REPORT FROM SOUTH AFRICA ON CLIMATE CHANGE

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I. GENERAL PROLOGUE

'We have low levels of consumption in the developing world. You can either suppress demand and keep people poor, or you can develop. This means allowing people to consume energy and satisfy their service demands. We have to go there: we can't take the path of saying let's keep people poor in order to reduce emissions. But we can do a lot to influence the direction of their consumption so as to avoid emissions before they happen.'[1]

South Africa has been described as the economic engine and the 'bread basket' of Southern Africa. It also remains the greatest producer of greenhouse gases in the continent. Due to South Africa being a developing country, the main focus and approach should remain one of sustainable development. The developing world, however, faces greater challenges than the developed world both in terms of impacts of climate change and the capacity to respond to it.[2]

Climate change caused by these increased emissions will, due to South Africa being an agricultural hub, not only have a national effect, but will also affect neighbouring countries.

The country needs time to adapt to a major change in mindset to not only accommodate people who want to invest in the country, but to also regulate their potential contribution to climate change by the purchase of emissions.

On the other hand, a benefit is that natural disasters caused by climate change could force government expenditure to go where it would otherwise not have gone, namely into increasing poverty alleviation.

The physical effects of climate change are defined as 'first order risks', as they are direct risks resulting from the physical impact of climate change, and will without doubt be experienced by the whole business value chain.[3] These

physical impacts will most certainly disrupt most current economic relationships nationally as well as internationally, through the destruction of resources, assets or disruptions of operations due to extreme weather events. Insureds as well as insurers are vulnerable due to the increased risks.

Already, Santam, the country's largest short-term insurer, has recorded an increase in the frequency of natural perils claims within its market share.[4] Operations within geographically sensitive areas will clearly affect the risk profile and credit rating of the operator and will impact on insurability.[5]

South Africa, as one of the BRIICS countries, has for some time been actively involved internationally in addressing climate change issues.[6] It is, however, until 2012, exempt from emission reduction targets.[7]

II. QUESTIONNAIRE

A. Local context

1. Awareness

1.1 General public

Due to media hype and publicity the general public is aware of the phenomenon of climate change. The energy-efficiency awareness campaign launched in 2008 has had a positive effect. Unnatural and unusual weather patterns, especially in the Cape provinces have also increased local awareness. It appears, as is mostly the case where new risks threaten society, that as the exact effects are not yet scientifically certain or, in the southern hemisphere, catastrophic enough for the threat posed by climate change to be taken seriously by individual members of society in general.[8] The individual focus remains on development before anything else, and the attitude that a single individual cannot contribute significantly to effect a change, sadly prevails.

1.2 Business sector

The business sector is more sensitized due to the potential introduction of increased expenditures such as emission purchases, environmental remediation costs and increased taxes.[9] Leading companies are also factoring in the climate change challenges into long term business plans and strategies. It is, however, not statistically clear to which extent this is occurring.[10]

1.3 Insurance industry

There has been no formal statutory regulation of, or within the insurance industry for purposes of climate change claims. Although a lot more has been written about the causes and projected results of climate change, far less has been published on changes in the approach of risk management within the insurance industry and the development of new instruments and policies in view of increased risks posed by climate change.

1.4 Public authorities

A National Climate Change Response Strategy for South Africa was published in 2004.[11] Climate change dialogue on various government levels has increased, yet very little has been introduced or implemented formally to actually counter-act the causes or effects of climate change.[12] The National Environmental Management: Air Quality Act[13] is the most recent statute enacted which provides for statutory control over greenhouse gas emissions.

2. Main expected consequences of climate change

2.1 Floods

High risk. Due to poor water supply in rural areas, informal settlements form next to, or very close to, rivers and streams in areas not suitable for formal

accommodation. The risk is therefore high, as settlements and even business operations have been allowed below the 50-year flood line. Rivers and streams are not canalised, as is usually the case in Europe, for example, and as they are free flowing, are not efficiently contained in the event of flooding.[14] Mines will be flooded by water, which creates acid water build-up, causing immense damage to the environment.[15]

2.2 Rise of sea level

High risk. As South Africa has a coastline in excess of 2500 km, the risk posed by rising sea levels and an increase in upwelling events is a very high risk.[16] The country has a large tourism industry and relies heavily on the attractions of its extensive and pristine beaches and lagoons, and rocky shore ecosystems. Due to this there are many community structures situated directly on the coast.[17]

2.3 Melting of ice, snow, avalanches

Not applicable as the country has no significant ice or snowfall, except for small sporadic localised falls high in the Drakensberg and Cape mountain ranges. An increase in abnormal small snowfalls in areas never previously struck by this weather phenomenon, are increasingly being reported.[18]

2.4 Earthquakes

Low risk. Earthquakes occur seldom and if they do, on a small scale that the effects are not miniscule. The industry most exposed to the catastrophic impacts of earthquakes is of course the mining industry, as mine collapses due to earthquake activity remains a reality.

2.5 Storms and tornadoes

Medium risk. The southern part of the country is exposed to severe cold front pushing in from the south and high winds. The more northern part of the

country is exposed to thunder storms with severe lighting strikes. Tornadoes have been known to occur.

2.6 Heat waves, drought, fires

High risk. High temperatures and in increase in heat waves are experienced throughout the entire country. Drought is, due to the reliance on agriculture, always a threat and occurs often.[19] Increased drought will affect not only the economy but also the subsistence and even the survival of citizens due to the reduction of freshwater availability.[20] South Africa has been identified as one of the countries that will suffer severe water stress to reduced rainfall and increased evaporation.[21]

Fires are a huge threat in the Cape provinces in summer (winter rainfall area) and the northern parts in winter (summer rainfall areas). Increased lightning strikes will also increase veld fires.

2.7 Spread of diseases

High risk. Due to socio-economic factors, such as poor infrastructure, and lack of access to clean water or effective sewerage removal especially in rural areas, water borne diseases like cholera, for example, could spread easily. Water is often directly taken from water sources such as dams, rivers and streams and not via water purification plants. Contamination of the water due to flooding poses a real risk. Incidence of both malaria (through insect bites) and bilharzia (through parasites) in humans is also predicted to increase.[22] An increase in the extent of livestock disease outbreaks such as foot and mouth disease is also predicted.[23]

2.8 Other adverse effects

It is possible that adverse climate change effects could lead not only to sporadic drought events, but to long-term permanent desertification which will increase the extent of arid and semi arid areas in the country by 5 – 8%.[24]

This will impact not only on the national agricultural output, but also on the survival of the rural subsistence farmer.

Permanent effects could also include the reduction of plant, animal and marine biodiversity, which could lead to the extinction of animal taxa and flora species (floral biodiversity) not found elsewhere in the world, for example the Cape fynbos flora, which is found in a small and very environmentally sensitive area. The mortality of indigenous flora and fauna species would furthermore open up the sites for establishment of alien invader plants.[25]

Another aspect that has not received as much attention in the rest of the world is the threat of violent conflict that will be caused by the consequences of climate change events. It is predicted that 14 African countries face a high risk of political instability, whereas 23 face a high risk of violent conflict.[26] Property damage and business interruptions and increased insurance claims due to protests can clearly be envisaged.

3. Critical economic sectors affected

3.1 Agriculture

As stated above, South Africa relies heavily on supplying the country with foodstuff, and on agricultural exports to other countries in the world, for example of especially maize, fruit and other vegetables and meat. Drought will trigger vegetation change, rangelands and the capacity of land users.[27] In an attempt to reduce the use of fossil fuel, technology for the production of biofuels is being pursued. However, the capacity to produce these fuels will also be affected by climate change.

3.2 Fisheries

Due to its extensive coastline, and the fact that the country borders on both the Indian and the Atlantic oceans, South Africa has a huge fishing industry

on all coasts and export fish worldwide. Many citizens also rely on fishing for subsistence living along the coastline.

3.3 Forestry

South Africa has a paper and pulp industry and forests for this purpose lie especially on the high veld or escarpment in the northern past of the country.

3.4 Energy

South Africa relies on fossil fuel (it is primarily coal-reliant), hydroelectricity and nuclear power for energy supply. A limited quantity of natural gas is found off the coast. The country is one of the world's top 15 energy intensive economies.[28] The source most affected by climate change will probably be in the supply of hydro electricity.

3.5 Mining and other chemical industries

As one of our primary industries, changes in temperatures, increased flooding and possible increase in earthquakes make the industry vulnerable and climate change events could impact negatively on mining operations. Other industries in the group of industries that aim at becoming more energy efficient and will be affected by climate change effects include the cement industry, ferroalloys, aluminium and other chemical and industrial waste industries.[29]

3.6 Tourism

South Africa, aptly named 'a world in one country', relies heavily on tourism. Due to ecological changes in the natural environment and the effects thereof, for example on animal biodiversity and the aesthetic environment, there is no doubt that the tourism industry could be affected.

3.7 Transport

South African ports are crucial for the carriage of cargo by sea. Most of the import/export routes will be affected by rising sea levels and extreme weather conditions such as storms.[30] Land transport and rail transport may also be affected regionally and nationally.

3.8 Health sector

Due to the increase in diseases as mentioned above, the health sector will also need to shoulder a greater and as yet, uncertain burden.[31]

4. Concrete measures taken other than in the insurance sector

4.1 Legislation and regulation

Very little statutory regulation relating to mandatory climate change responses has been introduced. The National Environment Air Quality Act is currently the only legislation that concerns itself with greenhouse gas emissions.[32] According to the National Climate Change Response Strategy, a specific act of Parliament to deal with climate change issues in South Africa is, in the present circumstances, not warranted.[33]

4.2 Initiatives of economic agents

Intensive seminars, conferences, policies and planning strategies are at the moment prepared within and for various industries.

5. Involvement in international efforts and initiatives

5.1 Kyoto Protocol

South Africa acceded to the Kyoto Protocol in July 2002.

5.2 International Strategy for Disaster Reduction, Hyogo Framework

South Africa ratified the Hyogo Framework during the meeting in Japan on 18 – 22 January 2005.[34]

5.3 Other

As one of the BRIICS countries, namely Brazil, Russia, Indonesia, India, China and South Africa, the country is involved in discussions and planning on various levels. South Africa is also involved in the launch of the Africa Adapt Knowledge Sharing Innovation Fund for Climate Change.[35]

On a more regional level as a member of the South African Development Community or SADC South Africa is constantly in contact with neighbouring countries in discussion and planning on various aspects relating to climate change and its effects.[36] Contributions at regional level include, for example, support to the IGAD Climate Prediction and Applications Centre.[37]

5.4 National platforms

National Climate Change Response Strategy for South Africa was developed in accordance with the United Nations Framework Convention on Climate Change. A National Response Database has also been created for this purpose.[38] A Longterm Mitigation Scenario was initiated in 2006 and concluded in July 2008.[39]

5.5 Emission trading systems

Although emissions trading and carbon markets have matured rapidly internationally, their full potential has not yet been acknowledged locally. There is, however, an increased interest shown by companies to join the International Emissions Trading Association. Partnerships also exist between South Africa and other countries in the development of Clean Development

Mechanisms which are mechanisms primarily undertaken by developing, and not by industrialised, countries.[40]

5.6 Taxes

Plans currently include the introduction of so-called green taxes. Proposals include emission taxes, carbon tax and a tax on energy.[41]

B. CLIMATE CHANGE AND INSURANCE

1. Lines of insurance affected

Although South Africa is a developing or emerging economy, many multinational insurers, reinsurers and insurance brokers operate in South Africa. The South African position does not differ from the general international position, and most products and services provided internationally are also on offer in South Africa.[42]

1.1 Property insurance

Property insurance is the most vulnerable. It is foreseen that insurance of property where it is used for agricultural purposes will be the most affected. Other forms of insurance that will be affected to a lesser degree include business interruption and building cover. Higher premiums and more restrictive coverage are foreseen. Profits of short-term insurers will become more volatile due to an increase in claims.[43]

More claims will be due to causes of a gradual nature, though some, such as claims relating to storms, will be of a ‘sudden and accidental’ nature. New insurance products are being developed to provide for gradual risk occurrence cover.

1.2 Liability insurance

It may be accepted that first-party insurance will be affected to a greater degree than third-party insurance, although the latter will also not escape the impact of an increase in number and extent of claims.

1.3 Transport and marine insurance

Due to the country's strategic positioning on the world's sea trade routes, this type of insurance will be affected and will have to provide for the increase and changes in risks.

1.4 Life and health insurance

Due to increases in for example skin cancers, caused by higher radiation exposure through a damaged ozone layer, as well as increased risks caused by water and air pollution, claims are expected to increase and industry reaction expected.

2. Definition of climate change risks

2.1 Problems with interference of human and natural causes

In general climate change risks are defined as 'direct risks resulting from the physical impact of climate change as experienced by the whole business value chain'.[44] Due to involvement by various partners within this chain, any *novus actus interveniens* in the process will complicate the determination of proximate case, and the quantification of claims.[45] The uncertainty created by poor data availability will also complicate these issues.[46]

2.2 Problems with causal links

Problems regarding causation, both factual and juristic, as well as the triggers of claims are primary concerns. The flexible principles of common law relating to liability law will have to develop to accommodate the new risks posed by climate change.[47]

3. Insurer's protection measures against excessive exposure

3.1 Improvement of statistics

Data collection and availability is currently problematic, and remains a significant factor in climate change research and determination of risks for insurance purposes.[48] There is also a great lack of understanding of the knock-on effects of climate change events.[49] Conventional actuarial models appear to be ill suited for this purpose. Insurers are embarking on partnerships with the scientific community to build forward-looking catastrophy risk models.[50]

3.2 Raising risk awareness

Efforts such as the Carbon Disclosure Project that identifies insurance and reinsurance as two of fifteen sectors identified as 'high impact' sectors could assist in helping raise risk awareness within the industry.[51]

3.3 Prevention

More than ever before, the insurance industry is acting in a pro-active instead of in a reactive manner, contributing to loss-prevention projects and the design of prevention strategies.[52]

3.4 Limits of indemnity

The industry is expected to respond by limiting indemnity, availability of products and by reducing product affordability.[53]

3.5 Exclusions

As the costs of climate change events cannot be projected or determined accurately, insurers are inclined to resort to the inclusion of exclusion clauses that specifically exclude climate change-related claims from cover. In some cases, they withdraw completely from disaster-prone areas.[54]

3.6 Premium increases

Premiums for cover in industries and areas sensitive to known climate change risks are increasing, that reduces product affordability.[55] Sanlam, one of the country's largest long-term insurers, has disclosed a decision taken in 2008 to factor in climate change risks in insurance premiums, leading to more expensive cover.[56]

3.7 Cancellations and withdrawals from markets

As stated in 3.6 above, in some cases insurance has been cancelled, or services withdrawn where cover was provided in disaster-prone areas.

3.8 Adaptation of reinsurance agreements

As stated, the position will reflect the international position regarding reinsurers as most South African insurers are reinsured with international reinsurance companies.[57]

3.9 Financial market risks

Corporate profits are expected to drop due to extreme weather related losses and costs.[58] Profits of insurers as well as property values in climate sensitive areas are expected to decrease.

4. Initiatives to develop new products

4.1 New policies

As the insurance industry is facing the brunt of first order impacts, innovation is crucial. Weather derivatives serve as an innovative example of introducing new mechanisms to cope with the crisis.[59] Insurers offer so-called 'green' coverage, rate credits as incentives for building owners and carbon emissions credit guarantees.[60]

Due to the increase in claims for gradual effects, policies that offer gradual pollution cover have emerged. One should caution that these policies are 'replete with subtle definitions, exclusions and requirements for pollution prevention imposed upon the insured.' This, as well as the high premiums, renders these policies unfeasible for the average insured.[61]

4.2 Climate change risk management services and expertise

As leading companies are starting to factor climate change challenges into their long term business plans and strategies, the need for these services and resulting increase in expertise will increase exponentially. The increase in publications on the climate change challenge has increased local expertise in most fields affected thereby.[62] As stated above, the emergence of a dedicated environmental risk service is envisaged.[63]

4.3 New policies as incentives to reduce greenhouse gas emissions

Products for rate credits and other incentives for building owners are being developed. Also on offer are carbon emissions credit guarantees, and weather risk transfer instruments.[64] Sanlam has introduced a new policy for the insurance of rangeland production against fire and drought.[65]

4.4 Initiatives in the carbon market

Although lagging behind, for example the EU, innovative development in increased participation within this market is expected.[66] See the information provided in par A 5.5 and par A 5.6 above.

5. Reinsurance

Most international reinsurers, Swiss Re and Munich Re for example, operate in South Africa and the position on reinsurance will therefore reflect that of other countries. Claim payments within this industry are estimated to increase by as much as 20% due to damage caused by natural disasters.[67]

6. Alternative Risk Transfer

An increase in the supply of weather derivatives and swaps in South Africa is expected. The biggest purchaser is currently the energy sector. Although the nature of these derivatives is still uncertain and no clear solution is apparent, classifying these derivatives, as insurance would provide consumer protection as it will be regulated by insurance regulations.[68]

7. Cooperation or competition with public sector

Due to the poor state of data availability, as data is incomplete and irregularly updated, specifically on climate change impacts, closer cooperation is required by public authorities and the insurance sector. As stated, a dedicated

environmental risk service within the insurance industry for country-specific risks is being envisaged. See in this regard the availability of potential sources of data referred to in pars A 5.3, A 5.4 and B 3.2 above.

C. CONCLUSION

Insurers are often classified as reactive. Where climate change is concerned, one can safely say that a more proactive approach is being taken, in conjunction with governments and the public sector. Insurers are increasingly becoming selective about who they issue cover to,[69] and about increasing their cooperation in the processes for risk reduction. Insurers are furthermore attempting to ensure that funds remain available to meet potential climate change losses, and to design new and innovative products to meet the challenging needs of a world in the process of change.[70]

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[1] Steve Thorne, Team leader SouthSouthNorth South Africa, as quoted in Orford M *Climate Change and the Kyoto Protocol's Clean Development Mechanism* (2003) ITDG Publishing (hereinafter 'Orford') 81.
[2] Department of Environmental Affairs and Tourism *A National Climate Change Response Strategy for South Africa* (September 2004) iii.
[3] See especially Tyler E *Use of the Real Options Approach in Valuing the Impact of Climate Change on the Pulp and Paper Industry in South Africa: A Case Study of Sappi* 2007 Master's Thesis (University of Cape Town) 9, referring to statement by Gars H & Volk C (2003) *Carbonomics – Value at Risk through Climate Change* WestLB
[4] Maasch S, Bracher P "Global issue, local impact" *FANWES* November 2007.
[5] Tyler 9.
[6] The BRIICS countries consist of Brazil, Russia, Indonesia, India, China and South Africa; see in this regard their cooperation in the *OECD Environmental Outlook to 2030* published by the OECD 2008; South Africa furthermore aligns itself with the Group of 77 and China negotiating block (called 'G77+China').
[7] Tyler 19, that South Africa can, however, earn emission reduction credits.
[8] Fortunately for South Africans, the effects of global warming have been more severely evidenced in the Northern hemisphere; see also the remark by Dombo G that 'South Africans are, for now, probably more insulated from the effects of global warming than people in the northern hemisphere' in "Global issue, local impact" 2007 *Financial Advisers News* 34.
[9] See references to green taxes, emission trading in pars 5.5, 5.6 below.

[10] See in this regard Tyler 19.
[11] The *National Climate Change Response Strategy for South Africa* was developed in accordance with the United Nations Framework Convention on Climate Change (hereinafter 'UNFCCC') tabled at the UN in 1992, as well as in accordance with the Kyoto Protocol, to which South Africa acceded in July 2002.
[12] For example the Climate Justice Dialogue presented at the University of Pretoria under the auspices of Global Humanitarian Forum (28 February 2009); the Seminar on Climate Risk Impacts and Adaption in Southern Africa presented by the Institute for Security Studies (22 June 2009); Winkler H "Climate change and election" *Polity.co.za* 2009/07/20 1 reported that climate change was also for the first time included in the manifesto's of most political parties for the 2009 elections.
[13] Act 39 of 2004.
[14] "Knowledge: the cornerstone of SA's adaption to climate change" 2009 *Water Wheel* Vol 8 Issue 1 Jan/Feb 22.
[15] See "Acid water build-up – court action possible" *Legalbrief* of 2010/01/19 4.
[16] See in general http://www.southafrica.info/about/geography.
[17] "Knowledge: the cornerstone of SA's adaption to climate change" 2009 *Water Wheel* Vol 8 Issue 1 Jan/Feb 22.
[18] See http://www.busrep.co.za 27/9/2006 on snow falls in the more northerly provinces.
[19] See also the National Water Resource Strategy approved by Parliament on 1 September 2004; see http://www.dwaf.gov.za.; also the National Climate Change Response Strategy 2 that predicts a 5 – 10% reduction in rainfall in summer rainfall regions.
[20] Stringer LC, Dyer JC; Reed MS, Dougill AJ, Twyman C, Mkwambisi D "Adaptations in climate change, drought and desertification: local insights to enhance policy in southern africa" *Science Direct – Environmental Science & Policy* May 2009 at http://www.sciencedirect.com.
[21] "Knowledge: the cornerstone of SA's adaption to climate change" 2009 *Water Wheel* Vol 8 Issue 1 Jan/Feb 22; for statistics see also the *OECD Environmental Outlook to 2030* OECD 2008.
[22] National Climate Change Response Strategy 4, 18.
[23] Above 19.
[24] See again Stringer *et al*.
[25] For extensive scientific studies see Vetter S "Drought, change and resilience in South Africa's arid and semi-arid rangelands" *South African Journal of Science* 2009 Vol 105 Issue 1&2 Jan/Feb 29; Hoffman MT, Carrick PJ, Gillson L & West AG "Drought, climate change and vegetation response in the succulent karoo, South Africa" *South African Journal of Science* 2009 Vol 105 Issue 1&2 Jan/Feb 54.
[26] Upliftarace "Africa: Climate Change Threatens Instability in 37 Nations" *allAfrica.com* 17 June 2009.
[27] Blignaut J, Ueckermann L, Aronson J "Agriculture production's sensitivity to changes in climate in South Africa" *South African Journal of Science* 2009 Vol 105 Issue 1&2 Jan/Feb 61.
[28] The National Climate Change Response Strategy for South Africa iv, 24.
[29] Above 27.
[30] The Cape of Good Hope is not called the 'Cape of storms' for nothing, and heavy seas, swells and winds will severely affect sea transport.
[31] Par 2.8; see also The National Climate Change Response Strategy for South Africa iv.
[32] See especially n 13 and par A 4.1 above.
[33] See the Report 29 that other acts should rather provide for specific climate change provisions.
[34] For more on South Africa's position see http://www.acds.co.za.
[35] See in this regard http://www.africa-adapt.net.
[36] See in general http://www.sadc.int/.
[37] Known as 'ICPAC' and situated in Kenya; see http://www.iss.co.za/af/reorg/unity for more detail.
[38] September 2004; see http://www.ccssummit2009.co.za; http://www.dwaf.gov.za for more information.
[39] See http://www.ccssummit2009.co.za
[40] http://www.ieta.org; also http://erc.uct.ac.za; http://www.iges.or.jp. on the potential for emission trading in and by South Africa, as well as potential emission reduction credits.

[41] For more information see http://www.econrsa.org.
[42] Brice J "Are you covered?" *Institute of Risk Management South Africa; Enterprise risk* July 2007 14; where cover cannot be obtained within South Africa, cover may be obtained off-shore; see also at 14 for data from Swiss Re that indicates that only 0.1% of the world's insurance premiums originate from Africa.
[43] Asamoah J "Global Climate Change: Relevance to the Property Insurance Industry in Africa" *energy management news: a newsletter for the SADC region* December 2001; Van Zyl J "No escape for the global economy" *Finance week* 20 August 2002 48.
[44] Gars H, Volk C *Carbonomics – Value at Risk through Climate Change* 2003 WestLB SRI London.
[45] For a general discussion on causation and claims relating to environmental damage see Kuschke B *insurance against Damage caused by Pollution* LLD thesis (University of South Africa) 2009 chap 4.2.5; and chap 6.
[46] See in this regard par B 3.1 below.
[47] For a more general discussion on causation and claims relating to the environment see Kuschke B *insurance against Damage caused by Pollution* LLD thesis (University of South Africa) 2009 pars 4.2.5; 6.3; 6.4.
[48] See Tyler 27 for a discussion on data availability, and the conclusion by Earl and Rhodes that complications arise due to 'the unpredictable speed of issue evolution; and historical trends which do not provide clear guidance for the future'.
[49] Brice 14.
[50] Raubenheimer S on http://www.iisa.co.za/conference.
[51] See Tyler 15 on The Carbon Disclosure Project in which insurance and reinsurance have been identified as two of fifteen sectors identified as 'high impact' sectors.
[52] Brice 13.
[53] Tyler 10 for a South African perspective seen from the paper and pulp industry.
[54] Brice 14.
[55] There has been an overall increase in insurance premiums in high-risk areas; see the report on growing risks on http://www.insuranceblog.co.za.
[56] See http://www.treevolution.co.za.
[57] Par B 1 above, and par B 5 below.
[58] See again Van Zyl 48.
[59] Tyler 10.
[60] Maasch S, Bracher P "Global issue, local impact" *FANEWS* November 2007 34.
[61] See this conclusion by Brice 15.
[62] Tyler 19 on the competitive advantage and risks relating thereto, as well as the effect on company value. For the link between environmental and financial performance, see the sources quoted in Tyler 22 - 27.
[63] According to the conclusion drawn by Brice 15.
[64] Maasch & Bracher 34.
[65] See http://www.busrep.co.za 29/9/2006.
[66] See also Tyler 15 for the 2005 Report issued in terms of the Project.
[67] See the prediction by Munich Re in Van Zyl 48.
[68] *White Paper on Weather Financial Instruments: Insurance or Capital Markets Products* National Association of Insurance Commissioners; see also the opinion of Tyler 10.
[69] The drawback of this result is that greater discrimination exists within the insurance industry. In a country with a history of unfair discrimination and the resultant efforts to refrain from any discrimination, this aspect touches a nerve. The view may be taken that discrimination in this case is not wrongful or unfair as it is based on business efficacy and not on the arbitrary factors contained in general anti-discrimination legislation.
[70] Brice 13.