CARBON DISCLOSURE PROJECT

CDP Water Disclosure South Africa Report 2011

Assessing the value of water

On behalf of 354 investors with assets of US$43 trillion

Lead Partner
National Business Initiative

Report Prepared by
WSP Environment & Energy

Carbon Disclosure Project
info@cdproject.net
+44 (0) 20 7970 5660
www.cdproject.net

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354 CDP Water Disclosure[1] signatories with assets of US$ 43 trillion.

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1 2011 information request dated February 1st, 2011.

Cover photo:

The world-class Emalahleni water reclamation plant, a joint development between Anglo American Thermal Coal and BHP Billiton near Witbank in South Africa's Mpumalanga province, illustrates the level of ambition and innovation South African companies must exhibit to solve water related problems. The facility purifies 25 megaliters of water every day. 18 megalitres are supplied to the Emalahleni local municipality, which for years has struggled to meet the water demands of the fast-growing Witbank area. All the water needs of Anglo American's Thermal Coal Greenside, Landau and Kleinkopje collieries, as well as its shared services departments, are met by the plant. The Emalahleni water reclamation plant illustrates the magnitude of the investment required, technical best practice and the necessity to work in partnership to contribute to a clean and stable water supply in South Africa.

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Forewords

Carbon Disclosure Project

In late 2011 floods disrupted millions of lives in Thailand and Cambodia, inundating thousands of local businesses and wiping more than 1.5% off Thailand's GDP. Meanwhile much of Texas is suffering from a drought that has already lasted 15 months and by August 2011 had cost over $5.2 billion in agricultural losses according to Texas A&M University. Yet the impact of these events goes beyond the local devastation. The Thailand floods have caused disruption to the global supply of computer and automotive components, while events in Texas have led to food and agriculture losses and a reduction in export opportunities. These events are a powerful reminder of the strategic importance that water has for global business.

The advantage of understanding water's importance is certainly tangible for the world's clothing companies. Many struggled as floods and droughts in the world's major cotton growing regions coupled with a surge in demand from Asia drove prices on the New York Cotton Exchange from 86 to 230 cents per pound in the year to March 2011. By understanding water risk in their supply chain, companies can prepare for it and manage it. That is why H&M is participating in global initiatives to educate cotton farmers on better farming practices and why PPR's subsidiary Puma has set water use reduction targets that go beyond its operations to include its suppliers' water use as well.

2011 saw a marked increase in the number of the world's largest companies reporting on their water usage, on the risks that water presents, and on their responses to that risk: of the companies in the Global 500 that were sent the second Carbon Disclosure Project (CDP) Water Disclosure information request, 60% responded, up from 50% in 2010. However, responses from these companies indicate that water is impacting global business now, and yet water is not nearly as high on the corporate agenda as climate change.

The 2030 Water Resources Group predicts that the global demand for water will outstrip supply by 40% by 2030 and that closing this gap could cost as much as $50 to $60 billion a year for twenty years. As growing demand for water from industrialisation and population growth is compounded by climate change and growing uncertainty of supply, the global economy will be reoriented towards businesses that take active stewardship of water resources and build resilience to shortages and floods. The companies that succeed will be those that consider water with the strategic importance it deserves and take steps to transform their business now.

CDP Water Disclosure's goal is to aid that transformation by encouraging meaningful and systematic reporting on water globally so that investors and other stakeholders can understand how companies are building water into their core business strategies, and so that leading practices can be shared. The 354 institutional investors which requested information from their portfolio companies through us this year are the vanguard of this transformation and we are delighted to be working with them.

Paul Simpson

CEO, Carbon Disclosure Project

National Business Initiative

A notable finding in this report is that a significant number of large South African companies have either not been ready to disclose for lack of adequate or reliable data or have perceived themselves to have low exposure to water related risk. This raises the question of whether companies are sufficiently aware of the multiple issues surrounding water with particular reference to water scarcity, projections of the impacts on water availability due to climate change, energy requirements and rapid urbanisation. It also begs the question of whether companies are able to assess the value of water to their business. Would a business continue to operate if water was suddenly not available to any part of the business including operations and supply chains? Is there potential for conflict if intensive water users compete with communities for water allocations? What are the economic and physical impacts to a business if any part of the value chain is susceptible to severe weather events such as floods or droughts? These are some of the issues and questions that we hope will spark debate and conversation concerning the importance and value of managing water now and into the future.

Water (its quantity, quality, access and usage) poses significant risks for society at large and for the private sector as a key user. Global concerns such as climate change and the international virtual trade of water required to support a population that is simply too large for our planet have significant local impacts. Within South Africa the threats to a suitable supply of sufficient quality water put us in a uniquely vulnerable position. South Africa is a water stressed country, increasingly dependent on water sources outside our borders. We have a legacy of mining and industry driven pollution combined with an aging water treatment and distribution infrastructure. And we live in a nation where an unacceptably large amount of women and children still have to walk several kilometres each day to access fresh water. In this context it is our responsibility as corporate citizens to work towards an equitable distribution of clean water and to ensure the sustainability of the resource we do have.

The challenge that climate change will pose for our fresh water sources is significant. Much of South Africa is likely to become drier and hotter over time. We have also nearly maximised the storage infrastructure on our river systems. Storing additional water is a major challenge and is exacerbated by the fact that we use more water than many of our catchments are able to replenish. This has serious implications for many of our most economically productive regions and could have a significant impact on our competitiveness. Consequently we have resorted to balancing supply and demand by transferring water across catchments on a scale not seen in many places elsewhere in the world.

This is not a theoretical problem. Many companies who have participated in this report disclose instances of operational or supply disruptions resulting from physical water impacts that have impacted the bottom line. Keeping in mind that the sample was selected based on a theoretical exposure to risk it is of concern that only half of those invited to respond actually did so. What is disclosed in this report is therefore the actions of South Africa's leading companies who on investigating the risk found it to be of significant importance. However, even within this leading subset of responding companies only two thirds consider water important enough to provide board oversight of the management of water.

Water is a public good. It is not a resource that is owned by any single private user. Water catchments serve multiple users ranging from governments and communities to agriculture and heavy industry. How we as a nation negotiate, regulate and distribute water among equally deserving users is critical. This is not a process that governments or corporations can do independently of each other so multi-stakeholder collaboration is fundamental.

It is therefore critical that more companies take cognisance of the level of risk posed by water and start to form partnerships with key stakeholders to work towards a comparable means of disclosing water use and develop collaborative solutions. It is hoped that this first full CDP Water Disclosure Report released in South Africa will be a catalyst for the much needed, critical dialogue.

Finally, those who have taken the lead in disclosing their water footprints and investing in water solutions are to be commended. At the same time we trust that first movers will set the tone for others to recognise the value of water as part of sustainable development.

Joanne Yawitch

CEO, National Business Initiative

Deloitte.

Deloitte

Starting of a new paradigm in water management

Water is a strategic resource for most global businesses.

The reasons are straightforward. In Africa, a growing population and increasing economic activity coupled with declining water quality in many regions has resulted in increased competition for water in the public and private sectors. Africa has a fundamentally low capability to adjust to the effects of increased water stress. While the term "water scarcity" is frequently heard, we are more specifically experiencing greater competition for water. The amount of fresh and accessible water is static; we do not create new water or "use up" existing supplies. Instead we are placing greater demands on an irreplaceable natural resource.

The response to this increased competition is multifold. Most importantly, the true value of water is slowly being recognized in Africa. From a business perspective, the value of water resides in business continuity (having an appropriate quantity and quality of water), license to operate, and brand value.

Water scarcity is fundamentally about understanding water risk and resultant business risk (operational, regulatory, and reputational), but understanding risk is only the beginning of a successful water stewardship effort. Stewardship requires engagement with stakeholders to collaboratively manage water as a shared resource; it is not possible to address the challenges posed by water scarcity alone. The need to engage with other peers and other sectors, non-governmental organizations (NGOs), communities, and governments to develop broad watershed-level approaches to managing water is essential. Water scarcity is also starting to drive innovation.

This report reflects these changes in how South African businesses are starting to manage the risk and create business opportunities. The CDP Water Disclosure information request is an important effort in transforming how we manage one of our most essential natural resources. It is clear that understanding water and the management of water is a journey. The journey is beginning for many with the end game ensuring greater alignment of water strategy with the overall business strategy.

We, at Deloitte, are proud to be part of CDP's effort to increase awareness of the importance of addressing water scarcity and resulting business risks and opportunities. We recognize the efforts of those companies that responded to the information request, to the investor organizations which are signatories to CDP Water Disclosure, and to our colleagues from The National Business Initiative who have shaped a successful 2011 CDP Water Disclosure program.

Duane Newman

Lead Director, Sustainability and Climate Change Services

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Executive Summary

South Africa's Water Challenge

Evidence is mounting that South Africa is facing a water crisis of substantial proportions. This crisis encompasses all aspects of water management on both the demand and supply side. It is being driven by a burgeoning population, a national drive to improve access to water and raise the overall standard of living for many of the country's underprivileged, an overburdened and ailing water supply and sanitation infrastructure, the mounting impacts of acid mine drainage, and declining water quality indicators nationally. South Africa's water security is likely to be further complicated by an increasingly uneven and unpredictable supply of rainfall as a result of climate change and by a reliance on significant water transfers from neighbouring countries. Even with out-of-country transfers, South Africa is projected to experience a 17% gap between water demand and supply by 2030, equating to a water shortfall of 2.7 billion m^3, with some of our most economically important catchment areas among the worst affected. In meeting this crisis, South Africa will have to resolve tough trade-offs in water use between agriculture, key industrial activities such as mining and power generation, and the supply to rapidly growing urban centres, while simultaneously maintaining the health of critical natural freshwater ecosystems on which we depend for much of our adaptive capacity to climate change.

The role of business in mitigating and adapting to the country's emerging water crisis is still being debated, but it is clear that JSE 100 companies will need to show leadership in sustainably managing the water resources on which they rely for their day-to-day business operations. The available evidence is clear. It is not sustainable to continue exploiting water resources by following a 'business as usual' approach. If this is the case, South Africa's freshwater resources will be depleted and unable to meet the needs of people and industry by 2030, if not before.

The Global Dimension

While water resource management is fundamentally a local issue affecting and requiring engagement with local stakeholders and role-players, the management of water in the modern corporate context requires a broader global perspective. The volume of international virtual water-flows[2] resulting from global trade in agricultural and industrial products has averaged *2.3 trillion cubic metres* of water per annum during the period 1996-2005. Globalisation, and increased consumer demand has effectively resulted in massive inter-catchment and inter-basin transfers of water occurring on a global scale. Corporations and consumers are now able to impact on water resources located halfway around the world and are able to significantly influence, through their choices and actions, whether or not these resources are sustainably managed. South Africa is no exception in this regard, with companies starting to consider not only the impacts of their direct operations on local water resources but also the impacts of their supply chain on water resources across the globe and the associated risks and opportunities these may present.

The CDP Water Disclosure

The CDP Water Disclosure, now in its third year globally, provides international and South African companies with the opportunity to publicly report on how they are managing their water risks, leveraging opportunities, and contributing to the overall management of the planet's freshwater resource.

The 2011 CDP Water Disclosure is formally supported by 354 investors, representing US$43 trillion in assets, with 315 companies from the world's 500 largest companies in the FTSE Global Equity Index Series (Global 500 sample) being invited to respond. Invited companies have been selected because they are considered either to be active in water-intensive sectors or to be active in sectors sensitive to water issues within their supply chain.

In addition to the Global 500 sample, a sub-set of 56 companies from the 100 largest companies listed on the South African Johannesburg Stock Exchange (JSE 100) were also invited to participate this year. Of these 56 invitees, 26 responses were received with a further five companies responding on a voluntary basis. In 2010, South African companies were represented by a sample of six respondents from the Global 500 sample and a further six voluntary responses. The 2011 response therefore represents a significant increase in the number of South African companies now being included in this initiative.

This report, prepared by WSP Environment & Energy on behalf of the National Business Initiative (NBI), analyses the responses received from these South African companies and marks the first comprehensive CDP Water Disclosure report specifically focusing on South African business. The key findings of the report are summarised below.

Disclosure Analysis and Findings

While the small sample size of 26 respondents makes it difficult to draw widespread conclusions, the following findings are suggested from the CDP Water Disclosure responses for South African firms:

Risks and Opportunities

Many of South Africa's most significant corporate water users are not yet able or ready to report on their water related risks. Although 2011 saw the number of South African respondents increase significantly from 6 to 26 companies[3] (out of 56 invitees, or 46%), the response is still lower than the Global 500 sample which had a response rate of 60%.

The level of risk and opportunity reported by South African respondents is both widespread and substantial. The reported exposure to water related risks by South African respondents is significantly greater than that reported by the Global 500 sample. The overwhelming majority of companies (85%) identified at least one water risk at the direct operational level, compared to just 55% for the Global 500 sample. Only two respondents, both from the Industrials sector, do not believe they are at risk from any water related issues. A further 77% of South African respondents report that water management may also present substantive opportunities to their business, with the vast majority of both risks and opportunities being expected to manifest themselves in the near term (within the next 5 years).

2 See Box 1.

3 Excluding the six voluntary responses received in 2010 and five voluntary responses in 2011.

The top three risks identified by respondents for direct operations were: physical water scarcity (85%), higher water prices and declining water quality (42% each); while the top supply chain risks were: physical water scarcity (35%), declining water quality (15%) and inadequate infrastructure and reputational damage (8% each).

Respondents are much less confident in identifying and reporting on supply chain water risks. 38% of companies was unable to say whether they are exposed to risk in their supply chain or not, as opposed to 8% of companies when assessing direct operational risks. This level of uncertainty is not surprising when one considers that only five (19%) respondents report the inclusion of water related issues in supplier questionnaires. Notably, of these five respondents, four report that they are at risk to water issues within the supply chain.

The disclosure results suggest that those companies that have invested significant time and effort in understanding their water management challenges are finding material water related risks (and opportunities) for their business and that this is especially true for risks arising in companies' supply chains.

Taking Action

There is a mismatch between the magnitude of identified risk and the governance of the risks. Despite the level of substantive risks and opportunities reported, only 65% of South African respondents report having board oversight of the risks and opportunities. While this is comparable to the Global 500 response, it should be seen in the context of the greater level of risk reported by South African firms. Furthermore, only 69% in the South African sample report having a water management policy, strategy, or plan in place as compared to the Global 500 (93%) and Australia 100 samples (86%).

South African companies are recognising that water stewardship requires multi-faceted action, which includes local stakeholders and cooperative partnerships. South African companies are mitigating risk through 'stakeholder engagement', 'collective actions' and 'watershed management' initiatives in order to overcome issues around water allocation and influence future strategic direction of local catchment development. 15 out of the 26 companies (58%) can provide explicit examples of stakeholder consultations. 35% of companies also note the importance of involvement in 'public policy' around water issues and the value of links to NGO's, such as the WWF, governmental bodies, or engagement with the National Business Initiative (NBI), South African Chamber of Commerce and Industry (SACCI), Business Unity South Africa (BUSA) and other business forums as important contacts for engagement on water issues.

There is a need to improve target setting as well as verification of water accounting data. 65% (17) of respondents report some form of water-related goal or target setting. The majority of these targets are quantitative efficiency (or intensity) targets. Only two respondents report on setting absolute reduction targets and four report on setting explicit water quality discharge targets. The low level of explicit targets reported for water quality overall is particularly concerning in light of the acute water quality predicament facing South Africa.

The overwhelming majority of companies (92%) are able to provide figures for total water withdrawals, while disclosure of water re-use and recycling is substantially better than the Global 500 response. However, although almost 90% (23) of the respondents report that their withdrawal data was verified, only three companies explicitly indicate that they are making use of third-party verification or assurance. The rest of the companies are assumed to be using internal verification systems. The lack of independent verification makes benchmarking and tracking progress against targets difficult to assess with confidence.

An accepted common approach to corporate water accounting principles is needed. Companies are also grappling with the fact that there is not yet an accepted standard for water accounting. The future development of such a standard is pertinent to facilitate effective benchmarking and accurate measuring of performance against targets.

The Way Forward for South African Business

With an impending South African water crisis being widely predicted, it is unsurprising to see that the level of risk reported by South African business is significantly higher than that reported by the Global 500 sample group of companies. The risks and opportunities identified by South African respondents have the potential to generate substantive changes to their business, with the vast majority of these being identified as short term (within the next 5 years). When seen against the backdrop of a projected national water crisis, the case for urgent action is compelling. Due to the nature of water risks, the number of stakeholders involved, the technological and capital requirements for solutions and the timeframes involved, companies need to act now in support of a consistent and stable supply of water.

It is in the long term interests of business that it plays a leading role in finding and driving solutions to South Africa's water management challenges. Key to this will be the extent to which business can successfully and transparently engage in collaborative efforts and management initiatives – with other businesses, government regulators and policy makers, NGO's, local communities and other stakeholders at the watershed management level. No single stakeholder can face this challenge alone.

By asking the relevant questions, the CDP hopes to raise investor and corporate consciousness as to what business could be doing around water governance and management, and ultimately to raise the benchmark. Companies that have responded to the 2011 CDP Water Disclosure have taken one of the key steps to improved corporate water management: disclosure of performance and transparency to investors and other stakeholders. While recognising that further action is needed by all role-players, these companies are to be commended for their contribution to delivering change and for helping to secure and sustainably manage South Africa's precious water resource.

1 Introduction

In 2010, the Carbon Disclosure Project (CDP) launched its water programme, the CDP Water Disclosure, to help investment and business communities better understand the risks and opportunities associated with water scarcity and other water-related issues. The initiative reflects a growing awareness within the corporate sector as well as the broader investment community as to the critical importance of water to business continuity.

In 2011, the CDP Water Disclosure was formally supported by 354 investors, representing US$43 trillion in assets. 315 companies from the world's 500 largest companies in the FTSE Global Equity Index Series (Global 500 sample), representing companies from 30 countries, were invited to respond. Companies were selected because they were considered to be in either water-intensive sectors or sensitive to water issues in their supply chain. The response rate amongst the Global 500 sample increased to 60% from 50% in 2010.

In addition to the Global 500 sample, a sub-set of 56 companies from the 100 largest companies listed on the South African Johannesburg Stock Exchange (JSE 100) were invited to participate this year. This report, prepared by WSP Environment & Energy on behalf of the National Business Initiative (NBI), analyses the responses from these South African companies and marks the first comprehensive CDP Water Disclosure report specifically focusing on South African business. In 2010, South African companies were represented by a small sample of only six respondents within the Global 500 and a further six voluntary responses. Of these 12, eight responded publically. The 2011 response represents a significant increase in the number of South African companies now being included in this initiative.

Through the water disclosure process and subsequent analysis, the CDP hopes to fulfil the following aims and objectives:

- To facilitate the transparent reporting of companies' water related impacts and actions, and to encourage improved understanding, management and actions related to risk and opportunity;
- To provide investors and stakeholders with the information to understand global best practice, the current level of response of business in general as well as sector specific responses;
- To provide contextual commentary on the material issues surrounding water on a global and local level; and
- To provide decision makers with an outlook on corporate water practices in relation to existing policies.

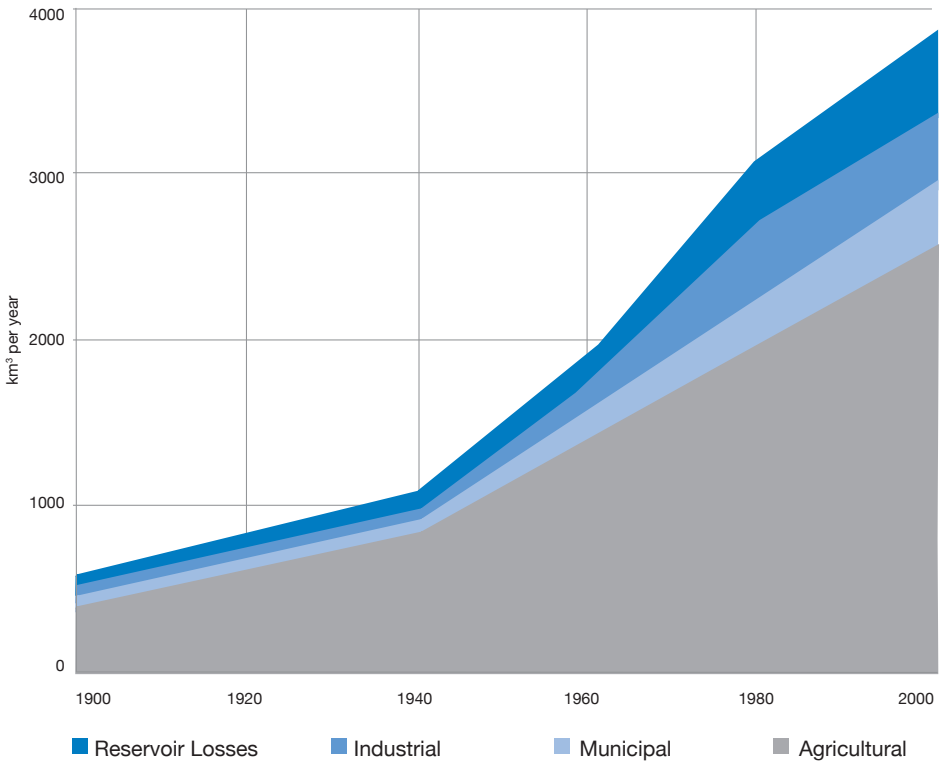
Setting the Context

The Globalisation of Water

The world has witnessed a massive increase in water demand over the past century (see Figure 1), driven by the forces of industrialisation, economic development and population growth. This increase in global water demand is leading to increased tensions and challenges around the effective management of finite local freshwater resources in many parts of the world, where industry, agriculture and local communities compete for this precious resource. While at the same time the ecosystems that rely on water, but also enhance water provision and purification and provide adaptive capacity to climatic changes, are increasingly threatened.

In the past, issues associated with the effective management of local freshwater resources would have remained just that – a local issue.

Figure 1: Estimated World Water Use 1990 - 2000[4]



4 Food and Agriculture Organisation (FAO) Indicators for Sustainable Water Resource Development.

Two key phenomena have emerged over the past few decades to change this view. The first is climate change, which is projected to lead to decreased availability of freshwater resources in many of the world's less developed regions, including southern Africa, along with the potential for increased extreme weather events such as flooding and droughts[5].

The second phenomenon is that of globalisation and increased population growth. In the modern era, the wheat we consume, the beverages we drink, the clothes we wear and the oil we burn may have been grown, manufactured or processed halfway around the world, using "local" water resources. This has given rise to the concept of "virtual water flows" between countries (see Box 1). The global volume of international virtual water-flows resulting from global trade in agricultural and industrial products has averaged 2.3 trillion cubic metres of water per annum during the period 1996-2005. The international nature of the modern corporate supply chain now lends a distinctly global dimension to the sustainable management of local freshwater resources. Globalisation and increased consumer demand has effectively resulted in inter-catchment and inter-basin transfers of water occurring on a global scale.

Retaining the Local Dimension

Despite the internationalisation of water management and security, water remains a fundamentally local issue requiring local management. The impacts of inadequate water management are borne not only by business but also by the local communities and local ecosystems sharing the water resource. In this context, large corporations are required to interact with local water management officials, local communities and other local role-players to a far greater extent than is the case for managing carbon emissions.

5 IPCC Fourth Assessment Report (2007) Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability.

Box 1: The Concept of Virtual Water

Global markets are heavily dependent on the transfer (import and export) of hidden "virtual" water associated with the production of goods, often originating from places which are already highly exposed to water scarcity[6]. In the UK, for example, it has been estimated that two-thirds of all the water that its population of 60 million people consume actually comes embedded within the imported food they eat, the clothes they wear and industrial or chemical goods they purchase. The result is that local water management issues affecting disadvantaged communities around the world may be significantly exacerbated and influenced by consumption patterns in more affluent countries.

The impacts of global consumption habits on international water security are likely to increase in future with population growth, urbanisation, climate change, and a switch to meat-based diets in countries such as China. According to some reports, by 2030 the world will need to produce 50% more food and energy and will use 30% more fresh water.

The two major drivers of change in terms of avoiding such adverse impacts are both the producers of goods and services (business), and the consumers of these goods. For many businesses, their supply-chain water footprint is much larger than their operational footprint. Achieving improvements in the supply chain may be more difficult – but can often prove to be more effective. Businesses can reduce their supply chain water footprint and their risk exposure by making supplier agreements or by simply changing suppliers. Among the various alternative or supplementary tools that can help improve transparency are: product labelling, certification and water footprint reporting. This transparency can ultimately help the consumer to make informed choices on the water sustainability of the product they are buying, driving demand and new markets for sustainable goods and services.

The local dimension is also driven by the fact that the local context is critical to determining the relative value and importance of water within the corporate water footprint. For example, a litre of potable water in "water-rich" Scandinavia is unlikely to be as precious as a litre of potable water in water-scarce Namibia or the arid Northern Cape Province of South Africa, regardless of the actual Rand value associated with each. Similarly a litre of water drawn from a potable aquifer is of greater value than a litre of water drawn from a highly saline or polluted groundwater resource, all other things being equal. Consequently, corporate water management issues will differ from one physical location to another. The challenge facing South African business is to identify these local issues across a company's global operations and supply chain, and then translate these into an effective management strategy at the corporate level.

6 Royal Academy of Engineering (2010) Global Water Security – an Engineering Perspective.

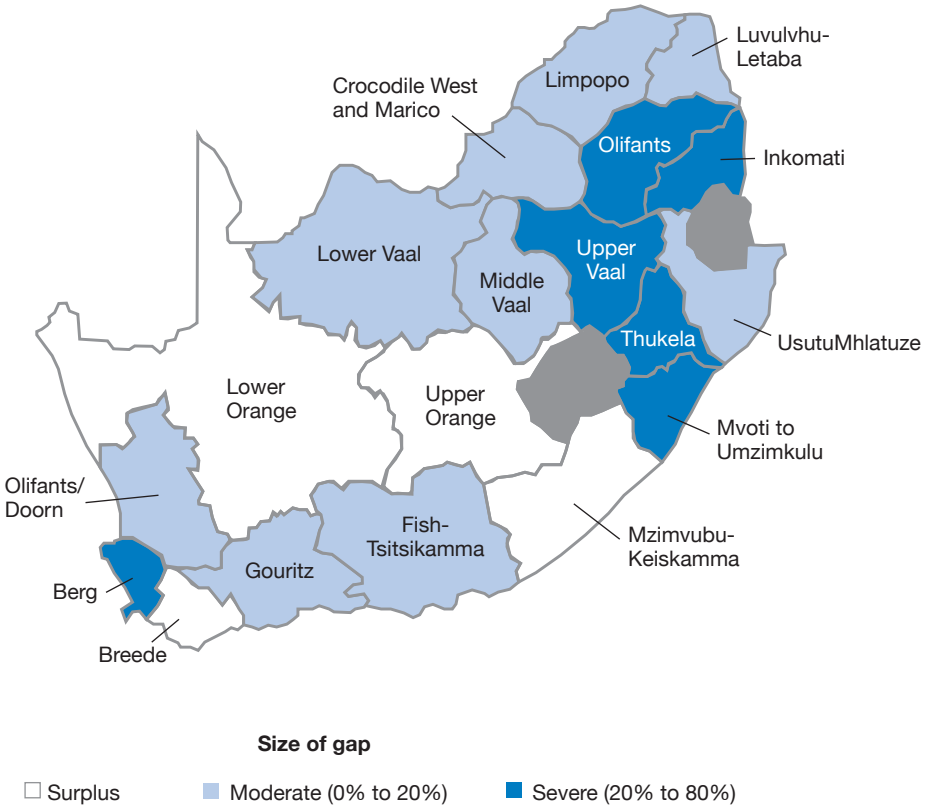
"When all the facts are considered in detail, and not just the sanitised overview values presented in summary reports, it is difficult to argue that South Africa is not already in the grip of a water crisis."

Independent Scientists, Africa Earth Observation Network[7]

Figure 2: The Supply and Demand Problem in South Africa[8]

Gap between Existing Supply and Projected Demand in 2030

Percent of 2030 demand



We are Heading for Trouble

According to research South Africa is expected to experience a 17% gap between water supply and water demand by 2030, equating to 2.7 billion m^3 of water[9]. The projections indicate that some of our most economically important catchment areas will be worst affected. In 2030, the Upper Vaal and Olifants, close to Johannesburg, will face supply shortfalls of 31% and 39% respectively. The Berg water management area, which includes Cape Town, will face a supply shortfall of 28%[10] (see Figure 2).

In line with these projections, some South African municipalities are already proceeding with the installation of what were previously considered to be prohibitively expensive desalination plants. The supply-demand deficits projected by the Water Resources Group, and those similarly reported in the National Water Resources Strategy[11] (NWRS), implies the necessity to further expand the national water supply infrastructure, even though South Africa already experiences one of the highest water resource withdrawal rates in the world and is already defined as water stressed[12]. The total available freshwater resource to South Africa has been estimated at 50 trillion litres. According to the FAO of the United Nations, approximately 25% of this total resource is withdrawn annually compared to a global average of just 9%[13].

7 De Villiers, S and de Wit, M (2010) H_2O-CO_2-Energy Equations for South Africa. Present Status, Future Scenarios and Proposed Solutions. AEON Report Series No 2.

8 2030 Water Resources Group (2009) Charting our Water Future.

9 Ibid.

10 Ibid.

11 Department of Water Affairs & Forestry (2004) National Water Resource Strategy, First Edition.

12 The WRI proposes that water stress is experienced by countries suffering from periodic water shortages, where water supplies are below 1,700m^3 per capita. FAO AQUASTAT (2002) reports that South Africa has total renewable water resources of 1,153m^3 per capita.

13 FAO AQUASTAT (2002) Country Fact Sheet, South Africa.

Of significant concern is that the NWRS deficit scenarios do not take into account the probable impacts of climate change which is projected to reduce freshwater availability in many parts of the country, in particular the north, west and southwest of South Africa, and which is also considered likely to increase the intensity and frequency of extreme weather events such as droughts[14].

The deficit scenarios also do not account for the severe water quality issues which are manifesting themselves around the country, impacting upon both groundwater and surface water resources. The situation is considered so serious that some scientists are stating that South Africa's "water quality crisis" poses a greater risk to South Africa's long term supply of freshwater than climate change[15]. South Africa's water quality issues are primarily a legacy of past, and in some cases present, mining practices (Box 2) but are also associated with inadequately maintained and failing water sanitation infrastructure around the country.

These issues are resulting in the widespread decline in quality of South Africa's freshwater resources, as contaminated water enters our aquifers and inadequately treated effluent is discharged into our natural waterways. This further weakens our storage capacity as operators need to release more water to dilute downstream pollution.

Compounding the above issues is the fact that many local government authorities are also struggling to maintain the existing water supply infrastructure, resulting in substantial losses of water via leakages and reduced overall security of supply[16]. Substantial investments, running into the hundreds of billions of Rands by 2025 will be required to address these issues. A change in mind-set over how we value and manage water is also undoubtedly a necessary part of the solution.

14 IPCC Fourth Assessment Report (2007) Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability.

15 De Villiers, S and de Wit, M (2010) H_2O-CO_2-Energy Equations for South Africa. Present Status, Future Scenarios and Proposed Solutions. AEON Report Series No 2.

16 CSIR (2007) The State of Municipal Infrastructure in South Africa.

Box 2: Acid Mine Drainage – The Mining Legacy

The South African mining sector is one of the critical pillars and drivers of the South African economy. However, mining activities, principally gold mining but also coal, are also associated with environmental contamination – the principle example is acid mine drainage (AMD). AMD occurs when highly acidic liquid from mine shafts, mine waste dumps, tailings and ore stockpiles overflows (decants) or infiltrates the natural environment. AMD usually contains high concentrations of heavy metals, sulphides, and salts which are a potentially hazardous threat to natural aquatic systems and potable surface and groundwater quality. The problem is particularly apparent in the traditional gold mining areas of the Witwatersrand, and the threat may become worse if remedial actions are delayed further or not implemented at all.

Whilst manageable in small volumes, the potential volume resulting from over 100 years of gold mining in South Africa is alarming. The volume of water emanating from the West Rand gold field near Krugersdorp is sufficient to fill at least 10 Olympic size swimming pools (25,000m^3) every day[17]. The total daily decant across South Africa is estimated to be at least 10 times this volume. Much research is still required to develop appropriate treatment methods to enable cost-effective treatment of the quantity of AMD waters present in South Africa. The priority focus of AMD was noted in the 2012 Budget speech, in which Finance Minister Pravin Gordhan tabled the allocation of R225 million over the next two years to design and build an acid mine water treatment facility in the Vaal water management area.

South African Business and Water

As shown in Figure 3, the agricultural and forestry sector are estimated to account for 65% of the country's water consumption, compared to 4% for the industrial sector and 2% each for the mining and energy production sectors. In spite of the relatively small consumption figures attributed to the industrial, mining and energy sectors, the impacts of these sectors on water management are far more significant when one includes impacts on water quality and contributions to climate change via carbon emissions. In addition, a major industrial facility may very well be the single biggest, and certainly the most visible, water user within a local catchment context, even if its water use is less significant at the regional or national level.

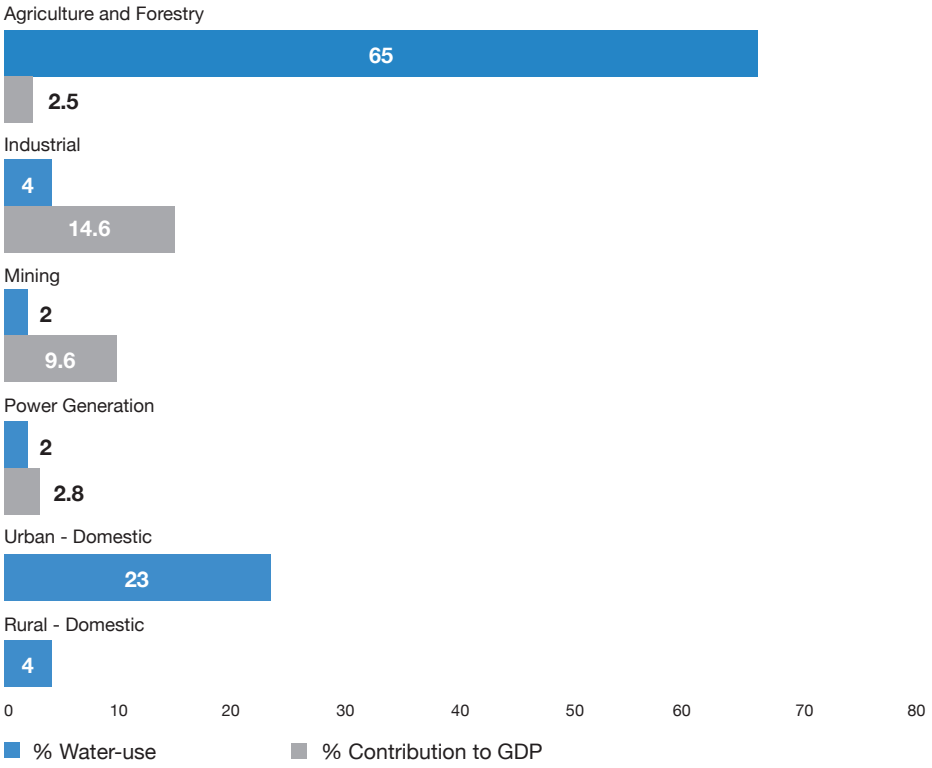
Regardless of any one sector's consumption, the impact of water shortages on business is something that few, if any, companies can afford to ignore, considering the strategic risks (and opportunities) posed by a water-constrained future, not least of which is a fundamental reliance on a secure water supply for everyday operations.

Sharing the Load – A Multi-Stakeholder Challenge

The sustainable management of water is a shared responsibility; no single stakeholder can ensure a sustainable outcome alone. While physical water risks, such as water scarcity or quality, are often the most obvious challenges, how the water resources are allocated, regulated, and

17 Hobbs, P. (2011) Enviropaedia, Acid Mine Drainage pp 13.

Figure 3: Water-use by Sector versus Contribution to GDP in South Africa[18]



where investments are directed can be just as significant. Water resource constraints and allocations have the potential to put companies in conflict with other local water users and with each other. Tensions surrounding these situations may negatively impact upon a company's reputation, ability to do business, and ultimately on the bottom line. The multi-faceted nature of the challenges requires that government at all levels, business and local communities all play a role in managing water risks, taking into account important inputs from academia, government sponsored and independent research organisations and civil society.

A sustainable business in the 21st century increasingly requires an inclusive consultation process with shareholders, interested or affected stakeholders and local communities. Water management is no exception, and the importance of engaging with key stakeholders at the local, regional, national and international level cannot be overstated as a means to ensuring sustainable access to resources, and mutually beneficial results for all. In South Africa, key water related stakeholders include: the Department of Water Affairs; Local Government Water Services Authorities (WSAs); business forums (such as the NBI), NGO's and think tank organisations, Watershed Steering Committees, industry specific focus groups as well as other local community forums dealing with water management.

18 Data derived from SARVA Atlas; Sector Contribution to GDP; AFrDB, based on StatsSA data.

2 JSE 100 Overview

In 2011, the response rate to the CDP Water Disclosure amongst South African companies was 46% (26 out of 56 companies). This gives South African companies a relatively low response rate when compared to the Global 500 sample of targeted companies which had a response rate of 60%. Many of South Africa's most significant corporate water users are therefore not yet able to or are not yet ready to report on their water related risks.

By market capitalisation, the South African JSE 100 is dominated by the Materials and Energy sectors (41%), followed by Consumer Staples (20%), and Financials (17%). The target sample of 56 companies invited to respond from the JSE 100 were selected because they were considered to be in an industry sector which is either water intensive or exposed to water-related risk, for example through their supply chain. The analysis provided in this report is split into six major sectors and 15 subsectors for those JSE 100 companies responding to the information request. Responses were not received from a further two sectors and eight subsectors, as shown in Table 1.

Of the JSE 100 respondents, 16 out of the 26 were first time respondents to the CDP Water Disclosure information request. Although the response rates varied, all invited sectors were represented (Figure 4). The Consumer Discretionary sector had the lowest response rate with only one non-public response out of the nine companies invited from this sector. The Energy and Health Care sectors responded with the highest response rates (100% and 60% respectively), although the sample sizes are small for these sectors. The largest sample of respondents were from the Materials sector which includes Mining & Metals, as well as the Chemical and Paper industries.

A number of companies **(Allied Electronics (Altron), Eskom, Investec, Nedbank** and **Santam)** responded to the questionnaire voluntarily. While this data is not included in the aggregate JSE100 analysis, the companies are recognised for leading practice and a brief commentary is presented in Section 5 of this report.

Figure 4: Responding Companies by Sector

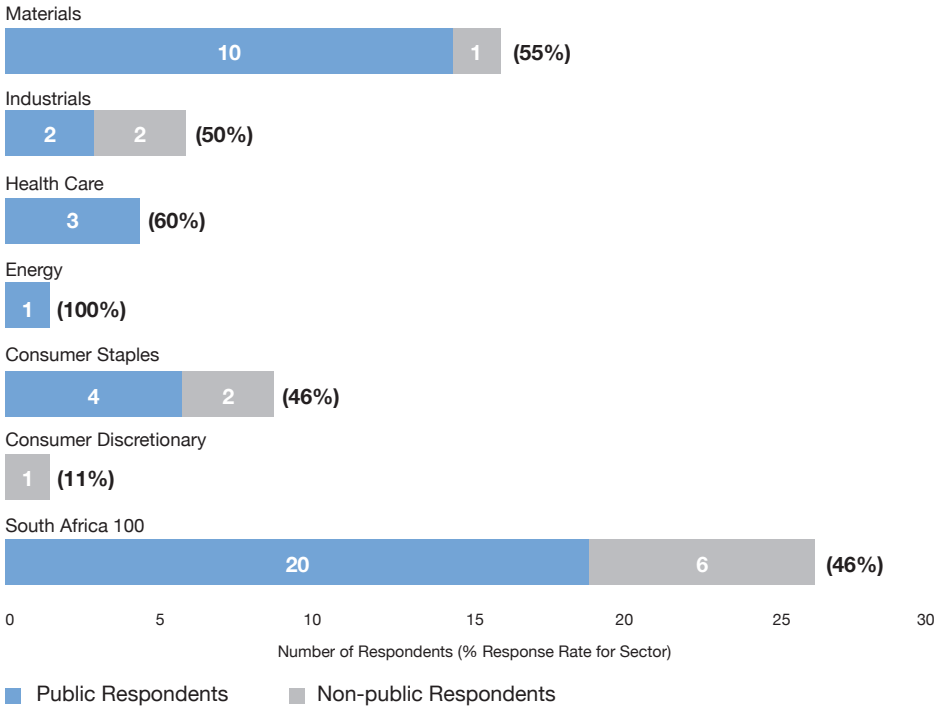


Table 1: Companies Responding to the CDP Water Disclosure (2010 and 2011) and CDP Investor Response (2011)

Company	GICS Sector	GICS Industry	CDP Water Disclosure Response Status 2011	CDP Water Disclosure Response Status 2010	Investor CDP Respondent 2011
Caxton and CTP Publishers and Printers	Consumer Discretionary	Media	DP	-	NP
Clicks Group Ltd	Consumer Discretionary	Multiline Retail	DP	-	AQ
Compagnie Financière Richemont SA	Consumer Discretionary	Specialty Retail	DP	-	NP
Foschini Group Ltd	Consumer Discretionary	Textiles, Apparel & Luxury Goods	NP	-	NP
Massmart Holdings Ltd	Consumer Discretionary	Multiline Retail	DP	-	AQ
Mr Price Group Ltd	Consumer Discretionary	Specialty Retail	DP	-	AQ
Naspers	Consumer Discretionary	Media	DP	-	NP
Sun International Ltd	Consumer Discretionary	Hotels, Restaurants & Leisure	NR	-	NR
Truworths International	Consumer Discretionary	Textiles, Apparel & Luxury Goods	DP	-	AQ
Avi Ltd	Consumer Staples	Food Products	DP	-	DP
British American Tobacco	Consumer Staples	Tobacco	AQ	AQ	AQ
Distell Group Ltd	Consumer Staples	Beverages	DP	-	AQ
Illovo Sugar Ltd	Consumer Staples	Food Products	DP	-	NP
Pick 'n Pay Holdings Ltd	Consumer Staples	Food & Staples Retailing	DP	-	AQ
Pioneer Foods	Consumer Staples	Food & Staples Retailing	NP	-	NP
SABMiller	Consumer Staples	Beverages	AQ	AQ	AQ
Shoprite Holdings Ltd	Consumer Staples	Food & Staples Retailing	DP	-	NP
Steinhoff International Holdings	Consumer Staples	Personal Products	DP	-	NP
The Spar Group Ltd	Consumer Staples	Food & Staples Retailing	DP	-	AQ
Tiger Brands	Consumer Staples	Food & Staples Retailing	NP	-	AQ
Tongaat Hulett Ltd	Consumer Staples	Food Products	AQ	-	AQ
Woolworths Holdings Ltd	Consumer Staples	Food & Staples Retailing	AQ	AQ (v)	AQ
Sasol Limited	Energy	Oil, Gas & Consumable Fuels	AQ	AQ	AQ
Investec	Financials	Commercial Banks	AQ (v)	-	AQ
Nedbank	Financials	Commercial Banks	AQ (v)	NP (v)	AQ
Santam	Financials	Insurance	AQ (v)	-	AQ
Adcock Ingram	Health Care	Pharmaceuticals	AQ	-	AQ
Aspen Pharmacare Holdings	Health Care	Pharmaceuticals	DP	-	AQ
Life Healthcare Group Holdings Ltd	Health Care	Health Care Providers & Services	NR	-	NR
Medi-clinic Corp Ltd	Health Care	Health Care Providers & Services	AQ	-	AQ
Netcare Limited	Health Care	Health Care Providers & Services	AQ	-	AQ
Aveng Ltd	Industrials	Construction & Engineering	DP	-	AQ
Barloworld	Industrials	Machinery	NP	-	AQ
Bidvest Group Ltd	Industrials	Industrial Conglomerates	DP	-	AQ
Grindrod Ltd	Industrials	Trading Companies & Distributors	AQ	-	AQ
Imperial Holdings	Industrials	Trading Companies & Distributors	DP	-	AQ
Murray & Roberts Holdings Limited	Industrials	Construction & Engineering	DP	-	AQ
Reunert	Industrials	Electrical Equipment	AQ	-	AQ

Company	GICS Sector	GICS Industry	CDP Water Disclosure Response Status 2011	CDP Water Disclosure Response Status 2010	Investor CDP Respondent 2011
Wilson Bayly Holmes-Ovcon Ltd	Industrials	Construction & Engineering	NP	-	AQ
Altron	Information & Technology	Electronic Equipment, Instruments & Components	AQ (v)	-	AQ
AECI Ltd Ord	Materials	Chemicals	AQ	-	AQ
African Rainbow Minerals	Materials	Metals & Mining	NR	-	AQ
Anglo American	Materials	Metals & Mining	AQ	AQ	AQ
Anglo American Platinum Division	Materials	Metals & Mining	AQ	AQ	AQ
AngloGold Ashanti	Materials	Metals & Mining	AQ	NP	AQ
Arcelor Mittal South Africa Ltd (see Arcelor Mittal in Global 500)	Materials	Metals & Mining	AQ (SA)	-	AQ
Assore Ltd	Materials	Metals & Mining	DP	-	NR
BHP Billiton	Materials	Metals & Mining	AQ	-	AQ
Evraz Highveld Steel And Vanadium Limited	Materials	Metals & Mining	AQ	-	AQ
Exxaro Resources Ltd	Materials	Metals & Mining	AQ	AQ (v)	AQ
Gold Fields Limited	Materials	Metals & Mining	AQ	-	AQ
Harmony Gold Mining Co Ltd	Materials	Metals & Mining	DP	-	AQ
Impala Platinum Holdings	Materials	Metals & Mining	NP	NP (v)	AQ
Kumba Iron Ore	Materials	Metals & Mining	DP	-	AQ
Lonmin	Materials	Metals & Mining	DP	-	AQ
Mondi PLC	Materials	Paper & Forest Products	AQ	-	AQ
Nampak Ltd	Materials	Containers & Packaging	DP	-	AQ
Northam Platinum Ltd	Materials	Metals & Mining	AQ	AQ (v)	AQ
Pretoria Portland Cement Co Ltd	Materials	Construction Materials	DP	-	AQ
Sappi	Materials	Paper & Forest Products	DP	-	AQ
Eskom	Utilities	Electric Utilities	AQ (v)	NP (v)	AQ

Key to Response Status:

- AQ Answered Questionnaire
- NP Answered Questionnaire but Response not made Public
- DP Declined to Participate
- NR No Response
- (v) Voluntary Response
- - Not Invited to Respond
- SA Company is a subsidiary or has merged during the reporting process (see company in brackets).

3 Disclosure Analysis

"In its most recent report, the Intergovernmental Panel on Climate Change (IPCC) concludes that water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change. These impacts will be exacerbated in dry and developing countries, with South Africa falling into both categories."

Woolworths

"Flooding of deeper mine pits in Ghana in 2010 disrupted production. The cost of disruption is calculated based on the revenue that would normally have been made if production would not have been disrupted; in this case approximately R1.5 million. In response to the floods, additional water pumping capacity was installed."

Gold Fields

Risky Business

Companies are already experiencing water-related impacts.

Significant studies exist to indicate that South Africa is heading towards a water crisis, if not already in the midst of one. Without serious intervention, the situation is expected to steadily deteriorate over the next two to three decades. Against this backdrop, it is therefore notable that 58% of the respondents report that they have *already* experienced water related detrimental impacts in the five years preceding this report.

While reported impacts are varied, *water shortage* is the most commonly reported impact. Companies such as **Medi-clinic**, **Sasol**, and **SABMiller** all report having experienced physical water shortages and problems with disruption to supply from municipal infrastructure. Flooding impacts featured strongly, particularly among the mining companies. **Anglo American** and **Gold Fields** experienced a loss of production capacity due to flooding of mine shafts.

Financial impacts related to adaptation cost are commonly cited, for example the installation of additional pumping capacity, treatment facilities, pipelines or water storage facilities to cope with supply disruptions. Only one company reported a figure for costs to disruption of operations from water incidents (within its Ghanaian operations).

The scale of water-related risk identified by respondents is substantial.

The results also show that 85% of respondents are able to identify what proportion of their operations are located in regions subject to water-related risk. The scale of risk reported is significant, with 46% (12) of the respondents believing that the majority (70% or more) of their reported operations are located in areas where physical water scarcity is a risk.

Table 2 presents a summary of the JSE 100 disclosure findings across the JSE 100 sample relating to the understanding of risk. The table provided is based on analysis of the aggregate responses and serves to provide an indication of the performance of South African companies according to understanding of international best practice features for good governance[19].

The overwhelming majority of companies (85%) identify at least one water risk, and only two firms, both from the Industrials sector, do not believe they are at risk from any water related issues. A further two respondents were unable to answer whether or not they are at risk from water issues.

"Physical" risks[20] are reported most frequently by respondents when considering direct impacts on their operations. Water scarcity is identified as the key risk, with all companies who report at least one risk noting the potential for water scarcity to cause substantive change to current business operations. The second most commonly cited risk is water quality and increased water costs (both tied at 42%) Figure 5 summarises the direct operational risks identified by respondents.

19 Based on Ceres Aqua Gauge (2011) A Framework for 21st Century Water Risk Management.

20 Physical risks are defined within the CDP Water Disclosure questionnaire as risks arising from water stress or scarcity, flooding or pollution resulting in lower water quality. Business may be at risk from a disruption to supply, increased costs of water treatment (poor water quality) or damage to assets.

Table 2: JSE 100 Disclosure Summary: Understanding Water Risks[21]

Understanding Water Related Risks	
No Action Does not carry out corporate risk assessment	15%
Basic Basic understanding of water scarcity risks to direct operations	23%
Intermediate Identifies and quantifies risk to operations via third party tools and a range of indicators and understands basic supply chains risks	35%
Advanced Strong understanding of water related risks at both direct operations and the supply chain	27%

Interestingly, only four out of the nine Mining & Metals companies noted water quality to be a risk. Two of these companies referred to water quality as a risk primarily in the context of increased water treatment costs and only one firm, **Gold Fields**, acknowledged the risks pertaining to potential liabilities from acid mine drainage. When considering the academic literature on the subject, this lack of disclosure suggests either a failure to recognise or unwillingness to acknowledge the scale of the water quality challenges facing South Africa today as a result of past, and in some cases present, mining sector activities.

"AngloGold Ashanti's mines are likely to be the deepest and longest operating gold mines in the West Wits and Vaal River regions of South Africa. Our underground workings are at severe risk of flooding as a consequence of the prior closure of neighbouring mines, where the workings are at depths above our operations."

AngloGold Ashanti

"Infection control is key to the health and safety of Netcare's patients. Water quality needs to ensure any disease carrying bacteria is eliminated. Water is used in the preparation of food for patients, in the autoclave machines and other areas. It is imperative that water quality is of a very high standard."

Medi-clinic

"There are a number of factors which complicate characterisation of water stress, not least the number of definitions and methods available. Based on our research we believe that South Africa could generally be considered to be a region of water stress."

Netcare

"Recent investments have had to be made to improve water security following a water supply shortfall identified in 2004 for the Sasol Secunda Operations in South Africa. A R2.7 billion Vaal River Eastern Sub-system (VRESAP) pipeline project, in which Sasol has a 40% share, has been commissioned and will provide an additional reliable supply of water from the Vaal Dam to both the Sasol Secunda operations and for use by the electricity utility Eskom."

Sasol

21 Based on opinion of WSP according to recognised best practice features of water risk assessment taken from the Ceres Aqua Gauge Framework (2011) Framework for 21st Century Water Risk Management.

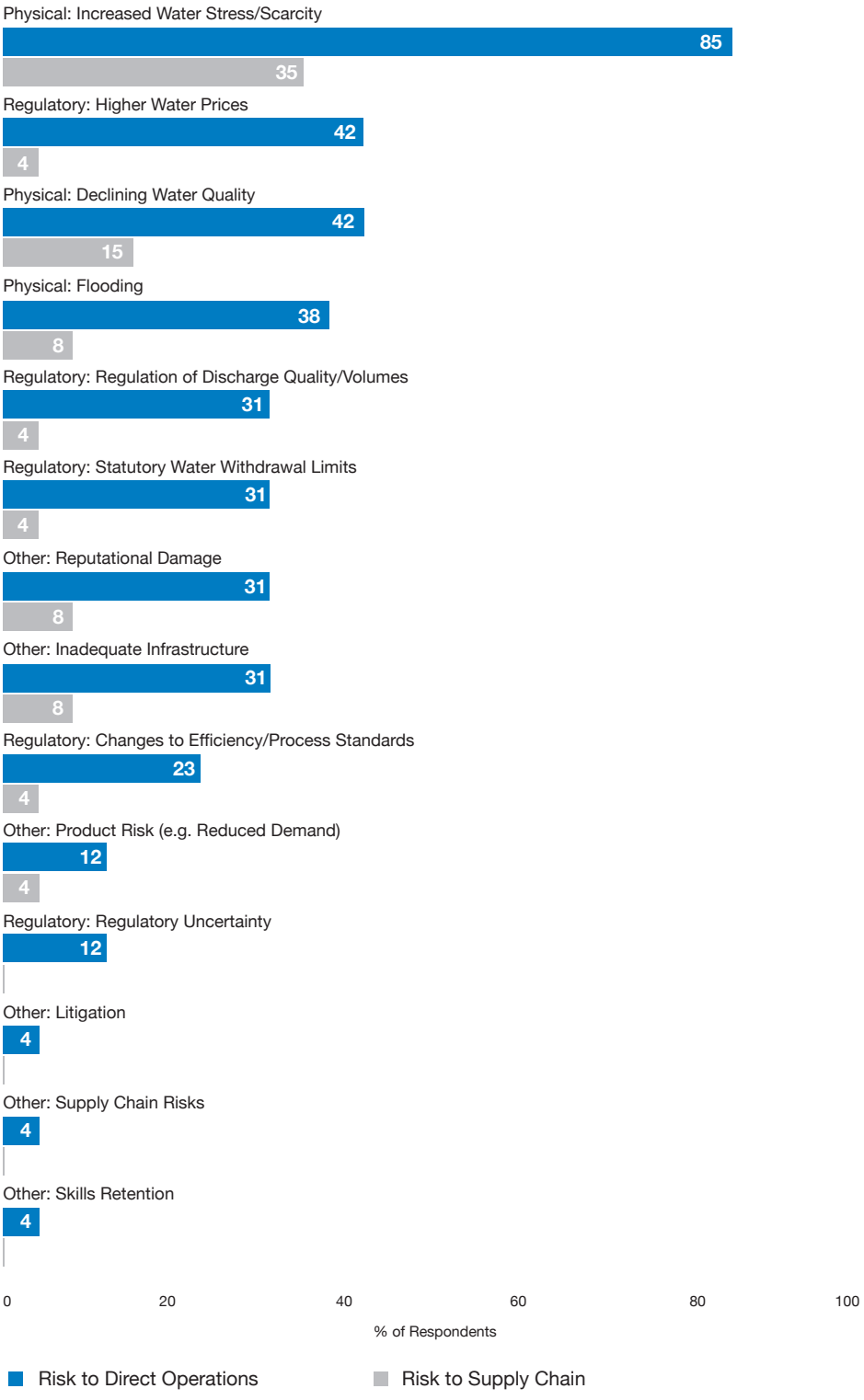
"More stringent discharge and hazardous dam requirements will result in increased compliance costs and poses a reputation risk. New hazardous dam conditions, which will be enforceable over the next three years, will require upgrade of infrastructure and have compliance cost implications."

Anglo American

"One risk is the length of time taken to obtain permits like the Integrated Water Use Licence and the approval of the Integrated Water and Waste Water Management Plans. The inability to maintain a licence to operate within applicable legal and regulatory frameworks, which are becoming increasingly demanding and prescriptive, [is a concern]."

Exxaro

Figure 5: Reported Risks by JSE 100 Respondents: Direct Operations and Supply Chain



Case Study 1: Mondi – Seeing the Bigger Picture

As one of the world's largest paper and packaging groups, Mondi has extensive operations employing 29,000 people across 31 countries. Mondi is fully integrated across the paper and packaging process, from the growing of wood and the manufacture of pulp and paper (including recovered paper), to the conversion of packaging papers into corrugated packaging, industrial bags and coatings. Mondi recognises the impact of their operations on water sources globally and as part of their wider water program has taken the lead in a number of projects to protect natural water resources with a focus on wetlands.

As part of this program, Mondi is sponsoring biodiversity projects, such as the Mondi Wetland Project (MWP) and the Mondi Ecological Network Programme (MENP), which are leading developments in wetland conservation and ecological networks. In 2008, Mondi signed a five year sponsorship agreement to support the MWP. The agreement includes provision for future work on wetlands in poor rural neighbouring communities and incapacitated municipalities. Mondi has also pledged to ensure that at least 25% of its land in South Africa is not converted to plantations and supports activities to identify and protect High Conservation Value (HCV) areas in its South African and Russian operations.

Mondi's activities for the protection and restoration of wetlands in South Africa (incl. 5% of productive area, equivalent to 175,000 tonnes of wood per annum) as well as costs for the New Generation Plantations project, a WWF partnership project aimed at developing best practice plantations for wood, energy and non-timber products, as well as a number of other initiatives resulted in an investment of approximately €12 million in 2010.

Respondents are much less confident in identifying or reporting on supply chain water risks.

The level of risk reported for the supply chain is notably lower than that reported for the direct operations (Figures 5 and 6). The disclosures suggest that this low level of supply chain risk is primarily a result of a lack of awareness and limited visibility of supply chain issues. 38% of companies did not know whether they were exposed to risk in their supply chain or not, as opposed to 8% of companies when assessing direct operational risks. This is not surprising when one considers that only five (19%) respondents report the inclusion of water related information in supplier questionnaires. Notably, of these five respondents, four report that they are at risk to supply chain water issues. The implication is that those companies who take the time to investigate supply chain water risks will more than likely discover them.

The risks identified by respondents in the supply chain are similar to those identified at the direct operational level (Figure 5). However, only 38% of respondents were actually able to characterise the specific nature of the risk arising from their supply chain. This figure is much lower than for direct operations, where 85% of respondents are able to clearly identify risks.

Business does appear to have taken cognisance of this knowledge gap and, encouragingly, six out of the ten companies who were unsure of their supply chain risks are currently in the process, of or are planning to carry out, a supply chain risk assessment.

Companies such as **Mondi** and **Woolworths** are notable for the extent of their supply chain risk disclosure. Quite apart from the fact that disruption in supply of input materials can have serious financial implications for business, the supply chain can also form a large percentage of a company's water footprint.

Mondi has calculated that 79% of their total water footprint originates from its suppliers, underlining the importance of data collection from both upstream suppliers and downstream consumers.

"As a retailer which has made firm commitments to sustainability, any failure to properly manage water issues would have a negative impact on our reputation and impact our credibility. Awareness of water issues in South Africa has grown significantly over the last year."

Woolworths

Figure 6: Risk Certainty Comparison: JSE 100 versus G500 Sample

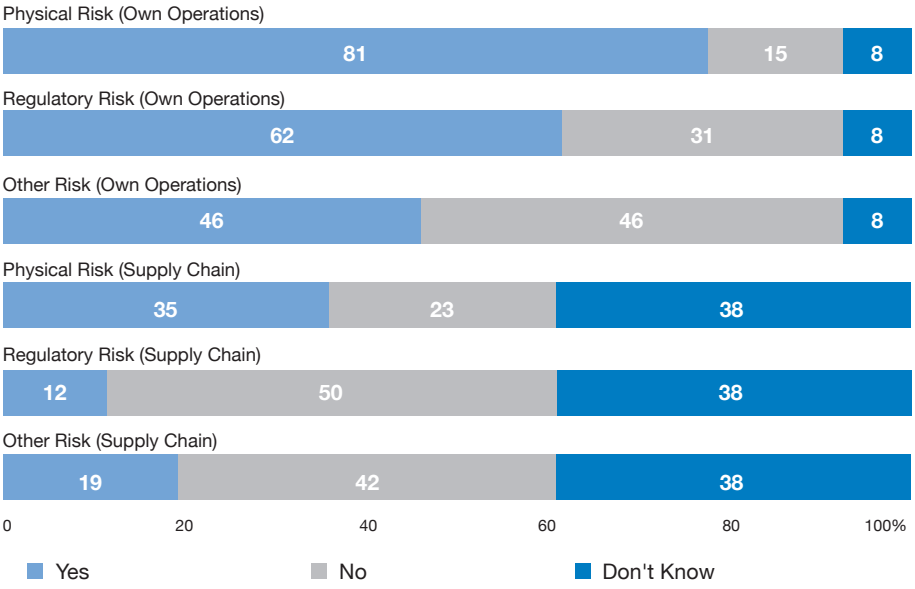


Figure 7: Exposure to Water Risks: JSE 100 versus G500 Sample

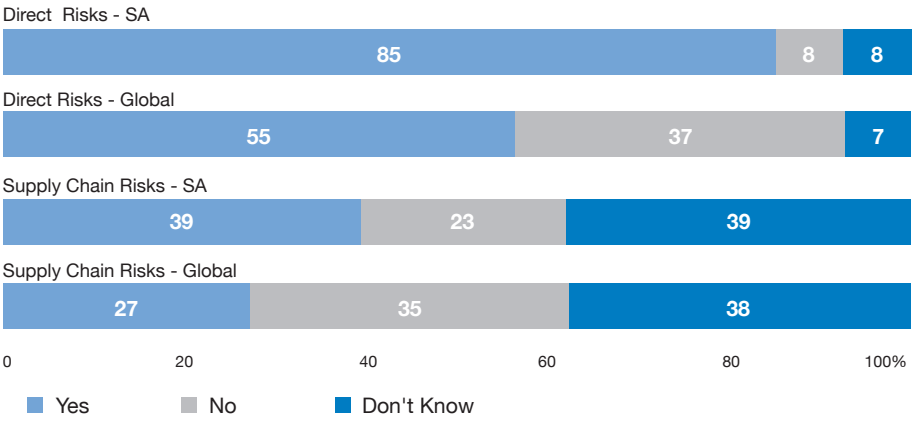
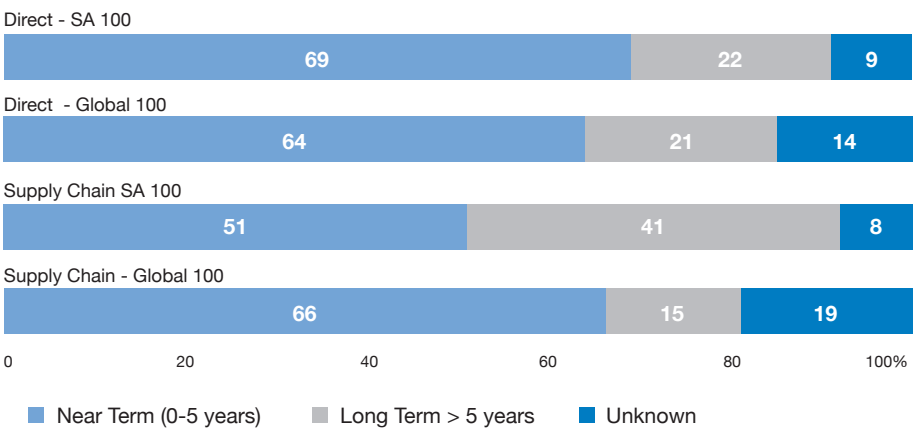


Figure 8: Timeframes for Water Risks: JSE 100 versus G500 Sample



South African firms report substantially more exposure to water risks than the Global 500 sample; and these risks are imminent.

South African respondents report significantly greater exposure to water related risks than the Global 500 (G500) sample in both their direct operations and supply chain (Figure 7), despite the greater uncertainty amongst the South African respondents regarding the specific nature of the supply chain risks they are facing. The immediacy of water risks (Figure 8) is also evident from the disclosure responses, both for direct operations and for the supply chain, with almost 70% of risks at the direct operational level and 50% of risks at the supply chain level being reported as near term (0-5 years).

Box 3: Water Risks Taking their Toll on the Technology Supply Chain

Weather sensitive industries such as agriculture are long understood to be vulnerable to shifts in climate - cotton and rice yields which affect the textile and staple food prices are extremely sensitive. These industries are increasingly starting to recognise the sensitivities of their business to changing water patterns as they are affected by extreme weather events, which appear to be more frequent as a result of climate change. The recent floods in Bangkok, however, provide a telling tale of how water risks can also affect less obvious industries, and impact multiple levels of the supply chain[22].

During October 2011, massive flooding inundated the Bangkok floodplains, home to numerous factories of some of the world's leading hard-drive manufacturers, such as Western Digital. According to the Wall Street Journal, 40% of all hard drives on the market are built in Thailand. The flooding led to the shut-down of more than 800 factories employing roughly 450,000 workers, resulting in massive losses. Following the event, the supply disruption caused the price of some hard drives to increase by up to 250%, costing PC manufacturers heavily. Intel experienced losses of $1.2 billion in 2011; due in part to the worldwide shortage of computer hard disk drives, and Sony posted a loss of $350 Million for the second quarter of 2011.

A significant contributor to the flooding, apart from unseasonally heavy rainfall, was poor ecosystem management in Northern Thailand, where deforestation contributed to increased runoff and increased runoff velocities. The Thailand floods have shown how water and climate impacts have the potential to ripple through any supply chain — and demonstrates that extreme weather and climate events can have unexpected global repercussions.

"The majority of South Africa's water resource is used in farming irrigation, and Woolworths, as a major supplier of fresh produce has to play a role in water conservation."

Woolworths

"AECI sees a reputational advantage being gained if water conservation and water management are successfully integrated into business operations."

AECI

"New designs are continually being optimised to reduce water demand; intensities of less than 8 m^3 water per ton of product have been achieved by maximising water re-use and recycling, and by using air cooling technology."

Sasol

"Access to high-quality water is a global issue and a key challenge for sustainable development. Our activities are often located in remote, arid environments, with limited access to high-quality water. In recognition that water is a critical input for our mining, smelting, refining and petroleum businesses, we continue to identify opportunities for water re-use or recycling, efficient use and responsible wastewater disposal."

BHP Billiton

22 climatecentral.org.

Figure 9: Exposure to Water Opportunities

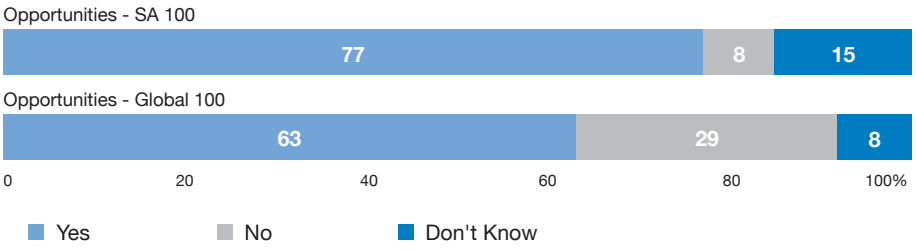
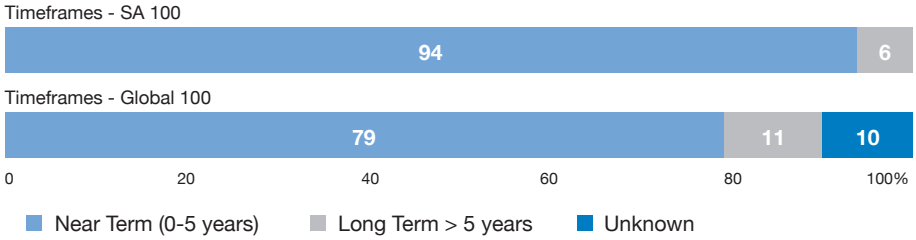


Figure 10: Timeframes for Water Opportunities



Leveraging Imminent Opportunities

Existing and future risks to business are not only being viewed as a business threat. A large proportion (77%) of the respondents subscribe to the view that water management may actually present opportunities to them in the future (Figure 9). In addition, these respondents report that the majority (94%) of the opportunities identified can benefit the company within the next 5 years (Figure 10). Only two of the respondents do not believe this to be true, with a further four unsure.

The main opportunities cited include improved cost efficiency; improved reputation with communities and stakeholders; and decreased business risks. **SABMiller**, for example, notes that the financial impact of the steadily rising cost of water can increasingly be mitigated by improvements in plant water efficiency.

"Our water strategy is based on the 5Rs (pRotect, Reduce, Reuse, Recycle and Redistribute), a comprehensive, risk-based approach to managing water in our business and in the value chain. This model provides a consistent approach, recognising the different local issues and circumstances faced by each of our businesses."

SABMiller

"A key feature of [our] water strategy is "zero-potable water" use in our process operations (excluding domestic use demand). Through various initiatives at selected operations, the company's potable water usage was decreased by 12% to 18.4 million m^3 during 2010, compared with 23.6 million m^3 during 2008."

Anglo American, Platinum Division

Managing our Water Future

Companies are beginning to understand the linkages between water and carbon emissions.

The nexus between water and climate change is key to the water challenge facing South Africa and is particularly relevant to large industrial users such as Metals & Mining, Petroleum, and Energy companies. Water use reduction typically results in energy reductions for pumping and treatment of water, and can therefore be linked to cost and carbon savings. Similarly, reduced energy demand can result in reduced water usage via decreased embedded water consumption associated with energy production[23]. From a broader viewpoint, climate change is widely projected to decrease water security within southern Africa. Hence, increased carbon emissions typically result in increased water consumption as well as helping to drive climatic processes that further compromise freshwater supply in the South African context.

Most respondents (65%) are able to report logical linkages between climate change, energy and water. The most commonly cited linkages include: cost savings related to improved water efficiency, leading to reduced energy requirements and hence a consequent reduction in carbon emissions; and improved energy efficiency, leading to a decrease in upstream water usage associated with electricity production.

Water-related issues receive less attention than climate change at the board level.

Despite the substantial level of risk evident from the respondent disclosures, only 65% of the responding companies report board level oversight of water-related policies, strategies or plans. This is compared to 90% of JSE 100 companies who report board level oversight of climate change[24]. The disparity between the level of water risk and assigning an appropriate level of governance to that risk suggests a degree of complacency amongst South African companies in recognising the scale of potential risk from water-related issues.

A somewhat higher proportion of respondents (69%) do report on having specific water strategies in place or that they include water as a component within an existing sustainability strategy. Of the eight companies who do not have a water strategy in place, three of them report having plans to develop one. Table 3 presents a summary of disclosed levels of governance and accountability among respondents[25].

Table 3: JSE 100 Disclosure Summary: Governance and Accountability

Governance and Accountability	
No Action No visible water governance steps taken	31%
Basic Strategy in place and with oversight from senior management	8%
Intermediate Board level oversight evident, senior executives directly involved in the management of water related issues	42%
Advanced Board level oversight, systems for accountability and aligns public policy positions and lobbying with water stewardship organisations and goals (e.g. UN CEO Water Mandate)	19%

Appetite for setting quantitative targets is relatively low, and especially so for absolute reduction targets.

65% (17) of respondents reported some form of water-related goal or target (quantitative or qualitative) (Figure 11). However, the appetite for setting goals is relatively muted. Only 58% (15) of the respondents were able to report quantitative targets. These quantitative targets were most

"The key linkage for our business relates to the interactions that need to be considered when making decisions around energy intensive alternative water supply options such as desalination or enhanced water recycling."

BHP Billiton

"SABMiller has identified a number of crossover's between water and energy and in some cases this has resulted in cost saving for the company's operations. One key point of interaction is the renewable energy derived from wastewater treatment. A number of our operations are now capturing methane generated from wastewater treatment to the extent that this can now account for up to 10% of a plant's energy mix, saving a significant amount of money."

SABMiller

23 1.4 litres of water is used per kilowatt hour produced, Eskom Annual Report.

24 2011 Investor CDP Report South Africa.

25 Based on the opinion of WSP according to recognised best practice features of good governance taken from the Ceres Aqua Gauge (2011) A Framework for 21st Century Water Risk Management.

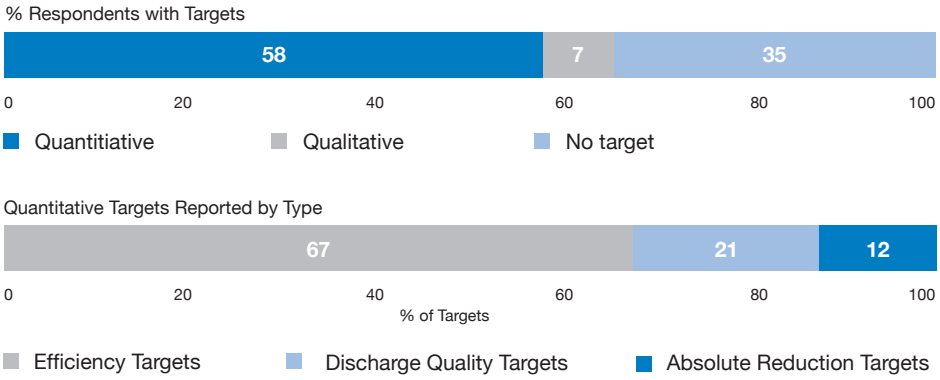
"Tongaat Hulett is committed to a philosophy of sustainable development and thus considers the management of the quantity, quality and reliability of water resources as mandatory to achieve optimum, long-standing, environmentally sustainable, social and economic advantages for society."

Tongaat Hulett

"Water is a fundamental resource and is placed on the same strategic level as mining of minerals."

Anglo American, Platinum Division

Figure 11: JSE 100 Respondents Reporting Targets by Type



commonly water efficiency related (67%), followed by discharge quality (21%), with absolute reductions (12%) the least favoured form of target. The lack of quantitative targets among South African companies may be indicative that water is still an immature action area in the corporate sustainability agenda, or that there has been a lack of business incentives to make these commitments. All of the quantitative targets reported were near-term (typically one or two years). **Mondi**, **Woolworths**, **Anglo American**, **Platinum Division** and **British American Tobacco** were able to report that they had already achieved or exceeded previous baseline targets. Table 4 presents a summary of the targets and goal setting disclosure.

Water intensive industries show mixed disclosure in setting water-related targets.

Target setting (Figure 12) is disappointing for the Industrial sector, with only one company, **Grindrod**, reporting any form of quantitative target. By contrast, eight out of the eleven (73%) Materials sector companies reported a quantitative reduction target, and this was the only sector to report absolute reduction targets. The two respondents reporting absolute reduction targets were **Exxaro** and **Mondi**.

Sasol, as the only representative from the Energy sector in the South African sample, has demonstrated leading practice by setting quantitative water efficiency targets which are monitored by water related key performance indicators (KPI's) for their larger and most water intensive business units.

The Consumer Staples sector disclosed strongly, with 67% (four out of six respondents) able to report on some form of quantitative target. **SABMiller** for example, has set targets to reduce water use per hectolitre of beer by 25% between 2008 and 2015.

The low level of explicit quantitative targets reported for water quality overall (four respondents) is concerning in light of the acute water quality predicament South Africa is facing.

Figure 12: Water-related Targets

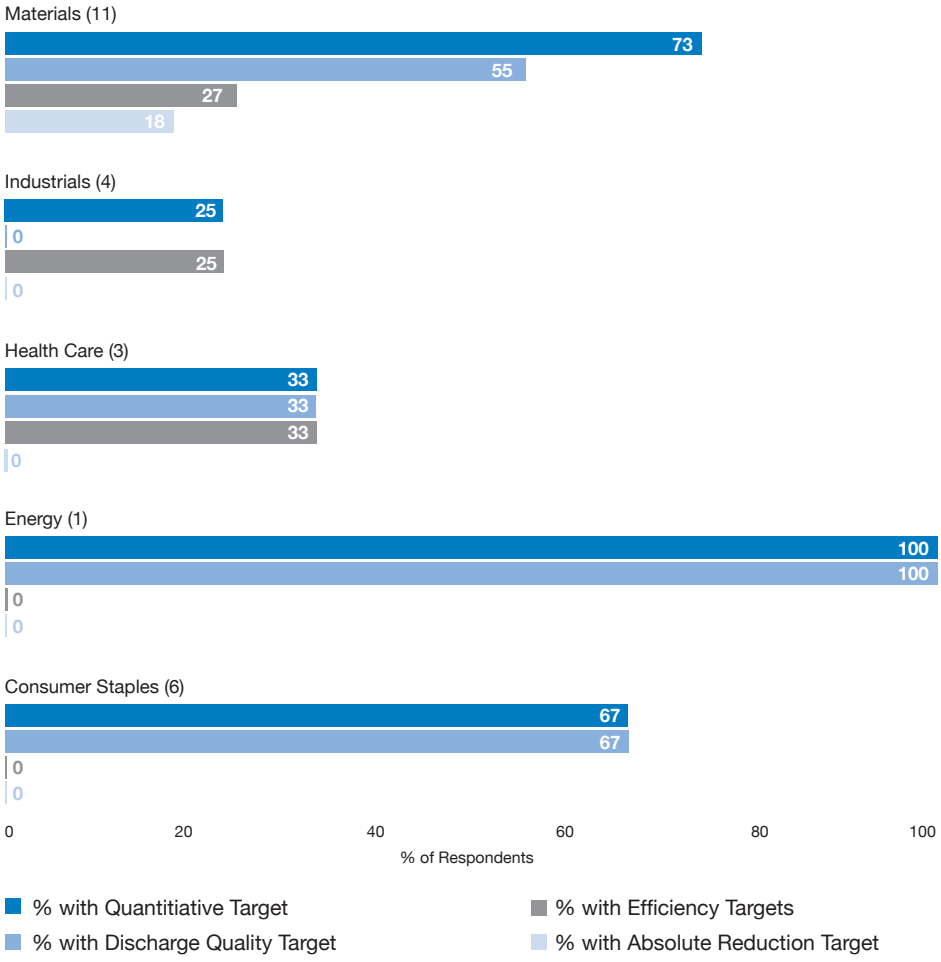


Table 4: JSE 100 Disclosure Summary: Strategy, Targets and Goals[26]

Strategy, Targets and Goals	
No Action Companies do not have any water policy or strategies in place	31%
Basic Companies with a publically available water policy or strategy but no targets	4%
Intermediate Companies with targets or goals for withdrawals and discharges	50%
Advanced Companies with quantitative performance standards or targets for withdrawals or discharges, and are already showing progress towards achieving these	15%

26 Based on the opinion of WSP according to recognised best practice features of good governance taken from the Ceres Aqua Gauge (2011) A Framework for 21st Century Water Risk Management.

Case Study 2: No One Size Fits All

While many respondents are clearly focused on achieving water use reductions and efficiency improvements, some have realised that there is not always a "one size fits all" approach to target setting across large corporations. In 2011, **Anglo American** and **Anglo American, Platinum Division** introduced a water efficiency targeting tool (WETT) to assist individual units or operations to apply a greater degree of rigour and consistency to target setting. Through this bottom-up process, each operation will review its current and future performance setting targets based on the catchment's degree of water stress, future projected demand and water savings initiatives. This tool will eventually be used to develop a sound and appropriate Group target.

"In 2010, the Group predicted an improvement of 2.2% in water use intensity; the outcome has surpassed all expectations. We achieved an improvement of 10% in water use efficiency, from 11.0 m^3 per refined ounce of precious metal in 2009 to 9.9 m^3 per refined ounce of precious metal in 2010. The 2011 anticipated Company target is an improvement of 2% in total new-water-use intensity to 9.8 m^3/ ounce PGM."

Anglo American, Platinum Division

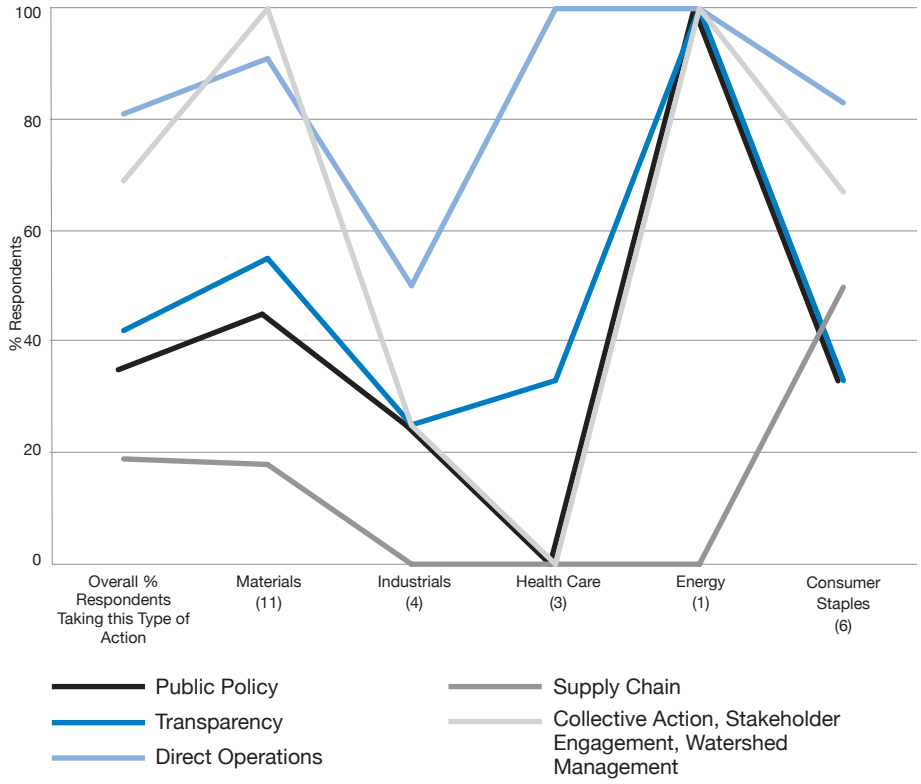
Mondi has an aggregate target of a 30% reduction in adsorbable organic halogens (AOX) emissions into receiving waters from our mills, against a 2005 base year. From 2005 to 2010 a 63% reduction has been achieved."

Mondi

"At the heart of the new Anglo American water strategy and policy, approved in 2010, is our aim to demonstrate leadership within the water catchments we operate in. We believe that this will unlock value in our current operations, safeguard future projects and bring benefit to both the environment and the communities surrounding our operations."

Anglo American

Figure 13: Actions being taken by JSE 100 Respondents in Relation to Water Risks



Partnering for the Future

South African companies are recognising water stewardship as a multi-faceted action area, which includes stakeholder engagement, forming partnerships and taking action at the watershed level.

An impressive 92% of all South African respondents report that they are taking specific actions to manage their water resources. Figure 13 shows these actions by sector breakdown[27].

81% of companies report taking actions at the operational level. By comparison, engagement with the supply chain is significantly less widespread with only five (19%) companies disclosing explicit examples of supply chain engagement as a water-related action area.

While the focus for business is still very much on direct operations, South African companies are also recognising the need for management at the local or water catchment level. Companies are mitigating risk through 'stakeholder engagement', 'collective actions' and 'watershed management' in order to overcome issues around water allocation and to influence future strategic direction of local catchment development with 18 companies reporting action in at least one of these areas. 15 out of the 26 respondents (58%) could provide explicit examples of stakeholder consultations as a part of their water management efforts. The Metals & Mining sub-sector was particularly strong in this area, with all nine mining companies reporting this type of action. Companies such as **Sasol**, **Anglo American Platinum Division**, **Northam Platinum**, **Exxaro**, **Anglo American**, and **Evraz Highveld Steel** and **Vanadium**, who are all based in economically important but water vulnerable catchments such

27 Responses provided by actions for "collective action" and "stakeholder engagement" and "watershed management" have been combined due to crossover in interpretation by respondents are combined. See Appendix I for further information.

Case Study 3: Sasol: Harnessing the Value of Partnerships

The populous and economically important Vaal Catchment in Gauteng provides approximately 80% of Sasol's total water requirement in South Africa. Given the importance of water as an input to their processes and the water-stressed nature of their surroundings, Sasol has long since recognised the benefits in playing an active role in the catchments within which they operate.

In response to a growing uncertainty of the longer-term supply capability combined with projected impacts of climate change, Sasol notes the strategic and reputational importance in collaborating with other major water users to ensure effective water conservation and demand management initiatives. Throughout 2011, collective efforts – across sectors and stakeholder groups – in adressing the water challenge has included:

- Contributing to the South African Department of Water Affairs (DWA) Water Sector Leadership Group (WSLG), a high-level interface between government and key water users;
- Participating in various catchment-level initiatives, including the DWA's recently established strategy steering committee for the Vaal River system, and the Lephalale sub-catchment forum meeting; and
- Collaborating with various major water users and water use sectors on water conservation and demand management initiatives.

as the Vaal, Olifants and Crocodile River and Groot Marico, view participation within watershed public policy forums as an important platform for high level engagement between industry and government.

35% of companies also note the importance of involvement in 'public policy' around water issues. In particular, these respondents note the importance of links to NGO's, such as the WWF, governmental bodies, or engagement with the National Business Initiative (NBI), South African Chamber of Commerce and Industry (SACCI), Business Unity South Africa (BUSA) and other business forums as important contacts for engagement on water issues.

"SABMiller takes the opportunity to participate in discussions such as through the UN CEO Water Mandate, the World Economic Forum etc. to work with other stakeholders to both research the issues around water management and work in collaboration with government bodies on pioneering projects."

SABMiller

Case Study 4: BHP Billiton: Developing New Water Accounting Standards

Unlike the more developed accounting approach to greenhouse gas emissions, there is not yet an internationally dominant approach to corporate water accounting, which has added to the complexity of addressing water quantity and quality concerns. BHP Billiton is working with the Minerals Council of Australia to develop the Water Accounting Framework, an industry-wide approach to water reporting and accounting. The framework seeks to establish a nationally consistent water accounting and reporting framework for the minerals industry, which will lead to improved data transparency and water management. The International Council on Mining and Metals is also planning to pilot the initiative to assess its broader application across the international metals and mining industry.

"Water scarcity is a pressing global issue and Mondi has taken action to reduce its water footprint by using less fresh water, especially in water-stressed areas. Mondi has calculated its water footprint at a Group level and for all its material operations. For its South African plantations a detailed water impact assessment has been carried out and the conclusion has been discussed with external experts."

Mondi

Accounting for our Actions

Companies are making good headway on water accounting but verification of data is poor

The overwhelming majority of companies (92%) were able to provide figures for total water withdrawals (Table 5). Fewer respondents (62%) were able to disclose recycling and re-use rates despite the fact that these are increasingly important components of a sustainable water management plan. 88% of respondents reported performance data by country or region, indicating that companies are recognising the location specific nature of water risks.

Over 74 million mega litres of water abstractions were disclosed and almost 700 thousand mega litres[28] of water was reportedly re-used during the reporting year across the operations reported by JSE 100 companies (Tables 6 and 7). Figure 14 showns these withdrawals by type. Water accounting data should be viewed with caution due to the varying methodologies applied and scope of reporting within each business. It is also noted that much of this water may lie outside of South Africa (from across respondents' international operations).

The results of the disclosure indicate that many companies are still grappling with a lack of guidance in collecting and reporting water data. No accepted industry standard for measuring and reporting water usage has yet emerged. Some companies such as **BHP Billiton**, are however taking an active role in developing such standards on an industry-specific level.

High levels of disclosure amongst South African respondents are possibly related to existing regulatory requirements around water licensing for industrial facilities in South Africa, as well as the requirements of King III integrated reporting. Although almost 90% (23) of the respondents report that between 76 -100% of withdrawal data was "verified", only 3 companies explicitly indicate that they are making use of third-party verification or assurance. The rest of the companies are assumed to be using internal verification systems. The lack of verification and of accepted corporate water accounting standards make benchmarking the impact of improvements difficult. Furthermore if companies, investors and stakeholders are going to use water information to make critical business decisions they need to be certain of the data quality.

28 Equivalent to 280,000 Olympic-sized swimming pools each year.

Table 5: Companies Reporting on Water Abstractions, Re-use and Recycling

	Overall	Consumer Staples	Energy	Health Care	Industrials	Materials
Number of Companies	26	6	1	3	4	11
Provided a Figure for Total Water Withdrawal	92%	66%	100%	100%	100%	100%
Provided a Breakdown of Withdrawal by Geography	88%	66%	100%	100%	100%	91%
Provided a Figure for Recycling/ Re-use	62%	50%	100%	67%	50%	64%

Figure 14: Water Accounting Disclosure by Type (% of Total)

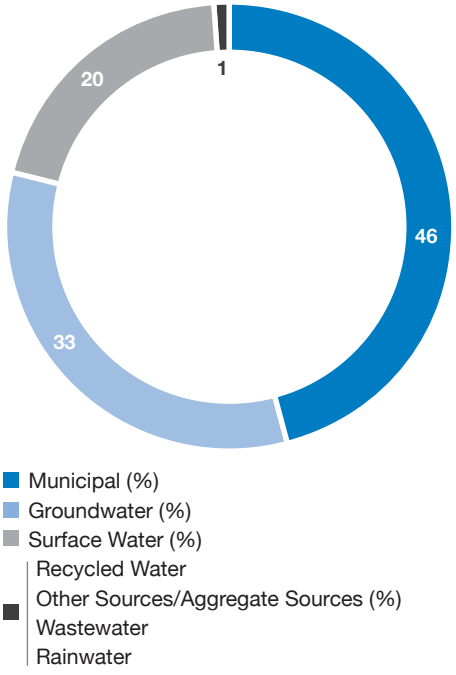


Table 6: Water Abstractions

Total Water Withdrawal	**74,224,167 ML**[29]
Africa Water Withdrawal	**17,457,176 ML**
SA Water Withdrawal	**12,108,797 ML**

Sector	Industry	Companies Reporting	No Geographical Regions Reported	Withdrawal Volume ML
Consumer Staples	Beverages	SABMiller	20	73,099,978
	Food Products	Tongaat Hulett	1	2,670
	Tobacco	British American Tobacco	5	4,482
	Food & Staples Retailing	Woolworths	1	897
Energy	Oil, Gas & Consumable Fuels	Sasol	1	151,391
Health Care	Pharmaceuticals	Adcock Ingram	2	345
	Health Care Providers & Services	Netcare; Medi-clinic-Clinic	1	2,996
Industrials	Trading Companies & Distributors	Grindrod	1	199
	Electrical Equipment	Reunert	1	338
Materials	Metals & Mining	BHP Billiton; Exxaro; Northam Platinum; Anglo American; Anglo American, Platinum Division; Goldfields; AngloGold Ashanti, Evraz Highveld Steel and Vanadium	13	764,613
	Paper & Forest Products	Mondi	10	185,258
	Chemicals	AECI	1	5

29 1 ML = 1,000,000 litres.

Table 7: Water Re-use and Recycling

Total Water Re-use Reported Globally	**683,258 ML**
Total Water Re-use Africa-wide	**450,256 ML**
Total Water Re-use Reported SA-wide	**261,435 ML**

Sector	Industry	Companies Reporting	No. of Geographical Regions Reported	Recycle/ Reuse Reported (ML)
Consumer Staples	Beverages	-	0	-
	Food Products	Tongaat Hulett	1	26
	Tobacco	British American Tobacco	5	445
	Food & Staples Retailing	Woolworths	1	135
Energy	Oil, Gas & Consumable Fuels	Sasol	1	61,210
Health Care	Pharmaceuticals		-	-
	Health Care Providers & Services	Medi-clinic	1	56
Industrials	Trading Companies & Distributors	Grindrod	1	4
	Electrical Equipment	Reunert	0	0
Materials	Metals & Mining	BHP Billiton; Exxaro; Northam Platinum; Anglo American; Anglo American, Platinum Division; Gold Fields; AngloGold Ashanti, Evraz Highveld Steel and Vanadium	6	612,022
	Paper & Forest Products	-	-	-
	Chemicals	-	-	-

Table 8: JSE 100 Disclosure Summary: Water Accounting

Water Accounting[30]	
No Action Companies do not measure water withdrawals or discharges	8%
Basic Companies collecting basic data on regulatory compliance, withdrawals, re-use/ recycling and discharges	31%
Intermediate Companies collecting data on regulatory compliance, withdrawals and discharges for a good proportion of the business with a high level of accuracy	42%
Advanced Water accounting maintained with high level of coverage, accuracy and external verification	19%

30 Based on the opinion of WSP according to recognised best practice features of water accounting taken from the Ceres Aqua Gauge (2011) A Framework for 21st Century Water Risk Management.

South Africa in the Global Context

Figure 15 shows the results of the South African Water Disclosure responses in comparison to both the Global 500 and Australian 100 sample. Overall, South African respondents are fairly well aligned with the global trends.

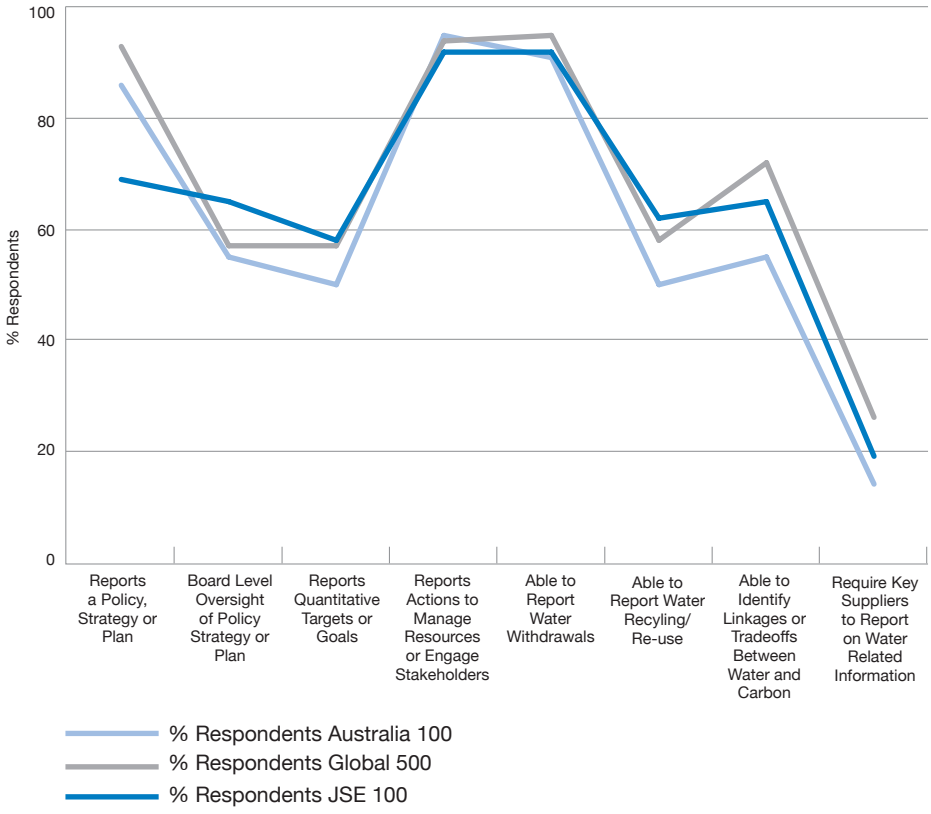
South Africa is lagging behind the rest of the world on water management in the strategic policy arena. Considerably fewer companies (69%) in the South African sample report having a policy, strategy, or plan in place as compared to the Global 500 (93%) and Australia 100 samples (86%). Whilst levels of board oversight on these strategies and plans are relatively similar across the samples, the disclosure globally has generally been viewed as an area of concern, leaving room for future improvement across the globe. For example, only 57% of organisations in the Global 500 report board level oversight of water policies, strategies or plans, compared with 94% for climate change. Similarly in South Africa, 65% of companies report board level oversight for water compared to 90% for climate change.

The level of board oversight should also be seen in the context of the reported risk within the sample sets: 85% of the South African sample identified risks at the direct operational level compared to 55% for the Global 500. South Africa is also facing a national water crisis which could significantly impact business. One might therefore expect better levels of governance and water management planning among South African companies than among the Global 500. This is clearly not the case.

Other notable findings when comparing the three sample sets include:

- The South African sample lags behind global counterparts in setting quantitative goals and targets, with only 58% doing this in the South African sample compared to 57% in the Global 500 sample.
- The actions reported at the direct operations level are high with 95% of companies in the global sample and 92% in the South African sample reporting taking some form of action to manage water or engage stakeholders. Action at the supply chain level is reported at a much lower level however, with only 19% of respondents in the JSE 100 sample collecting water risk and input data from suppliers, this is compared to 26% globally.
- South Africa, while on par with Australian counterparts, falls slightly behind the global sample with reporting water withdrawals, but outperforms the Global and Australian companies in transparency of re-use and recycling data. The majority of the South African data was received from the Materials sector.
- Companies in South Africa (65%) are less able to understand or identify linkages or connections between water and carbon emissions relevant to their business in comparison to the Global 500 respondents (72%). Identifying such interconnections is highlighted as an area which can assist South African companies to make strategic decisions which will both reduce the water footprint of the company and decrease carbon emissions.

Figure 15: JSE 100, Australia 100 and Global 500 Water Management



4 Sector Summaries

The exposure, scale and nature of risks are often specific to the context of the operational or market conditions within a sector. The magnitude and understanding of such risks will be reflected in the importance water is given in the corporate management context. Difficulties exist in drawing conclusions in the sector specific action in the South African sample due to the small sample size of the data set. As such, only those sectors with three or more respondents have been included in the sector summaries, namely: Consumer Staples, Health Care and Materials. The snapshots include a comparison of disclosure against key management indicators within the JSE 100, as well as a comparison against the Global 500 sector snapshots. Each of the sector snapshots includes:

- A summary of the response rates achieved;
- A graphical representation of water management disclosure against the Global 500 (G500) sector and JSE 100 sample as a whole;
- An overview of the main risk types reported within the sector;
- Examples of impacts already experienced;
- Actions reported at the company level;
- A description of water related opportunities; and
- Best practice examples of water management within the sector.

Consumer Staples

46%

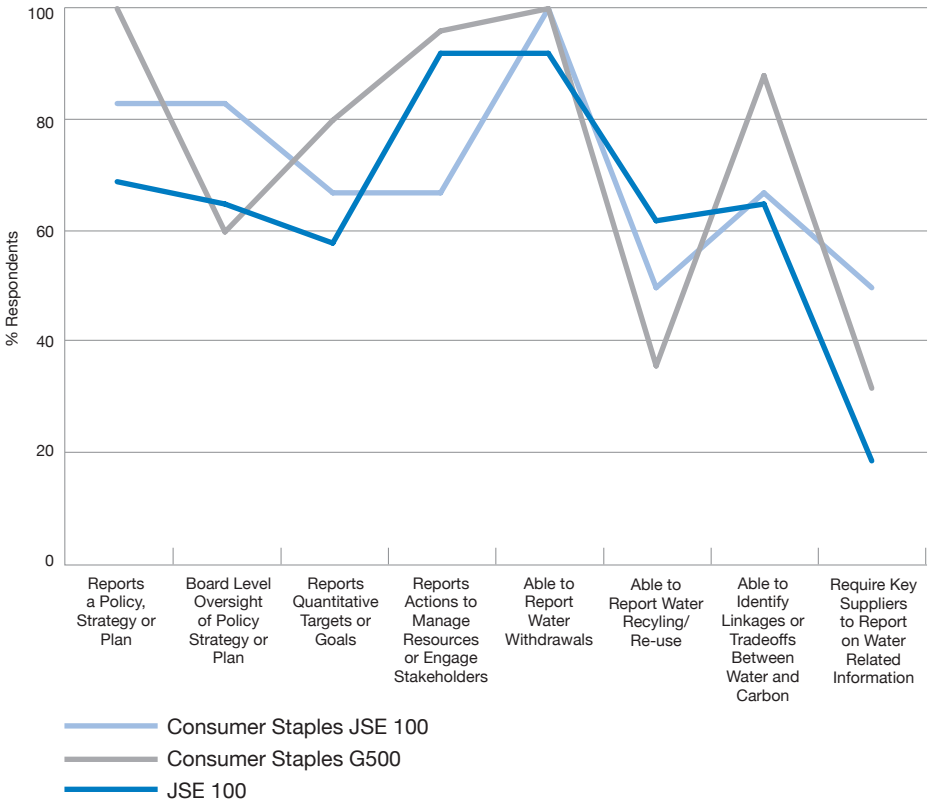
JSE 100 Response Rate (6/13)

73% Global 500 Response Rate (27/37)

JSE 100 Respondents: SABMiller; Woolworths Holdings Ltd; Tongaat Hulett; British American Tobacco; Pioneer Foods (Not Publically Available); Tiger Brands (Not Publically Available)

Industries within sector: Beverages; Food & Staples Retailing; Food Products; Tobacco

Figure 16: Consumer Staples Summary of Water Disclosure Indicators



"We are committed to water conservation education, especially assisting to educate our supply chain and provide valuable water savings tips to both customers and employees."

Woolworths

Key Findings

- The response rate for this sector is considerably lower in South Africa (46%) than compared to the Global 500 sample which was an impressive 73%.
- Overall, the South African respondents for this sector show better water management disclosure when compared to the global respondents. This may be a result of the proactive nature of the individual companies that have responded and therefore may not be fully representative of this sector as a whole.
- Consumer Staples companies show leading disclosure in a number of areas, including engagement with the supply chain. 50% of the Consumer Staples JSE 100 respondents are requesting water management data from key suppliers compared to 19% for the South African sample as a whole, and 32% within the sector globally.
- Consumer Staples show good progress on governance and accountability, with 83% of respondents having a strategy or plan in place and all of them exhibiting board level accountability for these. A further 67% or the Consumer Staples respondents are setting quantitative targets for water-use reductions.

Experiencing Impacts

- 75% of the publically responding Consumer Staples JSE 100 companies have experienced water related detrimental impacts to their operations. These impacts include damage to infrastructure from extreme weather events, such as flooding and also business impacts due to changes in the availability and cost of water intensive input materials in the supply chain.

Facing up to the Risks

- All four publically responding companies report exposure to water related risk. This is compared to just 64% in the Consumer Staples Global 500 Sample.
- All of the respondents in the South African Consumer Staples sector report that they have exposure to risk in the supply chain. This is compared to only 60% in the global Consumer Staples response.
- Understanding the nature of water risks on the supply chain is particularly important for companies in this sector, often related to the climate sensitive nature of input materials, and as a result many of the Consumer Staples respondents have carried out risk assessments.

Taking Action

- All of the publically responding companies report having taken some action at the direct operational level or facility level. These actions include re-use of wastewater for irrigation, rainwater collection and harvesting (**Woolworths** and **British American Tobacco**) and general process efficiency improvements (**Tongaat Hulett**).
- The second most favoured type of action involves supply chain engagement, with three out of the four publically responding companies recognising the importance and need to gather intelligence in this area.

Table 9: Consumer Staples Best Practice

Leading Practice: Consumer Staples		
Working with Suppliers	SABMiller	Working to identify high risk areas and implement appropriate mitigation strategies in conjunction with local stakeholders through their Water Futures collaboration with the WWF and GIZ. In South Africa this has included, working with the WWF and local farmers, developing a sustainable small-grains agriculture "tool kit" which will enable farmers to reduce water consumption through appropriate land management practices.
Water Accounting	Woolworths	In 2011 the company both improved the scope of data coverage and assurance of data quality. This was achieved through the installation of water pulse metres in over 200 facilities, and the use of a third party assurance firm to validate their water-use data.
Understanding Risks	British American Tobacco	Carrying out extensive risk analysis of leaf growing regions to provide strategic direction for future business.

"Water related issues provide opportunities for SABMiller from a number of perspectives: It can provide competitive advantage particularly in areas where water is of public concern, by managing water well we improve our license to trade and consequently our ability to expand/grow production. Driving water efficiencies reduces the overall cost of raw materials and as such improves the bottom line, reduced water usage also has knock-on effects such as reduced energy demand for pumping water around the plant, raw water and effluent treatment costs."

SABMiller

Finding the Opportunities

- The Consumer Staples companies recognise the power that a good reputation in environmental and water related issues can have to attract customers and thus deliver a competitive edge.
- Consumer Staples companies also note the opportunities associated with the ability to influence the primary producers within their supply chains.

"More significant impacts have been felt from the effects of both flooding and drought events in our foods supply chain, which have affected the availability of particular products, especially fresh produce, and in some cases driven up the cost of the particular products. The lost sales in store due to non-availability of such products is material. We have looked at developing a broader range of suppliers in different geographical areas, where possible, for a range of fresh produce products and are working with the CSIR to analyse South African arable areas that are likely to struggle with water scarcity due to the impacts of climate change."

Woolworths

Health Care

60%

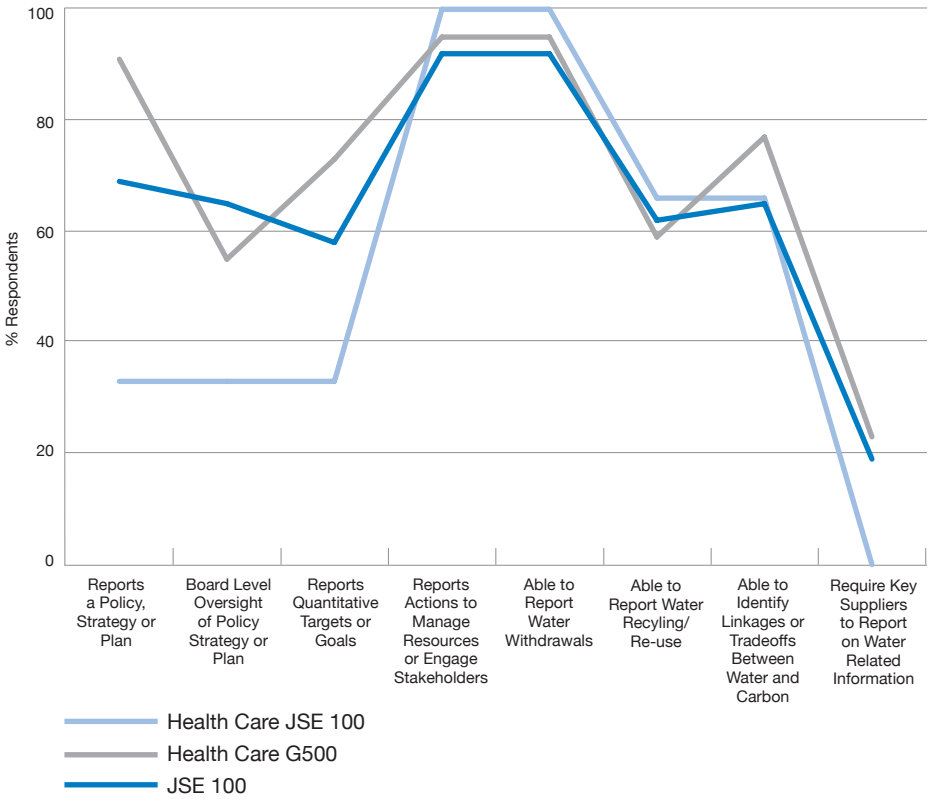
JSE 100 Response Rate (3/5)

79% Global 500 Response Rate (23/29)

JSE 100 Respondents: Adcock Ingram; Netcare, Medi-clinic

Industries within sector: Pharmaceuticals; Health Care Providers & Services

Figure 17: Health Care Summary of Water Disclosure Indicators



Key Findings

- The South African Health Care sector responded with a 60% response rate, which was the best disclosure among the South African sectors, excluding the Energy Sector. Each of the three companies disclosed their responses publically.
- Only one out of the three Health Care respondents (**Medi-clinic**) has developed a specific water related strategy. This is overshadowed by the global sample set, in which 91% of Health Care respondents have a strategy in place.
- The key risks identified in the sector include disruption to supply or water shortages and water quality concerns. Companies are already taking steps to increase self-sufficiency through investment in water supply and treatment infrastructure.
- Water is only just reaching the corporate agenda of the South African Health Care companies, and is likely to play a more significant role in future years as the responding company's report that they are in the process of improving existing systems.

Experiencing Impacts

- All three companies note that they have already experienced problems with both the quantity of supply and quality of water and resulting risk to normal operations (care of patients and drug manufacture).
- Preventative measures have been implemented by all three responding companies in response to these impacts. **Adcock Ingram** introduced pre-treatment facilities to ensure quality of feed-in water is maintained at a consistent level. **Medi-clinic** has developed emergency contingency plans as a result of severe drought in their George operations and **Netcare** implemented an emergency conservation plan to ensure that every hospital has at least 48 hours of water supply in the event of a shortage or loss of water supply.

Facing up to the Risks

- All three companies believe they are at risk in their direct operations, which is compared to only 41% in the Global 500 Sample. The key risks identified include increasing water scarcity, increasing water costs and water quality concerns.
- None of the Health Care companies are engaging directly with their supply chain, and understanding around the nature and extent of risks is incomplete as a result. One respondent identified a major supply chain risk to include inability of infrastructure systems to maintain supply.

Taking Action

- All of the companies are taking action at their operations to improve water resource use; however none of the respondents have expanded water related action to include community or stakeholder engagement or involvement in research or public policy processes, indicating an area for future attention.

"The disruption of municipal water supply in the coastal regions (mainly KZN), with isolated incidences in Gauteng, meant that Netcare had to purchase additional water via tankers and bottled water was given to patients for consumption. The result was the development and implementation of the Emergency Water Conservation Plan to ensure that all hospitals have at least 48 hours' worth of water supply stored in the event of a loss of water supply. Water tanks were installed at the hospitals at a cost of R12 million over 2 years."

Netcare

Materials

55%

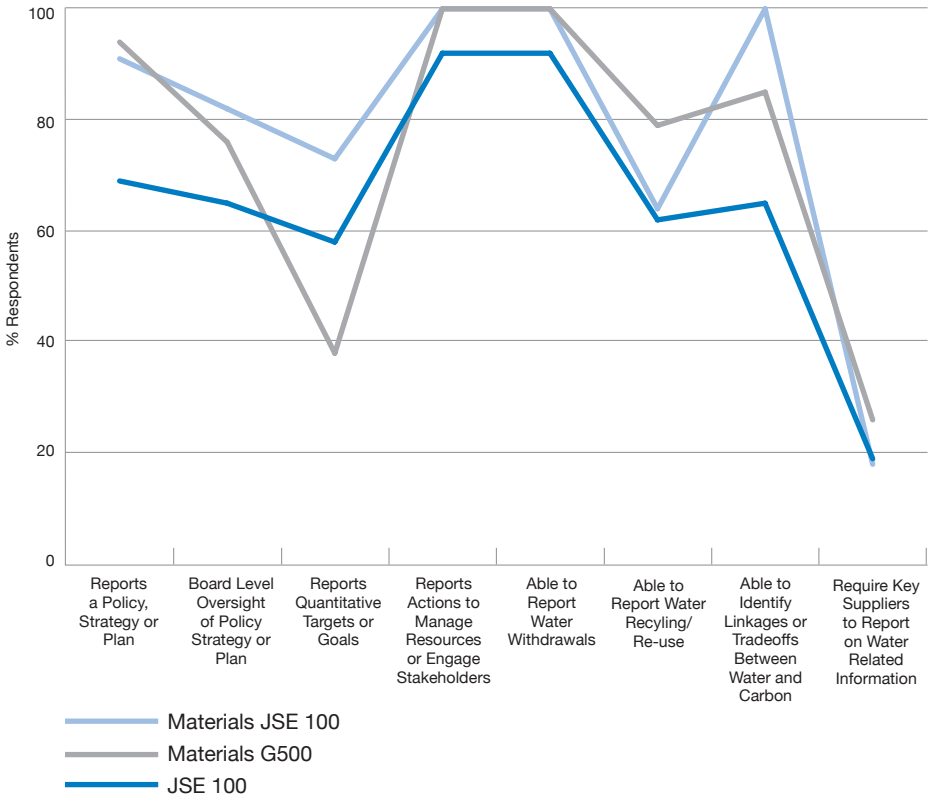
JSE 100 Response Rate (11/20)

72% Global 500 Response Rate (34/47)

JSE 100 Respondents: Anglo American; Anglo American, Platinum Division; AngloGold Ashanti; BHP Billiton; Evraz Highveld Steel and Vanadium Limited; Exxaro Resources Ltd; Gold Fields Ltd; Northam Platinum Ltd; AECI, Mondi, Impala Platinum Holdings (Not Publically Available).

Reporting industries within sector: Metals & Mining; Paper & Forest Products; Chemicals.

Figure 18: Materials Summary of Water Disclosure Indicators



"Increased rainfall in the Gauteng region in South Africa caused increased water decanting, which required additional pumping (therefore increased energy costs) at #10 shaft at KDC East mine. For this specific shaft, pumping requirements increased with approximately 8 ML/day with associated costs of R27,200 per day."

Gold Fields

Key Findings

- The response rate from the Materials sector was 55%. Whilst one of the better responses received from the South African sample, this rate was still significantly below the global response rate (72%) for this sector.
- All respondents within this sector are engaging with stakeholders. This is most likely a result of the types of organisations included within this sector, where keeping good relationships with neighbouring communities and statutory stakeholders underpins the viability of the sector. These relationships are viewed as critical to maintaining licences to operate – particularly within the Metals & Mining Industries.
- Only four out of the nine Mining & Metals companies noted water quality to be a risk to operations. Two of these companies referred to water quality as a risk primarily in the context of increased water treatment costs and only **Gold Fields** acknowledged the risks pertaining to liabilities from acid mine drainage directly.

"One of the most common risks associated with unplanned, excessive rain is water pollution as a result of over-topping (when excess water enters evaporation dams or ponds, which are designed to contain effluent, causing overflows)...Iron ore production during the quarter dropped by 19%, mainly due to mining constraints caused by wet pit conditions, resulting from excessive rainfall at all of Kumba's operations in South Africa."

Anglo American

Experiencing Impacts

- 64% of Materials sector respondents are already reporting water related impacts, indicating a slightly higher level of impact already experienced than the JSE 100 sample as a whole.
- Severe weather impacts, such as flooding were most often reported, followed by cost impacts from increasingly stringent regulatory requirements.

Facing up to the Risks

- 91% of the South African Materials sector respondents believe that they are exposed to water-related risks that have the potential to generate a substantive change in their business operation, revenue or expenditure. This is compared to 85% in the sample set as a whole.
- Increasing water stress or scarcity leading to disruption of operations was reported by 91% of companies.
- Only 36% of the Materials sector respondents noted declining water quality as a risk to business operations, which is surprising in view of the impact of the Materials sector on groundwater and surface water quality nationally.
- Materials sector companies recognise the risks due to reputational damage as a result from inaction on water or damage to the environment. The opportunities for action on water include consumer preference and the ability to retain or attract skills in the workforce.
- Disruption to supply and poor infrastructure was noted by a number of the companies in this sector, with many referring to the fact that the location of operations is generally defined by mineral resources, not availability of infrastructure or services.

Taking Action

- The Materials sector in South Africa and globally show strong activity in public engagement on water, with all of the companies (100%) in both the JSE 100 and Global 500 taking collective actions, engaging with the local community or stakeholders in some way.
- 91% of Materials respondents have made changes at the direct operational level to reduce water risks or adapt to impacts already experienced. This commonly includes improving the water efficiency of production processes or installation of infrastructure to improve storage and treatment capacity of water.

Finding the Opportunities

- Just over 90% of Materials sector companies in South Africa identify water related opportunities. This reported level of opportunity is higher than that reported by the Global 500 sample, in which only 72% reported opportunities.

"The nature of mining is that we cannot choose our locations - we have to go where the mineral deposits are. Insufficient infrastructure has, as such, posed a barrier to doing business, such as at Platinum operations in the Eastern Limb of South Africa, where we have invested significant resources in bulk water infrastructure."

Anglo American

"Exxaro determined that the biggest feasible water reductions can be achieved by increasing water recycling and water re-use in operations. For this purpose the water management plan commits to improved stormwater storage and management. The aim is to re-use as much water as possible in higher production processes."

Exxaro

"Where feasible, [we have attempted to enhance] the company's reputation through providing assistance, technology and knowledge transfer to communities resulting in them being able to improve the quality of their available water and sanitation."

AngloGold Ashanti

"The rising cost and tighter regulation of water, coupled with concerns about adequate long-term availability in many regions, is prompting many chemical companies to treat water conservation as an imperative in their sustainability efforts. AECI believe that this opportunity is immediate in terms of a timeframe looking into the future. The major areas that AECI have identified for this opportunity would be the nitric plants where processing and manufacturing of AECI's products takes place. Opportunities are also linked to AECI's water solution products, especially those linked to ImproChem."

AECI

"Mondi Group recognises the role that industry can and should play in managing our planet's resources while minimising, and even reversing, global environmental degradation. Leadership in good environmental practice especially in areas such as water consumption and treatment of effluents leads to better reputation and secures our license to operate."

Mondi

Table 10: Materials Best Practice

Leading Practice: Materials		
Setting and Achieving Targets	Exxaro	Set quantitative targets for absolute reduction in water usage, quality and efficiency. Including a 5% reduction in potable water use across all business units by year 2012.
Supplier Engagement	Mondi	87% of Mondi Group´s water footprint is green water required for growing of fibre in Mondi owned and foreign forests. In cases where timber is supplied from water stressed countries a water impact assessment has to be carried out. In 2011 a water impact assessment was carried out for Mondi´s SA operations. Mondi Group has also calculated the water footprint of its supply chain (pulp suppliers, timber from own and foreign forests) using supplier questionnaires and accepted data sources. They have calculated that 79% of Mondi Group´s total water footprint is originated from its suppliers.
Stakeholder Engagement	Anglo American	Anglo American takes part in regular engagement with a range of stakeholders over water, including regulators, communities and public policy debate, International Council on Mining and Metals (ICMM), Water Institute of South Africa (WISA), International Network for Acid Prevention (INAP), International Mine Water Association (IMWA), Fauna and Flora International, CARE and Business Unity South Africa (BUSA). Hosting regular, multi-stakeholder, water forums at mines and participation in water catchment forums, such as the Olifants River Forum in South Africa. They have also started engaging with the South African National Union of Mineworkers on possible collaboration on water issues of common interest.

5 Additional Responses

This section provides a summary of some of the best practice interventions noted from the voluntary respondents listed in Table 11. Although these responses are not included in the aggregate analysis, mention of these responses is pertinent. Firstly, to give recognition to the steps that these companies have already taken, and secondly, to gain some insight into other sectors, such as the Financials sectors which, although not targeted in the JSE 100 sample[31] have identified water as a material issue to their business in South Africa.

Table 11: JSE 100 Voluntary Respondents

Company	Sector	Industry
Investec	Financials	Commercial Banks
Nedbank	Financials	Commercial Banks
Santam	Financials	Insurance
Allied Electronics (Altron)	Information & Technology	Electronic Equipment, Instruments & Components
Eskom	Utilities	Electric Utilities

Best Practice Examples

Eskom – Tackling the Issue from Every Angle

Eskom generates, transmits and distributes electricity to approximately 6,000 industrial, 18,000 commercial, 70,000 agricultural and three million residential customers in South Africa. The state owned entity is a strategic user of water; this means that it is given 99.5% assurance of water supply by the Department of Water Affairs. In total Eskom uses 2% of South Africa's fresh water resources. Approximately 94% of generation capacity (consisting of three coal fired power stations) reported in the Water Disclosure response is situated in the Limpopo, Olifants and Vaal Catchment areas.

The production of electricity from coal is highly water intensive. Eskom uses 1.4 litres of water per kilowatt hour. In early 2011, the Board of Eskom approved the Water Conservation / Water Demand Management Programme (WCWDM) as a strategic initiative. The five year programme extends from 2012 to 2016. The objective of the WCWDM programme is to, i) optimise water consumption and manage water demand, ii) promote conservation and protection of freshwater resources, and iii) champion WCWDM practices. While water use performance targets are developed and set for each power station for each year, Eskom's strategy is based on a multi-pronged approach working with regulatory bodies, suppliers, customers (demand side management) as well as implementation of best water management practices and good housekeeping towards efficient water utilisation at the power station level.

Santam – Helping Clients Help Themselves

As a leading South African short term insurer, Santam have long since recognised the risks which climate change and in particular changes in precipitation patterns or frequency of extreme weather events (droughts and floods) may exert on clients within a range of sectors including Agriculture, Property and Mining. Risks include increases in damages claims and difficulties concerned with insurance pricing in the face of such uncertainties. In order to better understand issues relating to climate change Santam have developed a Systemic Risk Forum to analyse current and future water consumption patterns, from an operational and, also, a client responsive position. Systemic climate change risk is evaluated for all Santam operations across all its geographies (South Africa, Namibia, Zimbabwe, Malawi, Tanzania, Zambia and Uganda).

"In the past five years Santam has experienced an increase in claims due to water-related issues such as flooding and drought… This has a direct impact on the profitability of the company; hence Santam has adopted a proactive risk management approach to deal with this increasing risk."

Santam

"The current transformation of the water sector is a potential threat to the organisation as the very organisations that may be responsible for the reliable supply of water to the power stations may be impacted by not having the necessary processes or systems or skills to carry out their respective mandates. Opportunity exists to shape and direct institutional reform and re-alignment."

Eskom

31 Medium and high priority industries selected based on CDP methodology explained in Appendix I.

"Water is fundamentally important for Altron, not just from an environmental compliance perspective, but also because water is used extensively in manufacturing processes at some of its operations and where possible savings should be made from an environmental as well as a cost point of view."

Altron

"The wider international investment community is demanding large corporates to divulge their water risks and opportunities. Similarly, large investment players such as the Government Employees Pension Fund (GEPF) and the Public Investment Corporation (PIC) are challenging corporates on their environmental responses, including water."

Investec

"In Nedbank's 4 star green rated Phase II head office building, a black water treatment system will in future allow for the recycling of all wastewater so that it can be re-used in toilets, cooling towers and to irrigate the gardens."

Nedbank

Santam Agriculture insures many agricultural businesses across the country and hence extreme weather events such as drought presents a risk to the company in terms of increasing claims. Water scarcity may also affect their productions which have an impact on the sum insured. In order to cope with this, risk management advice is provided to farmers on drought-related risk. This includes educating farmers on water conservation farming techniques and implications of producing drought-resilient crops. The company recognises the opportunity to engage and provide advice to clients on such water issues because their ability to add value lies in their ability to price insurance accurately.

Nedbank – Leading the Way

Nedbank Group is South Africa's fourth largest banking group, with a strong reputation in environmental leadership. Nedbank's water stewardship journey is a key environmental sustainability focus area. This focus is three-fold: (i) Addressing water scarcity (ii) Water quality (iii) Access to water. The group's initial water intensity reduction target (5% reduction by 2010 from 2005 levels) was met by the end of 2009 and a new target was set. A number of initiatives have already resulted in a significant reduction in water consumption of 5% for 2010 against the new target. Waterless urinals and dual-flush toilets are being introduced in an effort to reduce water consumption, while the collection of rainwater and recycled water for these purposes will have a further positive impact in the years to come. The use of bottled water has been discouraged at all Nedbank offices and branches, and employees are now requested to use glass jugs that can be refilled at filtered water points. By raising awareness of the carbon-intensive process of bottling and transporting bottled water, it is hoped that employees will eventually stop purchasing bottled water for their personal use as well.

6 Conclusions

Many scientists would argue that South Africa is facing a major water crisis. This crisis encompasses water quality, physical water scarcity, as well as water supply and sanitation infrastructure challenges. It is expected that this challenge will be further compounded by the projected impacts of climate change on southern Africa. The role of business in mitigating and adapting to this crisis is still being debated, but it is clear that JSE 100 companies will need to show leadership in sustainably managing the water resources on which they rely for their day-to-day business operations, both within and beyond South Africa's borders. The available evidence is clear: It is not sustainable to continue with unabated exploitation of water resources by following a 'business as usual' approach. If this is the case, South Africa's freshwater resources will be depleted and unable to meet the needs of people, industry and the natural environment by 2030, perhaps earlier.

The CDP Water Disclosure response provides South African companies with the opportunity to publicly report on how they are managing these risks, leveraging emerging opportunities, and contributing to the overall management of the country's freshwater resource. While the small sample size of 26 respondents makes it difficult to draw widespread conclusions, the following key findings, based on the analysis presented in Section 3, are suggested:

- **Many of South Africa's most significant corporate water users are not yet able to, or are not yet willing to, report on their water related risks.** Although 2011 saw the number of invited South African respondents increase from 6 to 26 companies (out of 56 invitees), the South African disclosure is still characterised by a relatively low response rate when compared to the Global 500 sample of targeted companies.
- **The companies that investigate water as a source of risks are finding risks.** A large number of companies have only recently started to consider water as a risk. Those that have invested significant time and effort are finding material water related risks (and opportunities) for their business. This is especially true for risks arising in companies' supply chains.
- **There is a mismatch between the magnitude of identified risk and the governance of the risks.** The level of risk reported by respondents is both widespread and substantial. The vast majority of the companies are identifying water risk (and opportunity) that may require substantive change in their business. They are also stating that these risks and opportunities are expected to manifest themselves in the near term. Despite this, only 65% of the respondent companies have board oversight of the risks and opportunities.
- **Multi-faceted action is required, which incorporates local stakeholders and cooperative partnerships.** It is clear that although water is a global and regional issue, management at catchment level is critical. The dependence of a wide group of stakeholders on water means that the problems of water must be solved in a collaborative way.
- **There is a need to improve target setting and increase verification.** Few companies are setting concrete, quantitative targets, especially in terms of absolute reduction targets or water quality parameters. If performance is to improve, targets need to be included in management plans, objectives and performance evaluation.

It is clear that JSE 100 companies will need to show leadership in sustainably managing the water resources on which they rely for their day-to-day business operations.

Due to the nature of water risks, the number of stakeholders involved, the technological and capital requirements for solutions and the immediacy, companies must act now in support of a consistent and stable supply of water.

South African business, in order to safeguard their business operations, should be doing more and better than their international counterparts.

Furthermore, if this information is to be used to aid in the development of best practice, internal performance improvements, reputation enhancement and government engagement, its reliability should be supported through credible verification.

- **An accepted common approach to corporate water accounting principles is needed.** Companies are grappling with the fact that there is not yet an accepted standard for water accounting. The future development of such a standard is pertinent to facilitate effective benchmarking and accurate measuring of performance against targets.

- **We need to act now.** We need to act now. The risks and opportunities identified by South African respondents have the potential to generate substantive changes to their business, with the vast majority of these being identified as short term (within the next 5 years). When seen against the backdrop of a projected national water crisis, the case for urgent action is compelling. Due to the nature of water risks, the number of stakeholders involved, the technological and capital requirements for solutions and the timeframes involved, companies need to act now in support of a consistent and stable supply of water.

The disclosure and management of water issues by South African firms is broadly on a par with the Global 500 sample in many regards, although notably lagging in some key areas such as corporate strategy and supply chain risk management. However, the grave projections for water scarcity, supply and quality issues in South Africa and the consequent extent and severity of risk to which South African companies are potentially exposed, in comparison to the Global 500 companies suggests that South African business, in order to safeguard their business operations, should be doing more and better than their international counterparts.

The Way Forward for South African Business

Whilst South African business has already shown strong performance with respect to climate change disclosure, it also has a significant role to play, both globally and locally, in water stewardship. By asking the relevant questions, the CDP hopes to raise investor and corporate consciousness as to what leading companies could be doing around water governance and management, and ultimately to raise the benchmark. By responding to the CDP Water Disclosure questionnaire companies are taking a significant step on the road to delivering change and reducing their future risk.

Appendix I

Report Methodology

For the purposes of this report, respondents from the JSE 100 are categorised into six sectors based on the Global Industry Classification Standard (GICS). The sectors include Consumer Discretionary, Consumer Staples, Energy, Health Care, Industrials and Materials. Voluntary responses were received from Financial, Utilities and Information Technology sectors, although these responses were not used in the main analysis.

The selection of the 56 companies is based on the CDP methodology for water by which companies that are considered to be in either water-intensive sectors or those sensitive to water issues in their supply chain were invited to respond to CDP's 2011 Water Disclosure information request. These companies were selected from the largest publicly listed companies (at the time of the analysis – Q4 2010) by market capitalisation from the Johannesburg Stock Exchange (JSE) top 100 companies.

Response rates are based on responses received from companies that were sent the CDP Water Disclosure 2011 information request and responded within the specified timeframes. Additionally, findings and conclusions discussed in the report are based only on invited companies that responded; these insights cannot be attributed to either companies who were invited but did not respond, or other non-invited companies for a particular sector, or other division. It was not possible to report specific information for the Consumer Discretionary sector as the only respondent was a non-public response.

For most metrics, the percentage of responses is based on the number of reporting companies for the relevant sector, or other division. Blank responses to particular questions are tabulated as "No" or "Don't know" when calculating quantitative responses, based on the question which has been asked.

Questions 1.1b and 1.1c, which request information on water reduction, efficiency, and quality targets, were responded to by some companies with qualitative goals or goals without quantitative targets. Wherever the number of respondents with quantitative targets or goals is referenced in the report, the figure is based only on respondents that provided quantitative targets or goals as part of this question.

For Question 1.2, which requests information on actions taken on water, the responses were often interchangeable between collective actions, stakeholder engagement and watershed management for example, so these categories were lumped together in the analysis. Supply chain engagement was separated out from the watershed management category, but only companies explicitly referring to an example of an action they have taken within the supply chain were included.

For Question 4.1, which requests a description of detrimental impacts related to water that companies have faced in the past five years, some companies responded "yes" in the narrative despite not having experienced a detrimental impact. Conversely, other companies responded "no" in the narrative yet described a detrimental impact. To calculate the number of companies experiencing detrimental impacts, individual responses were judged independently of company "yes" and "no" answers. Companies with blank responses were considered not to have experienced these impacts.

For the 'Disclosure Summary' tables (Table 2, 3, 4 and 8) the breakdown according to 'no action', 'basic', 'intermediate' and 'advanced' was based on a scoring methodology according to variables in the responses received. For example, the values provided in Table 2 indicate performance of JSE 100 companies scored across the following variables; understanding of risks at direct operations; risk mapping at a catchment level; use of reputable third party datasets of tools to assess risks; use of multiple risk indices/categories; understanding of supply chain risks; and, proactive collection of third party supplier data. For Table 3, 4 and 8 the variables assessed are described within the tables. The tables are intended to be only indicative of the overall performance across the action area.

Except where otherwise stated, all figures, tables, findings, and conclusions in the report are based on the CDP Water Disclosure 2011 information request and do not reflect external research or analysis by CDP or WSP.

Lead Partner

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Our sincere thanks are extended to the following

The National Business Initiative, lead partner in South Africa for the CDP, extends sincere thanks to our lead sponsor in South Africa, Deloitte, for recognising the value of this project and investing in its implementation. We also acknowledge the important role played by WSP Environment & Energy in the analysis and writing of this report. We would also like to thank the staff at CDP, especially Karina de Souza and Marcus Norton, for their support.

Finally, a special note of thanks goes to those JSE Top 100 companies that responded to the 2011 questionnaire. We believe that the data and analysis will provide invaluable information for a variety of initiatives in the management of water in South Africa. We recognise the companies that responded as leading companies in South Africa and commend them for their efforts.

For further information on how you may become involved in the NBI's key initiatives, please visit our website (www.nbi.org) or contact Valerie Geen on geen.valerie@nbi.org.za.

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CDP Contacts

Paul Simpson
Chief Executive Officer

Sue Howells
Head of Global Operations

Frances Way
Co-Chief Operating Officer - Programmes

Carbon Disclosure Project
40 Bowling Green Lane
London, EC1R 0NE,
United Kingdom
Tel: +44 (0) 20 7970 5660
Fax: +44(0) 20 7691 7316
www.cdproject.net
water@cdproject.net

Marcus Norton
Head of CDP Water Disclosure and Investor CDP

Karina de Souza
CDP Water Disclosure Account Manager

NBI Contacts

Joanne Yawitch
Chief Executive Officer
yawitch.joanne@nbi.org.za

Valerie Geen
Director for Climate and Energy
geen.valerie@nbi.org.za

Steve Nicholls
Programme Manager: Climate and Water
nicholls.steve@nbi.org.za

National Business Initiative
3rd Floor, MPF House
32 Princess of Wales Terrace
Sunnyside Office Park
Parktown,
Johannesburg, RSA, 2193
Tel: +27 (11) 544 6000
www.nbi.org.za

WSP Contacts

Carl Haycock
Managing Director
carl.haycock@wspgroup.co.za

Sean Doel
Director
sean.doel@wspgroup.co.za

Elan Theeboom
Climate Carbon, Sustainability Team Leader
elan.theeboom@wspgroup.co.za

WSP House
Bryanston Place Office Park
199 Bryanston Drive
Johannesburg, RSA, 2021
Tel: + 27 (0) 11 361 1380
Fax: + 27 (0) 11 361 1381
www.wspenvironmental.co.za

Kirsten Sims
Consultant
kirsten.sims@wspgroup.co.za