Forging the future

Industrial strategy and the making of environmental injustice in South Africa

David Hallowes and Mark Butler
Critical Resource
The groundWork Report 2003.

Towards an industrial strategy for environmental justice

Even though South Africa's energy-intensive industry is hugely implicated in environmental harm, government's new industrial strategy, the Integrated Manufacturing Strategy (IMS), does not address excessive energy consumption by industry. Nor does it address any other form of environmental degradation caused by industry. For workers and the poor, as well as for the environments we all share, this signals that health and quality-of-life remain subordinate to the profit-making of a small and wealthy elite. But as this report has demonstrated, the answer is not to 'add' environment to sweeten the existing ingredients because the basic recipe inherently reproduces environmental injustice.

The basic economic model underlying the IMS is that of the Growth Employment And Redistribution macro-economic strategy, GEAR, and it follows the recipe authored by those who dominate the global economy. It aims to secure higher levels of value for the industrial economy, but draws the definition of value from the profit-and-loss ledger pages of the corporate bean-counters. Knowing that in this model, value is appropriated by those who command the global production networks, the IMS can only offer the false promise of trickle-down benefits in the future. Knowing that in this model, productive investment favours capital-intensive technologies, the IMS can only promise other supplementary programmes of job creation. Knowing that in this model, environmental externalities will continue and will burden the poor first and most, the IMS chooses to remain silent.

A more appropriate strategy would aim to realise real value for ordinary South Africans by directing the broader manufacturing sector to prioritise production[1] to service the basic needs and fundamental rights of the people. This report is not the place to detail the content of such a strategy but it can point to some obvious starters.

An industrial strategy that was designed to shift the economy towards environmental justice would prioritise achieving a decent of standard and quality of life for all. Some elements of this agenda are widely recognised:

- People receiving reasonable remuneration for engaging in productive and creative livelihoods, where the work they do is not demeaning or exploitative but is safe, rewarding and secure;

[1] both in terms of outputs and technologies

- Communities enjoying decent levels of affordable basic services and infrastructures to be enjoyed by all in society as a basic human right – and not only by 'consumers' who can afford them;
- Individuals and families able to access, at minimum, the basic goods of human life starting with the most basic levels of goods like nutritious food, and safe and comfortable accommodation;
- Clean healthy environments where people live and work that are nurtured by the very way in which people live and work.

A productive industrial sector, involving a mix of private, cooperative and public enterprises, that was delivering the goods for such a domestic market at scale, and which was underpinned by supportive policies which reversed the transfer of wealth from the poor to the rich, would in all likelihood generate a resilient and vibrant domestic economy that would be attractive to investors on its own terms – rather than prostituting all that is valuable to lure the illusive foreign investor along the lines of the current dominant model. Rather than chasing after value up the global production chain (which inherently results in the real value being appropriated globally), such an alternative model offers the prospect of creating and locking down real value domestically.

To realise an industrial strategy that delivers environmental justice would require a radical sea-change away from the prevailing, elite-driven political-economic prescriptions[2]. In our context, some key elements would include, for example:

1. Abandoning the belief in, and subsidised support for, export-led economic growth in favour of servicing local (basic) needs as the basis for development. This also implies re-thinking current trade policy which is to 'open-up' the domestic market to international capital and competition. Domestic industrial capacity that delivers products with value for ordinary South Africans may well be worthy of protection rather than being killed off by cheaper imports (themselves frequently the products of 'cheap and dirty' industrial processes and exploitative labour regimes). This is not necessarily to argue for complete disengagement from international trade (or autarky). The appropriate industrial policy to support such an approach need not repeat the mistakes of earlier 'import-substitution' regimes (for example by avoiding the tendency to

[2] The alternative proposed here would be more or less in line with ideas that Herman Daly proposed in his resignation speech from the World Bank: 1. stop counting natural capital as income; 2. tax labour and income less, and tax resource throughput more; 3. maximise the productivity of natural capital in the short run, and invest in increasing its supply in the long run; and 4. move away from the ideology of global economic integration by free trade, free capital mobility, and export-led growth; and towards a more nationalist orientation that seeks to develop domestic production for internal markets as the first option, having recourse to international trade only when clearly much more efficient.

substitute on the production of luxury goods which frequently led to over-production for a limited market). It is surely possible with the benefit of some hindsight to get the balance more right than wrong. Note that this approach would necessarily imply re-building some sense of national sovereignty[3] and would also have obvious and significant repercussions for the positions and alliances taken in various international trade fora such as the World Trade Organisation and various bi-lateral negotiations. A shift away from the export-led growth model would in itself help achieve another required shift – away from capital-intensive towards labour-intensive production.

2. Restructuring both the pricing and the production of energy in South Africa. Eskom's pricing regime must be turned on its head. Currently it provides electricity to the energy-intensive users in industry at probably the cheapest prices in the world which, as discussed, entrenches the environmentally-damaging, capital-intensive character of the country's industrial mega-projects, and by doing so provides no incentives to shift away from these destructive patterns. At the same time the majority of those who should be domestic energy users experience a real crisis of access and affordability – electricity is not distributed widely or cheaply enough to deliver the social, developmental, health and environmental benefits it promises. In short, a more appropriate energy pricing regime is urgently needed where large-scale, energy-intensive users are penalised with much higher prices and poor, domestic users are substantially subsidised to ensure sufficient, reliable and affordable access to energy. But beyond these key questions of pricing and access, there must be substantial moves away from the overwhelming dependence on coal (and any other non-renewable energy sources). Earthlife Africa's Sustainable Energy and Climate Change Project has initiated debate on sustainable energy technologies. The broadening of this debate within civil society is critical and should focus on the potential of sustainable energy to create jobs and livelihoods, promote local economic development and enhance household energy security.
3. A new approach to restructuring the ownership of economic assets is critical. South Africa has inherited an industrial economy structured by hugely concentrated ownership and markets. In practice, current approaches to black economic empowerment may de-racialise the asset-owning middle-class but will not achieve the depth of re-structuring that is required. Indeed, the heavily geared financing of the big 'empowerment' deals will ultimately strengthen the grip of corporate finance institutions and interests over the economy. For a just and sustainable economic future, productive assets and capacities must be redistributed on a far more equitable basis.

[3] i.e., against the tendency under neo-liberalism to prioritise transnational capital and market interests over national interests.

4. A far bolder and demonstrable commitment to environmental sustainability is required. Increased electricity costs to industrial users would assist here anyway by making many environmentally unsound industries unviable and by finally providing real incentives to shift production processes away from profligate resource use. But substantially more is required. A starting point would be to abandon the mistaken dichotomy between 'development' and the 'environment'. Instead, it should be recognised that sustainable productive activity has a positive relation to the environment – activity that degrades, pollutes or extracts at the expense of the environment is just not sustainable!

In mapping out an industrial strategy and in the process of implementing the kinds of shifts alluded to above, there should be a degree of openness and creativity and there will be certain pitfalls that must be guarded against. Some examples may illustrate this. A shift towards labour-intensive production must not be allowed to degenerate into an exploitative 'race-to-the-bottom' in terms of wages and working conditions. On the other hand, shifts towards cleaner production technologies should not be a cover for introducing new labour-shedding capital-intensive plant. Nor should environmentally clean looking industrial plant be the receiving point for manufacturing inputs produced in a myriad of outsourced, small-scale, dirty industries or sweatshops hidden from the public eye and from regulatory scrutiny. And South Africa should not emulate the pattern set by northern economies that have cleaned up (relatively speaking) by shifting up the value chain and displacing heavy and dirty industry to the peripheries of the global economy. There are already signs that South African industry may tend to displace externalities into the Southern African region by establishing facilities that depend on environmentally-damaging production and exploitative labour relations in neighbouring countries. There would need to be ongoing awareness that the pattern in global markets that results in the effective transfer of wealth from South to North is paralleled within the national economy where workers are exploited and managers and owners appropriate profits.

Communities, trade unions and activists are increasingly angry at being at the receiving end of a development model that patently does not work for the majority. People are mobilising around issues like access to affordable electricity, water, infrastructure, social welfare and services; they are organising to defend existing jobs and demand more of them; vacant land is being occupied as land reform falters and then prioritises better-off farmers; in the courts and on the streets, victims of industrial pollution have declared they've had enough. Underlying this discontent is the structure and direction of South Africa's political economy in the era of democracy and globalisation. A better life for all is coming because a common agenda for action is emerging to transform the present and to build environmental justice.

Introduction

The Department of Trade and Industry (dti) released the Integrated Manufacturing Strategy (IMS) in 2002. The ***groundWork Report*** for 2003 considers the issues and prescriptions offered in the IMS from an environmental justice perspective. The IMS is a core statement of government's intended industrial strategy and will therefore be central in defining the manner in which government intends intervening in economic development.

Significantly, the government's IMS mentions the environment just once, and then only in the context of 'triple bottom line' reporting by corporations as recommended by the King Commission[1] on corporate governance. This is the full quote:

> Corporate governance and business practices have also emerged as an area that requires attention, in order to improve the integrity and sustainable competitiveness of South African enterprises. The publishing of the King Report has raised awareness of these issues, particularly with regard for the need for accountability to both shareholders and stakeholders, and the requirement for a 'triple bottom line' introducing social and environmental accountability. However, there are still issues around the enforcement of corporate governance and jurisdictional issues between regulators. (dti 2002 (b): 19)

This could be read to imply two things:

1. The approach to environmental management relies on a self-regulatory mechanism.
2. That the environment is not considered as integral to development, but as a discrete issue. Industrial development is thus assumed to have negative environmental impacts which will be mitigated through the instruments of environmental management.

In principle, the second reading is correct. Environmental Impact Assessments (EIAs) are required on new developments and a variety of laws have been, or are to be, enacted to secure the constitutional right to an environment that is not detrimental to people's health and well-being. In practice, there is a substantial reliance on self-regulation. While there are a number of weaknesses in existing and proposed environmental laws, the immediate problem – hinted at in the quote above – is that the law is in many cases hardly enforced. Moreover, the capacity for enforcement has if anything been eroded. As The *groundWork*

[1] IODSA 2002: ***King Report on Corporate Governance for South Africa***.

Report 2002 noted, environmental management has been substantially ‘outsourced’ to civil society.

In both readings, the environmental implications of development, and industrial development in particular, can only be considered on a project by project basis. They play no part in the formation of industrial strategy. A further implication is that environmental issues are treated as discrete from social issues.

It should be noted that the scant attention given to the environment reflects both the literature and the political process in South Africa to date. Literature searches using industrial strategy as a primary filter produced few results relating it to the environment. This includes the work of international institutions such as UNCTAD and the World Bank, as well as academic work, whether South African or international. Similarly, the parliamentary process of debating the IMS in South Africa was dominated by industry and trade unions – and by institutions concerned with research and development including the Department Arts Culture Science Technology and the Council for Scientific and Industrial Research. None of these stakeholders raised environmental concerns. The absence from parliamentary hearings of black business groupings was noted and lamented. The absence of government’s lead agent on environment (the Department of Environmental Affairs and Tourism) and of environmental citizen groups was not remarked on.

This absence thus reflects the framing of the larger development debate which is concerned with GDP growth and the distribution of the economic benefits of growth. In this debate, the argument concerns how this can be done and it is constructed around the regulation of capital accumulation, investment, labour and markets. (It is important to note that, despite the rhetoric, ‘regulation’ is not opposed to neo-liberalism. Rather, neo-liberalism embodies a particular and very powerful form of regulation.) The real question in this debate is how different forms of regulation allocate power, benefits and costs.

Environmental justice

However, the omission of environment suggests that a significant element of costs is ignored by the debate as a whole. Environmental justice is based on the observation that poor people bear the brunt of environmental costs while the rich appropriate the bulk of the benefits. In this sense, ignoring the environment is one way of ignoring the poor and so reflects power relations in society. Finally, however, no-one escapes environmental degradation entirely. The poor may get it in the neck first but everyone is affected and the consequences are likely to escalate to the point of threatening economic development.

Climate change is perhaps the best researched and most widely acknowledged environmental consequence of industrial production. The consequences in more extreme weather events (i.e. floods and droughts), sea level rise, the erosion of coast lines threatening very large numbers of people who live in coastal regions, the geographic spread of tropical diseases such as malaria, and etc. will come with very high economic costs.

Less well known, is the 'body burden' of toxic chemicals carried by citizens of the modern world. A recent study in the US "found an average of 91 industrial compounds, pollutants, and other chemicals in the blood and urine of nine volunteers, with a total of 167 chemicals found in the group … the people tested do not work with chemicals on the job and do not live near an industrial facility. Of the 167 chemicals found, 76 cause cancer in humans or animals, 94 are toxic to the brain and nervous system, and 79 cause birth defects or abnormal development. The danger of exposure to these chemicals in combination has never been studied" (EWG 2002). In the US and in South Africa, polluting factories and toxic waste sites are most often located in poor neighbourhoods. Their body burden is therefore likely to be very much higher. In residential areas near concentrations of industrial plant in the south of Durban, for example, there is growing evidence of the health impacts of pollution.

Environmental issues are frequently represented as 'Northern' issues. This is more likely to be the result of the resources allocated to research and the access that people have to information than anything else. Thus, for example, a number of studies in the US and EU have corroborated falling levels of male fertility. The chief suspects are foods produced by industrial agriculture and the food packaging industry. Plastics in particular exude phthalates which mimic estrogens. Given that the use of such plastics is as pervasive in South Africa as in Europe, it is likely that increasing numbers of South African men are also 'shooting blanks'. That they would be indifferent to this seems unlikely. The difference is that no studies have been done to confirm this and most South Africans are unaware of it.

The call for environmental justice asserts that 'another world is possible'. It affirms that social and economic equality are necessary conditions for sustainable development and can be achieved only where people also recognise each other's environmental rights and conceive development as a positive relationship with the environment. (This is discussed further in the final section of this report.) The world defined by modernising, maket-led industrial development, however, is a world of environmental injustice. Such injustice is produced in three ways:

1. The **externalisation** of costs incurred in modern processes of production but not accounted for within the market price. On the one side, they constitute free benefits to the producer. On the other, they appear as uncompensated costs to communities and workers, through the loss of resources damaged by pollution or through their health, or to the broader public who most usually bear the remediation costs.

2. **Enclosure** involves the appropriation of a common resource and the dispossession of those who previously had access to the resource, whether by direct force, by technological superiority as when modern trawlers compete against traditional fishing techniques, or by commodifying goods which were previously free.

3. **Exclusion** relates to governance. It concerns the allocation of rights and decision-making power in society and in the market. Given the weight of economic forces in shaping broader social institutions and relations, these two aspects of exclusion frequently reinforce each other. The institutions of the market are specifically designed to remove decision making from the public sphere and so exclude all who do not have an interest in profit. Thus, those who are dispossessed or who carry the externalised costs of production, are prevented from contesting the theft or contamination of their resources.

Development and the making of environmental injustice

The history of industrialising development in South Africa is strongly marked by mechanisms of environmental injustice. It starts with enclosure: the modernising colonial economy required cheap labour and dispossessing people of their rights in land was necessary to strip them of the power to sustain themselves independently of the colonial economy. Henceforth, their access to resources would increasingly depend on waged labour defined by the needs of capital accumulation. Enclosure, however, is not a once-off event but an ongoing process. The water and energy intensity of South Africa's industrialisation – in agriculture, mining and manufacture – required the appropriation of these resources too while provision for people was neglected.

The externalisation of costs has taken two forms. First, much of the cost of reproducing labour was externalised through the migrant worker system onto the increasingly impoverished 'reserves', and more particularly onto women, where residual forms of pre-colonial economies were maintained under colonial or apartheid supervision. This cost

was compounded by the displacement of people, particularly as a result of modernising agriculture and apartheid removals. People were thus simultaneously impoverished, crowded together and subjected to neglect in the provision of basic services such as energy, water and sanitation. In rural areas, traditional institutions of natural resource management buckled under the stress and in both rural and urban settlements, human waste and garbage accumulated, smoke filled the air and water sources were contaminated or difficult to access.

Second, agriculture, mining and industry were virtually immune to effective environmental regulation. Poor and black communities were located downwind and downstream of polluting industries while workers suffered the negligence of health and safety standards. For most workers, access to wages took precedence over labour conditions and this placed them in an ambiguous relationship to the environment. Peter Lukey observes that "workers are closely linked to environmental degradation both as victims or, as labour in dirty industry, directly involved in the generation of toxic pollution" (1995, 16). The point is poignantly confirmed by Josiah Makola who works at a vanadium mine in Mpumalanga:

> Even though I know I am dying, I am just persevering because I was told by the company that I will not be employable anywhere else when I leave the company. So I think I am going to die here for the sake of keeping a job so that my child can finish school. (Nyandu 1998, 16).

Exclusion from decision making and the rights of citizenship is, of course, a basic requirement for coercion and was the basis of colonial and apartheid policies. Outside of conservation, industry enjoyed a virtual monopoly on environmental policy input, dominating government departments responsible for environment, mining, energy and water. They were also protected by the secrecy legislation of apartheid. Information relating to planning applications, production technologies, discharges, emissions and wastes, and related health and environmental impacts was restricted, inadequate and partial. Aspects of this legislation, such as the Key Points Act, remain in place.

Present history: current pollution hot spots

According to Castells, "In the industrial mode of development, the main source of productivity lies in the introduction of new energy sources, and in the ability to decentralise the use of energy throughout the production and circulation processes" (2000a: 17). The concentration of South Africa's economy around mining, together with the apartheid government's security concerns, created a resource and pollution intensive

minerals-energy complex. The geography of South Africa's pollution hot spots is strongly associated with energy production and use, while South Africa as a whole is a global warming hot spot, being one of the top 15 carbon emitters even before figures are adjusted relative to the size of the economy. According to UNEP (2002) it is responsible for 42% of Africa's total carbon emissions in 1998. Table 1 shows gross emissions of major air pollutants from the main energy producers.

Table 1: Emissions from main energy producers measured in tonnes.

Pollutant	Eskom	Oil from coal (Sasol Synfuel)	Crude oil refineries
Carbon dioxide (CO_2),	169,300,000	49,607,000	*2,666,540
Sulphur dioxide (SO_2)	1,500,000	248,000	39,800
Nitrogen oxide (NO_x)	684,000	143,000	**3,280
Particulate emissions	59,640	8,000	**1,395
Volatile Organic Compounds	-	404,000	***7,772

Compiled from industry sources

* Excludes emissions from Caltex refinery.

** Excludes emissions from Caltex and Sapref.

*** Excludes emissions from Caltex and Natref.

Energy, Eskom and industry[2]

Industrial production invariably requires energy inputs to processes. Cheap electricity in South Africa has played a critical role in relation to the country's industrial profile – as well as its environmental profile. It is therefore critical to get an overview of the evolution and characteristics of energy provision in South Africa.

Eskom (the Afrikaans acronym for the Electricity Supply Commission) is the de facto monopoly generator and supplier of electricity and is also the country's largest parastatal firm. It was established in terms of the Electricity Act of 1922 when demand had grown and supply from local municipalities and private suppliers was too fragmented and unregulated.

Eskom is a central partner in the evolution of South African industry, with particularly strong linkages to the mining sector. This locates Eskom at the centre of the 'mineral-energy complex' which dominates the industrial economy. It generates the overwhelming

[2] The discussion that follows here draws substantially on Bond 2001: 71ff; as well as van Horen 1997; Munnick 2003; SECCP 2002; SECCP (forthcoming).

majority (92%) of its energy by burning coal and, as such, has constituted a huge market, and a guaranteed source of profit, for the mining of low-grade South African coal by private capital. As provider of electricity, Eskom has supplied cheap energy to heavy industry and mines.

Eskom's generating capacity was increased through the construction of new power stations to match growth in the mining and manufacturing sectors in the 1950s. When (global) economic crisis started to bite in the 1970s and especially 1980s, government economic policy shifted towards an export-orientation which favoured large-scale corporate activity, particularly in the mineral and energy sectors. When sanctions were imminent and continued access to foreign credit appeared to be under threat, Eskom moved quickly to invest in further expanding its generating capacity. By all accounts they wildly over-estimated future demand growth and accordingly, over-did it. As a result, by the early 1990s Eskom capacity exceeded demand by more than 30% and new power stations were moth-balled without being switched on.

The global energy crisis from the 1970s had been pushing coal prices upward and so, under pressure of growing costs, loan repayments, and less-than-optimal take-up of its production capacity, Eskom looked to try and recover costs through higher-than-inflation tariff increases. But it met resistance from its big consumers – especially the mines and heavy industry. The outcome then continues today – "give the largest corporations and high-volume household consumers ever-cheaper power, and penalise the poor with extremely expensive prepaid meter systems. The meagre electricity consumed by low-income households (less than 3% of the total) costs them at least four times – and often seven times – more per kiloWatt hour than paid by well-connected corporates" (Bond 2002). In fact Eskom makes deals with large consumers, especially mines and smelters, to supply them electricity at below the going rate. Bond (2002) records that:

> The utility has entered into a number of long-term commodity-linked agreements, especially with energy-intensive producers in the aluminium and ferrochrome industries. The agreements vary from 5 to 20 years, and link the price of electricity to the international price of the commodity. In the last few years, these agreements constituted between 7.6% and 12.7% of Eskom's total sales. Eskom received revenue from these agreements to the value of around 92% of the amount that would have been generated from a standard tariff. Eskom considered the lower revenue to be adequately offset by the size of the sales and the interruptibility of the supply.

And so Eskom has continued to sell extremely cheap electricity – among the cheapest in the world. It has been able to do so for a number of reasons: it pays low prices for coal; has benefited from tax exemptions and financial subsidies; has shed a huge proportion of its workforce[3]; has enjoyed considerable real-term declines in capital expenditure[4]; has much reduced exposure to finance charges[5]; and its loans for funding the massive generating capacity (that the country has yet to use) have largely been amortised by consumers.

The consequences are significant. First, it has made cheap energy a critically important competitive advantage for South African manufacturers. Given the overall orientation of current trade and industrial policy which deliberately exposes manufacturers to global competitive pressures, this means that there is considerable resistance to increasing electricity costs and thereby compromising that competitive edge. It also has the effect of locking the country into a capital-intensive and resource-intensive economic trajectory and foreclosing the viability of alternative development paths.

Second, Eskom's pricing regime, and that its revenues are based on volume of sales, mean there is little incentive for heavy energy consumers to reduce the energy-intensity of their operations and save electricity. Quite the contrary in fact. Eskom has created a strong incentive for profligate industrial energy use – especially since it appears that the more you use the better deal you can strike on pricing for the future. This reinforces not only the already world-beating levels of energy intensity in South African manufacturing[6] but also its capital intensity since greater mechanisation is a more 'efficient' use of this incentive than increased labour intensity.

And thirdly, the environment is substantially degraded. Non-renewable resources are consumed to provide 95% of total electricity capacity, of which coal constitutes 92%. Burning coal for a massively energy-intensive economy helps make South Africa one of the highest per capita emitters of 'green house gases' (ghg) in the world, with consequences for global climate change, as well as imposing a huge pollution load for more localised environments from power station emissions. Most of Eskom's production is based on low-

[3] Van Horen indicates that Eskom's workforce was reduced from 66 000 employees in 1984 to 40 000 in 1994 (van Horen 1997: 34), while Bond (2001) records that Eskom fired more than 40 000 of its 85 000 workers during the early 1990s – either way, the trend is clear.

[4] As a result of over-capacity

[5] Eskom's debt-equity ratios went from 3,0:1 in 1985 to 1,7:1 in 1994

[6] The South African economy is 50% more energy intensive than the industrialised economies of the OECD – note that this is partly because of the historical evolution of our industrial structure but also because 'developed countries' have tended to shift energy-intensive production to other countries.

grade coal at power stations sited directly over the coal fields, most of them on the Mpumalanga Highveld. Like other forms of mining, coal mining itself is a dirty business and dangerous to its poorly paid workers. Below ground, it releases trapped methane gasses. Above ground, the coal tailing dumps leach chemicals into water courses while a number of dumps have smouldered sulphurously for 25 years and more. The greater part of the emissions from the power plants themselves goes to air, but the ash left from combustion also contains concentrated pollutants.

Clearly Eskom's history and current practice is at the centre of a number of crucial industrial strategy questions. It is also currently under various and contradictory pressures.

Global concerns about climate change have turned the spotlight on GHG emissions. While South Africa currently does not have concrete obligations to reduce levels of GHG emissions in terms of the United Nations Framework Convention on Climate Change, at some point it probably will. When that time comes, the current dependence of industry on cheap and dirty energy for its 'competitive advantage' could turn into a disastrous liability. The same will be true if trade measures are adopted internationally that restrict market access for goods that are manufactured in highly energy-intensive production processes.

While Eskom has not been substantially moved by the environmental argument to re-think their pricing, their free run resulting from past over-capacity is drawing to a close and this has certainly prompted it to signal that prices will need to increase to pay for investments in new generating capacity. Eskom CEO, Thulani Gcabashe, indicated in March 2003 that significant tariff increases are necessary but government has firmly rejected Eskom's plans to hike tariffs above the rate of inflation[7]. Its over-capacity has been key to being able to under-price electricity to its heavy consumers in industry, like the smelter operations. But in arguing for the need to increase generating capacity in the medium term, Eskom simply entrenches current unsustainable industrial patterns and fails to answer why industries like the smelters, whose consumption patterns are precisely why there is a need for more power plants and why, therefore, the long-run costs are being driven up, are not paying significantly more per kilowatt.

Eskom is also under pressure from social movements demanding equitable and affordable access to safe and sufficient domestic energy. In an apparent paradox (given the emphasis in this paper on Eskom's 'cheap' electricity as far as industry is concerned), these movements protest the inadequacy and unaffordability of electricity for the poor. But the paradox is indeed only apparent. The same neo-liberal policy agenda that insists on an

[7] Business Day 11 April 2003.

'export-oriented' industrial strategy based on competitive advantage in the global economy also demands 'cost recovery' for the provision of services and, in so doing, it turns citizens with rights to basic services into commodity consumers who can access only what they can afford. The rate at which households are being disconnected from electricity supply because they can't pay the bills is a striking indictment of this policy.

Thus Eskom's prevailing policies and prices tend, on the one hand, to exclude the poor majority of South Africans from being significant energy consumers whilst, on the other hand, favouring energy-intensive industrial users. Those industrial operations are increasingly integrated in global production networks where value is appropriated in global markets and not by South Africans. In a sense therefore, much of Eskom's energy generation has little or nothing to do with the South African population (except perhaps in so far as they involuntarily subsidise its generation and breathe in its environmental externalities) but has rather to do with South Africa's position as providing the energy platform for global production networks[8]. This is precisely the end of the value chain that the 'developed' economies have abandoned as they capture the higher value components. Locking South Africa into a path of industrial development on the back of cheap and dirty energy does not therefore hold much promise for the future value of South African economy in the global context[9].

Petro-chemicals and liquid energy

South Africa's liquid fuels are processed from crude oil, coal and gas and the production process itself uses very large amounts of energy. Sasol's highly polluting coal based process is located at Secunda on the Mpumalanga highveld. The Natref crude oil refinery, a joint venture between Sasol and Total, is located at Sasolburg in the Free State. A cluster of downstream chemicals plants are operated at both sites by Sasol Chemical Industries and, at Sasolburg, by several other chemical giants including Dow Chemicals. The remaining crude refineries are situated on the coast. The port of Durban is the main point of entry for crude oil into South Africa. Some 600 industries are located in south Durban, including two of the countries largest refineries – Sapref owned jointly by Shell and BP and Engen owned by Petronas – a cluster of chemicals industries and major

[8] A contributory reason for SA's energy-intensity is that 'developed countries' have tended to shift energy-intensive production to other countries – like SA (see Section 5). Global production networks and value chains are discussed in Section 2.

[9] Notwithstanding the centrality of the issue for industrial manufacturing, it should be noted that the IMS itself is silent on the issues of Eskom and energy.

petrochemical and chemical storage facilities. In Cape Town, the Caltex refinery is situated at Table View and also locates a pollution hot spot.

The pattern of placing black communities downwind and downstream of polluting industries is evident in the location of these major petrochemical installations although white communities are certainly not exempt from pollution. More detailed descriptions of the relationship of residential areas to polluting industries are given in the groundWork Report of 2002 and in groundWork's 2003 Air Quality Report.

The Air Quality Report also gives a detailed description of community monitoring programmes which have been initiated in each of the petrochemical hotspots. Using the inexpensive 'bucket brigade' technology, they took air samples testing for a range of volatile organic compounds and 'total reduced sulphur' compounds. In all, they found 23 compounds, 17 of which are listed as hazardous air pollutants by the U.S. Environmental Protection Agency. Seven samples taken at Sasolburg found a total of 15 such listed pollutants, and single samples taken at Table View and south Durban respectively found 13 and 9. Readings for benzene were particularly high at the majority of sites while levels for toluene and xylenes were elevated at some sites.

These emissions are from normal operating. Information on incidents – excessive flaring, fires, explosions and leaks – is very limited. Community organisations in Durban have started documenting incidents and, while they doubt that their information is complete, they note an apparent escalation of incidents over the last three years.

Mineral processing

Centres of industrial pollution are also located by other intensive energy users, most notably mineral processors with major plants in the mining areas such as at Vanderbijl Park and Middleburg and at the coast at Richards Bay and Saldanha. With the promise of an end to sanctions and better market access in the early 1990s, several massive investments in iron and steel and aluminium processing plants capitalised on the 'comparative advantage' in cheap energy, entrenching the energy intensive path of industrial development. These projects have largely absorbed Eskom's spare generating capacity and new capacity is now said to be required within the next five to ten years.

Energy intensity is associated with water intensity. In conditions of erratic and unevenly distributed rainfall, this has pushed large scale water engineering with transfers across catchments and borders to supply industrial centres, notably Gauteng, as well as industrial agriculture. The scale of transfers is such that a regional drought could result in

competition for the same water between areas as distant as the Mpumalanga highveld and east coast towns as far south as Port Elizabeth – and, indeed, between energy generators and intensive users.

Waste management, or rather its neglect, has also located pollution hot spots and there is often little to distinguish incidents from normal practice. Poorly constructed slimes dams dot the mining and industrial landscape. Houses at Merriespruit were swept away by a mud-slide resulting from the collapse of the Harmony Mine dam in February 1994 while Iscor's iron smelting plant at Vanderbijl Park has leached toxic waste into the water table from unlined slimes dams since 1961 and the pollution plume stretches across 140 hectares. Dedicated waste sites have also been problematic. South Durban's medium hazard Umlazi site was closed in the late 1990s following concerted community action but still leaches toxics into the Isipingo catchment. By contrast, local people were moved from the vicinity of the Aloes high hazard site in Port Elizabeth where the smell of volatile toxics is intense and combines with emissions from a medical waste incinerator. At Table View near the Calref refinery, the Visserhoek high hazard site is suspected as the source of mercury found in the 'body burden' of neighbours.

While big industry defines the hot spots, pollution from smaller operations in all sectors has been intense. Notwithstanding a sentimental attachment to 'the land', a culture of environmental neglect is deeply entrenched in South Africa's industrial culture. Unknown quantities of toxic waste are illegally poured down storm water drains while more is dumped by criminal waste operators "in the veld", invariably in poor neighbourhoods where their activities are unlikely to be questioned. The re-use of toxic waste drums as domestic water containers is relatively common. And thousands of industries around the country use coke to fire boilers and other processes because it is the cheapest option.

The groundWork Report 2003

The past and present of industrial development has shaped the contours of contemporary struggles for environmental justice. South Africa's industrial development itself has been shaped by global patterns and interests and these are discussed in the second section of this report. Operating within that global context, but also responding to national[10] interests, governmental industrial strategy has played an important role and this is described in the third section. In a fourth section, the report provides an overview of

[10] However 'national' is defined – in the South African context, 'national' interests have until recently excluded the interests of the majority based on race.

government’s current industrial strategy which is followed, in the next section, with a critique from an environmental justice perspective. A final section explores what an alternative and appropriate industrial strategy might look like.

The global context

Although the patterns of industrial development in South Africa cast a deep shadow pattern of environmental injustice (discussed in the preceding section), it is still widely assumed not only that industrialisation is at the heart of economic development but also that it holds the prospect of adding to the sum of our social wealth. This reflects a more global and deeply rooted assumption of modernity: in official and academic language, development and industrialisation are synonymous – 'developed countries' and 'industrialised countries' have become more or less interchangeable terms.

It is important to get a handle on the evolution and current dynamics of the global 'development' system since it is the context within which South Africa's own industrial strategies have evolved. The latest articulation of that strategy (the Integrated Manufacturing Strategy) commits to 'engaging' the global economy and is a particular response to (and assumes a particular analysis of) the pressures and challenges that that global context sets up. To understand South African industrial strategy, past and present[1], requires a global perspective. Therefore, this section opens with a brief discussion of the concept of development as it has evolved, and been contested, since the Second World War. It then outlines a history of industrialisation and the present phase of 'globalisation' so as to draw out key issues in current debates. Finally, it looks at the role of transnational corporations (TNCs) in the changing organisation of production and the implications for industrial strategy.

Concepts of development

Development is a concept of the modern world – the world that was shaped by imperialism on the one hand and industrial production on the other; the world that the original theorists of development – Hegel and Marx – responded to. But the contemporary use of the word has its origins in the post-war years of the 1950s and the growth of development (or foreign) aid. In the West, and in the context of the cold war, reference to Marx was not welcome and the concept was used as if innocent of history, politics or relations of power. 'Development' became equated with economic growth[2] driven by industrialisation, and development thinking was "about the best way for colonial, and then ex-colonial, states to accelerate national economic growth" (Leys 1996: 7). It was assumed that the state was the primary agent of development, that macro-

[1] To which the report returns in section 3 below.

[2] Measured principally in terms of growing the Gross Domestic Product

economic policies were the primary tool at its disposal, and that these policies should be broadly Keynesian – that is, aimed at achieving full employment and greatly expanded markets.

Unfortunately, this did not happen in most countries and debate on the meaning of development started hotting up from the mid-1960s. In the United States, 'modernisation theory' was dominant. It more or less assumed that modern, capitalist, industrial America represented the ultimate destiny and aspiration for all societies. Those that were not yet modern, still had to proceed through inevitable 'stages of development' to get there, but they would get there. Modernisation theory emphasised the institutional dimensions of development – norms and values, and roles and relationships – but treated them as technical issues and ignored social relations of power. In doing so, it focused on the role of national elites composed of business with state actors. It largely identified with US foreign policy goals while nevertheless claiming for itself a neutral 'scientific' character.

The response came in the form of 'dependency theory'. It demolished modernisation theory's claim to scientificity and turned key assumptions of development upside down. It brought Hegel and Marx back into the debate, and focused on the relations of power between the powerful 'metropolitan' centres of the former colonial countries and the 'periphery' made up mostly of the former colonies. Dependency theory showed that the development policies of the metropolitan powers were self-serving and were responsible for under-developing (or impoverishing) 'peripheral' countries that were locked into dependent, 'neo-colonial' relations with the metropoles. Within peripheral countries, it described how people were dispossessed of resources such as land and water and made dependent on wage labour – if they could get it – within the capitalist economy. Whereas modernisation theory saw the national business classes in the former colonies as facilitating national development, dependency theory regarded them as a 'comprador' elite, subordinate to and acting in the interests of, metropolitan capital – at the expense of real national development. As a policy response, these theorists proposed that subordinate or peripheral economies should 'de-link' from the metropolitan system but viable options for an autonomous and equitable path of development proved elusive. Dependency theory thus remained largely a critical and oppositional discourse that influenced the rhetoric more than the practice of southern governments.

By contrast, the rise of neo-liberal discourse has had enormous impact on the national macro-economic strategy and practice of southern governments and, indeed, of northern governments too. A period of global economic recession from the seventies (and with its origins in the first oil crisis of 1973) prompted a critical review of national political and developmental policies that had characterised the preceding period. It resulted in a strong

move towards a form of economic liberalism. In particular, the welfare and mild redistribution policies of western welfare states were blamed for stimulating high aggregate demand and "blunting the incentives to save, to work and to take risks" (Stalker 1995: 25). The set of ideas that emerged as dominant in the west has been termed 'neo-liberalism'. Neo-liberalism has been described as a "vehement theoretical and political reaction" to the welfare state (quoted in Ezcurra, A., 1996: 2). At its core is a certain 'economic rationalism' with its central tenet that government should not interfere with 'the market' except to advantage those benefiting from it – in this view, capital is seen as the legitimate agent of development and the state as an inhibitor of development. Neo-liberal views enjoyed the broad support of the most powerful global political and economic actors. This convergence of thinking is often termed the 'Washington consensus'. They articulated the interests of transnational capital at a time when new technologies and "a transformation both in the structure and management of the world economy [offered] the possibility of creating for the first time in history a truly unified global capitalist economy" (Leys 1996: 19).

The rhetoric of 'the market' concealed the real role of the dominant, metropolitan states and the international governmental agencies (principally, the International Monetary Fund, the World Bank and the World Trade Organisation) in securing the interests of international capital. Leslie Sklair has summarised the policy prescriptions of these institutions as 'ELIFFIT' – Export-Led Industrialisation Fuelled by Foreign Investment and Technology. He points out that ELIFFIT is "the way globalising TNCs relate to the Third World as the main 'development' strategy of the capitalist global system" (Sklair 1994: 167). To enable this development package, governments are required to implement a related package of reforms – 'structural adjustment' – which require reduced government expenditure, tight fiscal control, cost recovery on public government services and deregulation to open the economy to international competition. This package of 'structural adjustment' reforms has not only been imposed on southern countries[3] but was aggressively advanced during the 1980s in the United Kingdom and the United States under the leadership of Prime Minister Margaret Thatcher and President Ronald Reagan respectively.

Who organises development?

The promise of development is that, as more wealth is created, so there will be more to go round and everyone will benefit even if some benefit more than others. The means for

[3] Discussed in more detail below.

producing ever-growing wealth is capital – that is, a store of value that can be invested so as to compound its original value. Thus, according to Colin Leys,

> However development is defined, it must involve the accumulation of capital. Only out of the surplus saved from past productive effort can any society obtain a larger sum of the values for which development is pursued – more health or education, more leisure or more output (1996: 164).

In effect, whatever other meanings are attached to development, it has become more or less synonymous with industrialisation. This is because, in the modern period, industry has provided the technology that relates capital to resources and so makes capital productive. The question that follows from this is who should organise accumulation and production and who directs the investment of surplus. In a sense, Ley's definition could apply to the former Soviet Union as much as to the capitalist world and, in the former, it was the state that acted to accumulate and reinvest capital. In the west, "this is done by capitalists and their managers, supported, more or less directly, by the state" (Leys 1996: 164). With the collapse of the Soviet Union, capitalist accumulation is now the basis for economic development in all but a few countries. In the period since the early eighties then, the 'developmental state' has been dethroned as the decisive agent of development and its place taken by capital.

At the same time, the assumption that capital is defined largely within national economies was first challenged by the dependency theorists and then, working from the opposite end of the political spectrum, the policy tools that could support that assumption were dismantled by the neo-liberal consensus. In the current period, then, global rather than national capital is seen as driving development.

National economies have, nevertheless, remained the units of analysis within the official development theory of the World Bank. This allows analysis of the failures of development to be deflected away from identifying systemic failures of the global capitalist system. Instead, the World Bank lays blame exclusively at the door of 'internal' state problems that can be addressed through 'technical assistance'. But the Bank now also recognises that "markets … require a legal and regulatory framework that only governments can provide" (cited in Camack 2002: 128). This formulation qualified the hostility to the state that characterised World Bank policies during the 1980s. Throughout the 1990s the Bank's annual World Development Reports built on this formulation. By 2000, it was actively encouraging developing countries to develop micro-economic policies and industrial strategies to strengthen the insertion of national economies within global capitalism.

The position developed by the Bank revealed a tension within the Washington consensus. This was personified in the clash between Lawrence Summers, who has circulated between the Bank, the International Monetary Fund and the US Treasury, and Joseph Stiglitz, the main author of the World Bank's Development Reports during the 1990s. Stiglitz was eventually ousted from the Bank after he criticised structural adjustment programmes in developing countries. He concluded that "there are lots of losers but the clear winners seem to be the Western banks and US Treasury" (Palast 2001). The conflict thus concerns the location of capital accumulation: whether policy should privilege global capital headquartered in the 'developed' countries or whether it should allow the possibility of capitalist accumulation within the national economies in the south.

Industrialisation – making the present

Industrial strategy is one way the capitalist state can support, and attempt to influence, the processes of accumulation, investment and production. Markets are the side of the equation that balances productive investment: as productivity expands, there must be someone to buy the additional product or the whole system is in crisis. Broadly speaking, industrial strategy aims to increase the competitiveness of the national economy by:

- Securing investment;
- Accessing, protecting or developing markets;
- Developing technology and skills;
- Increasing productivity and profit;
- Planning the spatial distribution of production;
- Developing supportive infrastructure and institutions.

The section that follows offers a brief global overview of how these ingredients have been organised and reorganised over time. Like the changing concepts of development discussed above, the shifts that emerge reflect changes in relations of power.

Imperialism and 'late industrialisers'

Bairoch and Kozul-Wright note that Britain was "the only truly industrialised power" (1996: 14) in the first half of the 19th century. 'Late industrialising' countries included the leading European countries, and Japan and the USA which, by 1913, had become the lead industrial power. In these countries, the state played a critical role in industrialisation, encouraging and facilitating "high rates of investment, technological progress and rapid productivity growth" (15). They used high tariffs to protect their markets for industrial

goods[4]. Although industry was the most dynamic sector of the economy – that is, it contributed most to economic growth – they traded more in agricultural than in manufactured goods. Foreign direct investment (FDI) was less significant than domestic investment and was attracted by industrial growth rather than being a cause of it. In the context of high tariffs, FDI was also the critical means by which foreign corporations could access markets in these countries. In European countries, including Britain, "colonial looting … gave an enormous lift to the purchasing power of the [European] ruling classes" effectively transferring wealth to the rich and so expanding domestic markets for industrial products (Hauck 2002: 14).

In contrast to the late industrialisers, from 1846 Britain followed open economy policies designed to secure global markets for its industrial products. What were to become 'developing countries' were either persuaded or forced to adopt free trade policies through unequal trade agreements (Latin America), gunboat diplomacy (China) or, in the case of colonies, because the imperial countries dictated policy. These countries were substantially 'deindustrialised' during the 19th century either because their craft-based producers could not compete with industrial producers or because their productive capacity was deliberately smashed so as to eliminate competition to metropolitan products. In so far as imperial country investments in the colonies can be described as FDI, it was concerned with resource extraction rather than with market access. Britain's free-trade regime was further buttressed by its "control over India's foreign-exchange reserves" (Arrighi 2003: 45) enabling it to become the leading source of FDI both to late industrialisers and to 'developing countries' and also to balance its trade account. Further, Britain used Indian troops paid for with Indian money to provide "the major coercive force behind the internationalisation of industrial capitalism" (quoted by Arrighi 2003: 45).

Cold war capitalism

The 'golden age' of capitalism that followed the Second World War was similarly shaped by politics. Arrighi argues that development "was thoroughly embedded in, and shaped by, the formation and evolution of US world hegemony" (2003: 57) giving rise to a "'warfare-welfare state' on a world scale, in competition and opposition to the Soviet system of communist states" (58). Industrial reconstruction in Europe and Japan was driven both by social and military Keynesianism, that is, by expanding markets both through full employment and military spending. For Japan, the Korean War was the equivalent to the Marshall Plan in Europe.

[4] Japan was in fact obliged by unequal trade treaties to keep low tariffs until about 1911.

In this period, the 'inward industrialisation' policies of most developing countries took place more by default than design. Shafaeddin remarks that most countries "did not have an industrial strategy" and 'import substitution' resulted from attempts to balance imports with exports as changing world prices for primary products – their main exports – created "boom and bust cycles in their economies" (2000: 20). Foreign exchange and foreign financing, whether through the capital (stock) markets or FDI, were strictly regulated for similar reasons. The Institute for Global Dialogue (IGD, 2000) note that most developing countries either prohibited FDI, limited it to certain industries, restricted the repatriation of profits and capital, or imposed stringent performance requirements.

Asian tigers

South Korea and Taiwan successfully developed as 'newly industrialised countries' (NICs) during the 1960s and 70s[5]. Both countries followed the pattern of the late industrialisers in developing and directing the investment of domestic capital while restricting capital exports. The banks were "state-owned or closely regulated" while "in South Korea a significant portion of capital formation has been financed by foreign borrowing mediated by the state" (Devlin and Yap 1994). Korea strictly limited FDI and secured access to international technology through licensing agreements. Taiwan established the first 'export processing zones' but targeted and regulated FDI to ensure the diffusion of technology and skills to Taiwanese firms. It also made use of licensing agreements. In both cases, the state supported skills development and further innovation, so enlarging the space of technological autonomy. Significantly, both countries supported the growth of the domestic market. Massive land reform and agricultural support programmes provided "a social wage" (Hart 2002: 231) while manufacturing wages and government expenditures increased rapidly from the 1960s. Both countries also accessed markets through aggressive exporting. However, just as raising domestic savings was more significant than foreign investment, the growth of domestic markets protected by tariffs was more significant than exports. In addition, Hauck notes that both countries were located at the frontier of the cold war and received massive US aid that "delivered additional strong demand for goods" (2002: 15).

Both countries consciously emulated Japanese family based 'network' forms of business organisation linking suppliers to producers – but with very different results. The Korean government believed that only large conglomerates could be competitive. It forced firms

[5] Hauck notes that the other two Asian 'tigers', Singapore and Hong Kong, are entrepot trading economies and hence exceptional.

into a limited number of hierarchical networks each of which operates across a number of industrial sectors and is controlled by a central holding company. Government set specific goals for technology upgrading and exercised discipline through its control of access to capital and export-import licences. In consequence, production is concentrated in company towns. State authoritarianism was also exercised over labour through government-controlled unions and "the ferocious repression of any independent labour organisation" (Castells 2000a: 201).

In Taiwan, by contrast, capital was mobilised through family savings controlled by patriarchs. This resulted in a proliferation of small firms and in fluid, self-organising and personalised networks. Typically, family members would find employment in the cities but return home with skills and contacts either to join existing family enterprises or start new ones. Many sub-contracted as suppliers to their former employers so creating a system of small satellite industries capable of economies of scale. Families might therefore invest in several firms, each with its own specialisation. Non-family workers within these firms themselves aspired to start their own businesses and trade unions did not emerge.

Hart relates that industry was concentrated in the cities during the post-war years but "began dispersing into rural areas" (2002: 220) during the 1960s. A recession in 1974 accelerated this process. Widespread access to land provided a refuge for skilled urban workers while emergent peasant-industrialists wanted to invest beyond the scrutiny of the state. "For villagers, tiny factories represented a space in which it was possible to evade the tight state regulation that applied to agriculture and larger industries" (221). Nevertheless, as Castells argues, state support relating to R&D, technology upgrading and global market intelligence provided "critical strategic backing for networks to prosper ... beyond their profitable but limited horizons" (2000a: 194) and enabled them to move into higher value production as labour intensive industries began to face increased competition and falling prices.

Most other developing countries remained dependent on primary commodities for exports although relatively buoyant prices in this period maintained economic growth. However, high levels of inequality limited 'inward industrialisation' because local markets could not grow much beyond elite consumption. This entrenched the pattern of development observed by dependency theory. Many of the African states that gained independence during this period remained trapped in the economies and related infrastructure shaped by colonialism and tied to the markets of the former colonisers. The cold war powers favoured authoritarian regimes and, both in Africa and the US 'backyard' of Latin

America, they suppressed social demands but without the compensating 'social wage' redistributions of the equally authoritarian NICs.

The US defeat in Vietnam eroded its political dominance and signalled the end of this brutal 'golden age' of capitalism. Arrighi notes that, unlike imperial Britain, the US itself carried much of the human and financial costs of its hegemonic wars and spent more trying "to overcome opposition to the war at home" (2003: 61). The economic consequence was inflation and it combined with the political loss of authority to prompt developing countries "to adopt a more aggressive stance in negotiating the prices of their exports of raw materials – oil in particular" (64).

Globalisation

A key feature of globalisation is that capital is accumulated at the global rather than national level. This reflects and reinforces the power of transnational corporations (TNCs) relative to national corporations. Neo-liberal policies are the political means of enforcing these shifts. In this context, FDI becomes the exemplary form of development funding because, unlike volatile capital investments organised through the stock market (portfolio investment), it is invested in 'the real economy' – either in existing assets or in new projects. In the globalised world, TNCs are the principal source of FDI and they bring with them their global connectedness, avenues of market access, advanced business skills and new technologies. FDI is thus held to increase local competitiveness and to be the critical means by which technology is to be transferred from the developed to the developing world. Rather than restricting and regulating FDI, countries must compete for it with incentives, high returns that can be repatriated and by transforming investor interests into rights. At the same time, trade becomes central to developing country industrial strategies because access to markets is made more dependent on exports to the wealthy north than on growing domestic markets. Or rather, FDI plus exports are supposed to create the jobs that will grow the domestic market, which, in turn, must be opened to international competition by lowering tariffs.

Phase 1: Leveraging the debt crisis

Castells sees two phases of globalisation. The first has its origin in the 1970s oil crisis and the need to recycle surplus 'petrodollars', which led to "a fully fledged internationalisation of the banking activity" (2000a: 136) in the 1980s. Neo-liberalism was led by the US and Britain, but for the developing world, the sea change in policy was the product of IMF and World Bank structural adjustment programmes imposed on the back of the debt crisis.

The debt crisis followed the oil crisis because Northern banks, supported by the World Bank, off-loaded surplus capital (i.e., the surplus 'petro-dollars' that needed recycling) onto southern borrowers. The low interest rates that were offered encouraged the borrowers to believe that access to development funding on international markets was no longer constrained by the balance of trade. In Arrighi's account, this added to inflationary pressures particularly on the dollar and, by the end of the 1970s, its status as the international reserve currency was in jeopardy, thus threatening to deprive "the US state of one of its main levers of world power" (2003: 65). Neo-liberalism, initiated under Carter but carried through under Reagan, was a political response to this threatened loss of 'monetary hegemony'. Unable to control offshore money markets that it had created, the US started to compete for capital by driving up interest rates. The effect was to divert pressure from the centre to the peripheries of global capitalism because, what had been 'easy money', loaned to southern borrower countries at low interest, suddenly became a debt trap. To pay the escalating costs of interest, developing countries were forced to export more. Partly as a result, world prices for their exports – mainly primary commodities – plummeted. The result was a payments crisis for the borrower countries that weakened their control over economic policy and decision-making at the national level and that gave the metropolitan powers greater leverage for shifting that control to international institutions.

Devlin and Yap contrast Thailand's World Bank and IMF assisted development programme during this period with the earlier experience of the NICs. Thailand achieved high growth through the 1980s but was dependent on forest resource exports, sexually exploitive tourism and labour intensive export industries subject to declining terms of trade. Wages remained low, income inequality increased and rural communities were dispossessed to make way for logging. They conclude that:

> Without expansion of domestic mass consumption and increased state expenditure on education, infrastructure and social services, there is little parallel between the Thai experience and that of the NICs. It is likely that Thailand will emulate rapidly-growing economies such as Brazil and Mexico who industrialised using foreign capital but never resolved the domestic distributive problems, never made the transition to mass consumption economies, and ultimately collapsed under a mountain of foreign debt (Devlin and Yap 1994).

Phase 2: Global money rules

The collapse of the Soviet Union left the US as the single global hegemonic state. For Castells, "the Clinton administration … was the true political globaliser" which ushered in what he regards as the second phase of globalisation marked by the intention to unify "all economies around a set of homogenous rules of the game, so that capital, goods and services could flow in and out, as determined by the judgement of the market" (2000a: 140). Following the 'Asian crisis' of 1997, the IMF imposed a new round of "pre-packaged adjustment policies, astonishingly similar to each other, whatever each country's specific conditions" on some 80 countries. "Most of the developing world, as well as the transition economies [Eastern Europe and the countries of the former Soviet Union], became an economic protectorate under the IMF – which ultimately meant the US Treasury Department" (141).

Martin Khor argues that the Asian crisis was in fact a global crisis of capital market volatility. The IMF interventions aimed at "ensuring the maintenance of the domestic currency's convertibility and free capital flows, and guaranteeing repayment of foreign lenders" (2000: 24) and in doing so turned a relatively minor liquidity crisis – not having enough cash immediately to hand – into a major solvency crisis. Crises, however, are also signs of changing power relations and the Asian model of financing capitalist development was shattered in 1997 while assets held within domestic markets depreciated and became available to global investors at fire-sale prices.

It was in this context that Stiglitz mounted his critique, outlining four characteristic steps of structural adjustment programmes (SAPs) that have forced the opening of southern markets to northern capital, goods and services:

1. Privatisation: allows TNCs to get cheap assets and local elites to profit from commissions.
2. Capital market liberalisation: opens national economies to international capital, which will drain national cash reserves at the first hint of trouble.
3. Market-based pricing: raises local prices and provokes 'IMF' riots.
4. Trade liberalisation: forces poor countries into an unequal competition with rich countries that maintain protective tariffs.

The influence of the World Bank and IMF does not stop at the direct imposition of SAPs on countries that get into trouble. The extension or withdrawal of IMF credit (whether virtual or real credit) acts as if it were a political directive to financial markets. 'The first hint of trouble' (Stiglitz step 2) may be the symbolic "withdrawal of the IMF's confidence" (Castells 2000a: 141). Discredit with the IMF then results in capital flight

and, fulfilling the IMF's prediction, economic collapse – as was the case for Peru in the 1980s. On the other side of this equation, the World Bank invented the term 'emerging markets' in the mid-1980s to attract reluctant global 'capital flows' to developing countries on the promise of high returns as the reward for what were assumed to be high risk investments.

More recently, this power to direct capital flows has been supplemented by private credit ratings institutions centred on Wall Street, the capital of global capital. The credit ratings issued by private market valuation firms (such as Standard and Poor and large financial firms such as Merrill Lynch) can trigger major movements of capital. While they are represented as objective technical evaluations, they are not innocent of political motivation. Thus, for example, when Lula, the Workers' Party candidate for the Brazilian Presidency, drew ahead in the pre-election polls, the downgrading of Brazilian bonds by Wall Street firms precipitated a 4% drop in the Brazilian stock market. (In fact, Lula's campaign had already anticipated market hostility and emphasised continuity of 'responsible' financial management.)

Trading rules

Given that globalisation greatly expands the importance of trade as a factor in development, the World Trade Organisation (WTO) – created in 1995 with the conclusion of the Uruguay Round of negotiations on the General Agreement on Trade and Tariffs (GATT) – assumes central importance in the institutional orders of globalisation. The Uruguay Round largely abandoned the notion of 'special and differential treatment' for weaker countries that would allow them to protect 'infant industries'. The WTO has a specific mandate to promote uniform 'free trade' which in practice benefits the powerful and rich at the expense of the weak and poor[6]. It is also the only multilateral organisation with formal enforcement mechanisms.

[6] Shafaeddin shows that, theoretically, free trade can be of benefit to all parties *only if*, amongst other things: the countries involved in such trade are equally 'developed'; competition is 'perfect' – meaning, for example, that markets are supplied by perfect information on supply and demand, are made up of numerous firms of similar size and neither firms nor nations wield power to influence the market; and technology access is without cost – implying that "no firm has [a] monopoly over technology and patents do not exist" (2000: 8). This implies two things. First, free trade is utopian in the sense that it is theoretically impossible. Second, the free trade agenda is in practice dystopian in the sense that it must benefit the powerful at the expense of the weak and entrench inequality and processes that further impoverish poor nations and people while promoting the interests of large transnational firms in relation to smaller national or local firms.

Nevertheless, the interests of globalising capital accumulation have not been left to the natural advantages of free trade. Oxfam (2002) details the 'rigged rules and double standards' that govern international trade in the interests of powerful nations and at the expense of the poor. Notoriously, northern markets are most open in high value products which southern countries are unable to produce but retain restrictions precisely on those low value goods – such as textiles and primary commodities – which are of greatest interest to southern producers. At the same time, massive subsidies – particularly for agricultural products – provide US and EU produce with an unbeatable advantage in the global 'free market'.

Further, the implementation of what is agreed through the WTO is imbalanced in two ways. While southern country economies have been forced open through SAPs, northern powers have used technical evasions to retard opening markets to southern products. Secondly, WTO enforcement mechanisms favour the powerful. Few developing countries have the capacity to take complaints to the WTO and, since enforcement of WTO rulings relies on punitive measures implemented by the injured party, they are scarcely credible when a minor country challenges a major one but are potentially devastating in the opposite case. Not surprisingly, most cases involving northern and southern parties have been initiated by the former and "have been used by some developed countries as a pretext for protectionism" (Shafaeddin 2000: 26).

At WTO meetings in Seattle in 1999, massive civil society opposition to the rich world agenda strengthened southern negotiators and trade negotiations collapsed. They were rescued with the promise of a 'development round' of trade negotiations at the more discrete Doha venue. Southern negotiators "halted the erosion of special and differential treatment" (UNCTAD 2002: 42) thus winning a strategic position for future negotiations. The northern agenda nevertheless remains intact, admitting only non-binding 'concessions' many of which have subsequently been reversed as a result of corporate lobbying.

Poverty and crisis

Poverty mirrors both sides of the 'warfare-welfare' state. The ultimate image of this is "the American warplane flying above Afghanistan – one is never sure what it will drop, bombs or food parcels" (Zizek 2002: 94). The poor are at once excluded from the rights of citizenship and targeted as the objects of development aid. 'Eliminating' poverty is similarly central to public statements of global development policy. As is evident in the effects of policy, however, the rights of poor people are subordinate to those of investors. To take two issues from the WTO agenda: Trade Related Intellectual Property Rights

(TRIPS) give rights to TNCs with the legal access and financial power to take out patents and has already enabled the legal pirating of indigenous knowledge; similarly, the agenda on foreign investor rights will reinforce processes which result in poor people who live in the path of potential profits being physically dispossessed of land and access to natural resources. The distribution of rights is thus reflected in the distribution of wealth.

The rich get richer: sustaining markets

Global inequality between rich and poor is greater than inequality in South Africa and Brazil, the two most unequal countries in the world. Measured on the Gini co-efficient[7], Brazil scores .591. In 1988, the world as a whole scored .625 but, by 1993, this had risen to .659. Between 1988 and 1993, average global incomes rose by 5.7% but the gains went only to the richest 20% of people. The poorest actually got poorer. The gap is still growing and the richest 1% of people now takes more than the poorest 60%. As for people, so for countries: "Measured in terms of purchasing power parity, the average income gap between poor and rich countries widened in the 1990s from a ratio of 1:5.4 to 1:7.3" (Oxfam 2002: 67).

This implies a concentration of markets to match the concentration of capital described above. Within southern countries, industries and the formal jobs that go with them are mostly dependent on the buying power of small elites. At a global level, industries are increasingly dependent on the buying power of the north, particularly those industries that produce high value-added products, and irrespective of their location in the north or south.

So, what everyone – governments and industries, north and south – fears most is a slow down in US spending. Indeed, Greenhill and Pettifor (2002) argue that the institutions of globalisation, particularly the liberalisation of financial markets, were put in place specifically to enable the US to finance its growing debt while still retaining its market power. As in the days of empire, however, the power of the northern markets is subsidised by transfers of wealth from the south to the north, but colonial looting has been "replaced more and more by 'economic' forms of wealth transfer" (Hauck 2002: 14). The mechanisms include the returns on FDI, royalties and other 'technology rents', capital flight 'at the first hint of trouble', currency speculation, the unequal cost of

[7] The Gini co-efficient measures equality on a scale of 0 (absolute equality – everyone has the same income) to 1 (absolute inequality – 1% of people have all income).

borrowing[8], the requirement that southern countries should hold significant dollar reserves, and the rigged rules of international trade. On a global scale, the 1992 Human Development Report estimated that in 1990, the total southern subsidy to the north was US$500 billion. But adding up the figures is inherently difficult and this estimate looks very conservative. Sogge (1998) compares this figure with the US$48 billion that donors claim to transfer to the south in development aid but notes that aid figures are systematically inflated – by 25% to 30% in recent years – and include 'development' loans as well as aid money spent in the donor country – amounting to between 40 and 55% in some donor countries.

Hauck argues that these transfers "from peripheral regions or sectors can be fallen back upon during periods of bottlenecks in cyclical demand"[9] (2002: 14). This implies that crises within global capital are peripheralised – in other words, globalising capital is able to manage its crises is by using the south as a safety-valve. Discussing how the poor pay for the debts of the rich, Greenhill and Pettifor of Jubilee Research come to a similar conclusion: "Rich countries gain whenever there is a financial crisis because of the so called 'flight to quality'" (2002: 11). But they warn that the US debt, equal to all developing country debt, cannot be sustained. The southern safety valve is not fail-safe.

But what is the crisis of global capital?

Castells argues that "the real crisis of the 1970s was not the oil prices shock" but the "inability of the public sector to keep expanding its markets" (2000a: 95). So it was a crisis of under-consumption or, to put it the other way round, of over-accumulation: more capital was available than could be safely invested and too much capital was invested in producing too much for too few.

Brenner argues that this crisis – 'the long downturn' – has been ongoing since the early 1970s and "appearances to the contrary ... was not transcended even during the 1990s" (2003: 19). As discussed above, what Arrighi calls the 'neo-liberal counter revolution' restored the US political and monetary hegemony. It also represented a major defeat for labour. To restore profits, competitiveness became the watchword and costs were cut, starting with labour costs. However, this meant that, on a global scale, there were even fewer buyers and further declines in the 'rate of profit'. In short, it did not resolve the crisis of capital. Rather, the leading economic powers have attempted to manage it "by

[8] Greenhill and Pettifor note that the US pays interest of $20 billion on its $2.2 trillion debt while the global south pays $300 billion interest on a total debt of $2.5 trillion.

[9] In Marxian language, it saves capital from its own internal law of diminishing return.

bringing relief from competitive pressures to the [industrialised country] producers most immediately threatened with collapse" (Arrighi 2003: 64).

In 1985, the US, Japan and Germany agreed to drive down the international price of the dollar to stimulate the stagnant US economy. The subsequent US boom, however, was based on expanding their share of the market at the cost of the Japanese and German economies because there was little growth in the global economy overall[10]. To stimulate these economies, they reversed the process in 1995 bringing "an abrupt end to the decade-long recovery of US profitability" (Brenner 2003: 19). East Asians and Europeans invested massively in the US to depreciate the value of their own currencies. In response to this flood of capital, US interest rates were repeatedly reduced making borrowing cheap, and investors borrowed to pile into the stock market. Rising share prices attracted more investors and so pushed share prices higher opening an ever-widening gap between share values and profit rates, particularly in 'new economy' stocks.

Flush with capital and cheap bank loans, corporations raced to out-invest each other. In the telecoms sector, for example, they laid millions of miles of fibre optics but, in the US, "the utilisation rate of telecom networks hovers today at a disastrously low rate of 2.5-3%, that of undersea cable at just 13%" (Brenner 2003: 21). Over-accumulation thus produced over-capacity. It also resulted in the transfer of production capital to financial capital as companies tried various, and variously disguised, speculative instruments to make up profits – hence the Byzantine proliferation of Enron's enterprises. Finally, corporations began cooking the books to show profits where there were none. Since 2000, the contraction of telecom capital investments has rippled out through a broad network of suppliers.

In the deregulated context of neo-liberalism, everyone was complicit in this process. Commercial banks, investment banks and insurers merged in defiance even of remaining laws to provide 'one-stop' diversified and inventive financial services claiming that, 'What used to be a conflict of interest is now a synergy.'[11] Auditors competed in the financial services market. Politicians took campaign contributions from corporations and supported illegal mergers. The Federal Reserve Bank actively encouraged the bubble with lower interest rates. And corporate executives who cashed in their exorbitant share options at the height of the boom managed "one of the most spectacular acts of

[10] The alternative but less convincing explanation is that the US productivity simply outstripped its rivals.

[11] Jack Grubman, Citigroup executive (quoted in Brenner 2003: 21).

expropriation in the history of capitalism" (Brenner 2003: 22), leaving others, including their workers, to the consequences of collapse[12].

Consumer spending, led by the conspicuous consumption of the wealthiest beneficiaries of global transfers, remains the last redoubt of US market expansion. Since 2000, it has been fuelled by cheap borrowing on the security of inflated property prices and in the face of rising unemployment. According to Brenner, the US economy is now confronted by a triple hazard:

- Stocks remain inflated despite the drop in prices since 2000;
- US trade and current account deficits are now running at record highs and are funded from foreign investments and threatened by waning confidence in the US economy;
- Consumer spending is threatened by a debt crunch.

The present Republican administration's response has been traditional: Transfer wealth to the rich to encourage investment – thus to reinflate the share price bubble – and expand military consumption to fund imperial adventures. It remains to be seen if the aggressive assertion of US hegemony will enable the continued displacement of the crisis of global capital onto peripheral economies. Arrighi concludes:

> It is hard to see how this situation can be reproduced for any length of time without transforming into an outright tribute, or 'protection payment', the $1 billion (and counting) that the United States needs *daily* to balance its current accounts with the rest of the world. But it is even harder to envision the kind of social and political convulsions that are necessary to make the extraction of such a tribute the foundation of a new, and for the first time in history, truly universal world empire. (2003: 70)

The informational paradigm

Technology is about the way people relate to resources. As such, it is central to the way in which societies define themselves and it enters into all aspects of human life and thought. Nor is technology innocent of power. It can be a force in itself, having sometimes unpredictable impacts on relations of power, and is also a tool of power, deployed by social actors in power struggles. Castells argues that the 'information

[12] Commenting on the notion of the 'risk society' and the Enron bankruptcy, Zizek remarks "some (the Enron managers) do the choices, while others (the ordinary employees) do the risking." (2002: 92) The same could be said of 'emerging market' risk – investors do the choices while southern countries do the risking.

revolution' is as significant as the industrial revolution. This is not because it replaces industry, any more than industry replaced agriculture, but because information technology pervades "all domains of human activity" (2000a: 30).

Information and communication technologies have provided an essential component to the process of globalisation. Key characteristics include the power to communicate globally in 'real time', the ability to encode and decode all kinds of information – language, aural, visual – in the same digital format, and a fundamental change in the relationship between knowledge and technology – whereas previously, knowledge worked on technology, now technology also works on knowledge. They have driven a massive increase in productivity in all sectors while, at the same time, themselves proving the most 'dynamic' industrial sector contributing most to economic growth.

The organisation of production

The interrelation between the changed policy environment, the crisis of over-accumulation, the reconstruction of markets, struggles between labour and the managers of capital, and the impact of new technologies has created the means of concentrating power but at the cost of greater volatility. Finance capital has the means to move vast quantities of 'virtual' money around the world instantly and, in the context of instant information flows, investments are predicated more on short-term movements in currency or share prices than on long term 'fundamentals'. Making a profit on these markets is thus "a matter of ... timing rather than ... judgement" (Castells 2000a: 156). Product markets too have become more volatile in terms of quantity and quality demands, and highly differentiated in terms of targets. At the same time, they are globalised in scope but concentrated on the wealthiest 20% and geographically in the northern countries.

From Fordism to global production networks

Industrial production has also undergone a fundamental restructuring. In the industrial age, 'Fordism' provided the dominant model for organising production and was characterised by 'vertical integration'. It concentrated and integrated the production chain through to control of markets within single corporations to mass-produce standard products. Successive components of the production process were largely organised within different departments of the same company and managed by vertical (top-down) 'rational bureaucracies' and centralised decision-making (Castells 2000a: 179). Workers were typically massed within large factories and organised within strict job demarcations to meet the demands of inflexible production lines.

The globalised informational economy created a crisis for the Fordist organisation of production because the production process was too rigid to keep pace with rapid change. In many cases, the first response was to cut labour by automating or by outsourcing less profitable parts of production to lower cost locations in southern countries. At the same time, the costs and value placed on innovation have risen exponentially and even large corporations have looked for ways of spreading the associated risks by entering into strategic alliances with others.

While vestiges or adaptations of Fordism may remain at particular locations or within specific industries where it is carried by the weight of its own history, new organisational forms have risen in the space of this crisis, mostly drawing on the models of networked production already established in East Asia. As indicated by the contrast between South Korean and Taiwanese networks, these do not follow a single model and are likely to be heavily influenced by local social relations and institutional histories as well as by the institutional culture and strategies of large corporations. The effect of these changes is that production is dis-integrated across national and corporate boundaries. Global "networks, not [individual] firms, have become the actual operating unit" (Castells 2000: 187) for producing and marketing goods.

Rather than being a backward sector of production, agriculture has in many ways anticipated these changes within manufacturing industry. Writing in 1985, Armstrong and McGee argue:

> Even where the [farmer] retains formal control of the land, he (sic) is sandwiched into a 'sequential capital-technology package' at the beck and call of corporate strategists deciding what will be produced, when, and how, and establishing the quality and price terms for the products. The farmer is left to enjoy the remnants of his independence, facing risks of drought, disease and the vagaries of unstable market demand (1985: 64).

In the context of globalised production, the factory similarly becomes one link in a chain of production that stretches from the 'primary' sectors through to the marketing of a final product – variously described as 'value chains' or 'commodity chains'.

Henderson et al (2002) argue that the terms (value and commodity chains) are reductive because they imply a simple linear set of relationships. 'Value chains' in particular, tends to reduce production to the business of business, disregarding the social relations of power and the part of labour and so dehumanising the process of production. They prefer the term "global production networks".

These networks are global because, as networks, they have no allegiance to national states or to localities and can locate any part of the production process at whatever site best meets its interests in terms of infrastructure, labour and skills, costs, material inputs, market access or connectedness etc. However, the firms that make up the network do have national locations and, in the case of TNCs, multiple national locations[13]. At each specific site of production then, firms act within the local political, social and institutional context – both shaping it and being shaped by it – and, in proportion to the value they create, their local connections are assets to the network. Hence, the global logic of the network must always meet with that of the national or local, particularly with the state policy and regulatory regime but also with unions and other organisations in civil society.

Transnational corporations

TNCs are at the heart of globalised production and are the lead firms in any particular network. As well as networking with other firms, transnational corporations have 'networked' themselves, giving increased autonomy to subsidiaries both to link with other networks, and to respond to and take advantage of the differences between national regulatory regimes. They remain, however, marked by the national location of their parent company. TNC power within the network is not absolute but is dominant. It substantially allows them to gate-keep entry and terms of entry into the network and to define value along the chain of production in their own interests. National or local firms may "sometimes (and for contingent reasons) have sufficient autonomy to develop and exercise their own strategies" (Henderson et al 2002: 22). Such reasons may include state policy, collective strategising by small firms or reduced dependence on any particular network by virtue of being connected to more than one. For firms "outside the networks, survival is increasingly difficult" (Castells 2000a: 187).

TNCs are the main source of FDI and dominate world output[14] and trade with over 66% of trade being internal to firms and much of it generated by the globalisation of production. Critically, they have concentrated the capacity for innovation at the top end of the value chain and are able to command highly skilled labour from the global pool.

---

[13] Castells makes a similar point, but prefers to contrast 'transnational networks' with 'multinational corporations' to emphasize that the latter are nowhere dissociated from the national context of operation. Henderson et al think 'transnational' retains the assumption of 'state centric discourses' and so misses the significance of processes that have no specific location, but also emphasize the locatedness of firms and subsidiaries.

[14] Shafaeddin cites the Economist as saying that 1,000 corporations accounted for four-fifths of world *industrial* output (2000: 9). Castells says all TNCs accounted for up to 30% of total world output (2000a: 119).

This means that they decide society's technology choices and their decisions are likely to reinforce this power by favouring those technologies that are best adapted to their interests. This power is also protected by the expansion of intellectual property regimes.

Most parent TNCs are located in northern countries and, while not identical, there is considerable confluence of interest between these firms and governments because, "it is what happens to competition in these global markets ... that determines the share of wealth appropriated by firms and, ultimately, by people in each country" (Castells 2000a: 97). TNC influence is thus taken into the corridors and negotiating rooms of international institutions and particularly those that matter – the IMF, World Bank and WTO.

The relationship between industrialisation and development in southern countries then relies on the capacity of governments to negotiate with TNCs. Very few win at this game because TNCs have "access to superior information and resources, especially to influence international legal regimes" (IGD 2000:5) and, within the international regime created by that influence, the space for manoeuvre is steadily being closed down. Henderson et al argue that the form of national capitalisms is critical and remark that Taiwan, South Korea and, more recently, China are most successful at negotiating developmental outcomes with TNCs. However, this may also be conditioned by FDI being "as much a response to, as a cause of, [economic] growth" (Bairoch and Kozul-Wright 2000: 21). In short, while the capacities of government are no doubt critical, TNCs want in where they see money being made and this gives a negotiating edge to these host governments.

Issues in industrial strategy

Industrial strategy must relate the process of industrialisation to the skills available to it. Hence, the traditional narrative of industrialisation is strikingly similar to that of the self made man who works and learns his way up from the bottom. A country must move from a reliance on primary commodities to labour intensive and low skilled industries and, to become a fully industrialised economy, this must become the base for moving onto higher-value and more skills-intensive production. South Korea and Taiwan managed this transition and, in doing so, exported low-value industries to other developing countries.

The necessity of this progression is created by industrialisation itself. Thus, the industrialisation of agriculture – together with the state subsidies that largely paid for it – resulted in the overproduction of cash crops and a long-term decline in the price of agricultural commodities. And, after the initial phase of mechanisation, industrial investments on farms reduced labour requirements and depopulated the countryside. Labour intensive industries then became necessary both to create jobs and to get a better

return on production. However, as more developing countries enter into labour intensive industries, prices for these products are similarly subject to constant downward pressure.

This is what UNCTAD (2002: 113ff) refers to as the 'fallacy of composition' – too many countries competing in the same market, frequently on the advice of development institutions such as World Bank. Competing in these conditions implies constant downward pressure on the costs of production. Thus, incentives for FDI escalate while wages are cut and labour conditions deteriorate, the costs of reproducing labour – providing for health, education and welfare – are not met, and environmental impacts are externalised. Competition between developing nations thus leads to a 'race for the bottom'. The consequence is 'immiserizing growth' because the "increased volume of exports may be more than offset by losses due to lower export prices" (UNCTAD 2000: 114). That is, the host country economy actually makes a loss while the foreign investor (or GPN lead firm) captures more value than is created by the investment but can conceal this value within the final product. Again, this seems to follow the precedent of agriculture where production costs tend to exceed produce prices for all but a minority of producers and products.

So it may be argued that, if in the past FDI in manufacturing aimed at access to tariff protected markets and so was a surrogate for trade, within the export orientation of developing countries it is partly aimed at accessing cheap labour and so becomes a partial surrogate for the international migration of low-skilled workers.

The alternative then presented is to move to higher value products within the same sector or to move to a higher value production chain – e.g. moving from textiles to electronics. However, because global production networks separate the value allocated to components of high value products, developing countries enter at the bottom of the value chain and remain subject to the fallacy of composition. Indeed, declining terms of trade for China "have been less pronounced for traditional labour intensive manufactures than for products with medium and high technology intensity" (UNCTAD 2002: 119). It thus seems that it is precisely in those 'dynamic' sectors that are most fully inserted within global production networks that developing countries face the highest risks.

Regrettably, there seems little reason to believe that this fallacy will not follow developing countries up the order of value. Apart from the fact that competition at the top of the value chain is already intense, the logic is one that serves 'first comers' but not those who follow them. Also, the costs and the barriers to entry escalate up the value chain thus affording protection to industrialised first comers. One such barrier is that, whereas physical barriers are built against the migration of low-skilled labour, high-skill

labour is globally mobile[15]. Developing countries are therefore liable to lose their investment in educating this labour although some skilled labour migration is circular and may return with enhanced skills – provided that they see opportunity.

A related constraint on industrial strategy is that, whereas Fordist investment required mass labour, informational investment does not. Investment in existing plant is now associated with job losses while much more capital is required for each job created in new projects. Indeed, at a certain limit, labour is placed in competition with capital investment. The assumed link between economic growth and job creation is thus severed. This also happened in agriculture where modernising investments have resulted in the depopulation of farming areas even as Gross Geographic Product[16] increased.

Conclusion

> The U.S.A. delegate …commended the capitalist model … as the only model that works. The goal of the Funding for Development process, he claimed, should not be to negotiate changes in the system but to integrate countries into it …
> (Earth Negotiations Bulletin: International Conference on Funding for Development (FfD), International Institute for Sustainable Development, 17 Oct 2001)

Contrary to such heroic claims, development and the conception of development are clearly in crisis. Industrialisation and economic growth can no longer be made to equate to development. Industrial strategy is thus displaced from the centre of policy, the reference for all other policy within the assumption of the developmental state. It becomes instead, just one of a number of policy arenas which the state may hope to link together. Indeed, the shape of global production networks suggests the multiplication of industrial strategies relating to production chains that cross from manufacturing into other sectors.

Within the orders of global capital, however, the forces of fragmentation appear greater than the southern state's eroded capacities of integration. Rather than growing confluence, the globalised division of labour is founded on growing inequality between nations and within nations. Modernising development still promises glittering rewards, but more in the style of a lottery than a social programme. Full employment is no longer

[15] Increasingly this also applies to skilled 'service' workers such as teachers and nurses.

[16] The localised equivalent of GDP

promised even in northern economies, but is rather seen as a threat to ‘labour market flexibility’, and the traditional indicator of GDP growth bears no necessary relation to national welfare. Beyond all this, however, the power at the centre of global capitalism has the appearance of a cartoon character who has yet to notice that the ground beneath his feet is no longer there.

These observations are based on the internal ‘working’ of the capitalist model itself. In this respect, they follow the logic of the failing GDP indicator of development: they take no cognisance of anything outside of official economic growth. Despite four decades of official international debate on environment and development, the environment remains conspicuously absent from most debates that originate in development studies in general and industrial studies in particular. When it is considered, it is as a supplement to the main debate: a tactical distraction to the real business, an example of ‘market imperfection’, an externality to be mitigated after the developmental decision is taken, an enigmatic question mark in the margins. Yet nature is no longer abundant relative to the industrial machinery of resource extraction and waste production. And the bite of the environment is getting sharper.

The evolution of industrial strategy in South Africa

This section returns the focus to South Africa and briefly reviews key features of the country's industrial strategy. It begins with the emergence of an industrial base in the late 19th century and proceeds through to the early 21st century. It is not intended as a comprehensive economic history but should provide the historical perspective that is necessary for understanding the current challenges, debates and options.

Industrial strategy (whether explicitly named as such or adopted by default) is made up of a range of interventions by the state in national development. As such it is always deeply embedded in broader developmental frameworks. The tools and policies that make up a country's industrial strategy at any given time reflect choices and assumptions about the prevailing economic and development context. As the history will show, those choices and assumption themselves reflect the balance of social and economic forces that frame them - and these too, shift over time.

The South African economy is not an island, cut off from the rest of world. The linkages that exist are not only strictly 'economic' ones either. The evolution and exchange of ideas and ideologies, policies and interests that shape national industrial strategy have always articulated with, and been influenced by, global trends. So the particular features of South African economic, trade and industrial policy are powerfully framed by the global context discussed in the preceding section.

The rise of industry in South Africa

South Africa's industrial history is closely tied to the exploitation of its natural-resource endowments – especially its exceptional mineral resources. As a colony of western, metropolitan powers, South Africa's industrialisation was based on colonial resource extraction and hence, from a domestic perspective, on commodity exports. Diamonds and gold especially were pivotal drivers in developing a relatively significant and industrialised economy, and coal provided the energy source for that development. Mining and the processing of minerals came to constitute the industrial core, and the fundamental ownership patterns of that core were established in the emergent mining industry in the late 19th century.

These basic patterns were then supplemented by state-led industrial investments in the core industrial complex of mining and minerals – in particular the creation of parastatal corporations like the Electricity Supply Commission (Eskom), the Iron and Steel Corporation (Iscor), Sasol, and the Industrial Development Corporation (IDC,

which was a key vehicle for state funding). These institutional measures were designed to deepen manufacturing development off the emerging base driven by mining and minerals processing. From the 1920s on, government support to the infant manufacturing sector extended to include protectionist trade policies (dti 2002 a: 6) using import tariffs to protect local industries from competition (Bezuidenhout 2002: 13).

Investment in manufacturing grew strongly from the 1930s to the 1960s. It was driven by, and in turn reinforced, the underlying strong mineral economy based on gold (MERG 1993: 212). Over this period, the sector also benefited (or continued to benefit) from:

- The *de facto* protection offered by the World Wars
- Protectionist trade policies adopted since the 1920s and accelerated after World War 2 when both import restrictions and tariff protection were increased
- Strong foreign investment from the 1929 through to the 1970s
- Diversification by the mining houses.

The central role of government in industrial development, especially through the imposition of import tariffs to protect local industries (and often combined with demand-side macro-economic management measures like stipulating minimum wages[1]) was characteristic of capitalist industrial strategy internationally from the 1930s onward (Bezuidenhout 2002: 12). The general 'inward' orientation is characterised as an 'import substitution' industrialisation strategy.

Key characteristics of policies and impacts

Industrial structure

The resultant structure of South African industry reflected its historical underpinnings in the natural resource endowments that drove it, and the state policies that protected and guided it. Conventional economic categories and analyses have tended to adopt a more or less standardised typology to describe and analyse the industrial sphere. They would, for example, separate out mining from industry, and describe discreet industrial sectors based on their output types. The work done by a consortium of progressive researchers who formed the Macro-Economic Research Group (MERG 1993) however, pointed out that the critical point to grasp was that South African industry had developed most at two extremes on the range of potential sectoral activities[2]: at one end there was a heavy dependence on mining and energy with

[1] In South Africa, a racially-based 'dual labour market' evolved which incorporated only whites into a limited 'welfare state' – and excluded blacks (Bezuidenhout 2002: 13).

[2] As is discussed later, the MERG characterised this fundamental feature of South African manufacturing as its 'bi-modal' structure.

substantial associated downstream activity in sectors like iron and steel, mineral beneficiation, and heavy chemicals. At the other end of the spectrum was the production of consumer goods in response to tariff protection and the 'inward' orientation of trade policy. This created a narrow base for manufacturing since both had developed very limited degrees of integration through either forward linkages from mining and energy or backward linkages from consumer goods (see MERG 1993: 213).

Anticipating to some extent key insights of later 'value chain' and 'production network' analyses, the MERG argued that the industrial structure should be understood by considering the production-based linkages clustered around the dominant sectors. Thus for example, the refining of minerals, with its obvious and strong linkages to mining, constitutes an important part what is more conventionally categorised as the 'manufacturing' sector (and is conventionally characterised as such to distinguish it from 'mining'). Similarly, electricity is usually statistically categorised as a separate economic activity whereas in fact there are extensive links with mining, quarrying and manufacturing: more than 90% of electricity is derived from coal (which is mined), and 22% of electricity output is consumed in the mining sector, with a further 21% consumed in energy-intensive smelting and refining processes. Even chemical and petroleum production, while they may appear rather distant, are also linked through the coal mining industry: the production of fertilisers, plastics, chemicals and petroleum are dependent on energy-intensive processes which implies heavy consumption of electricity which, in turn, drives coal mining. Sasol fuel-from-coal plants are themselves heavy electricity users (e.g., drawing 18% of industrial supply in 1991). Recognising the powerfully integrated character of core industrial sectors around mining, minerals processing, energy and the petroleum/chemicals complex is important if the real extent of development of the 'manufacturing sector' is not to be exaggerated (MERG 1993: 216 – 218).

Ownership

Industrial activity in South Africa was dominated by one of the most concentrated industrial structures in the world in terms of ownership distribution and inter-linkages in corporate control (MERG 1993: 214). The ownership structures that dominate South African manufacturing, mining and services mean that a small number of shareholders controlled a huge proportion of asset value on the Johannesburg Stock (now Securities) Exchange and they effectively controlled operating units in the manufacturing sector through the highly diversified conglomerates which straddle the economy (MERG 1993: 224[3]).

[3] See also MERG 1993: 216: that this concentrated structure of ownership was extended to a range of economic activities because "investment in the form of acquisitions and mergers has taken precedence over real investment in new capacity".

There also developed a corresponding close integration with highly developed financial institutions. The integration between dominant industrial interests and a sophisticated financial (and other business services) sector also reflected the high levels of concentration encompassing both – and it also meant that the financial sector was not primarily focussed on the needs of the majority of the population (dti 2002 a: 8). Research by the Industrial Strategy Project (ISP) in the 1990s (and affirmed in the MERG analysis) demonstrated that the highly concentrated market structure, and the increasingly close links between corporate shareholders that dominate the South African economy, engendered collusive (and not competitive) behaviour (Joffe et al 1993: 101, 102). The ISP argued that shareholder power correlated with manufacturing weakness because strategic control over investable surpluses lay in the hands of powerful corporate shareholders whose interest is to "minimise investor risk rather than maximise operating synergies" (Joffe et al 1993: 103).

The role of the state

Dominant corporate interests had a close relationship with the state too, ensuring coordinated productive activity with state corporations and also the determination of economic policy. The role of the state in the evolution of South Africa's industrial sector has been of paramount importance. The Macro-Economic Research Group (MERG 1993: 214) pointed to three crucial areas:

1. the growth of state corporations such as Iscor, Eskom, and SASOL which made major, direct contributions to industrial output as well as significant indirect impacts by promoting large-scale, heavy industry by the private sector;
2. the use of trade policy to stimulate other manufacturing sectors and to provide protection "more or less on demand, and certainly in response to political pressures" rather than being based on rational economic calculation;
3. adherence to apartheid principles of separate development and an apparent commitment to decentralisation (though the derisory allocation of resources to homeland industrial development gave the lie to the real level of commitment).

Import substitution remained the dominant orientation of industrial policy in South Africa at least until the 1980s. During this period, 'manufactured' exports consisted primarily in semi-processed agricultural and mineral raw materials. Indeed, this inward orientation was intensified during the era of sanctions (dti 2002 a: 8) and South African industry became relatively isolated from normal international trade and competition for longer than any other relatively industrialised market economy (Lall 1993: 50). Although foreign investment and the transfer of advanced technologies and skills was sharply constrained, sanctions also shielded local firms from the full force of international competition and the resultant pressure to stay

competitive on the technological front. Accordingly, the lack of foreign investment in these areas was not compensated for by high levels of domestic investment in research and development (R&D) by local firms or by the state (Lall 1993: 51). Instead, the main drivers of R&D were derived from strategic considerations and focussed on military dominance in the sub-region; energy self-sufficiency; and national food security. This was reflected in major investments in, for example, Sasol (to secure oil-from-coal), Armscor (the parastatal arms producer), Iscor, the Atomic Energy Corporation, and agricultural sciences (dti 2002 a: 7, 8).

Complex as it was in the detail, South African trade policy displayed an overall bias against exports (Joffe et al 1993: 98) and the distorted incentive structure tended to foster the establishment of high-cost industries (Lall 1993: 51).

The complex structure of tariffs and import controls reflected the impact of special pleadings by individual interest groups (Joffe et al 1993: 98). The influence of certain industrialists over the regulatory authority was such as to give the overall complex of trade measures a level of incoherence (dti 2002 a: 7). As the MERG pointed out, “the different components of industrial strategy, with a few exceptions, have not been integrated to achieve specific strategies for individual sectors” (MERG 1993: 214).

In areas like metallurgy, chemicals and some industrial mining equipment, protective trade barriers allowed local industries to mature and develop areas of competence. But the more general impact of trade policy was to protect local producers. As a result, large areas of industry were neither competitive nor technologically dynamic (Lall 1993: 50).

South Africa’s industrial bias toward energy-intensive sectors (like the servicing of mining and minerals processing) has also been enabled and reinforced through a policy of drawing on the country’s abundant reserves of coal to provide cheap electricity. This became a hugely significant factor in South African industry and was discussed in Section 1 of the report.

Apartheid policies entrenched the racial character of ownership, production and consumption and also imposed economic costs. Cutting off the majority of the population from good education and access to training and capital, inevitably narrowed the base of skills and entrepreneurship (Lall 1993: 51). Furthermore, restrictions on land ownership undermined the ability of black people to accumulate capital, and their enforced settlement far from places of work artificially raised their cost of living and created uneconomical settlement patterns (dti 2002 a: 7).

The decline

Manufacturing growth slowed in the late 1960s and declined through to the early 1990s. During the 1980s and early 1990s, the South African economy as a whole stagnated. The rate of economic expansion was 1.5% per annum while population growth was more than 2.5% per annum (Joffe et al 1993: 91). Central to this trend were declining rates of industrial accumulation and especially the weak growth performance of the manufacturing sector.

Through the 1980s, both the real value of capital stock and overall rates of investment fell (and within that, there was relative under-investment in labour-intensive sectors). One consequence was that "many sectors were saddled with outdated machinery and equipment" (Joffe et al 1993: 95).

Responding to both internal weaknesses as well as external pressures, there were discernable shifts in trade and industrial policy from about the mid-1980s on. The apartheid government recognised the unsustainability of the prevailing economic structure which was "vulnerable to international competition and the threat of de-industrialisation" (dti 2002 a: 9). "[T]he state embraced the goals of privatisation and tariff reform, and overtly abandoned the paper exercise of separate homeland development" (MERG 1993: 214; also Bezuidenhout 2002: 13). In the process of liberalising South Africa's trade regime, quantitative import restrictions were largely replaced by tariffs (except for agricultural goods and textiles - Lall 1993: 51 & 60).

Despite these shifts, however, there were substantial continuities too. For instance: large-scale interventions through the state with private capital remained centrally important; the tariff structure itself remained complex with high and variable protection to industries even though there were reductions in overall levels of protective support; and a selective protectionist trade policy was still not really tied to long-term objectives in a coherent manner that would demonstrate commitment to protecting infant industries during a 'learning' period before exposure to international competition (MERG 1993: 215, and Lall 1993: 51, 60).

Reflecting the slow turn-around from an inwardly-focussed export substitution model[4] to a more outward-focussed strategic perspective, the state also introduced some export-support measures. The most important was the General Export Incentive Scheme (GEIS) which was introduced in 1990 and which provided a direct subsidy to exporters of manufactures in proportion to the volume of exports, the stage of manufacturing (i.e. favouring final goods), and the use of local inputs (MERG 1993: 235). The GEIS had various weaknesses but did support manufactured exports and

[4] Lall (1993) describes it as having become "practically autarkic" (60).

probably kept some threatened manufacturing branches alive. Although there was a noticeable improvement in the performance of manufacturing exports in the late 1980s and early 1990s this did not reflect any fundamental shift in underlying conditions and certainly not an improvement in domestic productivity. These exports were induced by the limited introduction of export incentives and the prolonged domestic recession itself – the latter pressure induced so-called 'distress exports' where domestic demand began to fail.

Thus, notwithstanding its historical economic isolation, South Africa was not immune to growing pressures on developing country economies globally to open up to imports with the promise of reciprocal access to export markets. This inevitably exposed the fact that the apparent 'competitiveness' of local manufacturing in fact reflected the effectiveness of import controls (Joffe et al 1993: 92; also Lall 1993: 50). But the broad thrust of the reform process (expressed, e.g., in the National Party's 'Normative Economic Model' of the time) assumed – incorrectly argued the MERG – that South African industrialisation had only resulted from backward integration from consumer goods production which had been promoted through protectionist policies. Accordingly, the proposed reforms, in line with the emerging 'neo-liberal' approach to trade reform globally[5], proposed a simple dependence on correcting market-price distortions without recognising that such policies "might eliminate rather than restructure the industries concerned" (MERG 1993: 216).

Thus, although trade was liberalised overall, neither the export incentives nor the reduced barriers to imports were targeted to deal with the challenges of competitiveness. The import tariff structure remained "geared to maintaining obsolete and inefficient patterns of specialisations rather than promoting a shift to a more dynamic pattern" (Lall 1993: 61). Neither the extent nor the duration of protection was used as a policy instrument, and there were no performance requirements from protected industries (MERG 1993: 234).

The Industrial Strategy Project also assessed the 'productivity' of the manufacturing sector in terms of its ability to satisfy the needs of South Africa's population (so including consideration of distributional issues), and the South African economy performed particularly badly on this score. 'Social productivity' was (and remains) fatally undermined by the grossly uneven provision of basic wage goods (e.g.,

[5] The global ascendancy of the neo-liberal model – and the corresponding decline of the previously dominant export substitution model – has its roots in the early 1970s when rising inflation and the oil crisis created enormous pressures on the capacity of states to sustain the old model (which, as noted, had a corollary commitment to elements of the welfare state). Orthodoxy started to shift to a cluster of policies including privatisation, trade liberalisation, deregulation, and labour-market 'flexibility' (Bezuidenhout 2002: 13). This has been discussed more fully in Section 2 of the report.

housing, energy, affordable transport and food and clothing) for which poor people and workers must pay a disproportionate amount of their income (Joffe et al 1993: 94).

Negotiating a liberalised political and economic order

In its "Micro-economic Reform Strategy' document of 2002, the Department of Trade and Industry (dti 2002 b) argues that by 1994 the South African economy was in decline as a result of isolation (both political and economic); its inwardly-oriented economic policies; and the legacy of racial exclusion. Economic decline coincided with, and fed into, a deepening political crisis in the legitimacy and sustainability of the broader apartheid system. One function of the negotiations process that got underway through the early 1990s was to give new impetus to the formulation and debate of appropriate policies for a post-apartheid South Africa. Trade and economic policy was one important area of focus.

At the same time, it is clear that opening up this debate was not only shaped by the perspectives and capacities of various interest groups within South Africa. The options and contours of debate within the country were themselves located in a broader global context[6] marked by the decline of both welfare-statism in the 'West' and soviet-style communism, and the ascendance of neo-liberal perspectives articulated by powerful 'development' intermediaries (especially the 'Bretton Woods' institutions, namely the World Bank, the World Trade Organisation and the International Monetary Fund) and driven in the interests of globally dominant economic forces (especially financial capital and transnational corporations).

Indeed, by this stage the apartheid government, together with dominant business interests in South Africa, had also taken on the view that "the economy should be governed more by market forces and unregulated private capital than it has been in the past" (MERG 1993: 219). But the economic crisis, marked by entrenched stagnation and manufacturing decline and reinforced with social and political crisis brought on by the contradictions of apartheid, required more of the state than the piece-meal and tentative reforms the apartheid state could offer. It lacked the legitimacy to carry through thorough-going change at all levels, and its relations with established economic interests were too entrenched and too limited for the task. Thus, although the apartheid government initiated trade and related reforms from the 1980s on, "decisive steps on economic reform, especially privatisation, could not be taken because of the illegitimacy of the government" (Bezuidenhout 2002: 13).
As the IMS document recounts this history:

[6] See section 2 of this report.

> It required new initiatives to change this situation. This emerged in the National Economic Forum where the government, the ANC and COSATU engaged. … Between 1992 and 1994, the groundwork for an agreement on trade policy reform was laid. … [The new government inherited in 1994 an] economy … in crisis. This demanded a fundamental shift to a more externally focussed and value-adding strategy (dti 2002 a: 9).

With regard to trade and industrial policy (and in the context of articulating a broader economic policy platform), significant research and analytic capacity was marshalled in the name of the broad democratic movement with key contributions from the Industrial Strategy Project (ISP) and the Macro-Economic Research Group (MERG).

Global pressure to allow freer imports into the South African economy had already been felt and, as noted, this exposed the relatively uncompetitive character of South African manufacturing. But the structure of competition was shifting too. "In the past competition has largely been determined by price factors, but it is increasingly coming to be affected by a range of additional product-oriented factors. These include produce quality, product variety and differentiation, and the speed of innovation" (Joffe et al 1993: 91). For South Africa, this meant that relying on traditional sources of competitiveness in a set of 'given' factor endowments (like abundant reservoirs of cheap labour and natural resources) was less and less likely to be a sound basis for competitiveness. In fact, an endowment of capabilities (especially widely-spread skills) would be a far greater advantage in this new environment – an endowment that apartheid had robbed the country of.

Trade policy

Debate on post-apartheid industrial policy was therefore intimately bound up with a debate on the merits, nature and pace of integration with the global economy and, in particular, the question of further trade liberalisation. Lall comments that multi-lateral organisations like the World Bank and local institutions like the IDC favoured a 'rapid and sweeping' liberalisation (1993: 51) while others were more cautious.

Many saw the strategic facilitation of a reinvigorated manufacturing sector as key to South Africa's future viability and its capacity to deliver on the range of post-apartheid expectations. These perspectives inevitably put the questions of South Africa's industrial international competitiveness centre stage. Given the shift in the bases of competitiveness described above, it was (and remains) important to anticipate the impact of international competition, resulting from trade liberalisation, on local manufacturing capacity. Lall noted that global experience showed this to be open-ended. With regard to technological learning:

> ... international competition is a double-edged sword. It can stimulate healthy capability development, but full exposure to it can prevent firms from entering

> activities with difficult, risky and prolonged learning requirements, when they have to face competitors that have already undergone the learning process. This is the traditional case for infant industry protection … to promote the realisation of dynamic comparative advantage …[and to] provide the 'breathing space' in which new entrants can develop their capabilities …[but which must be distinguished from] highly protected industries [which] … never mature to competitive levels because there is little incentive to invest in the capabilities needed (Lall 1993: 55)[7].

For the ISP, manufacturing strategy needed to address distributional issues and ensure better 'social productivity' so that relatively high levels of productivity for the sector would translate into the capacity to generate resources to satisfy the needs of the broader population.

> The ultimate objective of industrialisation is to provide sustained, highly productive occupations for the population with due regard for distributional and environmental considerations (Joffe et al 1993: 123).

In line with this orientation, the ISP stressed that "promoting competitiveness is not equivalent to an exclusive focus on exports, or even on tradeables… [I]t is imperative that low-income South African consumers have access to basic commodities at internationally competitive prices" (Joffe et al 1993: 92). Basic needs might not be met if economic policy focussed only on forcing South African industry to match international standards of competitiveness (Joffe et al 1993: 96). They also argued that raising productivity within existing areas of production need not fetishise the adoption of high-tech equipment.

There was however a fairly broad consensus that inherited patterns of manufacturing protection which insulated domestic producers from international pressures were unhealthy and that a greater outward orientation was needed in future industrial and trade policy to help ensure productivity growth (even as the basis for satisfying basic needs).

Greater outward orientation implied a more 'liberalised' trade regime finding its place in the global economy and with a greater openness to imports (through lowering of tariffs). Not surprisingly, the World Bank recommendations for trade reform in South Africa adopted this broad approach too. However, in what the ISP regarded as a 'welcome departure from previous orthodoxy' since it did not appear to assume that liberalisation was a sufficient (or even necessary) condition for the expansion of

[7] In this view, trade interventions that promote competitiveness tend to be: selective; limited in both spread and duration; and accompanied by pressures to enter export markets as soon as possible. This distinguishes them from protective trade measures adopted in an import substitution model.

exports, the Bank's suggestions were for a more strategic and phased process of trade liberalisation than wholesale, drastic lowering of tariffs. The Bank proposed (in addition to an outward orientation and rationalisation of the tariff regime):

- an export support programme to provide exporters with inputs guaranteed at world trade prices;
- the liberalisation of intermediate goods production first to provide competitive support, in turn, to manufacturing exports;
- thereafter, and only on the basis of increased exports, to begin lowering tariffs across-the-board in slow stages to avoid killing off potentially viable industrial capacities.

Ultimately, the Bank aimed to see harmonisation of tariff rates across all sectors where others (like the ISP) maintained that a degree of selectivity was more appropriate to deal with, for example, the needs of infant industries, the processes of technology learning and scaling-up production to reach competitiveness in an outward-oriented economic context, or even to manage a socially sustainable retreat from a sector undergoing rapid and terminal decline (Joffe et al 1993: 99).

In its proposals, the World Bank had taken on what was by then more or less 'conventional wisdom' regarding the sequencing of trade reform[8]. When pressure to liberalise trade policy exposed many developed countries to competition, especially from certain Asian economies, there was increased attention focussed on how governments in those countries had facilitated competitive industrial development. There, both supply- and demand-side measures had been adopted to stimulate and protect manufacturing and to target certain sectors for export promotion:

> They would initially be protected to develop capacity to serve domestic markets while receiving considerable support from governments through various supply-side measures, including state-funded research and development, financing and tax incentives (Bezuidenhout 2002: 13).

Controversially perhaps, the ISP proposed that in fact trade policy should consider, on a case-by-case basis, the possibilities of liberalising trade on certain consumer goods too – especially basic goods such as clothing, footwear, and bread consumed by those with low-incomes – where production had been highly protected (i.e., not just intermediate goods in the first instance):

> Whilst mindful of the potential employment and balance of payments implications of a precipitate liberalisation of labour-intensive consumer goods,

[8] Arguing that "[t]he key to industrial development in the post-Uruguay era is to combine tariff reform effectively with supply-side stimulatory measures" (236), the MERG broadly supported this sequencing approach to trade policy reform but stressed that a workable anti-dumping system needed to be in place from the beginning.

> the imperative of lowering the costs of basic wage goods (and thereby cutting unit labour costs for all sectors) dictates a less programmatic approach to sequencing (Joffe et al 1993: 99).

Bond remarks that the openness of the ISP's 'post-Fordist' approach to trade liberalisation may provide an important link to the ANC's later trade policy disposition. He points out that:

> One rationale for trade liberalisation [in the ISP] was that alleged protectionism within the rest of the South African economy generated a bias against exports (due to higher prices for materials). Yet even a World Bank report observed that in comparison to 31 other developing countries, a variety of exemptions and special arrangements within the South African tariff structure resulted in the lowest 'effective tariff take' of all the countries (Bond 2001: 80).

Given its focus on the capacity of the manufacturing sector to meet basic needs, the ISP stressed that industrial policy should not be limited to tradables but needed to look at, for example, the provision of energy to the masses, the provisioning of materials for housing and sanitation, and the informal manufacturing sector.

> [T]hese non-tradable sectors provide key inputs into the consumption basket of the workforce. Increasing the efficiency with which these basic wage good inputs are provided allows for the possibility of maintaining real standards of living by reducing the cost of unit labour inputs (Joffe 1993: 96).

These arguments were linked, in the ISP's work, with the recognition that social infrastructure was very unevenly developed in apartheid South Africa and that this constituted an important cost in the consumer basket of wage earners. It was proposed therefore that a coherent industrial policy address both the public/social and private domains of consumption, and that consideration be given to ensuring the capacity of the industrial sector to deliver on these sorts of inputs. Similarly, the MERG argued that public expenditure should be reallocated and directed where possible towards raising productivity through the development of social and physical infrastructure and through linkages to capacity-development programmes (MERG 1993: 239). Nonetheless, there was also a commitment to shifting production toward higher value activities (Joffe et al 1993: 124).

MERG also proposed a specific focus on the minerals 'cluster' (the set of inter-related activities spanning mining and minerals processing), given that

a. it was central to the industrial structure,
b. minerals beneficiation was widely recognised to be under-developed and
c. there was potential in promoting forward linkages to create further employment and foreign earnings.

They specifically recognised that beneficiation investments would involve 'mega-projects' with excessive capital-labour ratios but argued that foreign exchange earnings had the potential to create labour-intensive jobs *in other sectors*. This outcome was not guaranteed, however, unless government intervened to ensure that foreign exchange did indeed accrue to the domestic economy by securing guarantees for downstream processing and also by guaranteeing export-parity pricing for local manufacturers or other labour-intensive projects (MERG 1993: 221).

Economic concentration and power relations
It was noted earlier that the South African industrial and corporate sector exhibits high levels of ownership concentration and of collusion.

The MERG's description of the industrial structure as 'bi-modal' – being concentrated, on the one hand in the minerals/energy complex and, on the other, in the consumer goods manufacturing sector – had significant implications for employment prospects. In terms of economic performance, the tendency was for growth in the capital-intensive raw materials processing sector at the same time as employment in the manufacturing sector was falling. MERG anticipated that dealing with this 'growing cleavage' would be complex and contested given the power of inter-locking relationships that had evolved around the prevailing industrial structure. This, in addition to concerns about pervasive anti-competitive or collusive behaviours, should place issues of market-concentration and ownership-concentration at the centre of future industrial policy.

ISP similarly argued that a resumption in productivity growth in South Africa would require a more egalitarian restructuring of power and income distribution and that, therefore, there need not be a trade-off between re-distribution, social welfare, and resumed productivity growth (Joffe et al 1993: 96).

There were warnings that 'de-nationalisation' (privatisation) and even de-conglomeration (unbundling and breaking up existing corporate ownership patterns) needed to be approached with caution since the likely outcome of both would be to further concentrate power and control in the large financial institutions and so consolidate the power of conglomerates over productive facilities (MERG 1993: 225, 229).

Human resources and technology development issues
Most contributors to industrial strategy discussions recognise that industrial policy involves more than 'getting the prices right' through tariffs and trade policy measures and then relying on market forces to deliver the desired outcomes.

Apartheid bequeathed a relatively uneducated populace; a problematic schooling system; a history of under-investment in relevant tertiary-level training; and declining levels of commitment to vocational training in the productive sector. It was widely recognised that unless this legacy was addressed and the industrial sector could draw on an appropriate skills supply, the effectiveness of any industrial strategy reforms would be compromised (see Lall 1993: 62). Therefore, successful industrial strategy would also require vocational training since the skills needs of industry could not be met simply by expanding the existing educational system (see Joffe et al 1993: 110 – 113). Creating a sufficient and appropriate skills-base was recognised as a long-term challenge. In the interim however, it was anticipated that competitiveness gains could be made by taking up slack within the industrial sector and improving efficiencies (through, e.g., improved management practices and new technologies).

Technological innovation, capabilities and take-up were also retarded during the apartheid era with low levels of R&D investment and a strong reliance on importing technology. Although the inward orientation of the trade regime and the high levels of market concentration had inhibited technology development, a changed trade-policy orientation would not automatically produce technological capacities. The ISP therefore argued that "[e]xtra-market support will be required" to get adequate levels of investment in technology development (Joffe et al 1993: 119). They proposed that policy would need to:

- Reverse declining expenditure on R&D (in both the national and private sectors)
- Incentivise firm-level investment
- Affect the terms of technology transfer.

Environmental considerations

On the whole, environmental considerations were marginal in the debates around industrial policy. Nonetheless, ISP researchers did at least note that Eskom's pricing of energy inputs to industry may be too low thereby encouraging energy-intensive manufacturing with damaging consequences for the environment and health. They also recognised that prevailing electricity pricing signals encouraged high usage of 'dirty' energy just as the rest of the world was shifting towards low energy utilisation and cleaner technologies. In addition, Eskom's excess capacity (with consequentially low marginal production costs) "has led it to become a direct investor in manufacturing, accentuating the trend towards energy-intensive production" (Joffe et al 1993: 106). Nevertheless, the ISP was conscious that a post-apartheid government would have an interest in expanding access to electricity which would be undermined by increased energy costs unless high-income, energy-intensive users cross-subsidised electricity costs to low-income users.

Recognising that the earlier ISP analysis of industry was incomplete without understanding environmental possibilities and constraints, a subsequent research

intervention was conducted in the name of the ISP to explore the 'confluence of debates on industrial and environmental policy' (Bethlehem and Goldblatt 1997: 1, 2). In itself, the late recognition of an environmental component in industrial policy might be read as illustrative of its marginal status. Certainly the editors recognise that little attention had been paid to the environmental issues facing the industrial sector as a whole and that there had been no overall analysis of the environmental sustainability of the economy. Bethlehem and Goldblatt argued that, even from a 'rough and ready analysis', three characteristic factors emerged which are critically important from a sustainable development perspective:

1. The sector is highly reliant on a number of energy-intensive sectors dependent on low electricity prices.
2. Capital stock tends to be old as a result of isolation from the world economy and low levels of foreign investment through the 1980s.
3. The major contributions to GDP, exports, and employment are in primary, non-renewable resource extraction and associated industries (primarily the mining and minerals complex) (Bethlehem and Goldblatt 1997: 2).

The high energy-intensity of South African industry is correlated, through coal-based generation, with extremely high green-house gas (ghg) emissions levels relative to GDP. In addition, the power stations themselves are very poor environmental performers and therefore contribute a range of other polluting emissions. Eskom's commitment to low cost electricity meant that the viability of many large-scale industries had become dependent on a continued supply of cheap electricity. The preponderance of old capital stock implies limited diffusion of clean technology innovations in South African production processes which could help to reduce pollution or increase material and energy efficiencies (Bethlehem & Goldblatt 1997: 3).

In a contribution to the 1997 ISP volume, Bethlehem interviewed representatives from a range of industrial sectors with exposure to export markets in order to analyse the extent and nature of international environmental pressures on South African exporters (Bethlehem 1997). She pointed out that environmental concerns were an increasingly important feature of international trade (e.g., through consumer demands in certain markets or international environmental agreements) and that there are specific features of South African industry (see the 'characteristic factors' listed above) that make it appear vulnerable to environmental pressures. But environmental trade measures might also provide positive pressure to improve environmental performance of South African exporters and improve competitiveness.

Post-apartheid industrial performance and policy

Throughout the 1990s there has been no clearly articulated industrial policy from which a coherent set of industrial policy measures could have evolved (Bezuidenhout 2002; dti 2002 a: 11). Therefore it is necessary to discern post-apartheid government thinking from other markers – especially, the role of the dti and the Industrial Development Corporation (IDC), and the industrial policy section of government's macro-economic framework – the Growth, Employment and Redistribution (GEAR) policy.

"Generally speaking, the industrial policy orientation shifted towards what the dti called a supply-side orientation, where import-substitution made way for export-led growth" (Bezuidenhout 2002: 14), and steps were taken to open up the economy. Reducing and simplifying import tariffs was "largely completed in 2002" (dti 2002 a: 12). The emphasis on export growth and manufacturing competitiveness also reflected this approach.

Government's Integrated Manufacturing Strategy of 2002 (i.e., the IMS which is presented in the following section) argues that, notwithstanding the risks, South Africa must 'strategically engage' with the global economy. dti sees the IMS as being in continuity with GEAR and building on the "partial foundation for this strategic engagement [that] has been laid" since 1994, e.g.: a significant degree of economic restructuring; a more open and less protected economy (than in 1994); significantly expanded external market access; a shift away from primary to manufacturing production and services; enhanced attractiveness for foreign investors; reduced fiscal deficit; and regulatory reform (24, and dti 2002 b: 5). Given the extent of the imbalances and inequities within the global economy, government also believes that 'strategic engagement' includes strategic alliances with developing countries "to reshape the system of global governance to achieve more equitable outcomes" (dti 2002 a: 23).

More concrete precursors to the IMS are also to be found in the 'Spatial Development Initiatives' (SDIs) and sector-specific interventions. SDIs were introduced to encourage a greater geographic spread of economic activity by promoting investment in marginalised areas "on a more commercially-grounded basis" (dti 2002 a: 12). Sector-specific interventions were intended to deal with severe structural change, for example in the auto, textiles, clothing and footwear sectors. These have had mixed success though the Motor Industry Development Programme (MIDP) is widely held to be "highly successful" (dti 2002 a: 13)[9]. The SDIs and the MIDP give concrete expression to the underlying approach adopted in the IMS. While their proponents

[9] Discussed further, and more critically, below.

trumpet their success, a more careful assessment raises disquieting questions about the IMS model. Accordingly, both SDIs and the MIDP are reviewed in Section 5 of this report.

Given its rather different set of relations with economic partners and its greater degree legitimacy (reinforced and maintained through such structures as the NEDLAC and an ongoing commitment to 'social partnerships'), the democratic government was also in a better position to re-negotiate and 'normalise' the labour relations regime.

The post-apartheid shift in trade policy to an outward orientation has delivered an increase in exports. Although the sector overall has grown relatively slowly[10] (at about 1.8% per annum),

> [m]anufacturing's share of total South African exports is growing rapidly as traditional exports (mining in particular) decline in importance, expanding from 39% of all exports in the first half of the 1990s, … to 51% in 2000 (dti 2002 a: 15).

Many of the manufacturing sub-sectors which have experienced good growth "have benefited from substantial tariff reductions" (dti 2002 a: 16). Notwithstanding these trends, the country's share of global trade is declining.

On the whole, low and declining rates of investment in manufacturing still persist although there is an apparent positive correlation between sub-sectors which provide the exceptions to this trend (i.e., have shown higher investment rates) and an export orientation. Equally significant however is the suggestion that there is also a correlation between that investment and capital-intensity and skills-intensive technologies. dti argues that this "reinforces the need for additional interventions to absorb unskilled labour" (dti 2002 a: 17)[11]. Certainly, gains in labour productivity over the period have been paralleled by accelerated shedding of labour in the manufacturing sector. Sub-sectors which are relatively more labour-intensive (e.g., clothing, footwear, furniture) have witnessed significant declines in 'employment intensity'. By contrast, less labour-intensive sectors tend to be the ones enjoying rapid increases in output, thus reinforcing a trend away from un-skilled and semi-skilled labour and also a trend to increased outsourcing and sub-contracting (with impacts on the quality of work opportunities available) (dti 2002 a: 18).

[10] Some sub-sectors performed significantly better though.

[11] In a sense, dti's argument also implies that export-orientation draws investment away from industrial and development strategies that could address the challenge of unskilled labour.

Recasting industrial strategy in South Africa

The demand for a policy

The dti had been under pressure for a number of years to formulate an explicit industrial strategy. By 2000 this pressure combined with a perceived need for integrated interventions at the micro-economic level as well as a desire within the tripartite alliance[1] to move the focus 'beyond GEAR'.

> The realisation that the micro-fundamentals had to be addressed was reinforced during a high-level meeting [in November 2000] between President Thabo Mbeki and the head of the World Bank, James Wolfenson. A strong plea was made for the South African government to get its micro-economic strategies together (SALB 2002 a: 8).

Accordingly, the dti began drafting a paper. According to the SA Labour Bulletin, the brief to the drafters indicated that it should reflect what business and industrialists would like to hear. A discussion document, "Driving competitiveness: Towards a new integrated industrial strategy for sustainable employment and growth", was released in May 2001. The document focussed on the changing nature of competitiveness, highlighted human resources and telecommunications as key constraints, and suggested an increased focus on the 'knowledge basis' to underpin a new strategy. The discussion document's pro-industry bias, and its pre-occupation with helping enterprises become more competitive and grow their export base, created tension both within the alliance and from other quarters. As a result, it solicited limited buy-in.

"Accelerating growth and development: The contribution if an Integrated Manufacturing Strategy" (hereafter, the 'IMS'), released by the dti in April 2002, is the result of a re-drafting of the earlier discussion document and greater engagement with stakeholders. It is not fundamentally different from the earlier document and shares (and builds on) the basic directions taken in the Micro-Economic Reform Strategy document released by the dti in the same year.

[1] I.e., the formal alliance between the ruling party, the African National Congress (ANC), the Congress of South African trade Unions (COSATU) and the South African Communist Party (SACP).

Micro-Economic Reform Strategy

The Micro-Economic Reform Strategy (dti 2002 b and hereafter referred to as the MERS) is closely related to the IMS and key elements are summarised in "Part II: Government actions to accelerate growth and development" of the IMS (see dti 2002 a: 25 – 30). The premise is that, while economic policy since 1994 had focussed on macro-economic stability attending to anti-inflationary measures and tight monetary and fiscal discipline, there is also a need to deal with structural deficiencies within the economy so that constraints are removed and efficiencies improved. Accordingly, the MERS reflects a shift from macro- to micro-economic reform. dti claims that, whereas 'macro-economic stability' was necessary (and constitutes a platform for the MERS and IMS), there was a realisation by 2000 that levels of economic growth and employment were inadequate to meet the state's policy goals and that macro-economic reform alone would not stimulate savings and investments at the levels necessary to underwrite growth (dti 2002 b: 6).

Given the overarching outward orientation of emerging trade policy, competitiveness becomes a critical factor. Competitiveness requires that certain 'fundamentals' are in place. These, according to dti, include the following: appropriate and efficient social and economic infrastructure; access to finance for productive activities; R&D investment; innovation and take-up of new technologies; investment in human capital; and an adaptive flexible workforce (dti 2002 b: 9)[2].

The MERS points to particular sectors that they argue show growth potential in terms of increased outputs, exports and employment, namely: export sectors, agriculture, tourism, information and communication technologies (ICTs), and cultural industries. For each of these, dti commits to developing programmes with specific strategies focussing on employment generation, value addition, export growth, small business development, and black economic empowerment (dti 2002 b: 10). Within the exports sector, priority attention is promised for the following sub-sectors: chemicals and bio-technology; mining, metals and minerals beneficiation; auto, auto-components and transport; crafts; agro-processing; clothing and textiles; and ICTs. According to the dti:

> These sectors have been selected for their employment potential in wider value chains, integration into global production systems, potential for beneficiation, and the strengthening of existing competitive advantages (dti 2002 b: 11).

The MERS promises specific strategies within the proposed programmes:

[2] dti envisages a critical role for the state but also looks to the private sector to raise investment levels in R&D, HRD, and infrastructure, and in making capital available for new productive activities.

- For small business development, strategies will include "increased access to markets through competition policy and export promotion" (dti 2002 b: 13).
- For employment, a 3-stage approach is presented: (i) in the long-term, dti appears confident that economic restructuring and greater integration in manufacturing[3] will create employment; (ii) in the medium-term, 'several' options are available including increased public sector capital expenditure, small business development, black economic empowerment (BEE) and human resources development (HRD); (iii) in the short-term, there is a recognition that specific programmes and actions would be required to deal with employment across rural and urban areas and across economic sectors.
- For geographic spread of economic development (to overcome the uneven regional development patterns bequeathed by apartheid) dti points to a range of policies already in place to "achieve greater geographical equity" and link productive investments to areas of high poverty and unemployment including: the Integrated Sustainable Rural Development Strategy; the Urban Renewal Strategy; Industrial Development Zones (IDZs); Spatial Development Initiatives (SDIs); and local government Integrated Development Plans (IDPs) (dti 2002 b: 13-14).

Given government's commitment to 'strategic engagement' with the global economy, a key aim of the IMS is to mitigate negative effects and maximise advantages for the domestic economy by developing and integrating manufacturing development within domestic and transnational value chains (dti 2002 a: 22). In particular, the IMS is designed to address underlying domestic constraints to integrating the manufacturing sector into global production systems.

Integrated Manufacturing Strategy

Getting industrial strategy right in South Africa has long been recognised as critically important. Ten years ago, the ISP argued that "it is almost certainly in the reinvigoration of manufacturing that a rosier economic future rests in the post-apartheid South Africa" (Joffe et al 1993: 91). Government's Integrated Manufacturing Strategy (IMS, dti 2002 a) aims to achieve that by following a set of prescriptions based on the outward-oriented, export-led model of development that is consistent with its macro-economic orientation outlined in the Growth Employment and Redistribution (GEAR) strategy. The contribution of the IMS is intended to be at the 'micro-economic' level dealing with constraints in the domestic economy, relations with global production systems and the changing basis of competitiveness[4].

[3] Resulting from the implementation of these policies – i.e. including the IMS which "specifically addresses the question of low levels of integration in the manufacturing sector" (dti 2002 b: 7)

[4] dti's position, shared by many mainstream economists, is that SA can no longer rely on past bases of competitiveness (especially, e.g., abundant natural resources and cheap labour) for economic growth.

The basic approach envisaged is to remove these constraints, maximise domestic economic potential, "integrate beneficially into the global economy and build competitiveness based on increased knowledge intensity, value addition, [and] wider and more equitable participation" (dti 2002 a: 2-3). Many aspects of the underlying analysis of South African manufacturing have been made before and discussed above. Acknowledging a critical role for the state in advancing the competitiveness of the national economy, dti nonetheless points to a fundamental shift, consistent with the globally ascendant neo-liberal model of the state, away from industrial strategies of the past – like the establishment of parastatals – and towards providing 'coherent economic policy' and removing constraints to growth (dti 2002 a: 26).

dti's definition of an Integrated Manufacturing Strategy is:

> ... a strategy for all processes that transform natural products into manufactured products, and all associated processes, thus extending beyond the boundaries of what were traditionally considered to be industrial processes to include various related activities and services. These include the extraction of raw materials and procurement of inputs, the production of intermediate goods and final products, packaging, marketing, distribution and retail. …[It is an] integration of interventions related to competitiveness (dti 2002 a: 32).

The strategy document discusses interventions in the following areas: market access; beneficiation and value-addition; regional production; equity and economic participation; knowledge intensity and services integration; and the development of integrated value matrices (dti 2002 a: 32).

Market access strategies have two dimensions:

- Increasing access to large markets in the developed world.
- Establishing new trade links with countries of the South.

Both are advanced through multi-lateral negotiations (e.g., in the World Trade Organisation WTO); regional arrangements (e.g., Southern African Customs Union SACU, and Southern African Development Community SADC); and bi-laterals (e.g., with European Union EU). Within the domestic economy, market access concerns

---

New sources of competitiveness are identified (dti 2002 a: 21) as: Information and Communications Technologies (ICTs) which have revolutionised the transmission and manipulation of information throughout manufacturing and related processes; technology as increasingly integral in competitiveness – partly because of the role of ICTs in diffusing technology into products; and the importance of time and efficiency. dti links this analysis of global trends with a value chain approach: The combined impacts of these global trends is that the ways in which value is added and where employment is generated in production processes is changing" (dti 2002 a: 22). They recognise that all phases (from raw materials extraction to marketing) are increasingly integrated into supply or value chains where multinational corporations wield particularly strong influence (dti 2002 a: 22).

include issues like anti-competitive practices, infrastructure and value-chain linkages, especially as they affect black-owned and small businesses.

Beneficiation and value-addition in relation to raw materials still remains a challenge. Value matrix analysis is held to enable identification of opportunities and markets. “Beneficiation is the core mechanism for the transformation of our economy” (dti 2002 a: 35).

Regional production must be addressed because, if South Africa’s economic future is indeed tied to SADC’s regional prospects, then “in order to avoid a ‘race-to-the-bottom’ in the region that will ultimately undermine the region’s future competitiveness, it is essential that the framework provided by SACU and SADC agreements are utilised to promote greater harmonisation of standards and policy instruments” (dti 2002 a: 34).

Equity and economic participation must be enhanced for historically disadvantaged South Africans. Mechanisms may extend beyond existing BEE-models to include cooperatives.

Knowledge intensity and services integration are factors impacting across the economy and are not limited to discrete, ‘high tech’ sectors. They have crucial implications for employment and skills development imperatives and increase the importance of ICT diffusion, R&D and innovation.

The development of integrated value matrices represents dti’s ‘take’ on the ‘value-chain’ analytic and theoretical base for its strategic thinking (see dti 2002 a: 37 – 40). Given the centrality of these issues to the overall arguments and perspective in this report, it is worthwhile representing the dti’s approach in summary form here: they recognise that, although the ‘manufacturing sector’ has a specific meaning in certain economic categorisations (and in the national accounts), there is growing focus on relationships between sectors in industrial and manufacturing policy. In this understanding, the enterprise and its associated networks and relations become very important, with the following implications:

- The means of exchanging and communicating ideas, manufacturing instructions, and products (road, rail, telecommunications, and energy) “become integral to the production process. … The ease with which integration can be achieved is the essence of competitive difference” (37).
- Forms of collective action by what the dti calls ‘economic citizens’ – in this case meaning firms – are essential though competition does not stop.
- Greater efficiency within economic networks provides greater capacity for value addition (and therefore for employment creation).

Through the incorporation of business services, ICT and logistical efficiencies, value can be added (and employment created) at each production stage. Therefore, "the challenge is to ensure that those parts of the value chain that generate the most jobs and value addition are located in South Africa" (38). This perspective should inform the mobilisation of infrastructural development around key objectives and direct (both public and private) investment in strategic directions.

In short, "[t]he concept of integrated manufacturing allows for a broader analysis of where value can be generated, where obstacles to growth and efficiency need to be removed, and where leverage points for actions by government and other actors exist. … [M]anufacturing must be fully integrated with related activities within a value chain" (39).

Implementation

The IMS proceeds to outline how dti envisages supporting the implementation of the strategy:

- Through championing **competitiveness** by providing leadership in government, policy certainty, reliable and valid statistics (and other information and analysis)
- Through **customised programmes** and services in specific strategically-selected sectors and value-chains[5]
- Through provision of **broad-based programmes** and products aimed to improve efficiencies in all enterprises and value chains.

dti envisages developing **customised programmes** in partnership with the relevant sectors based on an analysis of a range of factors including:

- current and future competitiveness
- long-term sectoral outlook and market trends
- market access and tariff structures
- opportunities for value addition and beneficiation
- ownership patterns and levels of concentration
- opportunities to increase innovation, technology take-up, and knowledge intensity
- employment and labour issues in the value chain.

Such programmes are to be developed in those sectors selected in the MERS for 'priority attention' in the exports sector[6].

[5] i.e., targeted interventions to improve efficiencies in selected sectors that "demonstrate a strong potential for growth, employment creation and value addition" (40).

[6] These are: Clothing and textiles; Agro-processing; Metals and minerals; Tourism; Automotive and transport; Crafts; Chemicals and bio-technology; Knowledge-intensive services.

It is not the intention to "provide massive injections of money … or make interventions that run counter to principles of sustainable economic viability" (44). Additional programmes will focus on "integrating and enabling elements of competitive value chains, namely HRD, technology, infrastructure and logistics" (45).

Broad-based programmes may be integrated with sector-specific programmes but are aimed at promoting policy coherence in general (and not just within prioritised sectors) and at addressing more generic issues for growth. These broad-based programmes are envisaged around the following themes (discussed briefly below): competitive market access; the regulatory environment; investment promotion; access to finance; and policy coherence.

Competitive market access should be enhanced through both international trade negotiations as well as export promotion activities. The former involves a range of ongoing processes aimed at lowering tariff barriers and removing non-tariff barriers to trade as well as the negotiation of trade agreements with key markets[7] and participation in the WTO[8]. Export promotion involves continuation (and re-focussing) of existing generic activities, new offerings (including export guarantees through a proposed Export Credit Agency), as well as key aspects in the implementation of the MERS which are aimed at better efficiency of South African exports.

The regulatory environment aims to be "fair, transparent and efficient" (46). Key thrusts are: reducing excessive compliance requirements on enterprises (especially small businesses); reforming corporate law and strengthening and modernising consumer protection law; promoting good corporate governance; and developing and implementing "appropriate policies for regulated industries and related public interest issues[9]" (46).

Investment promotion will chiefly be addressed through the sector-specific customised programmes but also through more generic investment promotion offerings and through the National Industrial Participation Programme and IDZs.

Access to finance for productive activities will be expanded with attention being given to hitherto neglected micro-enterprises.

---

[7] dti lists Brazil, Nigeria, Japan and the US as illustrations.

[8] Again, government points to developing strategic alliances with countries of the South in multi-lateral processes.

[9] It is not clear what exactly the dti has in mind here though it could signal a rather obscure reference to an intent to 'reform' environmental and/or labour regulation in the interests of export promotion.

Policy coherence will flow from improved government coordination and from "forging partnerships for industrial performance" with other government structures, business and labour (48).

The discussion above describes the core content of the IMS. It is worthwhile noting that a later section commits dti to measuring its performance in the implementation of the IMS. The prioritised economic objectives against which they propose to measure performance are listed as including: increased GDP; employment; investment; exports; small business development; BEE; women's economic empowerment; future competitiveness; geographic spread of social and productive investment (54). Noteworthy is the complete absence of sustainability or environmental indicators.

Reproducing environmental injustice: Critical notes on the IMS

Parliamentary public hearings on the IMS[1] were important in airing perspectives and concerns of key constituencies of business and labour[2]. The co-chairs of the hearings noted areas of tension arising from the submissions including finding balance between competing pre-occupations, inter alia:

- Competitiveness and developmental imperatives
- Producing export-oriented goods and meetings basic needs
- Ensuring a domestic, demand-driven approach and a focus on employment.

The business sector generally finds common cause with the fundamental orientation of the IMS. Some concerns highlighted were:

- The need to give a 'breathing space' to firms affected by tariff reforms
- The need for government to be more proactive and effective in addressing influxes of cheaper imports and anti-dumping measures
- That regulations affecting small businesses need to be reviewed.

Trade union submissions (chiefly by COSATU and its research unit, Naledi) highlighted concerns that were rather more fundamental and start to go to the heart of the underlying model of the IMS. They express real concern that the focus on exports will induce a neglect for producing basic needs goods for local needs. Also, the inevitable tendency of the IMS approach is to focus on investment in labour-shedding technologies instead of inducing a shift towards more labour-intensive production. Instead of prioritising integration in global value chains, the primary concern should be to complete value chains in the domestic economy and align production with domestic needs. Labour argued for a supportive relation between macro-economic policy and industrial policy, and that social development must be aligned with economic development strategy. In the industrial strategy envisaged here, state-owned enterprises would play an important role. A submission from the South African Communist Party reinforced the basic positions adopted by labour and added that "the transformation of the financial sector was crucial, and should be at the centre of an industrial strategy" (SALB 2002 b: 27).

[1] Held at Parliament, Cape Town, between 22 April and 2 May 2002, and chaired by Rob Davies (chair of the parliamentary portfolio committee on trade and industry) and Mooshen Moosa (chair of the select committee on economic and foreign affairs)

[2] Notably absent were, e.g., developmental and environmental civil society organisations

Their submissions hint at underlying disquiet with government's macro-economic framework, GEAR. GEAR has also imposed a strict adherence to 'fiscal discipline' in public expenditure. Bezuidenhout (2002) notes that this hallmark of neo-liberal macro-economic policy

> ... closed down some of the space provided in the RDP[3] framework to couple supply-side measures with demand-side measures. Hence an industrial policy that could focus on economic growth through infrastructure development and the meeting of basic needs became undesirable in the broader policy framework adopted by government (Bezuidenhout 2002: 15).

Replying to the submissions, dti Director General, Alistair Ruiters, is recorded as acknowledging that:

> ... the economy has been significantly restructured [and] … this structural change, he said, gives rise to negative social implications that must be addressed through immediate and medium-term interventions, otherwise higher growth rates will only serve to exacerbate inequality and poverty (SALB 2002 b: 28).

In this section, we consider some of the reasons why the IMS, and government's broader economic approach within which it must be located, may be precisely the wrong medicine for South Africa's developmental needs.

Stuck in the same GEAR

The release of the Integrated Manufacturing strategy (IMS) was welcomed by some at the time as addressing the 'real economy' and reflecting perhaps, a shift away from the macro-economics of the Growth, Employment And Redistribution (GEAR) strategy adopted in 1996. But it is misleading to imagine any substantial shift. It is clear that the underlying economic 'development' model of the IMS (and the Micro-Economic Reform Strategy) is that of GEAR – an open, export-oriented economy engaging the competitive global economy. At the time GEAR was formulated, critics argued that its main aim was to boost foreign and domestic investor confidence and this would be at the expense of redistribution, employment and even economic growth. Adelzedah, for example, argued that "income distribution will deteriorate during the course of the programme" (1996: 93).

Five years later, Seidman-Magketla captured the difference between the modest promises made in the GEAR projections and what was actually delivered:

[3] RDP: Reconstruction and Development Programme – the ANC-alliance's social-democratic election platform in 1994 subsequently effectively abandoned in favour of the neo-liberal GEAR strategy.

GEAR projections and actual achievements, 1996-99		
	Annual average, 1996-99	
	Projected in GEAR	Actual
Projections:		
Fiscal deficit as % of GDP	3.7	3.1
Real govt consumption as % of GDP	19.0	19.6
Average tariff as % of imports	7.6	4.4
Real bank rate	4.4	12.3
Real private sector investment growth	11.7	1.2
Real non-export growth	8.4	6.7
Outcomes:		
GDP growth	4.2	2.4
Inflation (Consumer Price Index)	8.2	6.6
Annual change in formal, non-agricultural employment	+270,000	-125,200

Source: Seidman-Magketla (2001)

The figures above are given as averages over the four year period but GEAR in fact projected escalating returns. In the year 2000, annual economic growth was to reach 6.1% while there would be 409,000 new jobs created. Padayachee and Valodia comment that the "policy appears to have been remarkably successful in the areas of fiscal restraint, tariff reductions and inflation control (all typical favourites of neo-liberal advice) and significantly off the mark on the real economy (growth and employment)" (2001: 73). This impression is confirmed by Bond (2001) who notes that:

> Looking at the three-year period 1996 -1998, virtually all GEAR's targets were missed. … In view of steady population growth, the per capita wealth of South Africa actually fell by 2,5%. … Of private investment, virtually all foreign direct investment was related to the purchase of existing assets through privatization and merger/acquisition deals (particularly the 30% sale of Telkom) as opposed to new plant and equipment, and South African outflows of foreign direct investment ($2,3 billion in 1997) were far higher than what came in ($1,7 billion that year). (Bond 2001: 85, footnote 29).

Speaking at the March 2002 Financing for Development (FfD) Summit in Monterrey, Finance Minister Trevor Manuel expressed his frustration at the failure of FDI: "You can subject South Africa's policies to the tests of salt water and fresh water economists, and we will pass those tests. But that has not translated into a great flow of investment." In other words, the 'economic fundamentals' required by the

Washington consensus are in place but the development story has not gone according to the script.

This seems close to an admission that the prescribed policy has failed. Padayachee and Valodia believe government has been quietly 'changing gear' over the last two years. Improved tax collection has allowed it to retain key symbols of neo-liberalism (such as fiscal conservatism) while moving towards a more active role in shaping the "nature of industrial growth, employment creation and poverty alleviation …" (2001: 82). In this view, the Micro Economic Reform Strategy and the IMS signal a more interventionist approach but do so in fundamental continuity with GEAR's assumption of export led growth and FDI: "… the trajectory envisioned for the economy as a whole … is, beneficiation of natural resources, knowledge intensity, and export orientation" (dti 2002a: 30). A core problem that the IMS attempts to address is how to integrate economic activity within the global economy while promoting equity. It admits that heightened inequality is a risk but asserts that global integration is "essential to our ability to achieve the necessary levels of growth and equity" (23) and that ducking the issue of globalisation will not make it go away.

Much of the IMS is not really that new. In part, it brings together the dti's thinking in the period since 1995 and collates a number of existing initiatives and programmes into a coherent document. Thus far these strategies have brought scant returns with manufacturing growth averaging 1.8% and "despite progress in growth in exports ... South Africa's share of global trade is declining" (17). But, just as GEAR is said to have saved the economy from the worst impacts of global instability, their success is held to be that "the very real threat of de-industrialisation" (15) has been avoided. It seems doubtful that the conceptual integration of the IMS, impressive as it is, will serve to activate the neo-liberal developmental script that GEAR failed to activate.

It is not that globalisation can be ducked. Rather, it is that both GEAR and the IMS play to the globalisation script and, in doing so, duck the real issue which is the relations of power that inform that script and the inherent instability that accompanies it and will continue to provide the alibi for the failure of development.

The export strategy rests on two assumptions. First, that there is continued and expanded global economic growth – which in fact means growth in northern markets. Given the global economic crisis of over accumulation, this seems something of a gamble. (The instability that flows from that crisis has thus far been blown-off through the southern safety valve (as argued in Section 2 on the global context). Playing to the script accepts this vulnerability. Should the crisis come home to roost in the northern economies, however, the export strategy is voided. In the meantime, northern wealth is supported by transfers from the south. The success of the strategy thus depends on the erosion of national capital accumulation to the benefit of global

capital and a consequent increased dependence on FDI. The project of national capitalist development thus fails in its own terms. Conversely the possibility of benefits from the global development agenda depends on the success of national development because FDI depends less on whether policy passes salt or fresh water tests than on national economic growth.

South Africa's core economy may partially compensate for the virtual tribute paid to the north if, in its turn, it is able to extract some tribute from other southern economies. Whether intended or not, South Africa's approach to development seems consistent with this objective. Since 1994, South African TNCs have moved aggressively and profitably into sub-Saharan Africa. Through NEPAD, South Africa seems intent on developing infrastructure founded on a notion of SDI corridor development and designed to service the needs of corporate investors rather than of people. This has raised the suspicion that NEPAD documents a "sub-imperial agenda".

The second assumption is that there is continued and expanded access to wealthy markets. The IMS notes that "a relative decline in share of global trade will reduce our bargaining power" (232) and indeed, there is no sign in either multi-lateral or bi-lateral negotiations that northern powers will afford any latitude to southern partners.

The flagship bi-lateral trade deal with the European Union was projected by Jachia and Teljeur to cost South Africa both in terms of revenue and balance of trade, with higher imports into South Africa leading to a "displacement of domestic production" (1999: 32) particularly in manufactured goods. The agreement would boost agricultural exports, particularly of fruits – grown during the European winter – while potential benefits for manufacturing would depend on FDI inflows and improved competitiveness of South African firms. The inclusion of fisheries in the agreement would have reduced the trade deficit. However, to its credit, South Africa refused the EU's condition that European boats should have access to its already fully utilised fisheries.

The US Africa Growth and Opportunity Act (AGOA) was not negotiated but is a unilateral US trade initiative offering access to the US market on a quota basis for a limited number of items and requiring US made inputs if these are not sourced in the 'beneficiary' country. As well as opening African markets to US trade and investments it encourages a range of economic reforms, including updating intellectual property regimes. Noting that sub-Saharan Africa represents a major bloc of WTO votes, Phillips and de Haan (forthcoming) conclude that 'trade not aid' describes how the US is reshaping its arsenal of foreign policy instruments in the post-cold war period.

The export-led model makes competitiveness in the global economy the overriding determinant of whether industry will grow or die. The IMS points to difficulties and risks of dealing in the globalising economy. It does not quite say so, but it leaves the distinct impression that any possible strategy must be something of a gamble. At the same time, it implies, only one game strategy is available to the player and the issue then becomes how well that strategy is played. It essentially sees the challenge as supporting the insertion of local firms within global production networks.

The key problem with this is that it accepts the global logic of industrialisation and hence the power relations that determine that logic. It must assume that South Africa will progress to the status of a developed, or fully industrialised, country if it plays its cards right. But the logic of its position within a regime of globalised capital accumulation contradicts this assumption. Not only is the card deck rigged but, for fear of exclusion, South Africa's game strategy is chosen for it by the banker. Trade union submissions on the IMS highlighted concerns about the underlying model of the IMS, especially that the focus on exports will induce a neglect for production of basic needs goods.

And the IMS does not really make a case for why South African industry will grow and not die. For all its emphasis on the value of doing value chain analysis, the IMS does not present any convincing or in-depth analysis itself to demonstrate South African industry's competitive advantage in any particular area. One consequence is that they are likely to be compelled to fall back on existing sources of competitive advantage – especially cheap energy for industry as well as minerals exports to help balance the trade books.

The export orientation in an open economy requires a policy commitment to liberalisation of tariffs and investment rules – all part of what has become a fairly standardised set of prescriptions for 'structural adjustment' from developed countries and the international development policy establishment that they control. The IMS is framed within this general approach which rules out state interventions to protect local industry through trade measures in any concerted or sustained way.

Surely aware of the great risk this approach poses for local industrial capacity, IMS and the overall thrust of government trade policy swallows the pill – but it appears there are good grounds for questioning the wisdom of doing so. Ha-Joon Chang, of the University of Cambridge, demonstrates persuasively that "when they were developing countries themselves, the developed countries used virtually none of the policies and institutions that they are recommending to developing countries"[4]. He

[4] The quotations are drawn from Ha-Jon Chang's summary of ideas spelt out in his 2002 book: ***Kicking away the ladder: Development strategy in historical perspective***, Anthem Press, London.

recounts that “virtually all now-developed countries (NDCs) actively used interventionist industrial, trade, and technology policies that are aimed at promoting infant industries”. Reviewing the historical record, “we can only conclude that, in recommending the allegedly ‘good’ policies, the NDCs are in effect ‘kicking away the ladder’ by which they have climbed to the top beyond the reach of the developing countries”. He takes the image of ‘kicking away the ladder’ from Friedrich List, the 19th-century German economist, who criticised British attempts to impose free trade on the ‘late industrialisers’ in exactly these terms[5].

The processes of dismantling or liberalising protective trade barriers is the stuff of intergovernmental negotiations and pre-eminently the ‘rules-making’ of the World Trade Organisation (WTO). The IMS casts these trade negotiations[6] as ‘market access’ strategies and in terms of lowering manufacturers’ input costs (by reducing the costs of imports). Certainly it is clear that South African trade negotiators at the WTO work on the assumption, consistent with the IMS, that they must integrate the country into the global economy – largely on the terms set by the global economy – and extract what maximum ‘national interest’ they can. Dot Keet, of the Alternative Information and Development Centre (Keet 2002), shows how South Africa’s role in the WTO has more or less consistently undermined other African and developing country strategies to resist WTO-sanctioned economic rules. By contrast, South Africa’s enthusiasm for strengthening the WTO has earned it praise from leading developed countries.

[5] List is worth quoting at length on this point: "It is a very common clever device that when anyone has attained the summit of greatness, he kicks away the ladder by which he has climbed up, in order to deprive others of the means of climbing up after him. In this lies the secret of the cosmopolitical doctrine of Adam Smith, and of the cosmopolitical tendencies of his great contemporary William Pitt, and of all his successors in the British Government administrations. Any nation which by means of protective duties and restrictions on navigation has raised her manufacturing power and her navigation to such a degree of development that no other nation can sustain free competition with her, can do nothing wiser than to throw away these ladders of her greatness, to preach to other nations the benefits of free trade, and to declare in penitent tones that she has hitherto wandered in the paths of error, and has now for the first time succeeded in discovering the truth" (List, 1885, pp. 295-6).

[6] Which the IMS points out are conducted at various levels – e.g., through multi-lateral negotiations (e.g., in the World Trade Organisation WTO); regional arrangements (e.g., Southern African Customs Union SACU, and Southern African Development Community SADC); and bi-laterals (e.g., with European Union EU).

Jobs

While GEAR and associated trade liberalisation may have contributed to increased trade flows somewhat, it has had a devastating impact on many local industries[7] and, as is clear from the discussion above, economic growth has not generated more jobs – indeed it is a 'growth' path characterised by labour-shedding tendencies. The IMS itself is replete with factual illustrations of this tendency. Notwithstanding this awareness, and notwithstanding rhetorical commitments to addressing employment in the long run, the IMS is designed to reproduce the factors which result in a growing employment crisis. As noted earlier, dti's own analysis in the IMS demonstrates the tendency for export-led growth to drive investment in capital intensity and to drive out labour, to casualise and out-source labour. For example:

> There is a general tendency in most sectors for employment to decline. The labour intensive sectors are growing less rapidly than the non-labour intensive sectors, with a particular tendency to decline in labour intensity in the more labour intensive sectors. There is a shift from demand for semi- and unskilled labour towards skilled labour, in some cases creating a shortage in the supply of particular skills sets such as science and technology. There has also been a significant shift to outsourcing and subcontracting, which has impacted on the structuring of production and the quality of work opportunities. Any successful attempt to address job creation needs to give consideration to this complex interplay of factors influencing employment. Of particular importance is the changing composition of the demand for skills (dti 2002 b: 18).

Concerns about employment prospects of the IMS were, not surprisingly, fore-grounded in trade union submissions on the strategy. Unions too, point out that the IMS will reinforce investment in labour-shedding technologies and sectors[8].

These trends are becoming entrenched in the structure and orientation of the South African economy post-GEAR. In broad terms, what has emerged in post-apartheid

---

[7] E.g., appliances, electronics, clothing, textiles, shoes – competing with highly efficient, highly organised and well-financed global corporations, and with overseas export platforms (like China's east coast) which boast extremely low labour and environmental standards (Bond 2001: 87).

[8] Some of the economists whose views were solicited for a Labour Bulletin article also reflect critically on the employment prospects of the IMS. They point out that employment growth is certainly not restricted to the manufacturing sector, that in fact that sector has been losing jobs – indeed (and as the data quoted by dti themselves confirms) retrenchments are a noticeable feature of the strongest export sectors which must suggest it is questionable to what extent export-led growth can lead to job creation (SALB 2002 c: 23).

South Africa is a restructuring of inequality presided over by “an increasingly multi-racial upper class or elite” (Seekings and Nattrass 2002: 2). Below them are the semi-professionals such as teacher and nurses together with the core of the industrial working class, while an underclass of marginal workers and the unemployed occupy the bottom rung of the labour market. This schema, however, seems overly neat. Within the productive sector, the export orientation has produced a patchwork of differentiation which crosses over traditional distinctions such as that between agricultural and manufacturing employment.

Du Toit and Ewert (2002) review the impacts of increased export-orientation and modernisation on Western Cape farms. Here, wine and fruit producers gained access to ‘buyer driven’ global production networks orchestrated by northern supermarket corporations and increasingly regulated through a proliferation of privatised labour and environmental codes – fair trade, ethical sourcing, ISO 14000 etc. Lead corporations tightened quality and pricing requirements and appropriated the public relations benefits of the ‘ethics effect’ but passed the cost of ethical compliance to producers. Caught by the consequent cost-price squeeze, farmers also saw new labour and tenant rights as threatening both their autonomy of action and economic viability. Most have in their turn passed the costs on to labour. Within this most ‘dynamic’ region of post-apartheid agriculture, farming enterprises have collectively shed some 20% of permanent labour. With few exceptions, they have retained a core of ‘empowered’ permanent labour and replaced the rest with casual labour, frequently women paid at a lower rate than men, and largely procured through labour contractors. Redundant farmworkers have simultaneously lost farm housing entitlements, many of them finding harsh refuge in informal peri-urban settlements.

The resulting “sociology of instability on the farmed landscape” (Du Toit and Ewert 2002: 88) is mirrored in the very different setting of the south Durban petrochemical industry. O’Connor and Hallowes (2002) observe that, while chemicals is the only industrial sector that has shown real growth in the city, major investment is aimed at greater automation and resulted in job losses throughout the 1990s. Following international trends, petrochemical upgrades included the restructuring of work with ‘multi-skilling’, substantial redundancies, and outsourcing of work redefined as ‘non-core’ business. The masculine gendering of work has been retained but high unemployment in neighbouring communities ensures a cheap source of seasonal maintenance labour supplied through labour brokers. Outsourcing exposed a gap in South Africa’s labour legislation, allowing corporations to dodge responsibilities relating to wages, pensions and occupational illness and injury. This gap is said to have been squeezed as government has tightened the definition of an employer but casualisation remains a feature of the labour regime.

The labour intensive clothing industry is highly exposed to the 'fallacy of composition'. Not surprisingly then, it has experienced similar trends but the mobility of plant has enabled a different spatial patterning. Largely because of reduced tariff barriers, the South African Clothing and Textile Workers Union reported over 20,000 jobs lost in the two years from July 1999. However, Skinner and Valodia suggest that a substantial proportion of these jobs have been informalised and de-unionised through outsourcing or redefining labour as 'independent contractors' to whom the Labour Relations Act does not apply. Production has also been dispersed. One Durban firm is "now manufacturing in four locations – central Durban, a suburb of Durban, a previously decentralised area north of Durban and Lesotho" (2002: 60) with quality of product, skills, wages and conditions stepped down at each remove from Durban. Others have relocated work to unregistered factories beyond regulatory scrutiny.

The Confederation of Employers South Africa (COFESA), "established in 1990 [as] both a labour consultancy and employers association" (Skinner and Valodia 2002: 64) has played an active part in facilitating the informalisation of work within food, farming, construction and engineering as well as clothing. In 2001, it claimed 1.5 million independent contractors had been established as a result of its interventions. Beyond this, it has used legal and procedural means to aggressively weaken formal institutions of collective bargaining so as to reinforce the pressure of informalised production on labour conditions within the remaining core of formal production. In what appears to be a purely cynical strategy, the organisation is not aiming for total deregulation because that would mean "there would be 'no battles to fight' and therefore employers would have no need of COFESA's services" (ibid: 70). Indeed, it is seeking entry into the formal Bargaining Council for the Clothing Industry and is already represented on the metal industry council. It seems then, that it is not in the absence of law but in the blurring of the boundary between the legal and the illegal, and in the facilitation of a culture of non-compliance, that capital's interests in labour 'flexibility' is to be met.

While Statistics South Africa records a loss of 191,648 jobs between March 1998 and December 1999, Orr points out that 345,920 full time jobs were lost but compensated by 154,272 part time jobs. "Women comprise a greater proportion of part-time and casual employment ... while men occupy 60% of full-time jobs" (2001: 36). This implies more women in work but at the bottom of the hierarchy where workers are most vulnerable. Women also do most of the unpaid work in the reproduction of labour including, in rural and peri-urban areas, the subsidence production of food. They are therefore exposed on two fronts within the 'sociology of instability' becoming the "'shock absorbers' of the system" (Orr 2001: 33). Incomes and remittances shrink as men are made redundant, the men themselves often become dependent on the labour of women, and households depend more on local natural

resources. Given the endurance of spatial distribution, the process repeats the pattern of the concentration of poverty, population and environmental degradation initiated under colonial and apartheid supervision.

Corporate Social Responsibility and the reproduction of labour

Corporate social responsibility (CSR) programmes also support the reproduction of labour. The level of corporate social investment (CSI) in South Africa is thought to be comparatively high and responds to the need for legitimation in the context of political transition. For its part, according to the Southern African Grantmakers' Association (SAGA), "government has attempted to shift some of the responsibility and financial burden for social development to the business sector" (The Grantmaker 2003: 8). The King Report on corporate governance makes CSR central to 'integrated sustainability reporting'. It says shareholders should expect a return on CSI and cites as appropriate targets "improved education leading to a wider skills base; improved health care promoting a more productive workforce; or a more economically diverse, and therefore a more productive and supportive, local community" (quoted in The Grantmaker 2003: 6).

A substantial portion of CSI is indeed spent in communities neighbouring major corporate facilities. At eMbalenhle in Secunda, for example, Sasol builds houses, funds mathematics and science departments at schools and sponsors school competitions and clean-ups amongst other things. Given that it is also the major employer, groundWork observes that "it is difficult for local people to publicly criticise the company" (2003). Without being named as such, patronage by large corporations has thus been institutionalised in the form of CSI. In marked contrast, land and education policy has consistently named the provision of amenities in housing and schooling on farms as patronage. The difference reflects a symbolic association of 'the modern' with large corporations and big industrial projects.

The groundWork Report for 2002 noted that, "If basic amenities are provided directly by local corporations, rather than as rights of citizenship, then the interests of communities will be aligned with those of the corporation". Nevertheless, it is precisely the limitations of State provision – as insisted on in the developmental strategies of global capital – that creates a necessity for CSI. Indeed, for many poor people access to corporate patronage now marks the difference between economic exclusion or inclusion within the informational division of labour. Growing up on the pollution fence-line may be critical to a child's life chances – provided that she survives.

Beyond the local, the King Report's treatment of sustainability implies a necessity for corporate influence on public policy according to SAGA. "By being proactive in self-regulation and governance, the corporate community has the opportunity to shape public policy in beneficial ways, and pre-empt further potentially restrictive or burdensome legislation." This is because "it is ... not feasible for business to take over social and economic responsibilities that correctly belong with the state" (The Grantmaker 2003: 8).

Quite what does belong to the State is, of course, exactly what the neo-liberal turn has put in question. The 'triple bottom line' seeks to ward off legal and enforceable responsibilities in return for industry assuming self-defined and voluntary responsibilities. A profound ambiguity is then carried in the concepts of 'partnerships' where the distinction between State

contracting, privatisation of service provision, responsibilities which 'correctly belong with' private firms and the voluntary contributions of corporate grant making becomes fluid.

Partnerships between the State and private sector entities are also overlaid with those, such as the voluntary labour and environmental codes, operated through global production networks. Such codes proclaim ethical credit but, in doing so, point towards an underlying ethical deficit in doing business as usual. They give rise to two distinct forms of ethical evasion.

In the first, ethics are displaced. Relations of power within the network determine the allocation of ethical responsibilities and rewards, of what is voluntary and for whom. Ethical questions are posed in relation to firms at the low value end of the production chain while ethical supervision becomes the prerogative of lead firms at the high value end. Ethical responsibilities and rewards are similarly allocated. In relation to agro-industry, Du Toit and Ewert argue that such codes cannot address the inadequacy and instability of temporary farmworkers' livelihoods because they address only the on farm employment relation rather than relations of production structured by production networks as a whole. At the same time farm producers are globally differentiated as those that can comply with the codes and with quality requirements "are protected from less well-resourced competitors" (2002: 89).

The second form is greenwash. Networked production allows TNCs to conceal the identity and location of suppliers. For example, when challenged by the Ethical Trading Action Group on breaches to its code at garment factories in Lesotho, the Canadian Hudson Bay Company claimed that the location of its supplier factories could not be disclosed because it was 'competitive information' (Toronto Star, March 5, 2002). Clearly, this information is 'competitive' only if workers or the environment are being abused, competition requires such abuse and competitors are not subject to scrutiny. The code then has value in so far as it conceals the ethical deficit of normal business.

Environment

Even though industrial activity continues to undermine workers' and community health and to degrade the environment through unsustainable levels of resource exploitation and pollution; even though international trade is increasingly impacted on by a number of international environmental agreements and environmentally-related market-access issues; and even though the dti itself maintains small environmental-policy capacity; environmental concerns are entirely absent from the IMS. There is only one, completely marginal, reference to environment in the entire document: discussing corporate governance and business practices, the IMS notes that the King Report[9] has raised awareness[10] of a 'triple bottom-line' introducing social and environmental accountability (dti 2002 b: 19). For an 'integrated' industrial strategy written in 2002, the omission is frankly breathtaking.

[9] A non-binding (if fairly comprehensive) report from the private-sector Institute of Directors (2002)

[10] Given that the IMS shows absolutely no awareness of the triple bottom-line, one has to wonder whether even the claim for greater awareness is valid!

Even though the IMS fails to make the arguments, it is possible to attempt it on their behalf. For there is an argument that international trade and environmental protection can be mutually supportive especially where modernising production methods respond to export-market pressures for improved environmental performance. In this view, foreign direct investment (FDI) can facilitate the transfer of newer, cleaner technologies either in new industries or through plant upgrades to replace old (and environmentally-inefficient) stock. Thus, integration within the globalising economy should produce environmental benefits.

On this basis, industry lobbies have argued that market-driven self-regulation is more effective than legal regulation, especially given the incapacity of public regulators. Against this, environmental activists have argued that there is in fact a migration of dirty industry to the south as industry seeks low cost environmental regimes.

Writing in 1997, Bethlehem concluded that exporters were subject to environmental pressures from a variety of sources including parent (TNC) company policy, the market, voluntary or market standards such as ISO 14000 or eco-labels, regulatory regimes in importing countries, multilateral environmental agreements and international activist campaigns. However, different sectors were affected differently and some hardly at all. Thus for example, citrus farmers had transformed their pest control regime in response to European State regulation on pesticide residues on fruit, and the packaging industry had also complied with tough EU regulations for domestic as well as export packaging. On the other hand, energy intensive aluminium producers exporting to the far east and to Africa had experienced no discernible pressure, while pollution intensive chemicals producers exporting to northern and eastern markets were phasing out CFCs in response to the Montreal Protocol but had not otherwise experienced direct pressure in their export markets.

There was also incoherence between sectors. Paper manufacturing was subject to intense pressure to reduce or eliminate chlorine while, in the words of a textile industry informant, “we use loads of chlorine” (86) without market sanction. There was further environmental incoherence in what was demanded in some sectors. South African pulp and timber producers secured a fortuitous market advantage because their product is from plantations and not old growth forests, while their real local impact on the water supply and biodiversity was irrelevant to the market. South Africa’s high quality coal is reserved for export and also gains competitive advantage on environmental concerns within importing countries because it has a low sulphur content. The domestic impact of low grade coal was of no account in this market.

More generally, the environment was of little concern where products were in short supply on the market. In over-traded markets, however, competitors might promote

regulation to favour their particular production characteristics or innovation strategies, so turning selected environmental concerns to competitive account. The lead companies within global production networks are best placed to pull this trick, particularly if they are domiciled within nations with the power to project the relevant regulations at a global level.

It may be anticipated that awareness of environmental issues within industry has increased since 1997. KPMG's survey of company sustainability reporting can be taken as an indication of this. The survey covers top companies who may be assumed to represent best practice. The 2001 survey found that "disclosure on sustainability issues by South African companies continues to improve" (1) but it seems that improvement is off a low base. Only 57% of all top companies report on sustainability issues and only 10% issue separate environmental or social reports. Of top industrial companies, only 48% said anything at all about the environment, only 7% gave any quantitative financial data relating to the environment and only 8% gave quantitative non-financial data on the environment.

The Thor Chemicals plant built at Cato Ridge in the late 1970s remains the archetype of dirty industry migration to South Africa. Proponents of FDI argue that reports of TNC's relocating to "take advantage of lower environmental standards ... tend to be overstated" and that "in general, TNC's pursue 'compliance plus' strategies" (Petschow and Clausen 2002: 53) in relation to local regulatory standards. Bethlehem noted two specific cases where local TNC subsidiaries were indeed required to perform to company standards that were higher local standards. Yet, as Petschow and Clausen note, very few companies actually claim to engage in self-regulation and self-regulating instruments mean little unless they are independently monitored and verified. The evasion of scrutiny is discussed in the box above.

The most obvious form of dirty industry migration is the transfer of technologies that are discredited in their home markets. US incinerator technologies are at issue in South Africa at present. Leonard reports proposals for four major projects involving incineration technologies: a power plant at Richards Bay proposed by Rainbow Millennium, a hazardous waste incinerator at Sasolburg proposed by Peacock Bay Environmental Services, a 'multi-fuel' boiler proposed by Mondi in Durban, and a Kwikpower incinerator proposed by Solid Waste Technologies in Cape Town. Both the US Trade and Development Agency and the World Bank have supported the transfer of incineration technology to South Africa. More widely, the World Bank has supported "156 incineration projects in 68 countries since 1993 and 26 … since 2001" (Leonard 2003: 13).

New technologies are also in dispute, most particularly genetic engineering (GE) within the broader field of biotechnology. Here concerns relate both to externalities,

through the contamination of crop and wild species and allergenic health impacts, and to the technological enclosure of seeds. This enclosure implies control of agricultural innovation at the top of the value chain while the costs of innovation forces capital concentration. Ultimately this implies the global concentration of control over food production by an ever tighter coterie of TNCs. Corporations active in South Africa include Monsanto, Delta and Pine, Agr Evo, Novartis, Pioneer Hi Breed and Du Pont. They have rapidly established dominance: in the local seed industry through the acquisition of controlling stakes in local companies, of public policy through privileged representation on 'expert panels', and of public research institutions through funding. GE cotton, maize and soybeans are already under commercial cultivation in South Africa and field trials on several other crops are in process. 70% of field trials have been initiated by TNCs and "not a single environmental impact assessment has ever been undertaken on any of the field trials or commercial releases" (Pschorn-Stauss and Wynberg 2002: 13). This base in South Africa is also being used to open up markets in other African countries which have been more cautious about introducing this technology.

South Africa's assessment of the southern position within global production is signalled in NEPAD's call for "structural adjustment by developed countries in those industries in which the natural competitive advantage now lies with the developing world" (para 170). This means the transfer of heavy or labour intensive industries – such as iron and steel and textiles – to the south. Keet remarks that developed countries are unlikely to make themselves "dependent in any sector on foreign producers" (2003: 118) but also that this vision of industrial succession entrenches the global division of high and low value production.

It is this division which, within such strategic limits, is carried out through global production networks. While what has been portrayed as the 'dematerialisation' of northern production is exaggerated, much of what has dematerialised there has, so to speak, rematerialised in developing countries. Thus, for example, exporting growth in car components from South Africa to the EU is "in sub-sectors where manufacturing displacement is occurring from the EU" (Barnes 2002: 60). Nevertheless, within the motor industry as a whole, South Africa still imports more manufactured goods than it exports.

The commitment to knowledge intensity indicates an ambition to move 'up the value chain' to higher value production. Even if successful, it does not necessarily follow that this would reduce the burden of pollution. Firstly, higher value production is not necessarily cleaner in itself. It may be associated with cleaner production if the environment is indeed a competitive factor, but the benefits of cleaner production may be off-set by increased production because cleaner production measures pollution against units of output rather than external impacts.

Thus, for example, the Engen oil refinery has improved its environmental performance per unit of output but has simultaneously increased production. Overall reductions in emissions of particulates and volatile organic compounds are predicted but total sulphur dioxide and nitrogen oxide emissions will increase. Conversely, cleaner production is not necessarily contingent on higher value production. It may require more efficient or less wasteful or simply less irresponsible production without increasing the value of the product itself. Thus, Engen claims that expansion makes environmental investments affordable rather than that product improvement requires it. Indeed, higher value products are produced from the refinery unit with the highest emissions.

Secondly, insofar as moving up the value chain does imply cleaner production, in the context of global production networks it may also imply displacing low value production elsewhere – whether within South Africa or to another country. Moving out of low value production does not therefore follow from moving into high value production and services. Rather, low value production in South Africa will be subject to intense competitive pressure on labour and environmental standards. In Durban, industries using coal to fuel production have resisted switching to cleaner burning gas because they argue that the higher costs would make them uncompetitive. More generally, business has argued that tighter environmental regulation will result in the loss of new investment to Durban. The obvious implication is that low standards attract investment.

Thirdly, the rise of services does not imply the demise of manufacturing even in the northern economies because "many services depend on their direct linkage to manufacturing" (Castells 2000: 220). For example, Sasol's synfuel process is unique and the company is justifiably lauded for developing substantial innovative capacity, particularly in process technologies and to a lesser extent in its product range. It has also supported the development of local capacity in independent consultancies providing services in chemical engineering. Sasol itself has capitalised on its own capacity in partnerships with companies such as Statoil of Norway, primarily bringing its specialist engineering design skills to the table, while some of the service providers have been able to enter the global market. Nevertheless, these high value services are founded in the heavily polluting synfuel process and cannot be maintained independently of production.

Overall then, the impact of increased trade and FDI on environmental practice are not coherent. Rather, trade and FDI related impacts – both positive and negative – interact with the state of domestic regulation and local pressures, such as from local community activism, to produce what Castells calls a 'variable geometry' of environmental regulation with highly differentiated results for environmental impacts according to industry, type of impact, time and location.

The IMS's silence with regard to environmental issues means also that there is no indication that government will intervene in these variables of industrial development to strategically steer it towards cleaner production. And the singular factor driving South African industry's inordinately high energy intensity – namely the supply of cheap electricity to heavy users – is not addressed at all. The inevitable conclusion must be that dti considers cheap and dirty energy an outstanding competitive advantage. This leaves intact one of the defining features of the inherited 'minerals-energy complex' and has profound implications for the future of industrial development – and of environmental justice struggles.

Knowledge intensity and the imagination of development

Knowledge intensity relates both to the integration of information and communication technologies (ICTs) in production and marketing processes and to the capacity for innovation. Castells notes that "there is indeed a global market for a tiny fraction of the labour force, concerning the highest skilled professionals in innovative R&D, cutting edge engineering, finance management, advanced business skills and entertainment ..." (2000a: 250). The IMS makes plain that getting ahead in the export-led game depends on competitiveness and that competitiveness is increasingly a function of 'knowledge intensity' and an educated, skilled, flexible labour pool. In itself this is hardly an encouraging requirement in the current South African context where the devastating legacy of apartheid education means that we are spectacularly badly off in this regard. (But, given the relative strength of the trade union movement and legislative frameworks, we're also not really in a position to win any global races to bottom end of the value chain where competitive advantage might be derived from extremely low wages.)

The global political economy of informationalism runs counter to the enlightenment ideal that knowledge should circulate freely. Instead, it requires the selective enclosure of information and knowledge generation achieved through the mechanisms of intellectual property rights. This is so for at least two reasons: first, to give it an economic value which would be precluded by universal access but is secured through its private appropriation, and second, because innovation is critical not only to competitiveness but also to technological control by TNCs within global production networks. The concentration of global capital is thus accompanied by a concentration of the capacity for innovation. At the parliamentary hearings on the IMS, various research institutions noted a decline in South Africa's capacity for R&D in both the public and private sector. The parliamentary committee report of the hearings on IMS notes that:

> In the private sector, the competitive pressures of liberalisation have led to firms cutting costs, including research budgets. The 'hollowing out' of

> corporate research has also been linked to the acquisitions of South African firms by multinational companies whose research capacity is situated in their home base ... It is worth noting that it is precisely the application of ICT which enables the more effective control by multinationals of operations in different countries. (Parliament 2002: 73)

The report calls for clear strategies. It argues that apartheid priorities supported a substantial R&D agenda but priorities for a "broad based and more equitable development" R&D agenda have not been set. Implicit in such an agenda is the question of the relationship between what technology is innovated and where innovation takes place. While the export orientation implies the pre-eminence of TNCs, the location of innovation within South Africa seems likely to be shaped by the pattern of capital concentration and monopolies on sectoral information within large parastatals such as Eskom. Within the R&D culture shaped by this institutional setting, the imagination of what kinds of technology should be developed is graphically illustrated by, for example, Eskom's pebble bed nuclear reactor project or the continuing fixation with 'mega-projects' in the IDZs.

And so we return to the fundamental question of the relationship between the characteristic structure of South African industry and the development trajectories that it reproduces. Neither GEAR nor the IMS tackle the "biased structure inherited from apartheid, based on an overblown 'minerals-energy complex'[11] and excessive luxury goods production for a protected white consumer elite" (Bond 2001: 85) – if anything, the bias has been amplified as a result of tariff liberalisation and export-oriented agro-mineral strategies (the latter, subsidised through Spatial Development Initiatives – discussed below). The South African conglomerates which dominate the minerals-energy complex are now substantially more 'globalised' (with key off-shore stock listings and the like) and concerned to integrate their domestic operations with their international interests. They have demonstrated little appetite for committing their financial resources to domestic investment in industry. On the contrary, there is extreme pressure for the removal of exchange controls on domestic corporations in order to be able to engage in capital flight.

[11] Discussed above (in the section on the history of industrial strategy) as a key insight into understanding the structure of South African industry. Fine and Rustomjee (1996) provide the best account.

dti industrial strategy in practice

SDIs and IDZs

ELIFFIT – export-led industrialisation fuelled by foreign investment and technology – finds concrete form in specially demarcated 'economic zones' designed to attract investment and promote exports. The dti introduced Spatial Development Initiatives (SDIs) and Industrial Development Zones (IDZs) in 1996 as "the practical implementation of GEAR" (quoted in ILRIG 2002: 3). South Africa is also taking the lead on SDIs in Southern Africa while NEPAD carries the concept into the rest of Africa with its proposal for regional infrastructure and transport corridors.

SDIs are time bound projects. The dti provides the initial stimulus but then withdraws on the assumption that local actors will take on the role of facilitating development and coordinating government services in support of development. The SDIs are largely structured around the notion of transport and infrastructure corridors most of which cross administrative boundaries, whether local, provincial or national. Because they are time bound, they also focus on areas thought to have existing development potential and on the removing the constraints assumed to be blocking that potential. 'Public private partnerships' are central to the initiatives with public finances used to secure private investments in infrastructure and industrial projects. Incentives include "low interest loans ... establishment grants ... venture capital and the encouragement of additional production shifts" (Bek and Taylor 2001: 4).

For the most part, SDIs are associated with IDZs which locate large 'anchor projects' assumed to attract further investment and generally add weight and stability to the initiatives. The IDZ's are intended as permanent 'customs-secured' areas in easy reach to ports and airports. They will offer investors duty free imports of raw materials or components, VAT free 'imports' from the rest of South Africa, and 'world class' infrastructure, services and management including "a one-stop centre to facilitate regulatory procedures" (Sunday Times, April 27 2003). The first IDZs were recently proclaimed at Coega near Port Elizabeth and East London. Johannesburg International Airport and Richards Bay are next in line while Durban and Saldanha are earmarked.

Government has been anxious to distinguish IDZs from Export Processing Zones (EPZ): tax incentives have been phased out and labour and environmental regulations have not been relaxed. It therefore claims to avoid the 'race for the bottom' usually associated with EPZs. In the view of some, they will in consequence fail to attract significant foreign investment in the face of global competition. Others doubt the claim.

It is in these spatial initiatives that the South African imagination of industrialisation is most vividly realised. The results seem like development on steroids, a kind of modernising machismo focused on speed and scale. This imagination has roots in the apartheid era imagination of development which itself derived from international practice of the 1950s and 1960s. Bond points out that several SDIs were anchored on "very large mineral beneficiation projects" initiated in the early 1990s under the apartheid government, including Billiton's Hillside Aluminium Smelter at Richards Bay and Iscor's Saldhana Steel Mill (2002: 74). The Mozal Aluminium Smelter in Mozambique, an 'anchor' project in the Maputo Corridor SDI linking Johannesburg to Mozambique's capital city, was initiated under the democratic government but in evident continuity with the earlier projects. Key national actors include, on the side of the State, the Industrial Development Corporation, Eskom and Transnet, and on the side of industry, large corporations like Billiton, Anglo American and Iscor – itself a former para-statal. These organisations have a long history of collaboration on large projects, including the original development of Richards Bay in the 1970s. Hall notes that the key role of "government-owned and large industrial conglomerates" was internationally typical "of much 1970s growth pole development" (1999: 9).

At the local level, the institutional relationships – both formal and informal – structured from these beginnings still determine the developmental direction of Richards Bay and shape the development of infrastructure accordingly. In contrast to both the Maputo Corridor and West Coast initiatives, the SDI programme was welcomed at Richards Bay, its "key dimensions … have been absorbed into the existing [local] institutional structure", and "it is regarded as one of the more successful SDIs." This evaluation would be justified if the developmental goal were "the establishment of large processing industries" (Hall 1999: 14, 15).

Hall concludes that the local institutional dynamics diverted the national strategy from the stated goals of creating a more inclusive development path that would create jobs and opportunities for small businesses and broaden economic ownership. It seems more likely, however, that the 'success' of Richards Bay lies precisely in the continuity of the local with the national structure of institutional relationships. World Bank support for the Mozal project extends these relationships to the global level. Irrespective of the stated goals of the SDI programme, the democratic government as a whole, and the dti in particular, appears to have entered into an imagination of industrialising development shaped by the historic structure of capital concentration and finding its climactic expression in the mega project.

Despite the rhetoric, Bek and Taylor remark a degree of antipathy to small businesses in the actual conduct of SDIs linked to determinedly top-down development. They cite Paul Jourdan, the dti official leading the process nationally, as saying, "rapid is not negotiable and the speed of the process precludes a bottom-up approach" (2001:

24). In the case of the Maputo Corridor, even the primary objective of securing investment was subordinated to speed in driving through the corridor infrastructure. Broader consultation with civil society was simply precluded and Bek and Taylor "came across no one who claimed that there was widespread consultation with local communities" (24). IDZs have taken longer to get off the ground and appear to have been subject to intense dialogue between government and business with labour being drawn in once the parameters were agreed. Perhaps reflecting the assumptions behind the term 'economic citizens' as used in the IMS, other groupings in civil society have been kept at arms length. In Durban a community group resorted to gate-crashing a workshop to get information.

Publicity, on the other hand, has been intense and inflated. SDIs and IDZs have been accompanied by "grandiose claims" particularly relating to local economic development and job creation. At Saldhana, this created exaggerated local expectations and attracted work-seekers from outside the area, resulting in social tensions and "actually increasing the long-term unemployment rate" (Bek and Taylor 2001: 14). Current advertising for Coega claims it will create 20,000 permanent jobs and 50,000 temporary construction jobs. Reinforcing these claims, half a million job seekers forms have been distributed throughout Port Elizabeth and 40,000 "pre-screened people ... with verified skills" have been entered on a data base (Sunday Times, April 27 2003).

Anchor projects are typically capital intensive, however, and the "long-term job creation potential … [is] very limited" (IGD 2000: 17). In 1997 and 1998, the single investment at Mozal put minerals beneficiation at the top of the sectoral league table for FDI in the whole of the SADC region but it employs just 400 people. Estimated costs for each job created in the Maputo Development Corridor as a whole ranged between SAR1.2 million and over SAR3 million (Bek and Taylor 2001: 4). On the South African side, promised investments did not materialise and local people claim that toll fees on the privatised corridor road is crippling local economies. Road construction on the Mozambique side resulted in people being dispossessed of land "with very little compensation" (7).

The massive Coega project will dig out a river estuary to create the new container and bulk cargo port of Ngqura. The associated IDZ is intended to locate several industrial clusters, assuming that investments materialise. French TNC Pechiney is the latest advertised anchor tenant, two previous candidates having withdrawn, with a proposed aluminium smelter. The company board is still to make a final decision and the costs of energy will no doubt be a critical factor. This investment alone comes to SAR20 billion including "downstream investments of SAR8.7 billion [that] are expected" (Sunday Times, April 27 2003). Public investments start at SAR3.5 billion with a further SAR1.8 billion for upgrading the electricity supply. Costs of upgrading the rail

link to Gauteng have yet to be included in these calculations. Permanent jobs at the Pechiney smelter "would not exceed 1,000" (Bond 2002: 82) – a rather generous allowance if compared with Mozal. The port bulk terminal would employ about 80 people and the container terminal a further 350. As Bond argues, the overall figure of 20,000 jobs is "entirely speculative" (58) and depends first on actual investment and second on the nature of that investment. There is a further possibility that a number of jobs will simply be relocated from adjacent areas, with possible negative consequences for the economies of local towns. Meanwhile, 300 families have been moved to make way for the Coega project and local opponents estimate that "9,000 people will lose their job [or] livelihood" (ILRIG 2002: 24).

Anchor projects are supposed to create a 'multiplier effect' within local economies. At Mozal, according to the Institute for Global Dialogue, the outsourcing of low value services such as catering and cleaning provides the only tangible link to the local economy. The approach "reinforces the new global division of labour, where local … economies only supply auxiliary services to multinational corporations, and do not develop industrial capacity themselves" (IGD 2000: 18). Further, the heavy labour demand in the construction phase of mega-projects creates a boom and bust economy. Richards Bay has already experienced several such cycles while the abrupt end to construction work at Saldhana Steel left the area with higher unemployment than it had before the project started.

Critics are sceptical of the promise to maintain labour standards. ILRIG (2002: 23) argues that standards will likely be eroded precisely because of the pressure of 'international competitiveness', most immediately from South Africa's neighbours who have relaxed labour and environmental standards within their EPZs. At the Mozal Aluminium Smelter in Mozambique, an 'anchor' project in the Maputo Corridor SDI, local wages are five times lower than what is paid to South African workers and this is already creating tensions.

Environmental impacts will also be considerable. Gigantic industrial anchor projects tend to be energy and water intensive. Mozal uses almost three times more electricity than the rest of Mozambique and there are concerns that its water usage will "threaten the supply" to the city of Maputo (ILRIG 2002: 25). Similarly, local communities fear that Coega's water and electricity demand will divert or delay delivery to black townships. These projects also have major potential pollution impacts. Mozal "emits 26 times more sulphur dioxide than other smelters because it does not have [the standard] 'wet scrubber' installed" nor has it "figured out a way to dispose of its hazardous solid waste" (Hoover 2002: 14). The plant experienced a major incident with the collapse of a cooling tower after just one year of operation and local people are already complaining of "strange smells, and strange tastes in fruit from their trees" (14).

Whether or not South Africa relaxes environmental regulations at Coega, enforcement elsewhere in the country has not been characterised by rigour. Bond cites a 1997 consultant's report that sulphur dioxide emissions from a zinc refinery proposed at that time would "set a ceiling on capacity for future growth, and thus effectively foreclose on the possible range of IDZ options" (Bond 2002: 90) and argues that the proposed Pechiney aluminium smelter would pose similar problems. In terms of the Coega concept, however, this plant would be part of a metallurgical cluster. Other clusters 'identified' are motor, electronic and petrochemicals. Given that the new Air Quality Management Bill promises tougher standards than applied in 1997, it is improbable that even the limited achievement of Coega's vision would be compatible with compliance.

MIDP

The Motor Industry Development Programme (MIDP) is frequently cited as the success story of a highly-protected, inward-focussed and uncompetitive South African industry that has been turned around to achieve global success through the strategic application of a range of trade mechanisms. As a concerted industry-specific programme which is geared to achieving a competitive and open industry, it is often more or less presented as an important illustration of the kind of industrial strategy we should see more of.

The South African motor industry (vehicles and components) grew out of the first automobile assembly plants established in South Africa in the 1920s and was highly protected. Import tariffs were prohibitively high[12] and stipulations regarding minimum local content for domestic assembly have been in place since the beginning of the 1960s. So while the local industry benefited from high levels of protection, they had to "purchase much of their inputs from uncompetitive domestic component manufacturers or pay severe excise penalties" (Barnes 1999: 4). As a result vehicle imports were negligible until the early 1990s.

The MIDP was initiated by government through the Department of Trade and Industry (dti) in September 1995[13]. In 1990, imports constituted 2% of the light vehicles market – by 2000, they made up nearly 19%. Over the same period, exports increased from 15,700 units in 1995 to 108,000 in 2001. The figures, and particularly the huge expansion in exports, clearly indicate a dramatic turn-around.

[12] Barnes (1999) records that protection levels for domestic OEMs against global competitors stood at 115 percent in mid-1995.

[13] And was originally scheduled to run through to 2002 but has been extended (in a phasing down format) to 2007.

> A number of factors such as falling protection and limited domestic market growth possibilities have contributed to export expansion but the … arrangements of the MIDP have been crucial (Black 2003: 16).

The MIDP aims for an industry able to compete in local and foreign markets, that can scale-up production (and thereby provide sustainable employment), and that improves the sectoral trade balance. The key policy instruments in the MIDP are gradual reductions in the levels of tariff protection combined with rebates in import duties to exporting firms. This is achieved through the application of five sets of incentives:

1. A tariff phase down schedule that reduces nominal rates of protection to 40 percent for completely built-up units (CBUs), and 30 percent for completely knocked down (CKD) components by 2002.
2. A duty free allowance for domestic 'original equipment manufacturers' (OEMs) of 27 percent of the wholesale value of the vehicles they manufacture.
3. A small vehicle incentive (SVI), which operates as a subsidy for the manufacture of more affordable vehicles. It operates via a duty drawback mechanism with the value of the drawback being contingent upon the ex-factory value of the motor vehicle.
4. The complete abolition of a minimum local content provision for domestic OEMs.
5. The introduction of an import-export complementation (IEC) scheme that allows both OEMs and component manufacturers to earn duty credits from exporting. These duty credits can then be used to offset import duties on cars, components or materials, or alternatively they can be sold on the open market (Barnes 1999: 8).

Obviously this presumes, and directs the industry toward, integration into the global automotive market. It was anticipated that expanded exports would enable greater production scale and volumes, while more openness to imports would allow for rationalising the range of domestically-produced models (since the model range produced domestically could be supplemented by the imports). Although opening the industry up to imports (both vehicles and components) did see a dramatic widening of the trade deficit[14], this is decreasing as exports grow more rapidly than imports.

The scale of production and the processes of industrial restructuring are central in the MIDP. Given its historic 'inward'-orientation (where the industry served the domestic market), average production volumes per vehicle-model were low – much lower than world averages. On the other hand, the range of models that were required to be produced was relatively extensive. This also knocked on to local automotive component manufacturers who had to produce a wide range of products at low volumes at considerable cost premiums.

The MIDP's import-export complementation schemes and tariff reductions meant that vehicle manufacturers and component suppliers could produce higher volumes and

[14] From less than R5.1 billion in 1992 to R14.1 billion in 1996

thereby improve efficiencies which in turn made them more competitive in the export market. This 'guided integration' encouraged a shift from completely knocked assembly to full manufacturing based on the benefits of high volumes and growing localisation of components (Black 2002: 18). Some companies have been able to stop producing low-volume models and expand their production of others which, again, reduces unit costs. The process has also had the effect of increasing local content where increased volumes have made it worthwhile for component manufacturers to invest in expanding their production capacities. To ensure that South African buyers can still access a range of models and vehicles, importing some vehicles is required.

There is then an apparently successful symmetry between openness to imports and export competitiveness. MIDP's proponents argue that it shows how to turn away from the 'dead end of protectionism' and link domestic productive sectors into global value chains so that local capacity is strengthened and new opportunities are created "rather than placing it under excessive competitive pressure" (Black 2002: 19). A key consideration was to link reduced levels of protection (by lowering import tariffs) with strong export support measures.

Of course, the entry of imports creates strong price competition and lower margins which adds to existing pressures of stagnating domestic sales volumes. Black comments that: "while profits are under pressure in an increasingly competitive market, there is clearly the risk of investment being reduced and gradual attrition taking place leading eventually to plant closure" (Black 2002: 18).

With respect to employment issues, although the export sector[15] is now a major source of employment, significant future gains in vehicle assembly are unlikely because there are massive productivity gains to be taken up. Thus, the component sector is considered more likely to see growing employment levels.

But Barnes' work (1999) shows how the MIDP has fundamentally unsettled the status quo which obtained for that components sector – and how important it is to understand the political economy of the linkages within global production networks to get a handle on the real pressures and prospects that now obtain.

He points out that restructuring the industry means that automotive component firms no longer enjoy any advantage from local content provisions and almost no duty protection and, therefore, must keep foreign imports from undermining local sales and expand export levels significantly too. But global marketing networks are controlled by multi-nationals and independent exporting is extremely unlikely as a result.

[15] Which, for the automotive sector since 1994, was the 4th largest recipient of foreign investment notwithstanding adverse domestic conditions and declining protection levels

Penetration of export markets is really only feasible then for those component manufacturers within multi-national-controlled value- and marketing-chains (whether as a result of ownership by the multi-national or through license agreements with them as suppliers). Those cut out of these production networks face the 'stick' of the MIDP (declining tariff protection) with no real prospect of accessing the 'carrot' (in the form of expanded access to international markets for their products). And in fact it can be argued that component manufacturers that **are** in on the value chain don't really get the 'carrot' of export credits because, on the one side the OEM takes them and on the other, some of their raw material suppliers[16] (e.g. the aluminium giants) price inputs to capture the value of complementation.

The implications are dire since expanded access to global markets is necessary "for firm-level development and the generation of economies of scale necessary for new capital investment" (Barnes 1999: 14). At a policy level, one clear implication is that addressing competitiveness issues alone does not guarantee sustainable industrial growth – just as important is the political-economy of the linkages that obtain between South African manufacturers and the multi-national corporations who dominate global production networks. Invariably these describe relations of subordination of local interests to global corporate ones and invariably they reproduce value that accrues to global corporates and to local manufacturers. As an industry insider comments:

> ... the credits earned by the OEMs and by the mainly big Tier One suppliers and associated companies which have export deals through the OEMs have virtually eliminated tariff protection for local manufacturers against a large proportion of automotive imports.
>
> Particularly vulnerable in this situation are the smaller locally owned component makers who do not have close relationships with OEMs or the ability to cope with such developments as exchange rate fluctuations which have led to the currently stronger rand. They are already under a lot of pressure from the double whammy of having to reduce their prices in the fiercely competitive global market and a MIDP that benefits mainly higher volume manufacturers with viable export programmes resulting from their international affiliations.
>
> The smaller component makers have always been an important element in South Africa's manufacturing infrastructure. They supply many of the replacement parts for the millions of older locally assembled vehicles still in use. Their isolation and deteriorating trading situation under the MIDP make it difficult or impossible for them to keep up technologically. So they will miss out on exploiting their traditional flexibility and be unable to respond to many

[16] Which are located essentially within the minerals-energy complex at the heart of South Africa industrial structure

niche market opportunities opening up internationally as the global auto industry adopts new business models.
The MIDP's export-driven emphasis on high volumes and product rationalisation and the opening up of South Africa to automotive imports through the rebate credit certificate system could prove fatal for more of the indigenous smaller companies than have already closed or been forced to merge. (***Autocluster Weekly*** 1 April 2003 at http://www.mbendi.com/indy/motr/af/p0005.htm)

So while the export-oriented strategy has enabled greater penetration and power of the multinational corporates that dominate auto production networks, it has placed local manufacturers in a far more vulnerable position – a vulnerability that is structured precisely by the dominant interests in the global production networks. The recent strengthening of the South African rand has served to underscore these vulnerabilities, and key aspects of the MIDP 'success' story appear under threat as the following newspaper article indicates:

Car component manufacturers feeling effect of strong rand
Automotive component manufacturers have started retrenching workers and cancelling export contracts as a result of high raw material prices and the strength of the rand. This should raise alarm bells, because it suggests that growth in this sector, which became the second-largest contributor to gross domestic product at 6.3% last year, is under threat.
One of the largest component makers, Dorbyl, has already laid off more than 200 employees.
Most exporters in the sector are now highly uncompetitive, said Clive Williams, head of the National Association of Automotive Component and Allied Manufacturers. Their predicament will allow suppliers in competitor countries such as Brazil, Malaysia and Hungary to muscle in on the contracting global automotive market. Vehicle assembler Delta, for example, told Dorbyl that it can now import some components from Brazil cheaper than it would cost Dorbyl to buy materials to make identical components.
Williams attributed much of SA's uncompetitiveness to the 'monopoly' that major raw material suppliers, including Sasol, Colombus Stainless, Iscor, and BHP Billiton, enjoy in their respective markets. Prices on Iscor flat steel products rose between 13.4% and 29% last year, Williams said. 'Price increases of up to 19.7% have already been [seen] this year', he said. 'And we're trying to control inflation!'
Williams said the industry has also been dealt a heavy blow by the stronger rand, which has been propped up by high interest rates. Several companies that had signed export contracts when the rand was at R12 or R14 to the dollar are now cancelling contracts. …

‘We are feeling pain, it should not have gone this far’
(***Business Day*** article, reproduced in ***The Natal Witness***, 23 May 2003.)

References

Adelzadeh, Ashgar, 1996. “From the RDP to GEAR: the gradual embracing of neo-liberalism in economic policy”, in ***Transformation***, Vol. 31, 1996.

Armstrong, W. and T.G. McGee. 1985. ***Theatres of Accumulation: Studies in Asian and Latin American urbanisation***, Methuen, London.

Arrighi, G. 2003. *The social and political economy of global turbulence*, ***New Left Review 21***, May – June 2003.

Bairoch, P. and Richard Kozul-Wright, 1996. ***Globalization Myths: Some historical reflections on integration, industrialization and growth***. UNCTAD.

Barnes, J. 1999. *Changing Lanes: the political economy of the south african automotive value chain*, School of Development Studies, University of Natal.

Barnes, J. 2002. *Up, Up and Away or a bubble that is likely to burst? A value chain analysis of the key exporting sub-sectors of the South African automotive components industry*, Department of Trade and Industry Policy Support Programme Report, School of Development Studies, University of Natal.

Bek, D. and I. Taylor, 2001. *Evaluation of Spatial Development Initiatives: Case studies of the Maputo Development Corridor and the West Coast Investment Initiative*, Development Policy Research Unit, University of Cape Town.

Bethlehem, L. 1997. Catalysing change: International environmental pressures on South African exporters, in Bethlehem, L. and M. Goldblatt (ed.s) 1997, ***The Bottom Line***, Industrial Strategy Project, UCT Press and IDRC.

Bethlehem, L. and M. Goldblatt (ed.s) 1997, ***The Bottom Line***, Industrial Strategy Project, UCT Press and IDRC.

Bezuidenhout, A. 2002. An evaluation of industrial policy perspectives in the South African context, ***South African Labour Bulletin***, Vol. 26, No. 3, June 2002.

Black, A. 2003. The MIDP and restructuring in the auto industry, ***South African Labour Bulletin***, Vol. 26, No. 3, June 2002.

Bond, P. 2002. ***Unsustainable South Africa: Environment, Development and Social Protest***, Merlin & University of Natal Press.

Brenner, R. 2003. *Towards the Precipice*, ***London Review of Books*** Vol. 25, No. 3, 6 Feb 2003.

Butler, M. 2002. *The cost of living: How selling basic services excludes the poor*, in Butler, M. and D. Hallowes ed., ***South African people and environments in the global market***, groundWork WSSD booklet series.

Butler, M. and D. Hallowes, ***The groundWork Report 2002: Corporate accountability in South Africa***, groundWork.

Camack, P. 2002. *Attacking the Poor*, ***New Left Review*** 13, Jan / Feb 2002.

Castells, M. 2000a. ***The Information Age: Economy, Society and Culture, Volume I: The rise of the network society***, 2nd edition, Blackwell.

Department of Trade and Industry (dti), 2002a. ***Accelerating Growth and Development: the contribution of an Integrated Manufacturing Strategy*.**

Department of Trade and Industry (dti), 2002b. ***Micro Economic Reform Strategy***, as at 17 January 2003.

Devlin, J. and N. Yap, 1994. *Sustainable Development and the NICs: Cautionary tales for the South in the new world (dis)order*. ***Third World Quarterly***, March 1994, Vol. 15, No.1.

Du Toit, A. and J. Ewert, 2002. *Myths of globalisation: private regulation and farmworker livelihoods on Western Cape farms*, ***Transformation***, No.50.

Environmental Working Group (EWG), 2003. *BodyBurden, the pollution in people*, report by Environmental Working Group, Mount Sinai School of Medicine and Commonweal, released January 2003 at: www.ewg.org

Ezcurra, Ana Maria, November 1996. "Globalisation, neoliberalism and civil society: Challanges for the Latin American social and people's movements", Argentina, November 1996.

The Grantmaker, 2003. *Summary of SAGA's new briefing document on the King Report 2002*, Newsletter of the Southern African Grantmakers' Association, March 2003, No.18.

Greenhill, R. and A. Pettifor, 2002. *The United States as a HIPC - how the poor are financing the rich*, A report from Jubilee Research at the New Economics Foundation.

groundWork, ***Air Quality Report 2003***. (forthcoming)

Hall, P. 1999. *Regional Institutional Structure and Industrial Strategy: Richards Bay and the Spatial Development Initiatives*, Development Policy Research Unit, University of Cape Town.

Hart, G. 2002. ***Disabling Globalisation: Places of power in post-apartheid South Africa***, University of Natal Press.

Hauck, G. 2002. *Prebendary Capitalism and Wealth Transfer: The causes of development and underdevelopment in Africa*, ***D+C*** No. 1/2002, January/February.

Henderson, J., P. Dicken, M. Hess, N. Coe and H. Wai-Chung Yeung. 2002. *Global production networks and the analysis of economic development*, GPN Working Paper 1, Manchester University website.

Hoover, R. 2002. *Mozal smelter threatens quality of life in Mozambique*, ***groundWork Newsletter***, Vol.4, No.2, June 2002.

Institute for Global Dialogue (IGD), 2000. *International Investment Agreements in South Africa*, Report for the Centre for Research on Multinational Corporations.

International Labour Resource and Information Group (ILRIG), 2002. ***SDIs and IDZs: Promoting Growth or Promoting Poverty?*** ILRIG

Jachia, L. and E Teljeur, 1999. ***Free trade between South Africa and the European Union: A quantitative analysis***, UNCTAD.

Joffe et al 1993. Meeting the global challenge: A framework for industrial revival in South Africa, in Baker et al (ed.s) 1993. ***South Africa and the world economy in the 1990s***, IDASA and The Aspen Institute.

Keet, D. 2002. ***South Africa's official position and role in promoting the World Trade Organisation.*** Alternative Information and Development Centre.

Keet, D. 2003. *Extracts from: The New Partnership for Africa's Development, "Unity and integration within Africa" or " Integration of Africa into the global economy"?* ***New Agenda***, No.9, First Quarter 2003.

Khor, M. 2000. *Globalization and the South: Some critical issues*, UNCTAD.

KPMG, ***2001 Survey of Sustainability Reporting in South Africa***.

Lall, S 1993. *What will make South Africa internationally competitive?* in Baker et al (ed.s) 1993. ***South Africa and the world economy in the 1990s***, IDASA and The Aspen Institute.

Leonard, L. 2003. *My problem, but not in my back yard*, ***groundWork Newsletter***, Vol.5. No.1. March 2003.

Leys, C. 1996. ***The rise and fall of development theory***, James Curry, Oxford.

Lukey, P. 1995. ***Health before profits: An access guide to trade unions and environmental justice in South Africa***, Environmental Justice Networking Forum and Friedrich Ebert Stiftung, Pietermaritzburg, Johannesburg, 1995.

Macroeconomic Research Group (MERG) 1993. ***Making democracy work: A framework for macroeconomic policy in South Africa***, Centre for Development Studies.

Munnik, V. 2003. *Building a civil society platform for a just transition to sustainable energy*, Earthlife Africa Sustainable Energy and Climate Change Project.

Nyandu, M. 1998. "Workers and community suffer for profit", in Gillian Watkins (ed.), ***Voices from the Ground***, Pietermaritzburg, EJNF.

O'Connor, R. and D. Hallowes, 2002. *Ground-zero in the carbon economy: people on the petrochemical fence-line*, in Butler, M. and D. Hallowes ed., ***South African people and environments in the global market***, groundWork WSSD booklet series.

Orr, L. 2001, *Women's work and globalisation trends: the South African picture*, ***Agenda***, No.48.

Oxfam, 2002. ***Rigged Rules and Double Standards: trade, globalisation and the fight against poverty***, Oxfam International.

Padayachee, V. and I. Valodia, 2001. *Changing Gear? The 2001 budget and economic policy in South Africa*, ***Transformation*** No. 46.

Parliament of the Republic of South Africa: Trade and Industry Portfolio Committee and Select Committee on Economic and Foreign Affairs, *Extracts from Report on Public Hearings on Industrial Policy,* in ***New Agenda***, No.7, Third Quarter 2002.

Petschow, U. and J. Clausen, 2002. *Globalisation, codes of conduct, and the role of civil society*, in Domling, M. ed, ***Sustainability and Justice: A political North-South dialogue***, Heinrich Boll Foundation.

Phillips, G. and E. de Haan, (forthcoming) *Assessing the trade and investment agenda*, The SADC Campaign for Clean Clothes project, TURP, SOMO and ITGLWF.

Pschorn-Stauss, E. and R. Wynberg, 2002. *The Seeds of Neo-colonialism: Genetic engineering in food and farming*, in Butler, M. and D. Hallowes ed., ***South African people and environments in the global market***, groundWork WSSD booklet series.

SALB 2002 a. The dti's Integrated Manufacturing Strategy: Is it all packaging?, ***South African Labour Bulletin***, Vol. 26, No. 3, June 2002.

SALB 2002 b. The dti takes the debate to Parliament, ***South African Labour Bulletin***, Vol. 26, No. 3, June 2002.

Seekings, J. and N. Nattrass, 2002. Class, distribution and redistribution in post-apartheid South Africa, ***Transformation***, No.50.

Seidman-Magkelta, N. 2001. *Overview of the economy*, unpublished paper cited in Padayachee and Valodia 2001.

Shafaeddin, M. 2000, *Free trade or fair trade? Fallacies surrounding the theories of trade liberalization and protection and contradictions in international trade rules*, UNCTAD Discussion Paper 153.

Skinner, C. and I. Valodia, 2002. *Labour Market Policy, Flexibility, and the Future of Labour Relations: the case of KwaZulu-Natal clothing industry, **Transformation**,* No.50.

Sklair, Leslie, 1994. ***Capitalism and development.*** London, Routledge, 1994.

Sogge, D. 1998. Development aid in context, Seminar at the School of Development Studies, University of Natal.

Stalker, Peter, 1995. ***States of disarray: the social effects of globalisation.*** London, United Nations Research Institute for Social Development (UNRISD), March 1995.

UNEP, 2002. ***Global Environmental Outlook 3***, Earthscan, London.

Van Horen, C. 1997. *Cheap energy at what cost?: Externalities in South Africa's electricity sector,* in Bethlehem, L. and M. Goldblatt (ed.s) 1997, ***The Bottom Line***, Industrial Strategy Project, UCT Press and IDRC.

World Bank, 1991. ***World Development Report 1991: the challenge of development***, New York.

Zizek, S. 2002. ***Welcome to the desert of the real***, Verso, London.

Acknowledgements

The authors would like to thank all those who contributed to the report.
In particular we thank:

- Judith Shier who conducted an extensive literature search at the beginning of the project;
- The staff at groundWork who have worked with us throughout, from the initial conceptualisation through to commenting on draft material for the final report;
- Participants in a ‘think tank’ workshop, convened during the writing process, who allowed us to test initial ideas and extend the scope of arguments. They included Patrick Bond (Wits University), Oupa Lehulere (Khanya College), Victor Munnick (independent), and Jessica Wilson (Environmental Monitoring Group), as well as Bobby Peek, Gill Addison, and Linda Ambler of groundWork.