adding manufacturing sectors. Export and foreign direct investment promotion will be more targeted. Our efforts to ensure a developmental outcome in the Doha round will continue, particularly with respect to the elimination of agricultural subsidies in the developed countries. In our bilateral engagements we will consider a broader range of possible trade and investment agreements than in the past and seek to leverage our strategic advantages such as our mineral reserves.

The link between skills and education policy on the one hand, and industrial policy on the other will be strengthened. A particular emphasis is placed on: coordination between high impact priority sectors and the relevant vocational institutions; the development of technical tertiary graduates; and the need to link industry and tertiary institutions more closely together.

Certain market structures in both the private and public sector are inhibiting industrial development notwithstanding the establishment of sector regulators, a stronger 1998 Competition Act and significant opening of the economy since 1994. This implies a stronger role for both competition policy and sector regulation, particularly with respect to input costs into goods and services such as utilities and raw materials. The monitoring and investigative powers of the competition authorities will therefore be strengthened. Further it is necessary that sector regulators be adequately resourced to ensure reliable and cost effective inputs into the industrial economy.

There are unprecedented plans for investments since democracy, including the recapitalisation and increased operational expenditure of the electricity and transport infrastructure; preparations for the 2010 FIFA World Cup; and broader government programmes such as housing. This creates substantial opportunities for domestic firms to gear up to meet this demand on a competitive price and quality basis. There is a substantial role for intra-governmental coordination in leveraging these opportunities, particularly integration between expenditure plans, sector strategies and skills development plans.

Firm level evidence shows that firms that invest in non-price based strategies – like product quality standards and supply chain efficiencies – enjoy superior turnover and employment growth. Therefore an Industrial Upgrading Programme is aimed at supporting the development of such capabilities through supporting firm-level process and product efficiencies, technological infrastructure with industry spill over effects, and greater emphasis on our standards, quality, accreditation and metrology systems (SQAM). Support for appropriate forms of industrial infrastructure – such as industrial parks and industry specific infrastructure – can help kick-start new economic activities in existing established areas as well as under-developed parts of the country that with latent economic potential. This is in turn linked to ongoing research with respect to promoting regional industrialisation in a sustainable manner.

It is widely recognised that private firms under-invest in innovation and technology. Within the context of our national target of one percent spending on Research and Development (R&D) the NIPF emphasises a focus on two main areas. First, further development of pockets of technologies in which South Africa has a potential advantage. Second, stronger support for product

development and commercialisation of intellectual property (IP), particularly IP developed through public funding.

The policy and institutional framework for small enterprise support is largely in place, including the incorporation of cooperatives. Our efforts need to turn to the institutional imperatives of supporting small enterprises. This includes the strengthening of financial and non-financial support as well as leveraging of market opportunities for small ventures.

The evolution of Broad Based Black Economic Empowerment (BBBEE) has increasingly emphasised its role in uplifting the majority of South Africans. This broad goal can be further strengthened by linking BBBEE more closely to growth and employment such as through a stronger emphasis on entry of black firms into new growth sectors of the economy.

Evidence shows that the fundamental constraint to African industrialisation and integration lies in their inadequate productive capabilities. Therefore we will pursue a broader conception of regional integration that emphasises the need to build such capacities on the continent. We will explore ways in which our private and public investors can contribute to this process.

Successful implementation of the NIPF requires coordination across a range of government departments, as well as appropriate organisation and capacity within them. Thus the Economic, Investment and Employment Cluster (EIEC) has a critical role to play. Industrial policy coordination mechanisms will be strengthened at both the national and sub-national level, with a particular focus on fast-tracking critical policy and projects-specific choices. Capacity to implement industrial policy will be strengthened across economic departments.

We are confident that the NIPF will make a substantial contribution to changing the structure of South Africa's industrial growth path through further diversification into non-commodity labour-intensive and value-adding goods and services and thus contribute to our core objective of halving poverty and unemployment by 2014.

Minister of Trade and Industry
Mandisi Mpahlwa

CONTENTS

1.	INTRODUCTION	9
2.	NECESSARY CONDITIONS FOR INDUSTRIALISATION	15
3.	SOUTH AFRICA'S POST-1994 INDUSTRIAL DEVELOPMENT PATH	17
4.	SITUATIONAL ANALYSIS: INDUSTRIAL ECONOMY CONSTRAINTS AND OPPORTUNITIES	24
5.	PRINCIPLES FOR INDUSTRIAL AND SECTOR STRATEGIES	29
6.	STRATEGIC PROGRAMMES	32
7.	SP1: SECTOR STRATEGIES.....	33
8.	SP2: INDUSTRIAL FINANCING	38
9.	SP3: TRADE POLICY	40
10.	SP4: SKILLS AND EDUCATION FOR INDUSTRIALISATION	43
11.	SP5: COMPETITION POLICY AND SECTOR REGULATION	44
12.	SP6: LEVERAGING PUBLIC EXPENDITURE	45
13.	SP7: INDUSTRIAL UPGRADING PROGRAMME.....	46
14.	SP8: INNOVATION AND TECHNOLOGY	47
15.	SP9: SPATIAL INDUSTRIAL DEVELOPMENT AND INDUSTRIAL INFRASTRUCTURE PROGRAMME.....	48
16.	SP10: SMALL ENTERPRISE SUPPORT	49
17.	SP11: LEVERAGING EMPOWERMENT FOR GROWTH AND EMPLOYMENT.....	50
18.	SP12: REGIONAL AND AFRICAN INDUSTRIAL AND TRADE FRAMEWORK.....	50
19.	SP13: COORDINATION, ORGANISATION AND CAPACITY FOR IMPLEMENTATION OF INDUSTRIAL POLICY.....	50

GLOSSARY

ASGI-SA	Accelerated and Shared Growth Initiative of South Africa
BBBEE	Broad-based Black Economic Empowerment
COTII	Council of Trade and Industry Institutions
EIEC	Economic Investment and Employment Cluster
EU	European Union
IDC	Industrial Development Corporation
ICT	Information and Communication Technologies
IPP	Import Parity Pricing
IP	Intellectual Property
KAP	Key Action Plan
MERS	Microeconomic Reform Strategy
MIDP	Motor Industry Development Programme
MTEF	Medium-Term Expenditure Framework
NEF	National Empowerment Fund
NEPAD	New Partnership for Africa's Development
NIPP	National Industrial Participation Programme
NHRDS	National Human Resource Development Strategy
NIPF	National Industrial Policy Framework
NRDS	National Research and Development Strategy
NSDS	National Skills Development Strategy
RDP	Reconstruction and Development Programme
R&D	Research and Development
SACU	Southern African Customs Union
SADC	Southern African Development Community
SEDA	Small Enterprise Development Agency
the dti	Department of Trade and Industry
WTO	World Trade Organisation

1. INTRODUCTION

1.1 Objectives of the NIPF

- 1.1.1 The National Industrial Policy Framework (NIPF) has a fundamental role to play in achieving the Accelerated and Shared Growth Initiative of South Africa's (ASGI-SA) goals of accelerating GDP growth to over 6 percent by 2010 and to halving unemployment and poverty by 2014 and the further intensification of industrialisation towards a knowledge economy beyond 2014.
- 1.1.2 The primary objective of the National Industrial Policy Framework (NIPF) is to set out government's approach to the industrial development of the South African economy. Consequently the NIPF sets out a vision for the industrial economy for both the short-medium and medium-long term.
- 1.1.3 It is important to emphasise that the NIPF is a Framework rather than a blueprint for South Africa's industrialisation process. Much of the detail of intervention will flow from existing or future processes that are informed by the document. Therefore it does not attempt to address every question related to our industrial development trajectory. Rather it focuses on principles, processes and a set of strategic processes through which structural change will be achieved.
- 1.1.4 Therefore the NIPF aims to provide strategic direction to the economy with respect to the issue of industrial development. First, it is aimed at providing greater clarity and certainty to the private sector and social partners with respect to investment decisions leading up to 2014 and beyond. Second, it is intended to provide a reference point for substantial improvements in intra-governmental coordination of the numerous and complex set of policies and projects that will form part of the NIPF.
- 1.1.5 The South African economy has achieved steady growth since 1994. It has also experienced important diversification away from the apartheid-era minerals-linked growth path. A range of sectors beyond our historical strength of traditional commodities have experienced good growth such as the tourism, automotive and wine industries.
- 1.1.6 However, a situational analysis indicates that the major structural weakness in the industrial economy has been that the losses in employment in traditional commodity sectors of the economy (such as agriculture and mining) have not adequately been offset by rapid enough growth in non-traditional tradable sectors (such as in manufacturing and certain tradable services). These tradable sectors are critical for employment creation because they are generally both labour-intensive and characterised by relatively low-skill intensity.
- 1.1.7 Therefore our conceptualisation of industrialisation is not restricted to the manufacturing sector but involves a structural change in our growth path towards a more labour-absorbing and value-adding economy. While the NIPF is aimed at unlocking constraints that will benefit the entire economy, there is a particular emphasis on growing non-traditional tradable goods and services due to their relative intensity in low-medium-skilled labour and

potential for value-addition. These sectors include manufactured products outside of mineral processing, services that can compete in export markets as well as against imports, including certain non-traditional agricultural and mining activities.

1.1.8 The document then briefly sets out the necessary conditions for industrialisation. These conditions underscore the fact that industrial policy does not lie within the narrow domain of a single government department but requires strong coordination across a range of departments.

1.1.9 The NIPF adopts the same methodological approach as ASGI-SA. It recognises that there are virtually no examples of developing countries that have industrialised rapidly without a robust and well-implemented industrial policy. Consequently it eschews a 'one-size-fits-all' approach to industrialisation in favour of identifying and acting upon critical constraints and opportunities at both the cross-cutting and sectoral levels of the industrial economy.

1.1.10 Processes of 'self-discovery' through which these constraints and opportunities are identified and addressed will be developed and strengthened in conjunction with business and other stakeholders. Cross-cutting and sectoral programmes will be developed, strengthened and better prioritised in order to focus limited human and financial resources on a strategic set of Key Action Plans (KAPs) in any given three-year Medium-Term Expenditure Framework (MTEF) period.

1.1.11 It sets out some key principles for all government departments with respect to the design and implementation of industrial and sector policies. Such policies should lead to evidence-based KAPs, which are of sufficient scale to achieve structural change in the economy; and are supported through an appropriate mix of regulatory change and industrial financing. Where appropriate, industrial financing will be dispensed on a far more conditional basis, be aimed in particular at new activities, and be made available for a limited time.

1.2 Vision

1.2.1 Accordingly the NIPF holds the following vision for the economy:

- **To facilitate diversification beyond our current reliance on traditional commodities and non-tradable services. This requires the promotion of increased value-addition per capita characterised particularly by movement into non-traditional tradable goods and services that compete in export markets as well as against imports.**
- **The long-term intensification of South Africa's industrialisation process and movement towards a knowledge economy.**
- **The promotion of a more labour-absorbing industrialisation path with a particular emphasis on tradable labour-absorbing goods and services and economic linkages that catalyse employment creation.**

- The promotion of a broader-based industrialisation path characterised by greater levels of participation of historically disadvantaged people and marginalised regions in the mainstream of the industrial economy.
- Contributing to industrial development on the African continent with a strong emphasis on building its productive capabilities.

1.3 Strategic Programmes

1.3.1 This vision is to be achieved through the implementation of thirteen strategic programmes over government's 2006/7 – 2008/9 Medium Term Expenditure Framework period on a rolling basis.

SP1: Sector Strategies

SP2: Industrial Financing

SP3: Trade Policy

SP4: Skills and Education for Industrialisation

SP5: Competition Policy and Regulation

SP6: Leveraging Public Expenditure

SP7: Industrial Upgrading

SP8: Innovation and Technology

SP9: Spatial and Industrial Infrastructure

SP10: Finance and Services to Small Enterprises

SP11: Leveraging Empowerment for Growth and Employment

SP12: Regional and African Industrial and Trade Framework

SP13: Coordination, Capacity and Organisation

1.4 A *National* Industrial Policy Framework

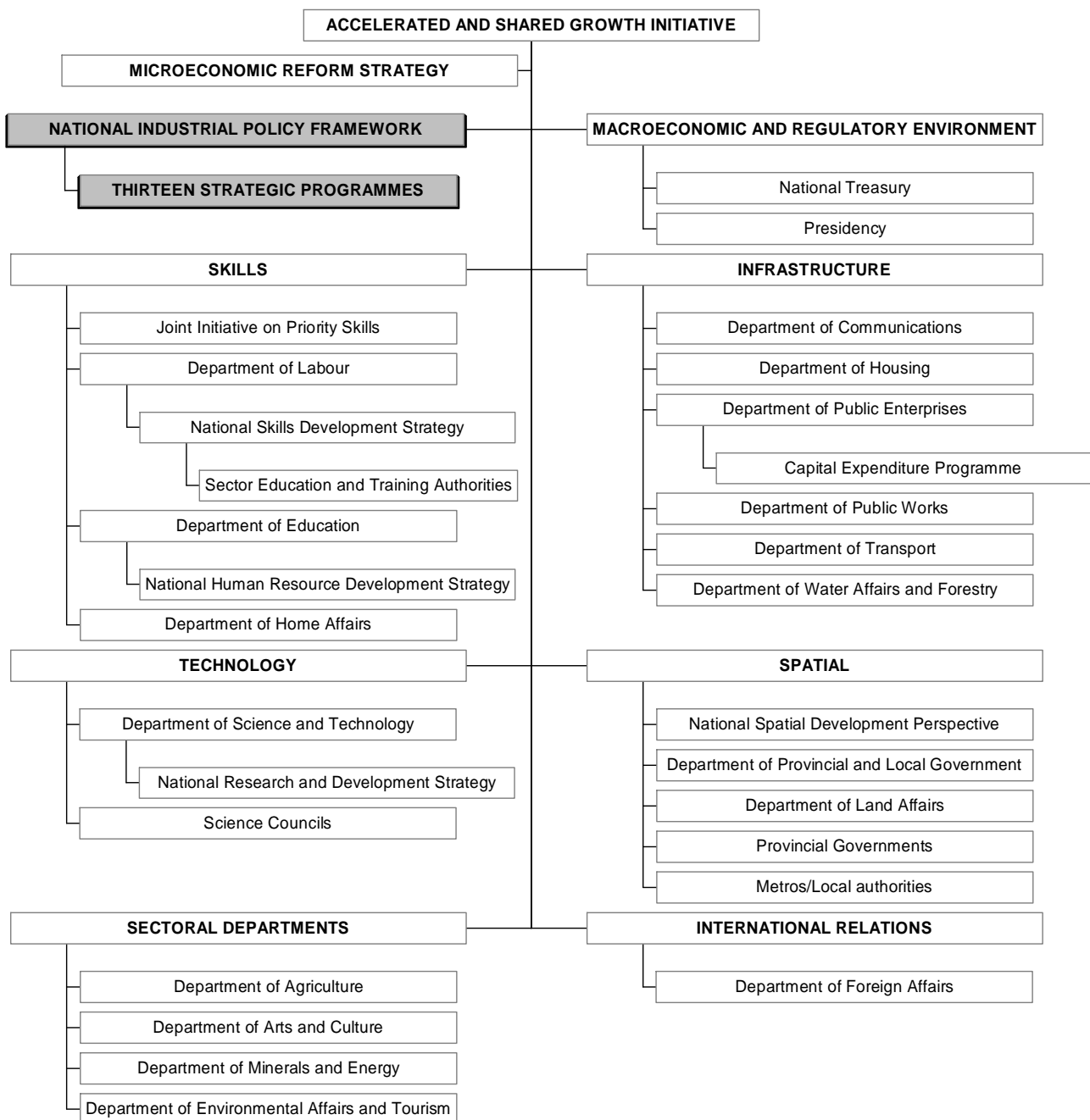
1.4.1 The NIPF recognises the inherent intra-governmental nature of industrial policy. Section 2 demonstrates that four complementary sets of policies are necessary for the successful implementation of an industrial policy: a supportive macroeconomic and regulatory environment; skills and education; traditional and modern infrastructure; and support for technological effort.

1.4.2 The National Industrial Policy Framework (NIPF) is not a new policy direction but a logical evolution of government economic policy, all of which is inspired by the principles of the Reconstruction and Development Programme (RDP). More specifically, the industrial policy is based on the consensus that the economic fundamentals are largely in place at a macroeconomic level and that the strengthening of the economy at the microeconomic level is the next frontier of economic policy and implementation. The Microeconomic Reform Strategy (MERS) noted the advances made with respect to macroeconomic management

and stability but concluded that a range of microeconomic interventions were still necessary, in order to fully realise the potential of the economy.

- 1.4.3 More recently, the Accelerated and Shared Growth Initiative of South Africa (ASGI-SA) set out certain economic programmes that are necessary to generate a step change in economic growth to an annualised 6 percent by 2010, and to halve unemployment and poverty by 2014. One of the interventions that ASGI-SA clearly states is the need for a robust industrial policy.
- 1.4.4 Therefore the NIPF provides the focal point for ongoing and complementary policy and programmatic initiatives, particularly within the Economic Investment and Employment Cluster (EIEC) of departments. Figure 1 provides an indicative illustration of the links between the NIPF and related government policy initiatives.

Figure 1: The links between the National Industrial Policy Framework and related policy initiatives



1.4.5 Stronger coordination is also required *amongst* the various clusters of government, particularly with respect to strengthening the coherence of economic planning over the long term. Coordination with the Social Sector Cluster must be strengthened to link industrial policy to planning in relation to matters like the location and provision of housing, transport, electricity, telecommunications and water. Stronger linkages need to be formed between international relations and trade and investment activities. Similarly effective justice, crime prevention and security are critical to create a supportive environment for industrial development.

1.5 The NIPF and the Second Economy

- 1.5.1 The process of economic development is one of moving to an economy where the overwhelming majority of the population is engaged in gainful activities through the eradication of unemployment and under-employment. In South Africa the term coined for this group of people is the 'Second Economy' in contrast to the 'First Economy.'
- 1.5.2 The NIPF contributes to the process of integrating the Second Economy in a number of ways. First, through encouraging the creation of quality and sustainable formal sector employment. Second, by assisting people to become entrepreneurs in the economy in viable and productive small enterprises. This includes both the creation of new enterprises that in turn generate formal jobs, and the 'graduation' of certain viable informal enterprises to formal businesses.
- 1.5.3 Broad-based BEE must form an integral part of policies to integrate the Second Economy into the industrialisation processes supported by NIPF. On the one hand, NIPF programmes should include support for broad-based BEE, providing economic opportunities for historically deprived communities and individuals. On the other, broad-based BEE targets must be aligned with the core ASGI-SA objectives of growth, employment creation and equity and should be aligned with the goals of the NIPF.
- 1.5.4 The NIPF supports long-run solutions to the marginalisation of many of our people from the core formal economy. It needs to be backed up and supplemented by appropriate education, training and social protection policies. These policies are required both to assist historically deprived communities to engage effectively with the economy, and to alleviate poverty until the economy creates adequate employment opportunities.

1.6 Review of the NIPF

- 1.6.1 An industrial policy is not set in stone but must be reviewed on an ongoing basis and reflect changes in circumstances, taking into account changes in both the domestic and global economy. The NIPF is based on an outlook for the next three years, in the context of the vision for 2014. It – together with the more detailed Industrial Policy Action Plan – will be reviewed and adapted on a rolling basis every three years in order to link in with the MTEF.

2. NECESSARY CONDITIONS FOR INDUSTRIALISATION

2.1 In order for the industrial economy to fire on all cylinders and an industrial policy to be successful, coordination and alignment is required across a range of supporting policies and institutions. Four main sets of policies need to be implemented in step with more direct industrial policies.

2.2 A stable and supportive macroeconomic and regulatory environment.

2.2.1 Macroeconomic stability is critical for industrialisation in order to allow investors to plan. Monetary and industrial policy need to be aligned with each taking into account the objectives of the other. In the context of the need to improve the performance of non-traditional tradable goods and services, policies that impact on the level and stability of the currency take on substantial importance. The overall regulatory environment in the economy also strongly informs investment decisions. Regulation must be effective at all three spheres of government particularly with respect to matters related to small enterprises and major investments. There is an increasing need for all government departments and agencies to take into account possible negative unintended consequences of proposed regulatory changes on the real economy and non-traditional tradables in particular.

2.3 Skills and education for industrialisation

2.3.1 The productive capabilities required to produce goods and services in an ever more globalised economy are becoming increasingly sophisticated. All types of production are affected by this trend, even so-called labour intensive activities. In the short term this requires much stronger alignment between industrial policies and skills institutions. In the longer term it requires integration with the educational system with a particular emphasis on ensuring larger numbers of graduates with tertiary technical skills. Competitive advantage in geographic-specific industrial clusters is greatly enhanced by strengthening linkages between tertiary institutions and industry. Strengthening the linkages between tertiary institutions and the needs of industry in turn require larger numbers of secondary graduates with university entrance in mathematics and science.

2.4 Traditional and modern infrastructure

2.4.1 Sufficient, reliable and competitively priced traditional and modern infrastructure and logistics systems are essential for a modern industrial economy. This is required for production efficiencies; to move goods and people; and for the cost-effective linking of people and businesses via the communication networks. Traditional infrastructure refers predominantly to transport, electricity and water required to support the production and distribution of goods. The efficiency of our transport infrastructure takes on particular importance given the relatively large distances involved in moving goods in South Africa.

This is in large part due to the location of much industrial activity inland. Modern infrastructure refers to the fixed, mobile, wireless and satellite telecommunications networks. Of particular importance is the widespread availability of broadband infrastructure at competitive prices.

2.5 Innovation and technology

2.5.1 The process of industrialisation is one of a shift from learning to use existing technologies to increasing innovation and development of domestic technologies. Technology is channelled into an economy through three main conduits. First, it can be imported from abroad and adapted and adopted to local conditions. This is the most important form of technological absorption in the initial stages of industrialisation. Second, it can be embodied in the form of foreign direct investment (FDI). A number of industries are extremely difficult to enter in the global market without attracting the proprietary technologies involved via foreign direct investment. Finally, domestic research and development generates indigenous technologies. This is the most difficult but also potentially the most rewarding form of innovation and technology that a country can engage in due to its risky nature and the long-term time horizons involved in investment in new technologies or innovations.

3. SOUTH AFRICA'S POST-1994 INDUSTRIAL DEVELOPMENT PATH

3.1 The pre-1994 industrial economy: stagnation and crisis

- 3.1.1 In the early 1990s South Africa faced an economic crisis. Gross domestic product (GDP) and investment rates were falling. The external capital account had been in deficit for almost a decade. Export growth of goods and services was volatile and sometimes negative. Furthermore, exports were highly concentrated around mining and mineral products. The exchange rate was overvalued. The tariff regime and industrial incentive schemes were indiscriminately protective of domestic industry. The legacy of apartheid – in and outside the industrial economy – had resulted in widespread poverty, extreme inequalities and mass exclusion from economic activities. This led to high unemployment on the one hand and low levels of productivity and competitiveness on the other.
- 3.1.2 Recognising these challenges, there was broad agreement that South Africa needed to shift away from its inwardly focused and uncritically protected domestic economy, and integrate into the global economy in a more export-oriented and diversified manner. Thus, the immediate focus of post-apartheid industrial and trade policy was a 'defensive' set of interventions aimed at arresting and reversing industrial decline.

3.2 Industrial development interventions since 1994: restructuring

- 3.2.1 The South African economy has undergone substantial high-level restructuring since 1994, notably the stabilisation of the macro-economy and opening up to world trade. Macroeconomic variables such as inflation and the fiscal deficit have been stabilised, with the movement to a market-determined exchange rate regime. Trade liberalisation was undertaken through South Africa's offer to the World Trade Organisation (WTO) in 1993, coupled with the negotiation of two major free trade agreements thereafter: with the European Union (EU) and Southern African Development Community (SADC). Subsequent trade policy activity has focussed on further rounds of WTO negotiations and other bi-lateral trade agreements and engagements such as with:
- SACU and SADC
 - MERCOSUR¹ through a Preferential Trade Agreement (PTA)
 - European Free Trade Association² (EFTA) through a Free Trade Agreement
- 3.2.2 Industrial policy over the last ten years has largely been informed by the notion of 'supply-side measures' to restructure the production side of the economy in order to deal with the increased global competition introduced by trade liberalisation. This was in contrast to

¹ Mercado Comun del Cono Sur (Southern Common Market). Members: Argentina, Brazil, Paraguay, Uruguay, Venezuela.

² Iceland, Liechtenstein, Norway, Switzerland.

expensive and ineffective export support measures such as the 'demand led' General Export Incentive Scheme (GEIS), which tended to subsidise exports that would have occurred anyway.

- 3.2.3 Substantial sectoral support measures were put in place for two main sectors: the Motor Industry Development Programme (MIDP) for automotives and the Duty Credit Certificate Scheme (DCCS) for clothing and textiles. The National Industrial Participation Programme (NIPP) was put into place to ensure that large foreign purchases by state entities secure offsetting investment obligations in the domestic economy. New incentives were introduced to raise overall levels of manufacturing investment such as the Tax Holiday Scheme (THS), and the Small and Medium Manufacturing Development Programme (SMMDP) – later extended beyond manufacturing as the Small and Medium Enterprise Development Programme (SMEDP). An incentive programme for large, strategic projects was introduced: the Strategic Industrial Projects (SIP).
- 3.2.4 The Spatial Development Initiatives (SDIs) were aimed at facilitating investment in regions of inherent economic potential, but that had been underdeveloped because of apartheid neglect. This was centred on a set of infrastructure corridors. The Critical Infrastructure Fund (CIF) was initiated to supplement the cost of project specific infrastructure. Legislation for Industrial Development Zones (IDZs) was passed to provide for purpose-built industrial estates linked to international ports or airports, which contain controlled Customs Secured Areas (CSAs). To date the Coega and East London IDZs have been highly successful.
- 3.2.5 A range of support measures were put into place to support a shift to a more competitive environment. These were generally based on the logic of getting small- and medium- sized firms to act collectively, to undertake functions that they would not do individually. Programmes included the Sector Partnership Fund (SPF), Competitiveness Fund (CF), support for the establishment of Export Councils, and the Export Marketing and Investment Assistance (EMIA) programme. Increased matching grant support for research and development was introduced. The Support Programme for Industrial Innovation (SPII) provides funding for the development of manufacturing products and processes. The Technology and Human Resources for Industry Programme (THRIP) supports partnerships between the private sector, universities and science councils in research projects undertaken for industrial purposes.
- 3.2.6 Over the period, both the policy and the agencies for the support of Small Medium and Micro Enterprises (SMMEs) were developed and refined. This has culminated in the publication of the Integrated Small Business Development Strategy and the consolidation of small business support agencies into a single small and medium firm agency: the Small Enterprise Development Agency (SEDA) and the Micro-finance Apex Fund (SAMAF) to support micro-enterprises. Legislative amendments to accommodate co-operative enterprises into the enterprise development system were also made.

- 3.2.7 In recognition of the apartheid legacy of high levels of corporate and industry concentration in the economy, a far more robust Competition Act was introduced in 1998. The rationale of the new legislation was that competition policy must form a fundamental part of industrial policy, by dealing with anti-competitive behaviour flowing from concentration and facilitating entry and growth of small and black-owned firms and foreign direct investment.
- 3.2.8 Various policies and programmes were developed to facilitate Black Economic Empowerment (BEE), including the establishment of the National Empowerment Fund, and promulgation of the BEE Act, followed by the phased release of the Broad-based Black Economic Empowerment (BBBEE) Codes of Good Practice. The Black Business Development Supplier Programme was introduced to finance services to help black owned firms improve their core competencies.

3.3 South Africa's industrial development path since 1994

- 3.3.1 While the potential for de-industrialisation that loomed in 1994 was averted South Africa's economic performance since 1994 has been mixed. Gross Domestic Product (GDP) growth averaged three percent to 2003 and 4.5 percent since 2004, with GDP per capita growth rising from one percent to three percent. Per capita growth performance has slightly outstripped that of sub-Saharan Africa (1.1 percent) and Latin America (0.8 percent), but below that of high growth regions such as South (3.7 percent) and East Asia (6.2 percent).
- 3.3.2 This growth performance has occurred in the context of important structural changes in the South African economy. The tradable sectors – agriculture, mining and manufacturing – have undergone a relative decline in the economy: from 32 percent in 1994 to 28 percent of GDP in 2006. Private non-tradable sectors – Financial services; Construction; Trade; Catering and accommodation; Transport; Communications and other private services – dominated growth, increasing from 47 percent to 56 percent. Public non-tradable sectors – Government and state owned enterprises – also declined: from 22 percent to 16 percent of GDP.
- 3.3.3 This structure of growth accounts for the changes in the patterns of formal employment since 1994. Absolute employment numbers within the tradable sectors of the economy declined from 3,013,205 to 2,582,414, particularly in the two primary sectors: Agriculture and Mining. Public non-tradable employment remained more or less stable at around 1.6 million. Private non-tradable employment grew from 4,244,969 to 5,589,791. While total employment (i.e. both formal and informal) grew from 11,035,345 in 1994 to 12,179,346 in 2006 this was outstripped by the growth in the labour force itself, leading to unemployment of 26.1 percent in 2006.
- 3.3.4 Growth and employment have been fundamentally affected by developments with respect to the post-apartheid pattern of capital and skill intensity. The highest growth sectors since 1994 have largely been in a skill-intensive non-tradable services and capital-intensive

upstream resource-based manufacturing. Skill intensity across all sectors of the economy has increased, including the tradable sectors. However the overwhelming majority – over 70 percent – of employment in the tradable sectors still comprises low and unskilled workers with around 60 percent in Manufacturing. By contrast, the private and public non-tradable sectors are far more skill intensive with low and unskilled workers accounting for only around one third of employment.

- 3.3.5 Fixed investment as a percentage of GDP during the transition period has been low but has grown to around 20 percent of GDP by 2006. Low levels of parastatal investment has been a major contributor to overall low investment levels. Low parastatal investment has negatively affected the tradable sectors in two important ways. First, underinvestment in transport facilities has led to inefficiencies with respect to exports of tradables. Second, low investment levels have resulted in the decline of important manufacturing sub-sectors that provide inputs into the parastatals. Notwithstanding overall low investment levels, capital intensity in manufacturing has increased with growth in manufacturing being driven predominantly by capital intensive resource-processing industries with the notable exception being the automotive industry. However, substantial investments have also been made in sectors such as tourism.
- 3.3.6 Export performance has also been mixed over this period. There has been important diversification of the export basket away from reliance on minerals. Resource-based sectors continue to dominate manufacturing exports, although their share declined from over 74 percent in 1994 to 61 percent in 2006. The automotive industry has been the most important source of manufacturing export growth and diversification. South Africa has also not sufficiently integrated into rapidly growing areas of global trade, such as electro-technical products. Muted export performance in non-traditional tradable goods and services is of concern in a context of high unemployment since skill intensity in these sectors is lowest and hence offers the best opportunities for creating employment for relatively unskilled workers.
- 3.3.7 In geographic terms, economic activity remains concentrated around the three traditional metropolises: Gauteng, Durban/Pietermaritzburg and Cape Town. Tertiary and secondary sectors dominate the economic structures of these more affluent provinces, with primary sectors accounting for a relatively small proportion of gross geographic product (GGP). Conversely, the poorer provinces tend to be more reliant on the primary sector, with a relatively small manufacturing base, except for Mpumalanga and the Eastern Cape. Similarly BEE in the manufacturing sector, in particular, has shown slow progress, with BEE transactions being most dominant in the mining and financial services sectors.

3.4 Recent economic developments

- 3.4.1 In 2004, 2005, and 2006 economic growth accelerated to 4.8, 5.09 and 5.0 percent respectively. Strong global commodity prices and booming domestic consumer demand have driven this recent economic growth. The growing Chinese and Indian economies as well as speculative investment in precious metals, driven by geopolitical uncertainties, have buoyed commodity prices. Growing disposal income, lower interest rates, an expansionary fiscal environment and strong employment and wage growth have fuelled domestic demand. Private sector investment also increased strongly in response to lower interest rates and improved growth prospects. The increase in productive capacity creates the platform for a modernisation of the economy, higher productivity and faster job-creation.
- 3.4.2 The rapid expansion in economic activity has resulted in higher levels of employment creation. The unemployment rate decreased to 26 percent in 2006. According to the Reserve Bank, as many as 500,000 new jobs were created in the twelve months to September 2006. This rate of employment growth needs to be sustained.

3.5 Reflections on South Africa's post-apartheid industrial development policies

- 3.5.1 It is possible to make some high-level observations about the effectiveness of post-apartheid industrial and trade policy. First, there have been a number of successes. Most notable has been the Motor Industry Development Programme (MIDP). This programme effectively secured the survival of the South African automotive industry, preserving employment in the core automotive sector and generating significant linkages into other sectors such as leather and plastics. It succeeded by creating an incentive structure that forced a range of stakeholders to collaborate to increase product specialisation and industry upgrading. This was led by the automotive Original Equipment Manufacturer (OEM) suppliers who had to help their component suppliers upgrade in order to meet the local content requirements of the MIDP. Although the MIDP is not directly replicable to other sectors, the principle of the reciprocal control mechanism through which it worked does have lessons for other interventions. Government support has also significantly contributed to the restructuring of upstream resource-based processing sectors that were experiencing difficulties in the early 1990s. These industries have been successfully restructured and are now globally competitive.
- 3.5.2 The Industrial Development Corporation (IDC) has also had a number of successes. In the mid-1990s it contributed substantively to the restructuring of upstream resource-processing sectors referred to above. However, its investment patterns have shifted more recently to strong support for more labour intensive sectors and in support of BEE. One of the most promising findings is that the IDC's most employment-creating investment projects over recent years have been in BEE expansion projects, in contrast to non-BEE investments as well as BEE acquisitions. **the dti** has driven the mainstreaming of BEE as a fundamental

factor of the business environment in South Africa through the promulgation of the Broad-based Black Economic Empowerment Act (BBBEE), as well as the more recent development of the BBBEE Codes of Good Practice.

- 3.5.3 The various technology programmes have also functioned well such as the Support Programme for Industrial Innovation (SPII) and the Technology and Human Resources for Industry Programme (THRIP), based on matching grant funding whereby government has taken a share of the inherent risks in industrial innovation.
- 3.5.4 An overall analysis of the effectiveness of post-apartheid supply side measures does, however, indicate a range of weaknesses. Certain aspects of industrial policy in general – and industrial financing in particular – must be strengthened, drawing on the best-practice experience of high growth developing countries.
- 3.5.5 With three major exceptions, sectoral programmes to restructure the industrial economy, to better deal with increased international competition, were generally not of a sufficient scale to induce the necessary structural change in these sectors. The exceptions were the programmes for the automotive sector and the industrial financing directed towards the restructuring of upstream resource-based sectors including steel, chemicals and aluminium. Although a significant programme was put in place for the clothing and textiles sector restructuring of the sector has been far slower than hoped, due predominantly to difficulties in achieving sufficient coordination within the sector. A weakness related to the issue of programme scale was the very broad range of sectors that were dealt with, combined with the relative lack of prioritisation of these sectoral interventions.
- 3.5.6 A broader question is the extent to which the industrial financing that was dispensed induced new investment, as opposed to supporting activities that would have occurred anyway. Much industrial financing appears to have been captured by capital-intensive resource-based firms without sufficient links to their developmental impact on the economy, particularly with respect to their pricing behaviour. This implies the need for a fundamental overhaul of industrial financing principles. The design of such financing needs to be structured in such a way as to address a clearly identified constraint or opportunity and to be based on monitorable performance requirements.
- 3.5.7 A further area that requires attention is the relationship between trade and industrial policy. In general there has been insufficient coordination between the analysis and objectives of sector strategies and trade negotiation positions with respect to corresponding tariff levels and other trade matters. Sector strategies therefore need to be expanded to indicate sectoral trade policy positions with closer collaboration between the sector desks and negotiating teams.
- 3.5.8 The central relationship between growth, development and industrial structure has long been a feature of the South African economy. The 1998 Competition Act recognised the problems associated with a highly concentrated economy and introduced more robust

merger regulation and measures to deal with anti-competitive behaviour. However, the new competition regime has had difficulty in dealing with pre-existing market structures that demonstrate uncompetitive outcomes. Therefore, it is necessary to further strengthen competition policy to deal with unintended market behaviour and outcomes, some of which are unique to the South African economy.

3.5.9 Firm level evidence indicates that there is a far more complex relationship between competitiveness and employment than is sometimes indicated in economic debates. In certain capital and technology intensive sectors investments in capital equipment may necessarily be labour displacing. However, in medium and more labour intensive sectors the evidence tends to indicate that firms that invest in capital equipment and skills; develop non-price based strategies; and access state financial and skills support schemes, perform better both in terms of profitability and employment.

3.5.10 Although much emphasis has been correctly placed on smaller firms in post-apartheid industrial policy, there has been a relative neglect of the role of big and larger medium sized firms. These firms are generally at the centre of industrial sectors and their strategies and behaviour fundamentally shape sectoral patterns. There is, therefore, a need to track more closely these firms and to identify the most dynamic large and medium firms in the industrial economy with a view to working more closely with them to unlock their potential as well as the clusters that surround them.

4. SITUATIONAL ANALYSIS: INDUSTRIAL ECONOMY CONSTRAINTS AND OPPORTUNITIES

4.1 Constraints on the development of the industrial economy

- 4.1.1 The space within which industrial policy responses can be developed is conditioned by a set of growth and employment constraints and opportunities operating at the macroeconomic, microeconomic and sectoral levels of the economy. Some factors are largely external to the South African economy. A second set arises at the cross-cutting microeconomic level of the economy. A third are highly sector-specific in nature.
- 4.1.2 South Africa is a medium-sized, middle-income economy characterised by a relatively small domestic market. The legacy of high levels of poverty and inequality has historically constrained buying power. Relatively small market size is coupled with geographic distance and associated high transport costs in trading with a range of high income and high growth markets. Over the last few years the consumer side of the economy has received a major boost from a combination of growing black participation in the economy, lower interest rates, income tax reforms, the expansion of social grant programmes and the recent appreciation of the currency. However, the recent currency appreciation has also accelerated import consumption, posing a major challenge to the production side of the economy.
- 4.1.3 A resource-intensive economy like South Africa is vulnerable to commodity cycles and the short-term volatility associated with commodities. The current commodity boom is predominantly being driven by a combination of real economy demand from large and rapidly growing developing countries such as China and India coupled with the effects of geopolitical uncertainties and imbalances in the United States economy. This leads to problems with both the level and volatility of the currency, which makes South Africa vulnerable to external shocks, as well as creating uncertainty for investors, particularly exporters of non-resource based manufactures and services.
- 4.1.4 A major challenge to employment-intensive industrialisation in South Africa is the highly competitive global conditions under which we are seeking to industrialise. A range of developments have raised global competition to unprecedented levels. Trade and investment liberalisation coupled with improved logistics and information and communication and technology (ICT) systems, have made it easier to outsource commoditised parts of value chains to lowest cost destinations. The rapid expansion of China and India – in particular – in the global trading system has increasingly driven down costs and increased the commoditisation of a number of manufacturing products and even services, particularly in less sophisticated activities. Conversely, advanced economies generally dominate the intellectual property associated with high technology production. As a result, South Africa finds itself ‘sandwiched’ between these two sets of countries.

- 4.1.5 The evolution of the global trading system also places constraints on certain policy instruments of industrial policy. Whether or not the Doha round is successful, there is likely to be downward pressure on the role of industrial tariffs, either through the multi-lateral trading system or a series of aggressive bi-lateral trade agreements. There is therefore likely to be an increasing role played by non-tariff barriers (NTBs) and technical barriers to trade (TBTs) in international trade. The evolving multi-lateral system as well as bi-lateral commitments also places disciplines on the types of support measures that national governments may implement.
- 4.1.6 There have been difficulties with both the price and quality of the infrastructure necessary for trade and development. The efficiency of the basic rail and port infrastructure, as well as the availability and cost of broadband telecommunications infrastructure, have emerged as major cross-cutting constraints. Similarly, there is a need for sufficient and cost-effective energy supply via a reliable distribution system.
- 4.1.7 Apartheid spatial development patterns coupled with expensive and inefficient public transport mean that workers who rely on public transport pay a high proportion of their wages on commuting to and from work.
- 4.1.8 The strategy of the previous government of deliberately not investing in skills formation for the majority of the population has created long-term problems. This poses two major sets of challenges. The first is that the global commoditisation of lower-value manufacturing places constraints on the growth of sectors that can absorb relatively unskilled labour. Conversely, availability of skilled labour becomes a constraint on the growth of more dynamic goods and services markets, which are increasingly more skill and technology intensive.
- 4.1.9 A related constraint is the lack of high-level coordination of decisions related to critical policies and strategic large projects. While the cluster system has substantially improved intra-governmental coordination, there is a lack of overriding authority for strategic policy and large project decisions.
- 4.1.10 Regulatory effectiveness of government is also an important factor impacting on firms. For small and medium size firms the 'regulatory burden' may be too onerous. However, large projects may also be held up due to delays related for instance to obtain approval for a range of regulations administered at different spheres of government.
- 4.1.11 Fixed investment rates by both the private and public sector have been low and have fallen well short of the 25 percent of GDP that is estimated as necessary to move onto a fundamentally higher growth path. While private investment levels remained fairly constant in the economy, public investment declined in the post-apartheid period. Related to the underinvestment in physical capital has been the relative underinvestment in technological capabilities.
- 4.1.12 There are a number of weaknesses with respect to the provision of finance for industry. Although nominal interest rates have declined over recent years (but are increasing again),

real interest rates remain on the high side. While large firms are often able to finance investments through retained earnings and negotiate favourable interest rates, medium and small enterprises face higher costs of capital. Finance is typically under-provided to new entities and activities, and may not be made available for a sufficiently long-term duration. Short-term speculative activity – for instance in the property market – can divert capital away from more productive investments. The decline in the relative profitability of manufacturing in particular has been an important contributor to the relatively slow growth of non-traditional tradables.

- 4.1.13 There has long been a concern that high levels of concentration in the industrial economy form a systemic constraint to a more labour-intensive and value-adding growth path. Notwithstanding a far more robust Competition Act introduced in 1998 and the establishment of specific sector regulators, behaviour associated with high levels of industry concentration are holding back industrial development in areas such as the pricing of intermediate manufacturing inputs and telecommunications costs.
- 4.1.14 More complex is the interrelationship between relative labour costs and industrial productivity. In US\$ terms average manufacturing labour costs per hour were on a downward trend between 1995 and 2002. However, the appreciation of the currency induced a rapid reversal of this trend with relative labour costs rising substantially. The debate around labour costs needs to be approached with sophistication because issues of labour cost and productivity are inextricably linked, particularly through investment in capital equipment and skills development. They are also influenced by the levels of the ‘social wage’ such as the proportion of income workers spend on necessities such as transport, housing and healthcare.

4.2 Growth and employment opportunities for the industrial economy

- 4.2.1 Achieving an accelerated and shared growth path requires both higher levels of growth and structural changes in the nature of this growth. The National Industrial Policy Framework (NIPF) identifies a range of areas in which growth and employment opportunities can be leveraged. This is in line with the evidence that it is necessary to focus on diversifying the economy beyond its reliance on traditional tradables and consumption-led services. Although it is not the purpose of the NIPF to set out in detail which sectors should receive targeted attention, a number of potential drivers can be leveraged to achieve this diversification.
- 4.2.2 Given the ‘competitiveness squeeze’ in which the South African economy is located, in general South Africa’s potential with respect to diversification out of traditional tradables lies in industries with intermediate barriers to entry. This implies a short-medium term focus on building upon and developing capabilities for entry into new activities that are not heavily dependant on either very low costs or high levels of technology. However, this does not

imply a neglect of the need in the medium-long term to build the human and technological capabilities associated with a knowledge economy. This implies the need to invest in activities that are under-provided by the market such as industrial upgrading, industrial infrastructure and innovation and technology.

- 4.2.3 Although the South African – and more broadly the regional – economy has traditionally been constrained by low levels of buying power there has been considerable growth in incomes in both the domestic and regional economy. Consumption has grown rapidly in the South African economy for a range of reasons noted in 4.1.2 above. This gives rise to potential opportunities for import replacement. Although more detailed processes of ‘self-discovery’ are required to identify these opportunities, products which are subject to high transport costs appear most promising, such as white goods.
- 4.2.4 Government’s public expenditure programme – in its various forms – will provide a major opportunity to resuscitate supplier industries which suffered from low investment levels over the last decade-and-a-half. Both capital and operational expenditure is set to be substantial for at least the next decade. This provides opportunities for domestic firms to gear up their competitiveness to service the public expenditure and develop capabilities to move into export markets.
- 4.2.5 South Africa has a wide range of natural resources that can form the basis of a more labour intensive and value-adding industrial trajectory. This includes major deposits of a wide range of minerals, the continued ability to produce relatively cheap electricity, a wide range of agricultural possibilities, large landmass, and its inherent bio-diversity. While it does not automatically follow that existence of a natural resource implies that a country can diversify into products and services further down the value chain, there are numerous areas in which opportunities exist based on actual or potential cost advantages, existing capabilities and removal of market failures.
- 4.2.6 Due to rapid technological and other changes in the global economy new areas of global growth frequently emerge or can be created. This opens up entirely new possibilities for the development of new product and service industries. Countries and firms that are able to identify these trends early on have a first-mover advantage in new markets, such as the explosive growth experienced in electro-technical products over the last two decades. The ability to identify and act upon these opportunities requires complex processes of ‘self-discovery’ which match new potential areas of global growth with existing or potential capabilities in order to overcome the fundamental information market failures involved.
- 4.2.7 South Africa has developed pockets of actual or potential technological leadership based on its historical industrial strengths. These are, for instance, related to the mining, chemicals, agriculture, energy, defence and aerospace industries.
- 4.2.8 A potential ‘first mover’ opportunity exists with respect to the rest of Africa. South Africa is already a major exporter to the rest of Africa of a wide range of goods and services. A

number of African economies are growing at a rapid rate, which provides the platform to consolidate the gains of proximity to the rest of the continent. A logical extension of the capabilities built around our own capital expenditure programme would be an export-led push into the rest of continent.

4.2.9 Notwithstanding the quality and price problems, South Africa has a relatively sophisticated infrastructure, including an extensive transport network, information and communications infrastructure and a highly advanced financial and banking system. These systems are set to be upgraded over coming years due, inter alia, to investment in ageing infrastructure and improved industry regulation.

4.2.10 **the dti** – and the post apartheid government more broadly – has, over the last ten years, strengthened or built a range of institutions that can form the basis of a more active industrial policy. This includes the development banking and industrial financing infrastructure; tax administration infrastructure; competition authorities; science councils; the standards, quality assurance, accreditation and metrology infrastructure; manufacturing advisory centres; industry specific regulators; and improved intergovernmental coordination via the cluster system. However, there is substantial scope to improve the coordination of industrial policy within the EIEC cluster, led by **the dti**.

5. PRINCIPLES FOR INDUSTRIAL AND SECTOR STRATEGIES

5.1 Lessons from the Newly Industrialised Countries (NICs)

- 5.1.1 Diversification of the economy towards non-traditional tradable goods and services and beyond a mineral and agricultural base is necessary for a range of reasons. It allows countries to escape from the volatility and long-term decline in the terms of trade of a number of commodities. Movement into manufacturing and exportable service activities allows countries to take advantage of the rising income elasticity of demand that derives from growing income in the world economy. This movement is fundamental to higher living standards as people shift from un- or under-employment to more productive formal sector activities. It is well recognised that this process of industrial development is beset with market and production failures. The ability to produce does not occur automatically but is an incremental process of learning and developing cumulative capabilities. During this process a number of markets generally may not work well, or may even be missing. In particular, these are markets for capital, technology and skills development.
- 5.1.2 The economic orthodoxy of the 1980s and 1990s – the Washington Consensus – has held that countries are tied to their inherited comparative advantage, based largely on their existing set of natural resources. A simple strategy of ‘getting the prices’ right would unleash these advantages. Therefore, macroeconomic stabilisation and liberalisation of trade were the main pillars of a development strategy for all countries, irrespective of their differing endowments, experiences and levels of development.
- 5.1.3 However, empirical and historic evidence has shown two major contradictions with this view. First, the countries that have uncritically embraced the Washington Consensus have demonstrated disappointing growth and development results. Second, it is precisely those newly industrialised countries (NICs)³ that have not blindly followed this route that have demonstrated the highest levels of economic development. This means taking into account the specific constraints that are holding back the development of a particular country, rather than focussing on a generic ‘one-size-fits-all’ policy template. That is not to argue that all aspects of the Washington Consensus are incorrect. An important precondition for a sustainable industrial policy is a stable, well-run and supportive macroeconomic policy and an investor friendly business environment.
- 5.1.4 The experience of the NICs demonstrates that developing countries are not restricted to responding reactively to global forces but can strategise about their current and potential participation in the global division of labour, through purposive interventions in their industrial economies.

³ NICs include countries such as Taiwan, South Korea, Thailand, Singapore, Malaysia, Brazil and Mexico. China and India are both on a rapid path to industrialisation.

5.1.5 This evidence from the NICs, combined with recent theoretical developments gives rise to some rules of thumb about best practice with respect to the design of industrial policy.

5.2 Principles and best-practice for industrial policy interventions

5.2.1 Drawing on the evidence from countries that have industrialised very rapidly, as well as South Africa's post-apartheid experience, a number of principles and best-practices for the design and implementation of industrial policy interventions can be identified.

5.2.2 The overall approach to industrial policy is based on the identification of growth and employment constraints operating at the microeconomic, sectoral, spatial and firm level of the economy, rather than a 'one-size-fits-all' policy template.

5.2.3 The identification of such cross-cutting and sector-specific constraints and opportunities needs to be strengthened in a range of ways. Processes of 'self discovery' with the private sector and other stakeholders – particularly with respect to sector strategies – will be strengthened. Sectoral research, analytical and engagement capabilities will be strengthened to ensure the quality and integrity of such processes. 'Self discovery' processes need to ensure both that intensive engagements take place with industry and that developmental policy objectives rather than narrow private interests emerge from such processes.

5.2.4 The identification of these constraints and opportunities will give rise to a smaller and more focussed set of cross-cutting and sectoral Key Action Plans (KAPs) in any given financial year. KAPs need to be supported with sufficient human and financial resources to ensure that they are of a scale large enough to achieve structural change in the economy.

5.2.5 Where appropriate, industrial financing will be customised to addressing specific constraints and opportunities, within the disciplines of WTO rules. Rather than generically subsidising a particular sector or activity, industrial financing will focus on supporting specific new activities that represent fundamental constraints or opportunities.

5.2.6 The manner in which this financing is designed and administered will be strengthened in a range of ways. Financing will be made conditional on the achievement of measurable benchmarks by recipient firms. An explicit sunset clause and review process will be incorporated into the programmes. Important consideration in the design of the programme will be the extent to which it generates spill overs and demonstration effects. Another important and complex consideration is the international comparability of industrial financing for certain sectors and activities. While we may not wish to blindly provide support for the same activities as other countries, in certain strategic areas it will be important to at least match what is available elsewhere.

5.2.7 The foregoing implies the need for much stronger systems for incentive design, implementation, performance monitoring, enforcement of compliance, regular reporting, periodic review and adaptation, and impact assessment.

- 5.2.8 An effective industrial policy also requires regulatory effectiveness across government. This has two important implications. The first is that all government departments need to take into account the possible impact of policy measures – for instance in the social sphere – on the industrial policy objectives for the economy. Similarly, the design and implementation of government regulations should take into account both the intended and unintended requirements and costs it may impose on the private sector. That is, government regulation must be as efficient and effective as possible with respect to both small and large firms.
- 5.2.9 An important aspect of the success of industrial policy that has been identified in a range of developing countries is the role of a ‘nodal agency’ in coordinating industrial policy with related policies, particularly with respect to macroeconomic issues, skills, infrastructure and technology development. The department leading the implementation of a particular strategy must have a sufficiently strong leadership and coordination capacity. While South Africa has not adopted the system of a single ‘super-Ministry’ which has overall responsibility for all of these aspects of policy, the Economic Investment and Employment Cluster combines the key government departments responsible for most of these policies. Therefore the EIEC needs to take on a much stronger role with respect to the coordination of industrial policy interventions. This is elaborated on in Section 19 below.

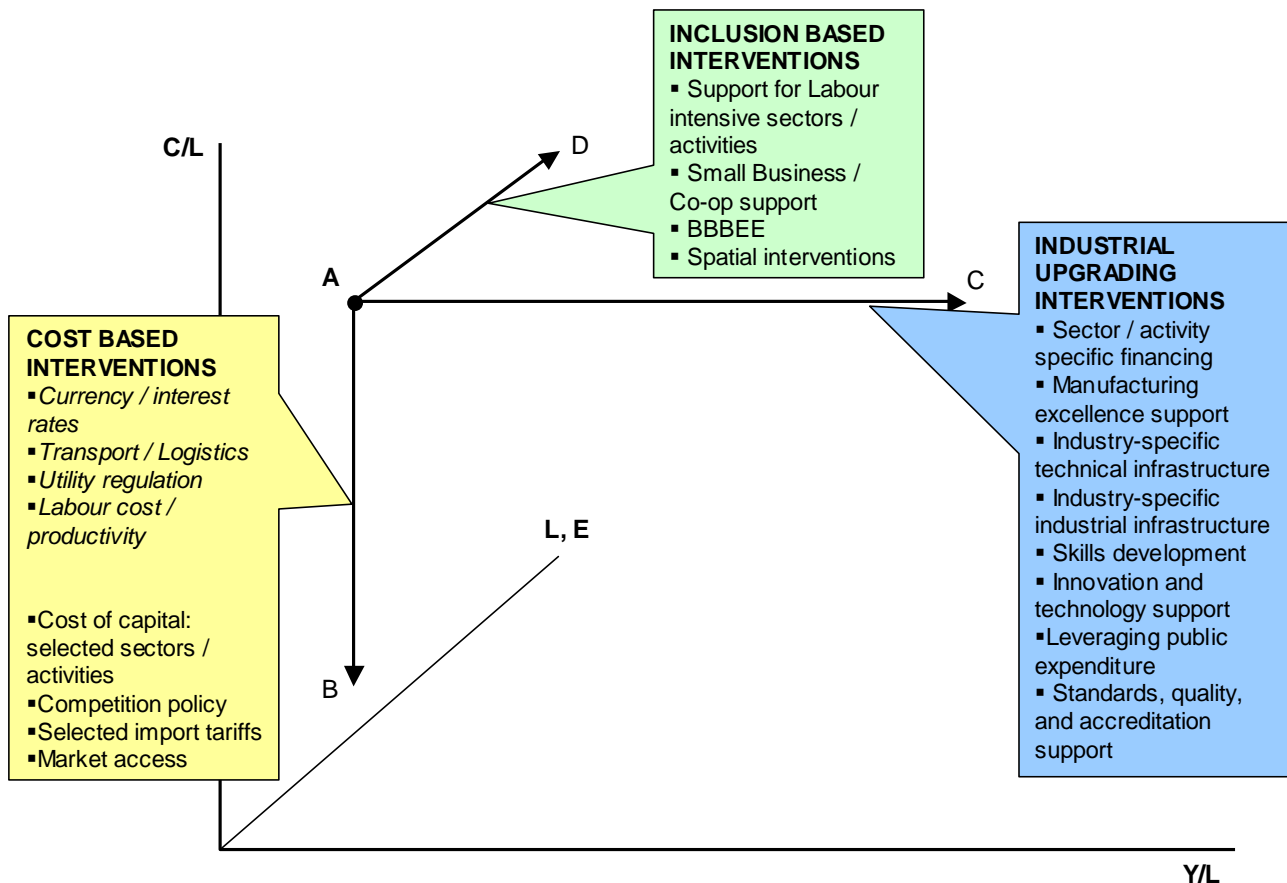
6. STRATEGIC PROGRAMMES

6.1.1 The situational analysis of the industrial economy indicates that the types of policy responses that the constraints and opportunities generally highlight tend to fall into one of three distinct but related domains. These domains correspond to three sets of preconditions that have not emerged strongly enough through the market at the cross-cutting, sectoral, spatial and firm levels of the industrial economy, namely:

- a suitably cost-competitive production base;
- sufficient levels of industry upgrading and movement to higher value activities; and
- adequate inclusion of historically excluded people and regions in the formal economy.

6.1.2 Figure 2 therefore provides a graphic depiction of the three domains in which South African industrial policy must operate, as well as a 'menu' of illustrative options that could be deployed at the cross-cutting, sectoral, spatial and firm levels of the industrial economy.

Figure 2. Three domains of South Africa's industrial policy: illustrative interventions



Source: Adapted from Amsden (2001): 6

Notes: C = Cost per unit of Production; L = No. of Workers; E = No. of Entrepreneurs; Y = Output

7. SP1: SECTOR STRATEGIES

7.1 Government's approach to sector development

- 7.1.1 As argued above, South Africa needs to diversify its economy – particularly into new more labour-absorbing and value-adding tradable goods and services. Both the international evidence and our own economic history indicate that this process often does not happen automatically and therefore requires purposive effort. High impact sector strategies that are well designed and implemented are crucial to place the economy on a higher growth and more developmental industrialisation path.
- 7.1.2 Sector development requires a coherent approach across government. Many sectors cut across departments, at all three spheres of government. There is therefore a need for a uniform approach that informs all government departments that engage in sector development work.
- 7.1.3 The NIPF does not attempt a definitive prioritisation of sectors, for a variety of reasons. First, economic conditions can change substantially during the three-year period that the prevailing NIPF informs. Second, existing sector development work is at varying stages of development. Certain sector development processes have led to a high-quality process of 'self-discovery' while others require more work and newly identified sectors will require entirely new processes of 'self-discovery'. Therefore the NIPF focuses rather on a set of *principles* and *processes* through which sector strategies are to be developed, strengthened and prioritised going forward.
- 7.1.4 However, existing sectoral and economy-wide research means that it is possible to identify five broad *sectoral groupings* where it is apparent that much of our sectoral diversification potential lies.
- Natural-resource based sectors
 - Medium technology sectors (including downstream mineral beneficiation)
 - Advanced manufacturing sectors
 - Labour intensive sectors
 - Tradable services sectors
- This will be discussed in greater detail below.

7.2 Principles and processes for the development and implementation of sector strategies

- 7.2.1 Government has currently identified a range of sectors for development. Most prominent of these are the sectors that are presently identified by ASGI-SA, with a particular focus on those representing 'low hanging fruit' ripe for harvesting, such as Business Process Outsourcing and Tourism. However, there is a need for a more coherent set of principles and processes according to which government develops and prioritises sector strategies. Thus, any sector development process in government will contain the following elements.

- A thorough, evidence-based and realistic economic analysis of the sector, taking into account its relative size and growth prospects (both from a supply and demand perspective) and its potential impact on employment, value-addition, diversification of production and exports, technology development and broad based empowerment. This requires identification of the key obstacles to growth plus the main risks to removing them.
- A robust ‘self-discovery’ process with the main stakeholders in business, labour and civil society to arrive at a clear identification of the constraints or opportunities that require government intervention. The ‘self-discovery’ process must include intensive but robust consultation with business and social stakeholders. The process must identify where the key sectoral constraints and opportunities lie. In the process, the parties should critique the initial analysis and work together to identify the key actions required from each stakeholder.
- The sustainability and viability of the sector in the medium to long term.
- An economic cost-benefit analysis of alternative policy responses to the constraints and opportunities identified.
- An assessment of institutional considerations such as the ease or difficulty of organising the sector to address the constraints it faces and government capacity required to address them. This includes an appraisal of the quality and depth of leadership of the business community responsible for implementing the strategy.
- An identification of the intra-governmental coordination mechanisms required to implement the strategy.
- The sector strategy must include a Key Action Plan (KAP) with clear Key Performance Indicators (KPIs) for all parties and a regular monitoring and evaluation cycle.

7.2.2 As stated above the implementation of sector strategies frequently cuts across government departments, and therefore requires much stronger intra-governmental coordination. Inputs may well be required from a number of departments to establish an appropriate policy and regulatory environment for a sector, for instance as in bio-fuels. At the project level detailed coordination may be required to unlock specific projects, which will generally involve both provincial and local government. Therefore Section 19 below elaborates on ways in which intra-governmental coordination will to be strengthened.

7.3 Prioritisation of sector strategies

7.3.1 Government – like any other economic actor – has both budgetary and human resource constraints. For this reason, it is necessary to prioritise sector development work within government and identify approximately five high-impact priority sectors for any given MTEF period. Prioritisation needs to be based on a consistent and coherent set of economic and institutional criteria.

- 7.3.2 Given government's growth and employment objectives for 2014, greater priority should be given to sectors that are capable of generating the highest levels of employment and growth, particularly in new or expanded non-traditional tradable activities. However, consideration also needs to be given to longer-term issues such as sectors that will move South Africa closer towards a technologically sophisticated and knowledge-driven economy in the long term.
- 7.3.3 Government's sector development efforts need to focus on sectors that will exhibit significant positive external economies if their development constraints are relieved or opportunities leveraged. This implies that sectors that are autonomously realising their growth and employment potential do not require government intervention or support.
- 7.3.4 The economic benefits of developing the sector relative to the costs of government support must be taken into account, with the benefit obviously outweighing the cost.
- 7.3.5 Consideration must be given the state of knowledge about the sector including progress and quality of existing research and 'self-discovery' process with respect to the sector.
- 7.3.6 The institutional implications of the proposed sector strategies must be taken into account. On the one hand this includes the ease or difficulty of organising the sector or developing a new sector. On the other it should take into account the capacity and coordination requirements of government required to implement the strategy.
- 7.3.7 The general principle is that government will focus serious attention on a much smaller range of high-quality sector strategies with well-developed Key Action Plans (KAPs that have the potential to contribute substantially to the structural change indicated by ASGI-SA and the NIPF.
- 7.3.8 In turn, the KAPs that emerge from this rigorous prioritisation process will receive appropriate and sufficient levels of support, based on the specific constraints and opportunities that the KAPs aim to address. This includes intra-governmental and institutional support for any necessary regulatory changes, sufficient human and systems capacity, and – where required – adequate levels of industrial financing.
- 7.3.9 An analogous process of prioritisation needs to take place at the provincial level, and within national departments that deal with multiple sectors like **the dti**.

7.4 Sectoral groupings

- 7.4.1 As indicated above, while it is not the intention of the NIPF to provide a definitive identification of sectors that should be prioritised, it is possible to indicate five sectoral groupings in which it is anticipated much of our industrial growth and employment opportunities lie. Given the value chain nature of a number of sectors it will ultimately be a matter of judgement into precisely which grouping a particular sector falls.

7.4.2 Natural resource-based sectors

- 7.4.2.1 South Africa has an abundance of mineral and plant resources. Coupled with historically cheap electricity and substantial state support, this has given rise to a distinct comparative advantage in a range of resource-processing sectors. Much of this comparative advantage is now self sufficient and does not require state support.
- 7.4.2.2 However, there are selected areas in which government needs to play a role. First, there are significant pricing problems between these sectors and more labour-intensive downstream sectors as reflected in the practice of import parity pricing (IPP).
- 7.4.2.3 Second, new value-adding opportunities may arise through new primary activities such as mining or agriculture as well as the further processing of our resource base. New large projects in these sectors often require government facilitation, such as in the oil and gas, paper and pulp and platinum sectors.
- 7.4.2.4 Finally, the core importance of minerals exports means that the government must maintain oversight to anticipate possible constraints as they arise, in particular around the management of finite minerals resources and the provision of infrastructure.

7.4.3 Medium technology sectors (including downstream mineral beneficiation)

- 7.4.3.1 A number of medium technology sectors in the South African economy employ substantial numbers of people and have significant prospects for development. These include long-established sectors such as metals fabrication; machinery and equipment; chemicals and plastics; and paper and pulp; as well as emerging sectors such as oil and gas and jewellery. A number of these sectors represent potential for downstream beneficiation of South Africa's traditional mineral and mineral-processing sectors.
- 7.4.3.2 While it does not automatically follow that because South Africa possesses the underlying natural resource, it should automatically be producing a more beneficiated product further down the value chain, a number of opportunities arise for downstream processing of our mineral base. These include various sources of local demand – including public expenditure; existing capabilities that have been established; and underdeveloped value chains due, for instance, to the pricing of raw input materials. Further development of these value chains could add significant value and employment opportunities due to the much higher labour intensity than their upstream counterparts.
- 7.4.3.3 Obstacles to downstream beneficiation include the pricing of raw materials, skills development, industry-specific infrastructure and transport requirements. Interventions to unlock the potential of these sectors include a regulatory framework for more internationally competitive raw material pricing inputs and leveraging domestic and continental capital expenditure coupled with sector-specific support mechanisms.

7.4.4 Advanced manufacturing sectors

- 7.4.4.1 The predominance of medium to high-tech products in global trade signifies that more efforts should be directed to value-addition and improving efficiencies along manufacturing value chains. More importantly, new advanced manufacturing processes need to be promoted and accumulated industrial capabilities enhanced. This is particularly important in the context of relatively undynamic export performance in terms of both growth and technological composition.
- 7.4.4.2 Advanced manufacturing is generally characterised by relatively high levels of skill and technology requirements and encompasses sectors such as: automotives, aerospace, electronics, and nuclear energy. These sectors are often driven by foreign direct investors who own the proprietary knowledge involved and who subcontract original equipment manufacturing. However, there are areas in which South Africa has – or is in the process of – developing its own proprietary technologies, such as mining capital goods and nuclear energy. Challenges exist with respect to deepening domestic technology linkages in automotives, building more competitive scale manufacturing capabilities and identifying the areas in which South Africa can participate competitively in more dynamic value chains, such as the electro-technical group of products. This is likely to require support in the areas of technology development, technological infrastructure and more focussed FDI promotion efforts.

7.4.5 Labour-intensive sectors

- 7.4.5.1 There are a number of sectors that are relatively labour intensive. Typically, these industries are relatively large employers of lower skilled labour and offer opportunities for smaller producers. They span the primary, secondary and tertiary parts of the economy. They include primary activities such as agriculture; forestry; fishing; and certain parts of mining; clothing and textiles; footwear; food; beverages and furniture. In recent years, the growth path of these sectors has diverged. Agricultural employment has declined, largely due to technological change. Other industries face high levels of competition from low-wage countries, such as China, aggravated by the strong currency of the mid-2000s. Clothing is a case in point. Certain sectors, such as furniture and leather, have, however, shown good performance and employment growth.
- 7.4.5.2 The characteristics of these two groups suggest that two broad sets of interventions need to be developed. The major challenge will be to identify new tradable activities including the ability to service the growing domestic and regional market. ASGI-SA has currently prioritised tourism and clothing/textiles as being important from an employment perspective, as well as Business Process Outsourcing, which is discussed under tradable services below. Although the overall focus of the NIPF is on non-traditional tradable goods

and services, government will explore a range of further options for employment creation, including ways in which employment can be generated in non-tradable services sectors.

7.4.5.3 The agriculture and agro-processing sector broadly is one of the most labour-intensive in the economy. It will be investigated further to identify opportunities for employment creation and new enterprise development.

7.4.5.4 Development of labour-intensive sectors will require substantial intra-governmental coordination. Of particular importance will be the manner in which macro-economic policy takes into account prospects for these sectors, particularly with respect to the level and stability of the currency. In addition, the role of government programmes in generating demand for some of these products – for instance through expenditure on housing and infrastructure - must be taken into account.

7.4.6 Tradable Services

7.4.6.1 In developing sectors, the importance of services should not be overlooked. The sector broadly constitutes over 60 percent of GDP and employment. While much services activity is driven organically by increasing per capita incomes, there are certain services sectors that display desirable developmental characteristics such as the ability to absorb labour and generate substantial value addition. A number of services sectors tend to have higher employment elasticity than manufacturing, although they also tend to be relatively skill intensive. Promising services for development or ‘self-discovery’ processes include business process outsourcing (BPO); ICT services; engineering, construction and mining services and film. The major generic challenges facing most of these sectors relate particularly to broadband availability and costs, and skills and education development.

7.4.7 Sector research and new sectors

7.4.7.1 Sector research capacity needs to be substantially strengthened in order to better track trends in both the domestic and global economy. Some ways in which this will be addressed are discussed in 19 below. This research will focus on the identification of new possible areas for the further diversification of the economy into more labour-absorbing and value-added sectors that are suitable for ‘self-discovery’ processes.

8. SP2: INDUSTRIAL FINANCING

8.1 Cross-cutting and sectoral Key Action Plans (KAPs) will be implemented by the altering of economic incentives for an increase in net economic benefit in ways that will have the highest impact on delivering on government’s economic goals for 2014 within the industrial economy. Government has a number of instruments at its disposal to achieve these objectives including: regulatory changes, skills development, provision of infrastructure,

funding for research, trade policy and industrial financing. Industrial financing can span a range of activities as set out in 8.5 below.

8.2 Industrial financing will be an extremely important component for the effective implementation of the KAPs. It is often necessary to assist in dealing with some of the inherent constraints to industrialisation. Because industrialisation is inherently a risky process, finance is typically under-provided to new entities and activities, and may not be made available for a sufficiently long-term duration.

8.3 However, it cannot be assumed that industrial financing will automatically be dispensed. The case for industrial financing needs to be made through a robust economic analysis incorporating the criteria set out below. Such an analysis may indicate that it is not in fact financing but rather some form of regulatory change that is necessary to relieve the constraint in question. However, once a rigorous case for financing is made for a limited range of high impact KAPs then these need to be appropriately supported as part of a coherent strategy that also addresses any regulatory constraints.

8.4 Industrial financing needs to be based on a set of core principles.

- Industrial financing must focus on supporting substantively new – particularly non-traditional tradable – goods and services, rather than subsidising activity that is already happening. This implies support for entirely new goods and services, new forms of production, as well as expansive growth of existing non-traditional tradable activities through relieving some fundamental constraint.
- As far as possible the financing should aim at generating significant spill over and demonstration effects.
- Financing must be conditional on the achievement of measurable benchmarks by recipient firms. At the same time, it must be as transparent and easy to access as possible, with a minimum of uncertainty and regulatory costs for applicants.
- An explicit sunset clause and review process must be incorporated into the programme.
- Where industrial financing is the predominant element in a KAP it needs to be of sufficient scale to achieve the necessary structural change targeted by the KAP.
- While we do not intend to blindly provide support for the same activities as other countries, we will monitor the impact of other governments' activities in efforts to retain best-practice for our support measures.
- The foregoing implies the need for much stronger systems for incentive design, performance monitoring, enforcement of compliance, regular reporting, periodic review and adaptation, and impact assessment.
- Where appropriate, industrial financing will be customised to addressing specific constraints and opportunities, within the disciplines of WTO rules.

8.5 Industrial financing will take two broad forms. First, generic programmes that will be open on a self-selection basis to all firms that might meet the criteria of the programme. Second, more

customised industrial financing to meet the specific needs of sector-specific Key Action Plans, within the disciplines of the World Trade Organisation. In general industrial financing will fall into the following five streams, based on the constraints and opportunities identified in the situational analysis above and as elaborated on in the thirteen strategic programmes.

- Investment (including sector-specific programmes)
- Industrial Upgrading (including industrial infrastructure)
- Innovation and Technology
- Trade Facilitation
- Small and Medium Enterprises (including co-operatives)

In many cases this will require a re-organisation and consolidation of existing financing mechanisms. However, it will also require the development of new mechanisms from time to time.

- 8.6 There is a well-developed infrastructure for providing industrial finance in South Africa. This includes programmes overseen and administered by institutions such as the Departments of Trade and Industry and Science and Technology, and the Industrial Development Corporation. The suitability of current financing mechanisms – most of which were designed in the immediate post-1994 period – needs to be re-evaluated, taking into account evidence about their effectiveness, changed conditions and global best practice. Appropriate decentralisation of industrial financing mechanisms to the provincial level is required in order to provide greater geographic access to instruments administered at the national level.
- 8.7 It is clear from the foregoing that major improvements are required in terms of industrial financing. The design of financing instruments must become more reciprocal and focussed on the relevant constraint or opportunity that it targets. Financing should be of sufficient size to change the structure of the targeted sector or functional area. The mix of instruments should change, since duty based instruments currently dominate. Financing should focus on new activities and must include a sunset clause. Monitoring and enforcement of reciprocity is critical. Improved reporting and evaluation of industrial financing will assist in assessing the economic impact of schemes.

9. SP3: TRADE POLICY

- 9.1 International experience demonstrates that where trade policy is appropriately integrated into a broad economic development strategy, underpinned by a robust industrial policy, a trade reform programme, appropriately paced and sequenced, can make a significant contribution to achieving the objectives of sustainable economic growth and international competitiveness. The ASGI-SA and the NIPF establish a set of institutional coordination mechanisms that offer an opportunity to integrate trade policy into the broader economic development strategy in an operationally meaningful manner. In particular, the development

of sector strategies offers a programmatic framework for drawing trade policy considerations into the development of sectoral industrial strategies in a more systematic manner.

- 9.2 Tariff reform in South Africa since 1994 has been extensive in terms of the scale of tariff reduction and in simplification of the tariff structure. Over the last decade trade has made a positive contribution to growth and efficiency in South Africa. Exports have increased in volume and value, contributing positively to GDP. Greater import competition has encouraged specialisation, and improved resource allocation and productivity. Nevertheless, South Africa's trade performance has not kept pace with comparable economies. This is particularly the case with respect to non-traditional exports. In addition we have remained largely outside markets for dynamic products in world trade.
- 9.3 Improving our non-traditional export performance – particularly in more sophisticated, value added products – is an important objective for industrial policy. At the same time, a range of questions with respect to tariff policy issues arises. Recognising that tariffs are instruments of industrial policy and have implications for employment, investment, technology and productivity growth, and objectives our fundamental approach is that tariff policy should be decided primarily on a sector-by-sector basis dictated by the needs of imperatives of sector strategies. It is important to recognise that in terms of South Africa's bound rate commitments from the Uruguay Round and some current applied rates will have to be adjusted downward if agreement is reached in the Doha Round.
- 9.4 However, the economic costs and benefits of certain cross-cutting issues need to be addressed in the context of a review of selected aspects of the tariff regime. First, the relative costs and benefits of further simplification of the tariff book. Second, the issue of so-called "nuisance tariffs" or tariffs less than five percent. Third, the implications of tariff peaks (tariffs that are significantly higher than the national average), tariff escalation (which imply higher rates of effective protection), as well as situations of negative rates of effective protection (where tariffs on inputs are higher than on the final product)? Fourth, the removal of tariffs on imports of machinery and equipment that are neither made in South Africa or are likely to be made in the future. Such a review also requires a consideration of the trade negotiation impact of any unilateral liberalisation of our tariff regime.
- 9.5 Additional refinements of tariffs will focus on two areas. Tariffs on upstream input industries will be reviewed and may be reduced or removed, in the interests of lowering input costs into downstream manufacturing, taking into account issues such as domestic production capabilities and the levels of global distortions in these products. Tariffs on downstream industries will be treated more carefully, particularly those that are strategic from an employment or value-addition perspective. All tariff determinations will be conducted on a case-by-case basis, taking into account the specific circumstances of the sector involved.
- 9.6 In boosting exports, both to address employment creation and current account deficits, the sector strategy processes will also need to consider constraints to exports. Part of this is

clearly related to the objectives of industrial policy itself, but it should also inform the development of more refined foreign direct investment (FDI) and export promotion strategies. This will entail more targeted FDI promotion driven by the opportunities identified from the sectoral strategies, as well as a more focussed export promotion strategy, based on detailed analysis of trade opportunities. It is also related to our negotiating strategy and objectives with respect both to economies and products we should be targeting. Industrial policy objectives should, in other words, underpin our export and negotiating strategies.

- 9.7 The WTO provides a unique forum for developing countries to advance their trade and development interests. WTO rules enhance predictability and security of access to global markets. The rules reduce, but do not eliminate, the scope for unilateral action by economically powerful nations. Nevertheless, existing rules to a greater extent reflect the interests of the powerful players in the system - that is, the industrial countries – that have been at the forefront of defining the rules in past rounds of negotiations. Current agreements exhibit a range of imbalances, inequities and deficiencies that prejudice the trade and development interests of developing countries. Against this background, our participation in the Doha Round aims to strengthen the multilateral trade system in a manner that addresses imbalances and promotes development in a decisive manner. In this regard, we seek four key negotiating outcomes: i) new market access for developing country exports; ii) the elimination of industrial country subsidies to inefficient agricultural producers that stifle the export growth of developing countries; iii) re-design rules that prejudice the interests of developing countries; and iv) in the design of new rules, ensure there is sufficient flexibility for developing countries to pursue their development objectives. Multilateral rules and negotiations in the WTO remain critical areas of engagement as they set the broad parameters for our trade prospects over the medium- to long-term.
- 9.8 Our approach to bi-lateral trade agreement negotiations draws from past negotiations such as with the EU, where the objective was to achieve substantial market access for manufactured and agricultural goods and leverage export-oriented investment. We have learned a series of important lessons to guide future bilateral engagements in a manner that will reflect our trade interests more precisely. First, as compared to free trade agreements, more limited preferential trade agreements allows for a more strategic integration process among developing countries. Second, it is increasingly apparent that tariffs are not always the most important barrier we face in foreign markets, and hence our negotiating outcomes must deal more effectively with non-tariff barriers. Third, we need to consider other types of cooperative arrangements that may include sectoral cooperation agreements, and mineral product supply linked to investment in beneficiation. Finally, we need to consider ways to attenuate costs associated with trade diversion, variable tariff positions with partners, complex customs administration and rules of origin. One way is to use the existing rules and agreements as models for new agreements.

- 9.9 Regional integration is a central thrust of our trade policy. South Africa will be required to devote greater attention to consolidating the SACU integration agenda and advance beyond issues of the Common External Tariff to the broader integration agenda to include cooperation on industrial, agricultural competition, and services policy. Moreover, trade negotiations with third parties will, in future, require regional SACU approaches to all new generation issues. South Africa will also need to enhance its participation in the SADC regional integration process. In both cases, the regional integration agenda needs to shift beyond issues of trade to include ways in which the productive capabilities of other African countries are supported for them to engage meaningfully in trade. This includes the matter of a SADC industrial policy.
- 9.10 The Permanent Trade Forum (PTF) is the appropriate intra-governmental structure to coordinate preparations for South Africa's effective participation trade negotiations. Greater involvement of other departments in trade agreements and negotiations is of importance if trade policy is to have a meaningful contribution to the developmental objectives of government. In addition to the market access and trade in goods agenda, the range of new generation trade policy issues that link trade to services, intellectual property, investment, competition, procurement, labour and environment, is firmly on the international agenda. These issues require interdepartmental consideration, as they are cross-cutting and impact on the mandates of multiple government departments.
- 9.11 The WTO provisions on subsidies and local content, in particular, will frame the types of industrial financing that is possible. Disciplines for subsidies in the services sector are currently under negotiation in the Doha Round. The contingent protection (anti-dumping, countervailing and safeguard measures) policy framework will be adapted to become more strategic. A public interest consideration will be introduced to allow for the consumers of products subject to contingent protection to participate in investigations.

10. SP4: SKILLS AND EDUCATION FOR INDUSTRIALISATION

- 10.1 As outlined above the skills and education system form a fundamental pillar for the success of an industrial policy. There is currently insufficient integration between industrial policy objectives and skills and education systems. There is therefore a need from much closer alignment between industrial policy and skills and education development, particularly with respect to sector strategies.
- 10.2 At the level of vocational training there is a need for much greater coordination between the development and implementation of sector strategies and the corresponding Sector Education and Training Authorities (SETAs). In particular, the SETAs related to the high impact sectors prioritised from time-to-time by government themselves require priority attention such that they are optimally supportive of the sector development process. Lessons

learned from this process can be applied to the improvement of the SETA system as a whole.

- 10.3 In the medium to long term there is a need for much stronger alignment between the education system and industrial policy. There a critical requirement for any successful industrialisation process is the provision of adequate numbers of graduates in tertiary technical fields such as science and engineering. South Africa's recent growth spurt has highlighted weaknesses in this area.
- 10.4 Improvements on the tertiary technical front require a much larger pool of school leavers with university entrance in mathematics and science. This implies purposive efforts to improve the cadre of school leavers necessary for a modern and increasing knowledge-driven economy.
- 10.5 There is also a requirement to strengthen the integration between tertiary institutions and industries in the same geographic location. This is particularly the case in more technology and skill intensive industries where local tertiary institutions form a fundamental pillar of industrial clustering.
- 10.6 There are currently a number of initiatives aimed at improving the skills and education system in the ways highlighted above. However, they need to be given greater coherence within the Economic and Employment Cluster of departments. Current plans to revise the National Human Resource Development Strategy provide an ideal opportunity to build stronger linkages between education and industrial policy.

11. SP5: COMPETITION POLICY AND SECTOR REGULATION

- 11.1 The process of industrialisation requires efficient and cost-effective inputs ranging from raw materials to transport and telecommunications services. The situational analysis above indicates that there is a problem with uncompetitive exertion of market power in a number of concentrated input sectors – in both the private and public sphere.
- 11.2 The high levels of concentration in the South African economy were a major policy concern in the construction of the immediate post-apartheid industrial policy. Therefore, more robust competition legislation and institutions were put into place in 1998 as well as sector specific utility regulators.
- 11.3 The 1998 Competition Act struck a balance between two objectives. On the one hand it recognised the need to promote much higher levels of competition in the economy in order to facilitate entry of small and medium sized businesses, historically disadvantaged people and foreign direct investment. However, it also emphasised that certain industries need to achieve minimum economies of scale in order to be globally competitive.
- 11.4 However, the post-apartheid economy has seen a complex process of horizontal unbundling of conglomerates being replaced by vertical 're-bundling' in a range of sectors. This has resulted in continued high levels of concentration in the economy in a range of sectors. In

some sectors concentration has even increased. This has given rise to uncompetitive outcomes in certain sectors.

- 11.5 Thus, there is a need to strengthen competition policy in order to address some of the unique features of the South African economy, not least of which is its relative geographic isolation. Competition policy is currently being reviewed with a view to strengthening it in a variety of ways, some of which have already been identified. There is a need to shift the focus of the competition authorities more strongly towards dealing with anti-competitive behaviour and outcomes in the economy. This includes introducing a stronger monitoring function as well as greater powers to deal with sectors demonstrating uncompetitive outcomes.
- 11.6 Closely related to broader competition policy concerns is the specific practice of import parity pricing (IPP). This practice is most prevalent in upstream resource-processing industries and entails adding a range of notional costs to the price charged to domestic purchasers of the product. Addressing IPP is one of the critical constraints that need to be overcome in order to unlock downstream beneficiation in a range of value chains. In addition to strengthening the Competition Act as identified above, a range of other measures are being implemented, including removing import protection on products priced according to IPP principles.
- 11.7 A number of sector regulators have been put into place to oversee pricing behaviour for specific utilities such as energy and telecommunications. These have met with mixed success. In order to support the implementation of the NIPF it is necessary that sector regulators be adequately resourced and empowered to ensure reliable and cost effective inputs into the diversification of goods and services. This is particularly the case in markets for transport, energy, telecommunications and water.

12. SP6: LEVERAGING PUBLIC EXPENDITURE

- 12.1.1 One of the major weaknesses identified in the South African economy has been under-investment in both the installation of new infrastructure as well as the maintenance of existing infrastructure. Large-scale plans are being implemented to both upgrade and install new infrastructure as well as broader expenditure plans on areas such as housing.
- 12.1.2 This public expenditure will provide a massive investment injection into the economy over the coming decade. These investments will have two possible effects. The first is an investment effect that will provide opportunities to domestic companies to participate as suppliers to the various public expenditure programmes. The second, and longer term effect, will be a competitiveness effect, as outdated transport infrastructure in particular is upgraded. This will improve the competitive base of the manufacturing sector generally.
- 12.1.3 The expenditure of state-owned enterprises (SOEs) in upgrading rails, ports and the electrical infrastructure is currently estimated to amount to R150 billion over the next five years alone. Furthermore, there are also plans to make substantial investments in other areas such as telecommunications and water. In addition to the fixed capital expenditure

investments planned over the next few years, which are by their nature lumpy, there will also be ongoing operational expenditure required to maintain transport infrastructure in particular.

12.1.4 Additionally, there are a range of government expenditure programmes anticipated over the coming decade. This includes expenditure on housing, the taxi recapitalisation programme, the Gautrain, as well as the infrastructure and other investment necessary to prepare South Africa to host the 2010 FIFA World Cup.

12.1.5 A major opportunity therefore arises to leverage the public expenditure, by ensuring that domestic firms are sufficiently competitive to capture significant portions of it, without compromising price and quality. However, substantial coordination will be required in order to maximise the linkages from the public expenditure programme. Industries and firms that previously supplied the parastatals have lost substantial capabilities with some no longer active due to low levels of investment over the last two decades. As a result, a range of coordination needs to take place: between public procurement managers and potential suppliers; amongst firms that can potentially form supply consortia; and between government departments particularly linking **the dti's** Customised Sector Programmes, DPE's expenditure plans and DoL's training plans.

12.1.6 Looking further into the future, the capabilities that can be built up around the public expenditure programme can be leveraged to gain export markets. The logical trajectory would be for firms to move increasingly into operating on the rest of the continent and from there to broader international markets.

13. SP7: INDUSTRIAL UPGRADING PROGRAMME

13.1 Firm level evidence indicates that it is firms that invest in non-price based strategies – associated with upgrading their industrial capabilities – that demonstrate superior performance in terms of both turnover and employment growth. These include investments in machinery, upgrading skills, as well as improving their logistics capabilities.

13.2 Given the 'competitiveness squeeze' that South African industry finds itself in, industrial upgrading is a logical progression in order to avoid cut-throat price competition as certain parts of manufacturing becoming increasingly commoditised, particularly due to a combination of global trade liberalisation and pressure from Chinese and Indian firms in particular.

13.3 Consequently, a Strategic Programme focusing on supporting various aspects of industrial upgrading is identified as necessary for the South African manufacturing sector. These support measures can take various forms but typically have both spill over and demonstration effects.

13.4 The first element of an Industrial Upgrading Programme is a Manufacturing Excellence Programme (MEP). This is aimed at providing support for a variety of firm-level upgrading

efforts, including product, process and value chain upgrading. Central to any MEP is support for firm benchmarking against peers in their industry, both domestically and internationally. Systematically measuring and benchmarking various aspects of firm-level efficiency is a fundamental requirement in order to make ongoing improvements.

- 13.5 The second component of industrial upgrading is the technological infrastructure that supports it. Technological infrastructure is defined as infrastructure of a public good nature, which individual firms would be unable or unwilling to invest in but which has substantial technological spill overs onto the industry as a whole. Due to the broad range and sector-specific nature of the facilities that meet these criteria, it may be desirable to establish a Technological Infrastructure Fund, with broad guidelines, that is able to support a range of facilities. The types of facilities that would be supported would include: tooling and casting facilities, sector-specific skills centres, where fixed costs of equipment are too high for individual firms to invest, and centres for research excellence.
- 13.6 Given the declining role of tariffs in world trade, non-tariff barriers take on an increased significance as potential obstacles to trade, particularly related to standards and non-tariff barriers such as sanitary and phytosanitary, technical and environmental standards. Therefore the third part of an industrial upgrading programme: the national standards, quality assurance, accreditation, and metrology (SQAM) technical infrastructure is extremely important. A sound SQAM system can play a strategic role in two related ways: first by assisting firms to adopt and meet the standards necessary in order to export into increasingly demanding foreign markets; second as a way of ensuring that low-quality imports do not undercut the productive base of the manufacturing sector. This extends to the continent where a harmonised technical regulatory framework can create economies of scale for market access of African countries.

14. SP8: INNOVATION AND TECHNOLOGY

- 14.1 As a middle income developing country South Africa needs to increasingly invest in its innovation and technology capabilities. It is widely recognised that investment in innovation and technology is under-provided by the market due to its risky nature and long time-horizons. Therefore greater support for innovation and technology is necessary in order to contribute to the national target of increasing and sustaining research and development (R&D) expenditure to one percent of GDP.
- 14.2 South Africa has pockets of technologies and capabilities that can be leveraged in order to narrow the gap with a range of technologically sophisticated developed and developing countries. Although it is difficult, risky and costly, there is a long-term need to develop domestic technologies and bring them to market.
- 14.3 In this regard, substantial work has been done with respect to tracking global technology trends and relating them to areas where South Africa could lead with respect to proprietary

technologies or where it should focus on technology transfer, adoption and adaptation. The Department of Science and Technology's National Research and Development Strategy sets the overarching framework for technological interventions, particularly on the research side of R&D.

- 14.4 The focus of the Department of Trade and Industry's efforts will be weighted heavily towards the development side of R&D. Therefore technology financing needs to be expanded in order to meet our national R&D targets. There are a number of noteworthy projects identified by the AMTS that are worthy of support and will stimulate the development of specific technology platforms and collaborative networks. This implies increased support measures for process and product innovation, and commercialisation of technologies. There is a need for greater coherence and collaboration between the Departments of Trade and Industry and Science and Technology in developing such support measures. The establishment of a strong national agency to administer and promote innovation support programmes could give additional weight to the system
- 14.5 It is important to strengthen systems to protect and develop South African intellectual property (IP) and to encourage its commercialisation domestically in favour of licensing abroad. This is particularly with respect to IP that is developed through the public purse, such as the Science Councils.

15. SP9: SPATIAL INDUSTRIAL DEVELOPMENT AND INDUSTRIAL INFRASTRUCTURE PROGRAMME

- 15.1 The provision of industrial infrastructure is an important way to foster industrial clustering, both in areas of traditional industrial agglomerations and in underdeveloped areas with latent economic potential. Support for industrial infrastructure has thus far largely been limited to Industrial Development Zones and matching support available to municipalities under the Critical Infrastructure Programme (CIP).
- 15.2 Appropriately placed industrial infrastructure can play a fundamental role in generating qualitatively new economic activity. It supports clustering of firms to take advantage of an existing resource such as a port, airport, specific telecommunications infrastructure or a university or science council. Substantial efficiencies and learning effects are possible from firms clustering together in related activities.
- 15.3 An Industrial Infrastructure Programme needs to support a range of types of infrastructure, such as industrial development zones, industrial parks, hi-tech and science parks, and catalytic project-specific infrastructure such as cold chain facilities to unlock particular types of agro-processing activities.
- 15.4 A closely related initiative is the ongoing work in relation to the development of a Spatial Industrial Development Strategy (SIDS) for the promotion of regional industrialisation outside the three traditional metropolises. This is based on the principles of the National Spatial

Development Perspective (NSDP). Work is currently underway with respect to the identification of specific areas and corridors in which high economic need coincides with good economic potential. Consideration is being given to a number of policy options in this regard. These options need to be informed by the underlying actual or potential advantages in a particular region, such as natural resources and existing institutions.

16. SP10: SMALL ENTERPRISE SUPPORT

- 16.1 Small enterprise support will focus on a combination of improving 'supply side' factors such as finance and technical support, together with finding ways to strengthen market opportunities for small enterprises, including cooperatives.
- 16.2 Substantial attention has been paid to the development of small business policy since 1994 as reflected in the Integrated Small Enterprise Development Strategy. This framework has recently been extended so that co-operative enterprises can enjoy the same status and support as other small enterprises. Consequently, there is a very well-developed policy framework for small enterprises.
- 16.3 In addition the institutional infrastructure for the development and support of small enterprises has also largely been put in place since 1994, with the most recent developments being the consolidation of non-financial and technical support into the Small Enterprise Development Agency (SEDA) as well as the establishment of the South African Micro-finance Apex Fund to service micro-enterprises.
- 16.4 However, small enterprise financing and support services have not fully matched small enterprise requirements. Consequently the main focus for small enterprise development over the coming years is to expand the range of products to small enterprises. Access to finance will be broadened driven by Khula in partnership with the private sector. There will be a particular focus on the strengthening of non-financial support through SEDA. At a broader government level work is being coordinated by the Presidency to review the regulatory burden experienced by small enterprises and to make policy proposals on how to limit the amount of red tape small enterprises face in both their start-up and operational stages.
- 16.5 The revision and strengthening of Competition Policy outlined below will also have important implications for small- and medium- sized enterprises, particularly those engaged in downstream beneficiation.

17. SP11: LEVERAGING EMPOWERMENT FOR GROWTH AND EMPLOYMENT

- 17.1 Broad Based Black Economic Empowerment (BBBEE) has gained broad acceptance as a fundamental element of doing business in the South African economy. However, actual performance with respect to BBBEE has been mixed with the most progress being seen in the mining and financial services sectors and slower progress in manufacturing.
- 17.2 The evolution of BBBEE has increasingly emphasised that BEE should be a broad rather than narrow process that helps uplift the majority of South Africans. Consequently, the emerging Codes of Good Practice (GOGP) have eschewed a narrow focus on the equity component in favour of an approach that seeks to build empowerment in a range of ways.
- 17.3 This trajectory of BBBEE can be further strengthened by linking it more closely to issues of growth and employment. This can be achieved through an increasing focus on the entry of black people into new and growing areas of the economy. This will help to promote the twin objectives of transformation and broader economic development.

18. SP12: REGIONAL AND AFRICAN INDUSTRIAL AND TRADE FRAMEWORK

- 18.1 The fortunes of the South African economy are inextricably linked with those of the rest of the African continent. South Africa therefore has an interest in promoting higher levels of industrialisation and economic integration on the continent. South Africa has a first-mover advantage with respect to the rest of the continent due to geographic proximity as well as experience in operating in the African environment.
- 18.2 Much emphasis in efforts to promote African industrialisation has been focussed on issues of trade, particularly those of market access. However a closer examination of the evidence indicates that the major constraint is on the supply side of African economies, in terms of both productive capabilities and infrastructure. Increased political stability on the continent has unlocked rapid growth in a range of African economies, although off a low base.
- 18.3 Thus, a Regional and African Industrial and Trade Framework will be developed in order to take advantage of the opportunities arising from growth on the continent, as well as to promote greater levels of continental industrialisation and economic integration. This includes the investigation of the development of regional value chains, based on each country's actual or potential advantage in different value chain segments.

19. SP13: COORDINATION, ORGANISATION AND CAPACITY FOR IMPLEMENTATION OF INDUSTRIAL POLICY

19.1 Institutional requirements for implementation of industrial policy

- 19.1.1 Two major challenges have impacted on the ability to implement industrial policy over the last decade. First, there has been insufficient coordination around industrial initiatives amongst and between the three tiers of government. Second, capacity to formulate and

implement high-quality industrial policy interventions has been uneven across economic departments.

19.1.2 The successful implementation of the NIPF requires coordination across a range of government departments, as well as appropriate organisation and capacity within them. This is particularly the case with respect to the Economic, Investment and Employment Cluster (EIEC). Three main areas are singled out for attention: intra-governmental coordination at the national level; intra-governmental coordination between the three spheres of government; and strengthening of organisation and capacity within **the dti** in particular.

19.2 Intra-governmental coordination: national

19.2.1 There is already an existing system of coordination that clusters departments working in similar areas. The core clusters within government are the economic, investment and employment cluster (EIEC); the governance and administration cluster; the justice, crime prevention and security cluster and the social cluster.

19.2.2 The EIEC has a central role with respect to coordination of industrial policy and implementation of the NIPF, particularly with respect to the four necessary conditions for industrialisation: a stable and supportive macroeconomic and regulatory environment; skills and education for industrialisation; traditional and modern infrastructure; and technological effort. In addition it has an important role to play with respect to coordination in relation to sector-specific policies and projects.

19.2.3 The Presidency will lead a process to make proposals with respect to improving decision-making within the EIEC including the role of the Cabinet Committee in fast tracking critical decisions related to strategic policy issues and projects.

19.2.4 *Intra-cluster* coordination also needs to be strengthened. There are important linkages between the EIEC cluster and the Social Sector; Justice, Crime Prevention and Security, Governance and Administration; and International Relations, Peace and Security Clusters. These lie for instance in the areas of linkages between industrial policy and spatial planning of social infrastructure; crime prevention and security programmes; improvements in government administration; and diplomatic relationships.

19.3 Intra-governmental coordination: sub-national

19.3.1 Substantial industrial policy work has been undertaken at the sub-national level. Provinces and even certain metros have developed regional-specific growth and development strategies. Some have even developed their own industrial strategies.

19.3.2 Provinces and relevant metros and local authorities need to be amongst the stakeholders that are included in the 'self-discovery' processes particularly at the sectoral level.

19.3.3 The appropriate availability and decentralisation of access to finance and non-financial services is important to ensure more equitable geographic access to these facilities.

19.3.4 The economic agencies from each province will be requested to have periodic discussions with the EIEC to ensure alignment on the overall national strategy for industrialisation

19.4 Organisation and capacity building within the Department of Trade and Industry

19.4.1 Although there is a general requirement to strengthen organisation and capacity for the implementation of the NIPF within government, it is important to set out some of the key actions that will be taken within **the dti** in this respect.

19.4.2 Short-term efficiencies within the department can be achieved fairly rapidly. Sector policy implementation and incentive management – in particular – will be beefed up and better integrated. More strategic use will be made of the various COTII agencies, particularly in the areas of industrial financing, SQAM and innovation and technology. Longer-term training with strong linkages to universities will be put in place.

19.4.3 An Industrial policy think tank will be established and will convene on a quarterly basis, in order to review progress and to advise the Minister of Trade and Industry on industrial policy issues. The think tank will comprise both local and international experts.

19.4.4 Research and information capabilities with respect to sectors will be improved through stronger networks, particularly between **the dti**, the IDC and selected universities that have industrial-policy research related programmes. Over the medium term more comprehensive capacity building programmes will be developed. This will include the establishment of Industrial Policy Centres of Excellence (IPCOEs) to train a cadre of young – predominantly black and female – economists and to undertake ongoing research in areas related to industrial policy. IPCOEs will form a recruiting ground for **the dti** and other government departments as well as supporting high quality ongoing research.

SELECTED BIBLIOGRAPHY

Papers

Amsden, A. (2004) *The Rise of "The Rest": Challenges to the West From Late-Industrialising Economies*, New York, Oxford University Press

Bell, T. and Madula, N. (2002) *The Potential for Trade among Members of the New Partnership for Africa's Development (NEPAD)*, National Institute for Economic Policy, unpublished paper commissioned by **the dti**

Chang, H-J. *The Political Economy of Industrial Policy*. London, Macmillan.

——— (2002). *Kicking Away the Ladder*. London, Anthem Press.

Department of Trade and Industry (2005) *The Developmental State and the real economy*, internal discussion document

Fine, B. and Z. Rustomjee (1996). *The Political Economy of South Africa: From Minerals-Energy Complex to Industrialisation*. London, Hurst & Company.

GCIS (2004), *Towards a Ten Year Review: Synthesis Report on Implementation of Government Programmes*

Hausmann, R. and B. Klinger (2006) *South Africa's Export Predicament (Draft)*, Center for International Development, Kennedy School of Government

Hausmann, R. Rodrik, D and S. Velasco. (2005) *Growth Diagnostics*, John F. Kennedy School of Government

Joffe, A. Kaplan D., Kaplinsky, R., and D. Lewis (1995) *Improving Manufacturing Performance in South Africa: The Report of the Industrial Strategy Project*, Cape Town, UCT Press

Lall, S. (2003) *Reinventing industrial strategy: The role of government policy in building industrial competitiveness*, The Intergovernmental Group on Monetary Affairs and Development (G-24).

Mathews, J. (2004) *World Industrial Development in the 21st Century: Catch-up Strategies and the Latecomer Effect*, MGSM Working Papers in Management

National Treasury (2005) *A Partnership for Growth and Empowerment: accelerating economic development, 2005-2014*, internal government discussion document

Rodrik, D. (2004) *Industrial Policy For The Twenty-First Century*, John F. Kennedy School of Government

Rodrik, D. (2005) *Understanding South Africa's Economic Puzzles*, Center for International Development, Kennedy School of Government

Shafaeddin, S. (2005) *Trade Liberalisation and Economic Reform in Developing Countries: Structural Change or De-Industrialization?*, United Nations Conference on Trade and Development, Discussion Paper No. 179

United Nations Industrial Development Organization (UNIDO) (2002), *Industrial Development Report 2002/3: Competing through innovation and learning*, Vienna