

Dec 2010 | Edition 2

Nedbank

Sustainability Outlook

Researched by University of Cambridge Programme for Sustainable Leadership

Sustainability rests
on a simple premise:
the interconnectedness
of all things.

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MAKE THINGS HAPPEN

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FOREWORD

As the world changes there are crucial environmental and social factors that influence business and investments. For this reason Nedbank has specifically invested in understanding how these realities interact with the financial markets. In collaboration with the University of Cambridge Programme for Sustainability Leadership (CPSL), the aim of the Nedbank Sustainability Outlook is to bring you some of the critical analyses, data and arguments that will help you discern vital environmental and social trends that relate to your investment choices. We trust that this information will be useful as you address the complexity of the challenges involved in transitioning to a truly sustainable economy.

BUSINESS NEEDS TO ASSESS SOUTH AFRICA'S WATER CHALLENGE

As South Africa strives to grow its economy and provide its citizens with adequate basic services, the **demand for water is expected to increase by about 32% over the next 25 years** – under a business-as-usual scenario that will mean demand for serviced water will exceed supply by 17%. The sources of the water challenge in South Africa are limited natural supply, problems with pollution and the high cost of alternative solutions.

Industries will be affected in ways that may not seem obvious now. The food and beverage, power-generation, mining, high-tech, and pulp and paper sectors all depend heavily on water and therefore are directly exposed to water scarcity. But water is vital to industry even when it is used indirectly for cooling or heating, transport and cleaning. Many industries are exposed to the risk of water scarcity through their supply chains, since they rely on energy and input from water-dependent agricultural and industrial sectors. In many cases companies' own water use might be as little as 1% of their total supply water footprint, making the vulnerabilities less obvious.

What is at the heart of South Africa's water problem?

Rainfall

The country's water resources are, in global terms, scarce and extremely limited. Our annual rainfall is about 50% of the world average and there is great variation between seasons and regions.

More problematic is the ratio between mean annual precipitation (MAP) and mean annual runoff (MAR) (MAP-to-MAR ratio), which is only 8,6%. By comparison, Canada, with a similar annual rainfall, has a ratio of 65,6%. A further 3% to 5% of South Africa's rainfall infiltrates into groundwater. That means less than 14% of all rainfall can be harnessed as runoff surface or groundwater. Most of the rest is lost through evaporation and evapotranspiration.

Rivers

The total flow of water from all the rivers in the country amounts to about 49 200 million cubic metres a year. This is less than half of that of the Zambezi River, the closest large river to South Africa. To overcome this natural constraint the government has in the past pursued an aggressive hydraulic policy to build storage capacity. South Africa is listed as being among the top 20 countries in the world by virtue of the number of dams we have. Almost 75% of MAR has been captured by large dams and transported through interbasin transfer schemes.

Groundwater

Groundwater plays a pivotal role, especially in rural water supplies. However, owing to the predominantly hard-rock nature of South Africa's geology, there are few major groundwater aquifers that can be used on a large scale. Our total utilisable groundwater exploitation potential is about 10 billion cubic metres per annum. Many people are, however, dependent on groundwater, which contributes 13% of the water supply. In some areas (south-east of the country) there is scope to increase extraction, but in other areas the water tables are already falling at alarming rates.

Renewable supplies

Of the total renewable supply of around 60 billion cubic metres, only 15 billion cubic metres are available through infrastructure. According to the 2030 Water Resource Group an additional 25% of surface-reliable supply could theoretically be developed. Groundwater extraction could also double, but most groundwater is difficult to access and often far from demand centres.

Pollution

Treated and untreated return flows and effluent discharges contribute another 14% of the country's freshwater resources. This has great potential to be increased. Whereas about 50% of water used in inland urban areas returns to rivers for reuse, along the coast the used water flows into the sea. However, if the used water is poorly or incompletely treated, it severely compromises the quality of water in many systems, making it less fit or more expensive to use. South Africa faces three types of water pollution, namely

radiological pollution, found downstream of gold mining; biological pollution, found downstream of sewage works; and chemical pollution, found downstream of industrial and agricultural activity.

Problems are appearing in all three categories. Many tests have shown that uranium levels in the water of the Wonderfontein catchment area are too high, with significant uranium level increases in the groundwater aquifers of the Boskop Turffontein Compartment. Recently there were also problems reported with biological pollution on irrigated crops in the Hartbeespoort Dam area. Several water bodies are affected by algal blooms caused by the overenrichment of water (eutrophication), typically by fertiliser runoff, which can be highly toxic to humans and animals. The much-reported acid mine drainage (AMD) is a type of chemical pollution, but is caused by mining. AMD is a consequence of the exposed rock in old mineshafts oxidising and releasing hydrogen ions, which react with the water to form an acidic solution. AMD can be managed by maintaining water levels at the environmental-critical level – the level where contaminated mine water will not impact on the environment. However, as many mines have been abandoned and there are often not sufficient resources for pumping, acid-water levels have risen. Decant has already happened in the Western Basin in 2002. Decant from the Central Basin is expected to happen in 2012 near Boksburg, unless something is done. The water that decanted from the Western Basin (near Krugersdorp) had a pH level of about 3 and a very high sulphate level. The current Western Basin decant is 30 million litres per day, and the total decant potential of the Witwatersrand Goldfields is about 350 million litres per day (10% of total current water use).

There are some case studies of companies dealing successfully with AMD. Anglo Coal and Ingwe Collieries have invested R300 million in the eMalaheni mine water reclamation works in Mpumalanga, 100 km east of Johannesburg. Here they are treating 20 million litres of AMD per day, running it through sophisticated filtering and reverse-osmosis processes, before selling 18 million litres of it to the local municipality, which ran short of water.

What can be done?

The Department of Water Affairs plans to spend about R30 billion between 2014 and 2017 to establish and construct 15 mega-water-resource infrastructure projects. This includes a second phase of the Lesotho Highlands Water Project. Another area requiring intervention is **ageing infrastructure**, as up to 30% of water in certain areas is being lost due to leaking pipes, broken valves and theft according to Rand Water. Contributing to that problem is the current price strategy, which does not allow

full cost recovery. The Department of Water Affairs needs about R2,4 billion a year to run the infrastructure, and is only collecting R600 million. This results in a heavy reliance on capital markets to fund capital expenditure and maintenance.

The clearing of alien vegetation continues to be a focus area for improving water availability. These plants cover about 10% of South Africa, intensifying fires, causing soil erosion and lapping up large amounts of water. Research shows that water usage has decreased by 13% to 16% after the clearing of invasive alien plants. According to its 2010 to 2013 strategic plan the Department of Water Affairs wants to increase the clearing of invasive plants through the acclaimed Working for Water Programme to 889 915 ha per year in 2013. Since 1995 2,27 million ha has been cleared and over 17 million days of employment generated. After the clearing, natural vegetation typically returns, with corresponding biodiversity benefits.

Higher costs

All of the data on water in South Africa points to the fact that water prices are set to increase. The tariff to transfer water over about 200 kilometres to the Lephalale coalfields (north-west of Johannesburg) will be between R15 and R20 a cubic metre for untreated water, a dramatic increase over the R5 a cubic metre that consumers pay in Gauteng. It will cost about four times as much to transfer water over 800 kilometres from the Zambezi, or to pump desalinated seawater to Gauteng. Business and investors will be well served to understand companies' dependence on water and the potential impact of shortages or price increases and to investigate possible solutions for saving water and ensuring reliable supply.

The US-based NGO Ceres, which directs a group of institutional investors managing over \$7 trillion in assets, published a 2009 report that highlighted four things that investors should do regarding water:

- 1 Independently assess companies' water risk exposure.
- 2 Demand more meaningful corporate water disclosure.
- 3 Encourage companies to incorporate water issues into their climate change strategies.
- 4 Emphasise the business opportunity side of the water challenge.

Recently 12 South African companies took part in the inaugural CDP Water Disclosure ([download here](#)) as a step towards understanding their water-related vulnerabilities and responsibilities.

If you would like to learn more about water issues facing South Africa, consider attending the South African Water and Energy Forum at the Sandton Sun on 14 and 15 February 2011 (www.sawef.co.za).

CARBON TAXES AND BORDER CARBON TAXATION

In the absence of a global agreement on climate change, many countries are pursuing strong domestic action. They are doing this in anticipation of future regime obligations or out of a desire to address the challenge of climate change irrespective of an international regime. In those countries many companies fear that it may put their domestic industries at a disadvantage. One policy option that has been repeatedly proposed to deal with that challenge is border carbon adjustment (BCA), a trade measure that would try to level the playing field between domestic producers facing costly climate change measures and foreign producers facing very few. While a BCA could conceivably work in conjunction with any number of domestic climate change regimes, it has been proposed to date as a companion either to a domestic carbon tax or a cap-and-trade scheme.

One of the proponents of BCA is Nobel Prize-winning economist Joseph Stiglitz. 'In most of the developed countries of the world today, firms are paying the cost of pollution to the global environment, in the form of taxes imposed on coal, oil and gas. But American firms are being subsidised – and massively so. There is a simple remedy: other countries should prohibit the importation of American goods produced using energy-intensive technologies, or, at the very least, impose a high tax on them, to offset the subsidy that those goods currently are receiving.'

John Hontelez, Secretary General of the European Environmental Bureau (a federation of 140 environmental organisations based largely in European Union member states), made similar points in a widely circulated piece from 5 April 2007, 'Time to tax the carbon dodgers'. He wrote: 'Border Tax Adjustments (BTAs) might be the answer which allows the EU to develop responsible climate policies without having to wait for other countries. They would result in products imported from the US being taxed to compensate for resulting differences in production costs. Thus EU firms would be protected against unfair, carbon-careless competition from outside.'

Stiglitz continues that the United States acknowledged the principle behind BCA, trade discrimination on the grounds of environmental standards, when it prohibited the importation of Thai shrimp that had been caught in 'turtle-unfriendly' nets – nets that caused unnecessary deaths of large numbers of this endangered species. A Duke University law professor has published a paper that holds out strong hope that border tax adjustments

could pass muster under WTO (World Trade Organisation) and GATT (General Agreement on Tariffs and Trade) rules.

BCA might play at least two other useful roles. One is to avoid what is known as carbon leakage. That is, if strong domestic action causes firms to relocate to other countries, or to lose market share to those countries, then the emission reduction achieved at home is simply offset to some extent by an increase in emissions abroad, thus resulting in no net emission reduction at a global level. Secondly, it might act as an effective threat to encourage all countries to take on hard commitments in the climate change negotiations to avoid trade sanctions.

According to Jiang Kejun, a senior researcher at China's National Development Reform and Commission's Energy Research Institute, China could possibly implement an emissions tax by 2013. The tax would be revenue-neutral and some analysts believe it will actually enhance GDP. One of the benefits of a Chinese carbon tax is that it would exclude the country from BCAs imposed by other nations.

The chance of a BCA regime being implemented will probably depend on how the international climate negotiations pan out over the next 15 months. But, from a South African point of view, this line of thinking could have far-reaching implications, as we have one of the highest levels of carbon intensity in the world. Our products would thus be at a particular disadvantage to other exports.

Commenting on the possible introduction of carbon taxes in South Africa, economist Brent Cloete said that climate policies and carbon taxes must be adopted early for South Africa to remain on the ambitious emissions trajectory it committed itself to in the Copenhagen Accord. He continues: 'The Treasury is considering a broad-based carbon tax that will increase the price of products that are carbon-intensive to produce, like cars. If implemented as a tax on coal, which seems likely, it may also increase the cost of fuel (23% of local fuel is produced from coal-to-liquid technology).'

For investors the implication of talk about BCA is that they probably cannot afford to wait for finalised legislation before seriously considering the impact of carbon pricing on companies. All indications point to the fact that, whether through enlightened cooperation or trade restrictions, the cost of carbon will become internalised in the near future. Science makes it clear we have no alternative.

CAN INVESTORS IGNORE LONGER-TERM ENVIRONMENTAL IMPACTS?

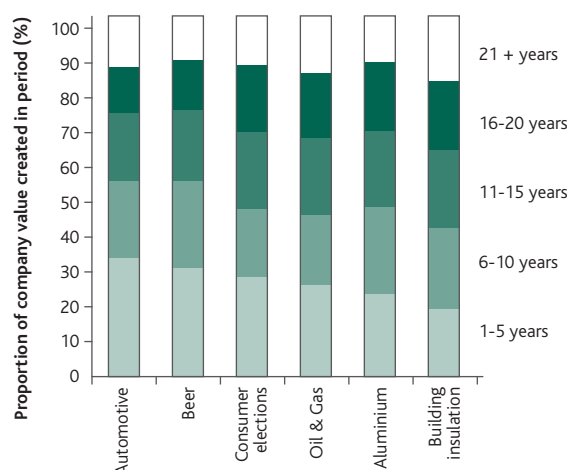
Famed investor Warren Buffett has said that price is what you pay for a share, but value is what you get. Most investors determine a value for a company by calculating its long-term cashflows and discounting it to the present. They do, however, focus mostly on issues with quantifiable and near-term (around 12 months) impacts on financial performance. Most environmental and social changes are gradual, unclear in their direct impact, and imply diverse direct and indirect effects on companies' performance. The result is that most equity analysts have ignored them altogether. By their reckoning, they will all adjust their forecasts as soon as the implications are clear and short term. Asset owners will then have to find a 'greater fool' to buy these overpriced securities while everyone wants to sell.

Three pieces of information point to the fact that equity analysts and investors could be well served by including environmental (especially carbon and water) and social factors in their analysis.

According to a 2010 McKinsey report analysts were typically overoptimistic, slow to revise their forecasts to reflect new economic conditions and prone to making increasingly inaccurate forecasts when economic growth declined. Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12% a year, compared with actual earnings growth of 6%.

Secondly, GS Sustain, a unit of Goldman Sachs, argues that there is a growing discrepancy between the market's short-term focus and lack of differentiations and the long-term structural trends on companies' financial performance. They highlight tightening resource supplies and environmental impacts of growing resource consumption as two of these long-term macro trends.

Thirdly, while long-term changes to cashflow are naturally discounted in today's valuation of a company, analysis done by the Carbon Trust and McKinsey across different industries reveals that on average greater than 50% of the value of a company resides in the value of cashflows to be generated more than 10 years onward (see graph). The move to a low-carbon economy can have a profound effect on these values and still put significant value at risk, as well as create the opportunity for increased cashflows.



Source: Carbon Trust and McKinsey & Co analysis

At the very least this information points to a rationale for weighing companies up relatively according to their carbon and water efficiency, for example, and their overall exposure to policy changes that will happen sooner or later. Failing to do so, many investors might once again learn the difference between price and value.

UNIVERSAL OWNERS HAVE NO ONE TO PASS ENVIRONMENTAL COSTS ON TO

Climate change may dominate headlines today. Ecosystem degradation will do so tomorrow. Ecosystems provide businesses with numerous benefits or 'ecosystem services'. Forests supply timber and wood fibre, purify water, regulate climate and yield genetic resources. River systems provide fresh water, power and recreation. Coastal wetlands filter waste, mitigate floods and serve as nurseries for commercial fisheries. However, human activities are rapidly degrading these and other ecosystems. The Millennium Ecosystem Assessment – the largest audit ever conducted of the condition and trends in world ecosystems – found that ecosystems have declined more rapidly and extensively over the past 50 years than at any other comparable time in human history. In fact, 15 of the 24 ecosystem services evaluated have degraded over the past half century.

The implications of this loss in economic terms are that in 2008 we were losing biodiversity and ecosystem services with an estimated monetary value of \$6,6 trillion, equivalent to 11% of global GDP. This is according to a recent study released by the UN-backed Principles for Responsible Investment (PRI) and the UN Environment Programme Finance Initiative (UNEP FI). Those global costs are 20% greater than the \$5,4 trillion decline in the value of pension funds in developed countries caused by the global financial crisis in 2007/8.

The world's 3 000 largest public companies by market capitalisation caused approximately one-third of the environmental damage. The most environmentally damaging business sectors are utilities, oil and gas producers, and industrial metals and mining. Those three accounted for almost a trillion dollars worth of environmental harm. Putting the financial figures in perspective, the environmental costs of \$2,2 trillion incurred by these 3 000 companies were equivalent to nearly 7% of their combined revenues or 50% of their earnings. But, at the moment these costs are not borne by these companies, so someone else is or will be paying – other companies, other countries or someone in the future.

An increasing number of large investors are, however, recognising that environmental externalities generated by one company are likely to come back and hit their portfolios in another place or time. Large institutional investors are, in effect, 'universal owners', as they often have highly diversified and long-term portfolios that are representative of global capital markets. Their portfolios are inevitably exposed to growing and widespread costs from environmental damage caused by companies. A portfolio investor benefiting from a company externalising costs might experience a reduction in overall returns due to these externalities adversely affecting other investments in the portfolio and overall market return, through taxes, insurance premiums, inflated input prices and the physical cost of disasters. This is equally true for passive investments in many index tracker funds.

In the United Kingdom, for example, institutional investors own and manage more than 70% of the stock market. Now politicians and regulators are saying that such institutions must share the blame for enabling the crisis through passive corporate governance and a focus on short-term returns. A movement is afoot in Canada, France, the Netherlands, the United Kingdom and other markets to encourage institutional investors to become better 'stewards' of the companies they invest in, by adopting a more active and long-term stance.

Whereas in the past many asset managers cited 'fiduciary duty' as their reason for not considering environmental, social and governance factors, the tide is turning. The Materiality II Report, published at the end of 2009 by UNEP FI, includes legal commentary that asset managers and investment consultants have a duty to raise ESG issues proactively with their clients, and that failure to do so presents 'a very real risk that they will be sued for negligence on the ground that they failed to discharge their professional duty of care to the client ...'. The recently published report on the Economics of Ecosystems and Biodiversity for Policymakers comes up with a similar message, as governments can hold companies liable for impacts on biodiversity and ecosystem services (BES) through the 'polluter pays principle'.

Pension-paying individuals, the ultimate owners of the equities managed by institutional investors, might also find their quality of life greatly diminished come retirement time. The sum of money they receive could very well not afford the quality of life that they would have expected, because of degraded environmental and social conditions.

On the positive side, universal owners can use shareholder engagement to influence corporate behaviour and address financial risks from externalities. Targeting laggards or the most influential companies within a sector can create significant improvements across an industry. By influencing the largest companies that contribute most to portfolio-wide externalities, and encouraging them to engage with their suppliers, investors can help to raise the bar across a sector and within supply chains.

One asset manager who has started to incorporate BES factors into its decisionmaking in a novel way is Swiss private bank Pictet. Pictet was the first bank to partner with the Global Footprint Network and they now rate countries based on their ability to provide a high quality of life at a minimal ecological cost as part of bond ratings.

The next edition of the Nedbank Sustainability Outlook will appear in February 2011.

We would love to receive your feedback, so please contact us with any comments or suggestions:

Nedbank Headoffice
135 Rivonia Road, Sandown, Sandton, 2196; PO Box 1144, Johannesburg, 2000
Tel: +27 (0)11 295 5672 | Email: KerriS@nedbank.co.za

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