DINNER ADDRESS

Ploughing our Way to a Fertile Future

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INTRODUCTION

A great deal has happened during the last 20 years and, invariably, at such a bewildering speed that we rarely have time for reflection or contemplation. In attempting to speak about the future of the world and South Africa, I must state from the outset that the future cannot be predicted. It is not possible to have knowledge of the future (i.e., to know what will be). What we can do, though, is attempt to develop good foresight. This means having good judgement. More specifically, good judgement entails having insight and understanding about the things and patterns shaping the future, and their possible consequences for the future.

One of the first lessons learnt by those who attempt to make some sense of the future is that the future is constructed, in some fashion, on the building blocks of the present and the past. This relationship between past, present and future can take on different guises. In some instances we may observe the phenomenon of invariance (the more things change, the more they remain the same). It has been shown, for example, that the acceptable time for daily personal travel has remained virtually unchanged, at one hour, for hundreds of years. Of course, the mode of transport and the distances travelled have changed significantly.

At an individual level we often find that our views about the future are willingly or unwillingly swayed by our current perception of reality, which is invariably a function of past events.

THE PAST AS A DRIVER OF FUTURE CHANGE

Given this brief analysis of the relationship between the past, the present and the future, permit me to take a brisk walk down memory lane. Every now and again in the history of the world a particular year seems to provide a watershed between, on the one hand, an established way of life, a seemingly fixed pattern of societal views and attitudes, and on the other hand, a new paradigm - a major 'earthquake' that metamorphosises the core and essence of our existence on this planet. The year 1776 is an example. For that was the year in which Adam Smith's book *The Wealth of Nations* appeared, a book that introduced the world to the tenets and principles of *laissez-faire* economics and finally dismantled the chains of feudalism as an economic mechanism - at least in Western Europe and America. To this day, Smith's tome provides the basis of the arguments in favour of free market economics. On the opposite side of the world, that year also saw the drafting of the *American Declaration of Independence,* the first commitment of an entire nation to the ideals of life, liberty and the pursuit of happiness. This document arguably gave birth to the modern democracy that the western world has come to know and recognise.

In a similar fashion, I would argue that the year ***1980*** also marked a watershed in the history of the world for at least three reasons.

First, the ***personal computer*** first saw the light of day in 1980 - a mere 20 years ago! Despite the apparent explosion in the daily use of PCs in all walks of life, and the subsequent advent of the Internet and the merging of the computer and telecommunications worlds, the really meaningful expansion is probably yet to come. Compared to the adoption of other key technologies, for instance television, PCs are only halfway up the adoption curve. Moreover, microprocessors are increasingly being embedded in the tools and appliances used in our daily lives so that, in time, the PC will fade in significance, with computerised tools taking over the functions of the 'old' PC. Ultimately, the first two decades of the 21st century will see the creation of ubiquitous computing, where we will be surrounded by and take for granted cheap, powerful chips with which we shall effortlessly interact. The world is now heading toward a future in which one common telecommunications infrastructure or a network of networks will be able to handle all communication. This will also stimulate economic growth.

If the year 1980 marked the advent of a new ubiquitous technology, it also marked a watershed in the ***political economy.*** For that is the year that Ronald Reagan became president of the USA, a year after Margaret Thatcher had been elected Prime Minister of Great Britain. And these leaders were to embark upon a course that would lay the foundations of the New Economy of today. In a nutshell, their approach can be described as follows:

- They launched an assault on the welfare state that had become predominant in the West after World War II, by *inter alia* dismantling the old bureaucratic industrial economy.
- They took on - and diminished - the power of labour unions.
- They privatised portions of the government.
- They deregulated businesses that many still deeply distrusted.
- Initially, they raised unemployment rates by tightening monetary policy to lower inflation.

It is understandable that their actions were - at the time - controversial and often traumatic. However, it is clear that Reagan and Thatcher created the political and economic context for the beginnings of the transformation of capitalism. In effect, they acted as midwives in the birthing of the new, knowledge economy where the new value added comes in the realm of ideas, which are intangibles. In contrast to the old, pre-1980s industrial and services economy which was relatively static, the New Economy has become increasingly entrepreneurial, innovative, dynamic and conducive to rapid growth.

Computers have played an indispensable role in the transformation to the New Economy by facilitating two major re-inventions in capitalism: in the organisation of corporations and in the world of finance.

However, as is invariably the case with major groundshifts, organisational transformation has caused a number of repercussions - some traumatic - as corporations reinvent themselves to become leaner and more focused and efficient. Some of these repercussions include downsizing; outsourcing of work to smaller businesses, working with contract workers and temporary workers (who are able to fill constantly shifting needs); and virtual corporations (with people telecommuting out of their homes). In short, the new efficiencies thus created thrust companies and societies into the new, networked economy.

The world of finance - one of the cornerstones of capitalism - was also reinvented by the development of computers. Today, some computers are able to trade by themselves, with very little direct human control. The telecommunications side of the networked computer revolution has led to a substantial improvement in the availability, extent and immediacy of the information used to make financial judgements and decisions. Since this allows financial operators to react instantaneously to emerging opportunities anywhere in the world, trillions of dollars in investments move around the world on a daily basis, enhancing the efficiency and productivity of capital.

The USA is the prime illustration of the virtues and success of the New Economy. The USA economy has technically sustained an uninterrupted economic expansion since 1983; a quarter million new jobs have been created in every quarter since 1995 (so that unemployment rates have bottomed out at a 30-year low of just over four percent); and average wages began increasing in the mid-1990s after two decades of stagnation. Higher employment levels and rising wages have boosted consumer confidence and spending on retail goods, housing and construction. Basic economics tells us that the combination of high and sustained growth and tightening labour market conditions inevitably leads to rising inflation unless worker productivity keeps growing at an even faster pace. Thus far at least, USA inflation has remained remarkably low; hence the conclusion that the new computer technologies, and by extension the New Economy, are indeed highly productive.

The year 1980 was significant for a third reason. Gorbachev became a Politburo member in 1980, thereby setting into motion the process that led to the Soviet Union's move toward democracy and capitalism, while Deng Xiaoping assumed political power in the People's Republic of China in 1978 and began moving the Chinese toward the market economy. These two events arguably recreated the starting point for today's ***truly globalised world.***

Although there have been previous attempts to integrate on a more global scale, today - for the first time in history - every region in the world is tied into the same economy. This global economic integration, combined with the new networked computer technologies, is the driving force behind the way in which modern economies operate today.

TSUNAMIS OF CHANGE

These few watershed events are examples of tsunamis of change. The term comes from Japanese words meaning 'overflowing waves'. Tsunamis start out as barely noticeable deep-water ripples caused by underwater earthquakes or volcanic eruptions. But they build up in shallow water into crests that can be more than 80m high. At sea, they race through the water at speeds of up to 800 km/h. As they approach the land, they suck back the sea, beaching ships in harbour. The giant waves then crash onto the shore, causing enormous destruction.

This natural phenomenon serves as a metaphor for drivers of change in the first few decades of the 21st century. Just as a tsunami starts off as an almost invisible ripple before gathering unstoppable momentum to overwhelm and destroy everything in its path, so do various emerging issues threaten to engulf and completely change the structure and future development of global and, by implication, South African society.

The trick is to observe and identify that initial ripple; that emerging issue or new-born trend. Then we attempt to anticipate its potential impact on society. And, most important of all, we try to modify our actions and behaviour in such a way that the impact of the blow is softened,

or even exploited in a positive way, i.e. to the benefit of the individual or of society as a whole.

Different people will, of course, if asked, list different tsunamis of change. And even if everyone was to identify the same tsunamis, their interpretations of the scope, magnitude and effects of those tsunamis would differ on the basis of uniquely personal and individual views of how the world operates; often slanted by personal perceptions of reality. Moreover, it would be rash and foolhardy to suggest that today's emerging trends will still be important tomorrow. If there is one indisputable reality today, it is the fact that change is occurring at a breathtaking and often unpredictable pace. Given these few qualifying observations, I believe that in addition to the tsunamis already mentioned, i.e. ubiquitous computing, globalisation, and a knowledge-driven new economy, the following are also worth mentioning:

◆ ***The quest for individual freedom***

The earthquake that ended communism some ten years ago sent 1.9 billion people - one third of humanity - tumbling into the capitalistic world. The demise of the Soviet Union and the fall of the Berlin Wall were true trendbreaks; the end of an era; a paradigm shift. This demise was at least partly brought about by the growing realisation that centrally directed economic and political systems were simply no longer able to sustain economic growth and development, and that innovation relies more and more upon decentralised individualistic managerial styles, and the freedom of individuals to pursue their own interests.

◆ ***Demographic transition***

The world's population is growing, moving and getting older. It is only since the 16th century, when a total population of some 500 million was recorded, that the world population has really accelerated. Estimates indicate that the world population reached 1 billion in 1804, 2 billion in 1927, 3 billion in 1960, 4 billion in 1974 and 5 billion in 1987. The 6 billion mark was reached late last year. Presently it takes only 11 to 12 years to add another billion people to the world's population - the equivalent of adding the entire population of Europe and North America combined.

In the past 80 years, the world's population has quadrupled: For every one person who lived at the turn of the century, there are now four. Indeed, the past 40 years have witnessed the fastest population growth ever in the history of mankind. This rapid growth has been a result of improved health conditions worldwide, which has brought down the mortality rate, and an expanding population base.

The current world population growth rate is 1.48 percent per annum, with an average of 81 million persons added each year, and 266 children born every minute. This is well below the 1.72 percent per annum at which the population had been growing between 1975 and 1990, and considerably less than the 87 million persons added each year between 1985 and 1990, which can now be regarded as the peak period in the history of world population growth.

The World Bank projects an increase in the world's population from the current 5.9 billion to 8.5 billion by 2030. What is frightening is that 2 billion of these additional 2.6 billion will be born in countries where daily earnings are less than $2. These countries are simply not going to be able to make the investments required to make water available to feed their populations, educate them, and give them the tools they will need to earn their living.

In addition, Lester Thurow reminds us chillingly that people are the ultimate source of environmental pollution and degradation. He points out that over the course of its lifetime an American baby born in 1990 will produce 1 million kg of atmospheric waste, 10 million kg of liquid waste, and 1 million kg of solid waste. In addition, that person will consume 700 000 kg of minerals, 4 000 barrels of oil, 25 000 kg of plant food, and 28 000 kg of animal products (the slaughter of 2 000 animals).

Global divides are resulting in unprecedented mass migration of people from less developed to developed countries - some legally, many illegally. Whilst not wishing to debate the moral, humanitarian, economic and political issues involved in population movements, I would like to suggest that such movements are playing a role in the global spread of diseases.

The ageing of the world's population is creating a new class of people. For the first time in human history, Western societies will have a very large group of economically inactive elderly, affluent voters who require expensive social services such as health care and who depend upon government for much of their income. They are bringing down the social welfare state, destroying government finances, and threatening the investments that all societies need to make to have a successful future.

Of course, in Southern Africa, the AIDS epidemic could invalidate much of what I've said over the last few minutes. It is estimated that by the end of 1999 in excess of 3.6 million people in South Africa were HIV positive. Unless clear changes in behaviour occur as the epidemic spreads, total HIV prevalence is expected to reach a peak by 2010 at a prevalence of approximately 22 percent of the adult population. By the year 2005, more than 500 new cases will be reported daily. Both the direct costs of health care for AIDS sufferers, as well as the indirect costs of lost productive years, will be substantial.

◆ ***Dealing with diversity***

Globalisation may bring an element of homogenisation but it also makes more evident cultural diversity. The greater interchange through the increasing ease of travel and information exchange has potential for greater understanding of diversity or mutual hostility. Managing the benefits of cultural diversity without conflict, either on

a local scale or possibly between major cultural groups will be a major concern.

◆ ***The mis-information society***

Information may be a different kind of good in that it can be sold, given away, shared and still possessed by the original holder, but if it is the central resource of the information economy it will be a major source of power and profit. The debate about the patenting of genetic information is indicative of the matter. Most information, which will increasingly be generated by the commercial sector, will be developed for particular purposes and used to support particular points of view. It may become increasingly difficult to reach a compromise between stances that are increasingly ideological in nature. The debate about GM foods is an example.

TURBULENCE, PARADOXES, CHALLENGES AND RISKS

Of course, change of the nature I am suggesting is not without its pains, challenges and paradoxes. Indeed, it may be argued that for billions of people in especially the developing world, many of the virtues suggested by the tsunamis I have mentioned are having, at best, no effect on their lives, and at worst, a negative impact. For instance, all the innovation in the New Economy, the reinvention of the corporation and of finance, the heavy adoption of computer technologies happened in the West's developed countries (more specifically, most of it happened first in the USA, only spreading to Europe in the late 1990s). Although the Asian economies clearly had benefited from globalisation, their sluggish shift to the institutions of civil government needed to operate in the more open networked economy and their too hesitant transition to the economy of the Knowledge Age, culminated in the 1997 Southeast Asian financial crisis. And, of course, the Asians weren't the only victims of the new global networked economy's breathtaking ability to move (withdraw) vast sums of capital at such speeds. Russia floundered soon afterward, as did Latin America and South Africa.

The harsh reality is that, to date, barely one-sixth of the world's population has benefited from globalisation and economic integration. At the start of the 21st century 2 billion (i.e., one-third) of the world's population live below the poverty line, subsisting on less than $1 a day. The economic and developmental gaps between the rich, industrialised North and the poor South (especially Africa) are widening, despite noble attempts by the latter to subscribe to the doctrines of liberalism and democracy.

The obvious question that arises at this stage is: 'Why have so many countries and billions of people not been able to take advantage of the purported benefits of globalisation?' The list of answers provided below does not profess to be an exhaustive one; nor is it deliberately judgmental. It merely proposes a number of possible reasons, in no particular order of importance.

- For various historical reasons 80 percent of the world's population finds themselves in the poor countries of the world that produce only 14 percent of the world's income.
- Nearly 90 percent of the export market is in the hands of the rich countries. Some 68 percent of investment flows to the top league of countries. The poorest 20 percent of the world population do not benefit from globalisation or trade in any way.
- Sub-Saharan Africa, home to 10 percent of the world's population, produces only one percent of the world's GDP and shares in only 0.3 percent of the world's export market. Moreover, Africa largely produces for the export market primary commodities that are far less sought after than, say, forty or fifty years ago.
- Although the amount of foreign direct investment (FDI) flowing to developing economies has increased fourfold since 1980, a mere eight of those countries - out of more than 200 - account for some two-thirds of these flows.
- The phenomenal recorded (and anticipated) success of telematique (the integration between computers and telecommunications), with the associated link-up between satellite networks and global media, remains largely peripheral to life in the South. For example, there are only 43 television sets per 1,000 people in sub-Saharan Africa, compared to a world average of 212 sets, and over 700 for the USA.
- It is in the very nature of free-market, 'survival-of-the-fittest,' 'dog-eats-dog' thinking to expect some nations/populations to thrive and prosper at the expense of others. Moreover, orthodox capitalism is all about minimising costs and maximising revenues. Sentimental or historical attachment to some geographic part of the world is not part of the system.
- Related to the previous point (i.e., that globalisation is a zero-sum game) is the feeling that the rules of globalisation are set by those who win (the industrialised societies; those societies who got an early start). In this regard a Bangladeshi entrepreneur uses the term 'gobbleization' - when larger entities gobble up smaller ones. In a similar, but more cynical, vein globalisation is regarded by some as simply a more palatable word for Americanisation.
- Fierce competition (indeed, the ice-cold winds of competition) may certainly lead to the more efficient utilisation of resources; in the short run, at least, it has also lowered real wages and arguably contributed to increases in unemployment, poverty and inequalities and, by implication, economic insecurity. In more general terms, it could be argued that the great problem of globalisation in the 21st century, especially for the world's underclasses, would be to realise political and social aims that do not spring from its economic workings. Because for the vast majority of people in the world globalisation produces (or is perceived to produce) a toleration of

poverty, widening developmental gaps, a persistent inability to provide employment for all who seek it, and huge enterprises that defy and even supersede the power of the nation-state itself.

Moreover, increasing reliance on and liberalisation of markets has contributed to major changes in the configuration of power relations within and between countries. For instance: the organised working class has been weakened (although not in SA); creditor countries, international investors and multilateral financiers have seen their influence increase at the expense of debtor countries and those heavily dependent upon aid and/or foreign capital; often the power and autonomy of the state have been reduced; and fierce competition nationally and internationally, which has led to more efficient utilisation of resources, has also lowered real wages and arguably contributed to increases in unemployment, poverty and inequalities, and by implication, economic insecurity.

The future course of globalisation is now at a crossroads - while the process has indisputably brought about prosperity and advancement, for many more economic development and progress remain painfully elusive. Whilst some would simply argue that the business of business is business, others believe that issues such as environmental sustainability, job creation, growing social disparities and various complex ethical questions should take precedence over growth simply for growth's sake. In this regard there are three fundamental sets of questions that proponents and beneficiaries of globalisation will need to answer adequately if they wish to avoid a broad-based return to protectionism of national economic, political and military interests. These questions are:

- What do we mean by progress? Is it the same as economic performance?
- Assuming that market forces, reinforced by globalisation, seem to be the best mechanism to produce economic performance, can we also be assured that they will lead to progress in a broader sense?
- If and when market forces and globalisation fail to deliver progress, what are our alternatives? Who will be responsible, and for what?

When all is said and done, despite spreading objectives and resistance, the process of globalisation is set to continue. The dominant role of the industrialised nations in the world economy will ensure this. But this is not to say that the nature and ingredients of globalisation will not change. The sheer force of numbers - 5 billion sceptics versus 1 billion beneficiaries - will ensure this. What we probably need is a new compact between the inexorable forces of globalisation and the world's dispossessed. This compact should have as its primary objective the triggering off and acceleration of economic and social development in the Third World. And, reminiscent of the slogan 'Think global, act global,' all meaningful progress will have to be accomplished at the local level.

Globalisation and technological progress are particularly perplexing in the ***agricultural sector***, where new relationships are being forged within, and between, different layers of agribusiness. Agribusiness used to be an orderly chain of companies and institutions stretching from the supply of inputs (e.g. seeds, fertilizer and machinery), to food processors and retailers. Each link of the chain was clearly defined and largely independent. Family farmers were central to the system. In 1950 the world's agribusiness was worth $420 billion, with farmers adding more than a third of the value. By 2028 the market could be worth $10 trillion, with the farmers' share of that falling to 10 percent.

Since the Second World War, agriculture has become bigger, more intensive and more specialised. It employs 1.3 billion people and produces $1.3 trillion worth of goods each year. World production of food per capita has risen by 25 percent over the past 40 years, even though land use has grown by only 10 percent and world population has increased by 90 percent. Consequently, food prices in real terms have fallen by 40 percent. And yet, the agricultural sector is concerned. Why?

- Farmers are expected to produce an abundance of cheap food, but at the same time take account of environmental concerns and the health of consumers.
- Farmers are supposed to respond to market forces, yet find themselves so insulated in some countries and marginalised in others that they can scarcely manoeuvre.
- Falling agricultural commodity prices and the imperative of being internationally competitive have resulted in a significant decline in the relative share of agricultural workers in the labour force. (In the developing world agriculture was responsible for 80 percent of total employment in 1950; by 2010 this share is forecast to be just below 50 percent. In the developed world the corresponding trend is from just below 40 percent in 1950 to about 3 percent in 2010).
- For the developing world one of the most compelling reasons to resent the role played by the large industrialised nations in setting the ground rules for globalisation and free, unshackled international trade, is in the domain of agriculture. For clearly, developing countries have reason to worry if rich countries embrace domestic farm policies that bring down the price of their goods in export markets, and obviously they are keen to see barriers to their own exports removed. Despite pledges to reform, protectionistic tariffs on agricultural goods still run at an average of 40 percent, compared with under 10 percent for manufactured goods, and import quotas remain tight.

  And agricultural exports are still subsidised by rich countries to make their agricultural surpluses competitive in export markets, thereby undercutting the

price of homegrown goods in poor countries.

The nature of the dilemma is driven home by the following facts: It has been calculated that stripping such distortions from the OECD's agricultural policies would boost global agricultural trade by more than half, making the OECD and the developing world $160 billion better off between them. However, international food prices would then rise by up to 5 percent over a decade. That is an alarming prospect for countries concerned about the security of their food supplies, especially for many countries in sub-Saharan Africa that import more food than they export.

The ***quest for individual freedom*** also provides us with a paradox. For those formerly living under communism, everyday life has changed profoundly. They now live in a world with a very different set of criteria for success and failure. They have been given opportunities to make their own decisions, but are also asked to take risks and undertake activities that they never had to do in the past. They will get the chance to become rich but have had taken from them some of the good things of life.

The reality shock for 40 million South Africans has been no less profound, over roughly the same period. After years of isolation, international disdain and a self-imposed inward looking strategy, we too have been plunged into a new game with new rules and new strategies.

It should also be noted that a sudden collapse in the old way of doing things, conducting business and positioning yourself in a game where the rules are entirely different, may create a vacuum in institutions and values. Throughout the world billions of people are now engaged in a search for the freedom to make money in the way they prefer, and the freedom to define their personal lifestyles. If these actions and choices occur at the expense of tolerance and respect for the rights of others, a potentially negative force comes into play. In as much as democracy promises a multitude of expectations, and innovative thinking is encouraged as a vehicle towards meeting own self-interest, altruism may fly out the window as the credo becomes 'Numero Uno'.

As far as ***knowledge as the driver of the new economy is concerned,*** the old motors of growth - land, capital, natural resources - no longer matter as much as they used to. These quantitative assets, which have traditionally made countries rich (and prevented others from becoming so) are being replaced by a series of qualitative features, which boil down to the quality, organisation, motivation and self-discipline of the people who live there. In today's post-industrial era rapid technological progress, knowledge and human innovativeness are highly dependent on the individual's enthusiasm and freedom. You cannot instruct a person to be innovative, only to comply. Power is no longer institutionalised and enforced; it is individualised and accomplished through people.

Here we are touching on one of the major challenges facing public and private policy-makers and managers in the 21st century: How to harness, maintain and measure knowledge. Because knowledge as the new source of economic power has a number of unique and perplexing attributes. First of all, knowledge is 'sticky' - it can be passed on to others without the original owner losing possession. Secondly, knowledge is leaky - it cannot be so closely controlled as land or capital. After all, intelligence is a personal attribute that people carry with them, wherever they go and whenever they want. Finally, knowledge is 'tricky' in the sense that it is difficult to measure with conventional accounting tools. These difficulties will, however, have to be overcome. In future employees will no longer be seen as a cost item in an income statement; people will be regarded - and rightly so - as an asset. This means that established notions of property will no longer be applicable.

The challenge - especially for producers in developing countries - is to establish and develop the capacity to transform information into knowledge, i.e., to contextualise information; to ask the right questions. For instance:

- What goods and services should I be producing? (What is the market going to want? Who is the market going to be?)
- What is the cheapest way of producing and delivering the goods and services?
- How can I produce the best quality goods and services in the world?

In the 2lst century brawn will give way to brains.

Within an African context, the ***future role and performance of South Africa*** is also paradoxical. In Southern Africa the South African economy and, in many instances, the country's state of development, stands out like a shining beacon. Only one country in the whole of Africa - Egypt - has a larger economy than that of Gauteng. In fact, South Africa is responsible for 28 percent of the entire GDP of the continent (which in turn produces only 1.8 percent of the world economy, or the equivalent of the GDP of Ohio). Two major forces are emerging from the major divide between South Africa and other countries in the sub-continent. On the one hand, the inability to scratch out even a meagre living in a vast economic wasteland (push forces) is compelling millions of hungry, poverty stricken inhabitants to seek greener pastures (pull forces). Hence, the annual influx into South Africa of hundreds of thousands of what have become known as 'illegal immigrants'.

The impact of this inflow can be summarised as follows. Economic refugees from elsewhere in Southern Africa

are exerting considerable pressure on an already explosive demographic situation in South Africa. With more and more people competing for fewer and fewer jobs, and laying claim to the country's strained resources, the potential for violent conflict is obvious. Moreover, the inability to meet their high expectations of a better quality of life adds a further dimension to the crime scene in South Africa. In short, South Africa's real or perceived superior economic performance and prospects relative to the rest of Africa are possibly making a partial contribution to future conflict here.

Thus, it is within South Africa's interests to make a meaningful contribution to economic development and enhanced prosperity in all Southern African countries. It is better to import goods and services than socio-political instability and poverty.

The paradox of technological progress

Unskilled labour in SA is overpriced and underpaid. Since labour is generally seen to be a cost, this leads to pressure for greater efficiency; in the event jobs are destroyed because they become too expensive. These jobs are shed from manufacturing in particular. This is happening in SA - jobless growth. In effect, South African labour is pricing itself out of work, especially given the onslaught of international competition and technological advances.

At the same time, millions of workers in SA are earning a wage income that barely - if at all - approaches the so-called breadline level.

One of the implications for South Africa is a shift from manufacturing to service employment, but many of the new service jobs will be part-time, casual and poorly paid in comparison to the industrial jobs they replace. This creates a further paradox - the creation of new jobs will not always lead to the expected increase in purchasing power or feelings of economic wellbeing that are expected.

RULES OF THE GAME AND WILDCARDS

At this stage it would be valuable to try to disseminate from these paradoxes a number of key certainties and wildcard events that could have a bearing on the future landscape of Southern and South Africa. I would, however, like to stress the fact that I am not all that comfortable with the use of the word 'certainty'. The concept suggests an undoubted fact, an indubitable prospect, an absolute conviction. It implies the occurrence of events beyond any possibility of doubt. I would contend that this degree of conviction is simply not possible; in fact, any claim to the contrary would be presumptuous, naive and short-sighted. The term 'rules of the game' may be more appropriate in as much as it describes the framework and parameters within which we can build some understanding of our current future, i.e., that future which will evolve if current structures, patterns, trends, behaviour etc, are allowed to continue.

Rules of the game

Some of the future 'rules of the game' for the world and Southern Africa in general, and South Africa in particular, could include the following:

Social

- Issues such as job security, income security, health and environmental security will become major global human concerns and development challenges; not merely problems of the poor countries.
- Africa's estimated population of 2.1 billion in 2050 will be almost three times the 1995 population (and almost 10 times the 1950 population).
- By 2065 more persons in the world will be older than 60 years than the number under 15 years of age.
- The growth rate of South Africa's white population will be negative after 2016, while the black population growth rate will fall to 1 percent after 2030.
- South Africa's urban population will reach 33.4 million by 2011 (from 23.4 million in 1995).
- One in every five South Africans aged 15-59 could be HIV positive by 2010.
- South Africa has a shortage of 57,500 classrooms.

Political

- The most serious threat to ANC power lies not in opposition parties, but in future splits.
- The industrial relations environment will be the most volatile one in South Africa.
- There will be growing polarisation between skilled and unskilled workers.

Technology

- The 21st century will be a world where anywhere, anytime communication will be the rule, not the exception.
- Nanotechnology will be the basis for a whole new industry of molecular manufacturing.
- Energy-conversion systems will see a move away from the environmentally damaging reliance on fossil fuels.
- Artificial intelligence will enable machines to match humans in speech, vision, language, communication and thought.
- New technologies will be exploited by small, dynamic, entrepreneurial companies.

Natural resources

- A 40 percent increase in food production is needed to alleviate current levels of malnutrition in sub-Saharan Africa.
- World food production will have to increase by more than 75 percent over the next 30 years to keep pace with population growth.
- The whole of Namibia and Botswana, and more than half of South Africa are potential deserts.

- For every 100 homes electrified in South Africa, between 10 and 20 new economic activities are started.
- Business opportunities are arising from a growing environmental awareness.

Economic

- Within 25 years, seven of the world's ten largest economies will be in the east.
- South Africa is destined to remain the strongest economic power in Africa.
- The destinies of people from all walks of life, and in all countries, will be linked as never before through highly interdependent trade and investment networks.
- Skills and knowledge will attract foreign interest and investment; not cheap labour or raw materials.
- There will be a growing trend towards an increase in part-time, informal and insecure jobs.
- Redistribution policies alone will not be adequate to counter poverty in South Africa.
- Given the inherent inflationary bias in the South African economy and the volatile nature of foreign capital flows, a continued long-term decline in the international value of the rand seems inevitable.

By way of summary, South Africa's rules of the game over the next few decades suggest an adherence to economic liberalism and macro-economic orthodoxy, accompanied by an economic power-shift from white to black, but with continued and growing wealth gaps between the black middle-class and a large black underclass. Globalisation - although in a softer form - and information technology will become increasingly important drivers of political, economic and social transformation. South Africa will continue to be the major economic power in Africa where its role in uplifting the continent will be pivotal. In sub-Saharan Africa, including South Africa, vast numbers of economically active people will be lost to the ravages of AIDS. Mega-cities will become the rule rather than the exception, as millions of rurally poor flock to cities for their survival. Knowledge and skills will separate the rich from the poor, while food and water will be major sources of conflict throughout the developing world. The Southeast Asian economies will recover and, together with Japan and China constitute an economic power bloc that will be just as big, if not bigger, than Northern America or Europe. More and more human beings will be living way beyond the age of 100 and enjoying relatively good health in a virtual world.

Wildcard events

This brings me to the issue of wildcard events, i.e., events whose likelihood of occurring is fraught with uncertainty, but if they were to materialise would have a profound impact on the way in which the future would unfold. They would then represent key turning points, discontinuities, fractures in the history of time. These, then, are the kind of things to look out for over the next few decades. I am deliberately avoiding the Armageddon, Mad Max kind of imagery. Instead, I shall present a few wildcards in the form of open-ended questions for contemplation.

- Will virtually all forms of disease (including cancer and AIDS) be eliminated, or will humanity be faced with deadly viruses capable of wiping out vast numbers of the human race?
- Will bio-engineering provide sufficient nutrition for the world's entire population, or will there be a global megafamine due to mismanagement of resources?
- Will global crime result in a conservative, middle-class backlash?
- Will there be a centralised world government and world economic and monetary system, or will nationalism, regionalism and ethnicism result in a fragmentation of the world?
- Will capitalism still be a viable ideology?
- Will the expansion of knowledge produce global equality or global conflict?
- Will technological interconnectiveness enhance toleration and understanding or will it be seen as an unacceptable invasion of personal privacy?
- Will consumption of red meat still be tolerated?
- In South Africa, the application of an orthodox economic policy needs to be reconciled with the imperatives of socio-economic reform, job creation and human development. Will the inability to effect such reconciliation lead to a change in government economic policy or a change in government?
- Will South Africa's most pressing socio-economic problem in 2020 be unemployment (too many people chasing too few jobs) or, given the possible impact of AIDS, will it be over-employment (too few people chasing too many jobs)?
- Will Africa, and South Africa, be able to leapfrog from the Agrarian Age straight into the Knowledge Age, and thereby escape marginalisation?
- Will life expectancy at birth in Southern Africa be 30 years or 130 years?
- Will the major ethnical grouping in Southern Africa be African or Chinese?
- Will Pretoria be the capital city of South Africa, or of Southern Africa, or of Africa?
- Will the work of brain surgeons, lawyers, engineers, accountants, economists and farmers be done by human beings or by machines?

CONCLUSION

What, then, about the future of the agricultural sector? As already stated, the industry is under pressure to become more competitive, more environmentally-friendly, and more responsive to consumer needs. In meeting these demands the sector in general, and farmers in particular have a number of possible strategies that they

might consider:

- We might see agricultural co-operatives making a major comeback, by becoming vertically-integrated food-production-to-processing businesses. Their advantage over private companies (provided they are well-managed) is that they can offer farmers a greater stake and a greater say in the business, thereby harnessing their loyalty.
- Farmers can thrive by joining the information age, in many ways; for instance, using technology to engage in precision agriculture that would enable farmers to collect masses of information about the state of his own fields. Yields in different parts of his fields could then be linked to particular soil features, enabling him to concentrate his use of chemicals where they are needed most. This, in turn, would reduce his costs and help him to conform to regulations on the use of chemicals. The Internet offers farmers a way of becoming connected to other points in the agribusiness, not least of which websites allowing them to bid for things like pesticides and fertilizers, and in turn finding buyers (anywhere in the world) for their products. Indeed, many are predicting a bright future for 'agr-e--business'. By 2003 up to 10 percent of the world's $4 trillion market in agricultural goods may be traded online.
- Nostalgia might bring farmers closer to the market. Many consumers have a sentimental attachment to the countryside and rural life that farmers could tap into. In this regard organic agriculture may be a way of reconnecting the industry to the consumer. The world market in organic food, although still very small, is growing rapidly and is expected to reach $20 billion this year.

Finally, it is worth pointing out that by 2020 the world is expected to have another 1.5 billion people to feed, most of them in the growing cities of the developing world. The world's farmers will have to produce 39 percent more grain to meet the extra demand. In addition, rising incomes in some developing countries will double their populations' appetite for meat. All this additional food will have to come from the same amount of land, using even less water than before. In short, agricultural productivity will once again have to display a monumental improvement. (By the way, productivity in South Africa's agricultural sector has, since 1970, risen more rapidly than most, if not all, other sectors). The good news, for farmers anyway, is that agricultural commodity prices are set to rise as Asia pulls out of its economic crisis and record food stocks are run down.

New technologies, globalisation, improvements in information exchange and corporate restructuring are bringing as much change to agriculture as to other industries. And, as in all other industries, the greatest challenge will be to make sense of the paradoxes and come up with workable solutions. It's been done before - why not again?

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