

AN INDUSTRIAL CHEMOCIDE

SYNOPTIC ANALYSIS OF AIR

POLLUTION IN THE DURBAN SOUTH AREA

by



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PREFACE

Air pollution, health and poverty convey overtones of moral dereliction of our people by the confederacy of perpetrators. It is true that a cocktail of chemical emissions pollute the Durban South area and the residents paying an enormous price to survive.

With poverty abound, the people feel disenfranchised as their plea for a better environment fails to improve their standing.

This short treatise looks at the role of people and the business as one part and the inclusion of the government on the other part. A comparison of covert techniques and manipulations used by business to circumvent the system.

Legislation although adequate but lacking enforcement together with legal remedies as a way to stop this incursion to our Constitutional right.

A paradigm shift to sustainability in exploring the many facets of invaluable 'practical solutions' to save and sustain our existence and our intergenerational society.

The government authorities saddled with internal strife and the under-funded NGOs who are buoyed by media support still prove ineffective. The conglomerates with all their abundant resources covertly or otherwise propagate their maliciousness unchecked.

The enforcement authorities, the judicial officers, the NGOs and the people must work harmously to stem this unacceptable moral degradation before it reaches abysmal proportions.



MOGASUNDRAM SHUNMUGAM NAICKER

ACKNOWLEDGEMENT

A comparison can be made to the trials and tribulations in obtaining a Masters Degree and to the people most affected by this unacceptably high level of environmental degradation and most importantly their 'personal' struggle to survive.

I, firstly like to thank Professor Jeremy Ridl for the constructive manner of his personal supervision, in making my arduous task seem easy.

My family endured many incursions to their 'legitimate' family time. Therefore I dedicate this treatise to my wonderful children, Yash, Lushinka and Luansha. It goes without mention that my wife, Wendy is the driving force in maintaining a balance in our lives, I salute her for her unblemishing support. My parents have always encouraged me to strive for the ultimate through persistence, to them a big thank you.

To my many assurance clientele your unwavering support is appreciated.




MOGASUNDRAM SHUNMUGAM NAICKER

DECLARATION

I, Mogasundram Shunmugam Naicker, hereby declare that the work contained herein is entirely by own, except where indicated in the text itself, and that this work has not been submitted in full or partial fulfillment of the academic requirements for any other degree or qualification as any other university.

Signed and dated on this 15th day of March 2003.



Mogasundram Shunmugam Naicker.

TABLE OF STATUTES

1. Atmospheric Pollution Prevention Act 45 of 1965.
2. Constitution of the Republic of South Africa Act 108 of 1996.
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8. Promotion of Access to Information Act 2 of 2000.
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2. *MEC for Economic Affairs, Environment and Tourism v Mackay Bridge Farm cc.* 1996 All SA 340 (SE).
3. *Merebank Environmental Action Committee v Executive Member of KZN Council for Agricultural and Environmental Affairs and Others* Unreported case 2691/01 (DCLD) 2001.
4. *Minister of Health and Welfare v Woodcarb (Pty) Ltd and Another* 1996(3) SA 155 (N).
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6. *The Director: Mineral Development, Gauteng Region and Sasol Mining (Pty) Ltd v Save Vaal Environment and Others* 1999 (2) SA 709 (SCA).
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1 INTRODUCTION

‘I hear the plaintiff cry of the Ogoni plains mourning the birds that no longer sing at dawn; I hear the dirge for trees whose branches wither in the blaze of gas flares, whose roots lie in infertile graves. The brimming streams gurgle no more; their harvest floats on water poisoned by oil spillages’

‘I hear in my heart the howls of death in the polluted air of my beloved homeland; I sing and dirge for my children, my compatriots and their progeny.’¹

This was the compelling call of the late Ken Saro-Wiwo to the world to take heed of the environmental injustices being perpetrated on his people. His call echoes around our planet, with more prominence being felt in our own country, especially the Durban South area. The communities in this area endure a range of environmental impacts, but the most serious being air pollution. This region is reputed to have one of the highest ambient SO₂ in the country.

‘Oil is the blood of Mother Earth...to take the oil is, for us worse than killing your own mother. If you kill the Earth, then no one will live.’²

¹ World Rainforest Movement *The High Cost of Cheap Oil* (July 2000) quotation by Ken Saro-Wiwo, Nigerian Poet.

² Op cit n114 ‘The U’wa people in Columbia regard their land as sacred and the oil exploration by Occidental Petroleum on these sacred lands will upset the balance of the world’. See also the comments in 1885 of the now famous Chief Seattle...who used very similar language in his plea for the protection of our planet. Also see Annexure B.

ENVIRONMENTAL JUSTICE

Environmental justice is the co-existence of people and the bringing about a harmonious relationship with industry, where equality and fairness should be the prerequisite Environmental justice, according to the principles adopted at the 'People of Color Environmental Leadership Summit',⁹ is the pursuit of fairness and protection under the laws governing the environment, human rights and the Constitution without any discrimination based on race, ethnicity or socioeconomic status. Environmental justice prevents racial discrimination that gives rise to poor environmental conditions existing in the impoverished communities.¹⁰ Helen Stacy states that environmental justice is about race and economic power. People of colour are poorer than white people and they 'suffer disproportionately greater negative environmental effects.'¹¹ Environmental justice seeks to remedy this negative relationship between race and economic power. It requires the involvement of these marginalised communities in the decision-making process. At present they are alienated and become the victims of the development process. This collaboration of including the people in deciding the type of environment they prefer is a just

⁹ Principles of Environmental Justice at the "People of Color Environmental Leadership Summit" 27 October 1991 Washington DC – Adopted *inter alia*, 'Environmental justice requires that we, as individuals, make personal and consumer choices to consume as little as Mother Earth's resources and to produce as little waste as possible; challenge and reprioritize our lifestyle or lifestyles to ensure the health of the natural world for present and future generations' - www.yahoo.com/environment viewed 1..10.2001.

¹⁰ Helen Stacy *Environmental justice and transformative law in South Africa and some cross jurisdictional notes about Australia, the United States and Canada* Jan Glazewski et al (Eds) *Environmental Justice and the Legal Process* 36, states that 'They all share the phenomenon of black people and people of colour living in the poorest neighbourhoods with some of the worst housing, dirtiest water and most polluted air.'

¹¹ Helen Stacy op cit n10 36.

solution in alleviating the past inequities. The practice of apartheid (racism) in our country was a forerunner of creating environmental racism as its consequence. A systematic discrimination on people of colour and the outweighing economic advantage of employment placed the disadvantaged masses to regard their health as a secondary factor in this equation. NEMA deals with environmental justice in ss2(4) which must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly the vulnerable and disadvantaged. The South African Constitution allows individuals and groups to seek environmental justice as this fundamental right was previously viewed as a collective right rather than an individual right.¹² The Constitution also makes provision for a Human Rights Commission¹³ where the protection, development and attainment of such rights are enforceable. Further provisions (s211) are made for traditional and customary law but subject to the limitations of the Constitution. Environmental justice, according to Dianne Scott *et al*,¹⁴ focuses on the relationship between marginalised groups and environmental issues and their disproportionate exposure to pollution.

¹² Helen Stacy op cit n10 51. Also section 24 of the S.A. Constitution.

¹³ Section 184.

¹⁴ Dianne Scott, Catherine Oelofse and Caradee Guy 'Double trouble: environmental justice in South Africa' Agenda empowering women for gender equality No 52 2002 50.

ENVIRONMENTAL RACISM

Michael Kidd¹⁵ comparing the environmental justice problems encountered in the United States and South Africa states that the majority in this country suffers this injustice, whereas in the USA it is the minority. Poverty is the common denominator in both instances. Environmental injustice is considered as the disproportionate degree of environmental impact on people of colour (minorities in the USA) compared to whites. Kidd further elaborates that the siting of activities that produce environmental risks would not be a violation of the US Constitution as it would be on the basis of income. If it is based on racial discrimination, relief may be sought in terms of the Constitution or the Civil Rights Act. American sociology professor Robert Bullard, speaking at the 'groundWork' conference,¹⁶ stated that environmental racism exploits our health and degrades our environment which is a 'trade-off' for profits. In South Africa environmental injustice is far more widespread and its imposition on predominately black and poor people is as the result of racism.¹⁷ If the siting of these polluting industries were carried out after the enactment of our Constitution, this would clearly be a violation. As these industrial companies were established before the enactment of the Constitution, they would not be regarded as unconstitutional as it does not apply retrospectively and at that time no law was violated. The only

¹⁵ *Environmental justice – a South African perspective* Jan Glazewski at al op cit n10 149.

¹⁶ Sunday Tribune September 2 2001 reporting on the 'groundWork' conference, Professor Bullard further stated that where you live in the United States can influence the quality of your life, '...whole question of residential apartheid is real'.

¹⁷ Jan Glazewski op cit n4 152.

requirement is that they shall not transgress the regulatory provisions of NEMA and the Bill of Rights, where the rights of the individual are protected.¹⁸ Environmental racism is also referred to instances where politically and socially marginalised communities are located in hazardous environmental areas.¹⁹

The national co-ordinator of the Environmental Justice Networking Forum (EJNF), commenting on environmental justice, paid particular attention to the past era where the white populace associated environment with conservation.²⁰ This created a perception by the majority that the right of animals was more important than people. Therefore it is understandable that people viewed the environment as separate from themselves. It places environmental degradation on apartheid and capitalism, which allows businesses to exploit workers and the environment for profits.

ENVIRONMENTAL ECONOMICS

Environmental economics is the management of resources and their alternatives, leading to the creation of making good, defensible and substantiated decisions. Many economists previously paid more attention to

¹⁸ Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to the health and well-being and the ultimate protection of the environment. The environmental clause is partially negative as it gives a right to the environment rather than a right to a healthy environment. This is significant in that it implies a right to a minimum standard to the environment than a limitless right.

¹⁹ Dianne Scott *et al* op cit n14 50.

²⁰ Jan Glazewski *et al* op cit n4 10.

as 'econology' a synthesis of ecology, sociology and economics.'²⁹ Poverty can be eradicated by the roles played by investors, global companies and governments in furthering their higher and broader economic growth, by insisting that people engaging in any type of business with them adhere to certain codes of conduct. The poorer countries to stimulate an inflow of income and investments must secure access to the global consumer markets. The poor must also recognise that an entrepreneurial initiative is required to propel them to overcome any constraints in political leverage or administrative impediments that will promote a sustainable livelihood.

Sociology is the most important in the tripartite definition of 'econology.' For poor people social importance and economic survival is of a greater significance than ecology. This is one of the issues that was discussed at the 2002 World Summit on Sustainable Development (WSSD).³⁰ It is claimed that '...weak governments, inadequate legal systems, and rampant corruption can exacerbate both social and environmental problems'.³¹ Our inadequate legal system, complacency of our regulatory authorities, irresponsible financial prioritisation and probably to a certain extent corruption undermines the good work done by concerned residents and NGO's.³² Conservation will

²⁹ Ibid.

³⁰ Daily News Thursday October 4, 2001 survey 'World Summit on Sustainable Development' NGOs want attention paid to plight of poor, claimed that 'It was felt that governments were not doing enough to address degradation and its consequences and were adopting policies that promoted profit rather than the health of people and that human life has become a commodity and private gain had replaced the common good.'

³¹ Brown et al op cit n25 13.

³² Shadrack B.O. Gutto Environmental Rights Litigation, Human Rights and the Role of Non-Governmental and Peoples Organisations in Africa (1995) 2 *SAJELP* states that promotion and protective measures be

not be sustainable if the economy does not satisfy the needs of the people. Greed and ignorance can be to an extent be ameliorated by education but only financial freedom can alleviate poverty.³³ Bantu Holomisa in his opening address, draws attention to the consequences of separate development (apartheid) policies of the old South Africa, ‘...the poor and powerless who have been crushed under heavy burdens yet blamed for their ills’.³⁴ The plan of the apartheid government, in implementing their sacrosanct Group Areas Act, with the collaboration of the Durban City Council during the early 1940’s, was to provide ‘cheap’ and abundant unskilled labour and at the same time to segregate the different racial groups so that the poor may work and live in the same vicinity.³⁵ Black residential areas were also located near places of employment to minimize transport costs.³⁶

THE EFFECTS OF AIR POLLUTION

The people living and working in the areas adjacent to and surrounding these pollution-producing industries suffer a multitude of ailments, which in many instances is only evidenced later. Discussions with medical practitioners in the Merebank/Merewent area irrevocably state that a high degree of upper

more proactive than reactive, ie. preventative interdicts or injunctions rather than damage control or compensatory measures.

³³ R F Fuggle and M A Rabie op cit n21 27 stated that ‘When there is great want, there is always the danger of over-exploitation, three major causes of which are: poverty; ignorance and greed.’

³⁴ Bantu Holomisa ‘Workshop on the Constitution and the Environment - An Introduction’ (1996) 3 SAJELP 17.

³⁵ Dianne Scott *Communal Space Construction: The Rise and Fall of Clairwood District* (Dec 1994).

³⁶ Michael Kidd Urban Foundation *Urban Debate 2010: Policies for a New Urban Future, Tackling Group Areas* (1994) 4 151.

respiratory ailments are prevalent. Not only does air pollution pose a huge health hazard but a greater risk on the environment.³⁷ In pursuit of greater profitability, businesses must take responsibility in accepting that their production processes do cause irreparable harm not only on the environment but also on the well-being of the people.³⁸ The existence of adequate legislation to regulate the industry and penalize any offender is worthless if the authorities cannot effectively address the on-going transgressions of the law.³⁹

Human activities cause the discharge of pollutants, which restricts the emission of heat from the earth's surface. These gases are transparent to 'short-wave radiation' of the sun, but absorb the 'long-wave radiation' from the earth.⁴⁰ This increases their concentration, causing the earth's surface and lower atmosphere to warm (greenhouse effect). If this higher warming trends are unchecked then climate modifications will occur. Atmospheric stability, wind speed and direction dictates that dilution and dispersion of polluted matter. The ability of the atmosphere to absorb pollutant discharges is affected by a number of variables, namely pollutant nature, emission point

³⁷ A.Rabie *South African Environmental Legislation* 93 'since we all must breathe we are compelled to inhale air pollution'.

³⁸ Greenhouse Gangsters vs. Climate Justice – *The Corporate Response – The Five 'Ds'* 12, published by Transnational Resource and Action Center (Nov 1999): 'This principle of avoiding harm even when there is no absolute scientific certainty is the precautionary approach.'

³⁹ J De Waal et al – *The Bill of Rights Handbook*, (1999) 389 'While South Africa is not short of environmental law, it is short of effective environmental law'.

⁴⁰ Peace et al op cit n21 201.

characteristics, metrological conditions and surface terrain.⁴¹ Except for vehicular emissions, stationary fossil fuel processes produce an increasingly large amount of air pollution in this country. The most significant of these pollutants are sulphur oxide (SO_x) and nitrogen oxide (NO_x), particulate matter (PM), carbon monoxide (CO) and volatile organic compounds (VOC) and secondary pollutants such as ozone and peroxyacylnitrates. Air pollution exacerbates pre-existing diseases such as pulmonary diseases, emphysema, bronchitis, asthma, cardiovascular diseases and cancer.⁴² Sulphur dioxide causes irritation of the respiratory system. Soot particles leave a black substance on the alveoli, damaging the delicate epithelial lining. Photochemical smoke causes headaches, eye, nose and throat irritations, lung function impairments, coughing and wheezing.⁴³ In practical terms it is difficult to establish a causal nexus between the harm and the polluting activity. But many '...findings from several international medical studies on the relation between air pollution and serious lethal diseases are highlighted.'⁴⁴ According to Sylvia Noble Tesh⁴⁵, the connection between environmental pollution and a community's disease is obvious to the people,

⁴¹ J G Petrie et al in Fuggle and Rabie (eds) *Environmental Management in South Africa – Air Pollution* 423 - contend that 'If vertical temperature structures of the atmosphere resists vertical air motion by turbulence, the air is termed stable: this will occur if temperature increases with height – the so-called inversion conditions. This inversion layers act as an effective lid to restrict vertical dilution and is responsible for the high early morning levels of pollution'.

⁴² Fuggle et al op cit n33 601. Also see Graham Haughton and Colin Hunter *Sustainable Cities* (1994) 136 '...a large-scale study in the USA concluded that at least 11%, and more likely 21%, of lung cancers could be attributed to general air pollution (OECD 1985a)' also in Calcutta 60% of the population suffer from bronchitis and pneumonia (WCED 1987).

⁴³ www.geocities.com/xavier 10.07.2001 Particulate toxicity depends on concentration and is linked to increased risks of respiratory and cardiovascular illness and death.

⁴⁴ N.V.Svendson "Reporting air pollution in South Durban: a case study of environmental reporting in Durban newspapers" Unpublished masters thesis UND 2001 43.

⁴⁵ Sylvia Noble Tesh op cit n7 25.

activists and their supporters but not to scientists. The research needed for scientists to make as informed decision is unavailable. They use 'proxy information' by making laboratory data stand for human experience, small communities representing large ones and proximity to hazardous substances substituted for actual exposures. For these reasons, their findings are either negative or only weakly supportive that pollution is a public health hazard. For documented case studies where specific diseases were diagnosed and in some instances resulted in death from exposure to air pollution, see 'Annexure C.'

THE USE OF COVERT TECHNIQUES

To what extent does our large industrial companies and the media disseminate information to sway public opinion about the environment? Throughout the world, sophisticated techniques are used by large corporations, industry-funded scientists and media to manipulate the way the public and politicians view the environment.⁴⁶

⁴⁶ Sharon Beder *Global Spin – The Corporate Assault on Environmentalism* (1997) "The corporations' techniques include employing specialized PR firms to set up front groups that promote the corporate agenda whilst posing as public-interest groups; creating 'Astroturf' – artificially created grassroots support for corporate causes; deterring public participation; getting corporate based 'environmental education' materials in schools; funding conservation think-tanks, which have persistently tried to cast doubt on the existence of environmental problems and to oppose stricter environmental regulations."

ECONOMIC FACTORS

According to Brown et al, where a select group of industrial and developing countries who are the key environmental and economic players representing 57% of the world's population and 80% of the world's total economic output, these countries will be the key to achieving accelerated economic and environmental progress in this century.⁴⁷ South Africa is one of the countries to be included in this category.⁴⁸ Government regulations and emission control technology have not kept pace in developing countries as in more wealthier and developed economies. It is evident from the Table below that Sao Paulo, Mumbai and Jakarta have serious air pollution problems. South Africa being part of a global economy has to conform to international norms and standards in ensuring that its pollution and waste management control is strictly enforced in perpetuating its constitutional principles of being a caring and responsible nation.⁴⁹ There are numerous ways where every individual,

⁴⁷ Brown et al op cit n25 5 - A collection that can be called the E-9 countries .

⁴⁸ **Air Pollution in E-9 Nations (1995)**

Country	Sulphur Dioxide	Suspended Particulates (m.p.c.m.)*	Nitrogen Dioxide
Germany (Frankfurt)	11	36	45
Japan (Tokyo)	18	49	68
South Africa (Cape Town)	21	-	72
United States (N.Y)	26	-	79
India (Mumbai)	33	240	39
Brazil (Sao Paulo)	43	86	83
China (Shanghai)	53	246	73
Russia (Moscow)	109	100	-
Indonesia (Jakarta)	-	271	-

Source: World Bank, World Development Indicators 2000 (Washington D.C 2000) 162-64.

*micrograms per centimeter.

⁴⁹ GN 227 of 2000 2.1.2 'South Africa's reintegration into the global economy with the international and Southern African political arena necessitates as improved pollution and waste management system. The country's economic and industrial policy has also turned towards export promotion as a pillar of South

irrespective of the actions of the polluting companies, the authorities or their neighbours, their primary concern should be to alleviate and prevent the degradation of the environment.

COVERT OPERATIONS IN THE SOUTH AFRICAN CONTEXT

Sharon Beder in *Global Spin*⁵⁰ reveals techniques that interest groups use to influence and reshape public opinions about the real causes of environmental degradation. In South Africa all interest groups (namely politicians, corporate companies, non-governmental organisations and the media) profess that none of these techniques are used, but it is evident that such deviant practices do exist. This is apparent especially in advertisements depicting large oil companies as environmentally concerned companies and investing millions of rand in renewable energy resources. Although the covert operations are for obvious reasons not transparent they do exist. Many NGOs and community activists take a firm stand on a number of pertinent issues but ‘fizzle out’ or take a conservative approach. The issue whether we need development or conservation, is unquestionable, as both issues are needed to enhance human development and conservation. The challenge is the ‘right trade-off’⁵¹ between these issues.

Africa’s economic development. South Africa therefore has a growing obligation to meet international commitments and to be a globally responsible country.’

⁵⁰ Sharon Beder op cit n46 – Summarised review.

⁵¹ Fuggle et al op cit n33 27.

2. THE PEOPLE AFFECTED AND THE ROLE OF THE NON - GOVERNMENTAL ORGANISATIONS (NGOs)

2.1 BRIEF DESCRIPTIONS OF THE AREA COVERED

The South Durban industrial zone is a narrow belt extending from the south of the Durban harbour towards the Durban International Airport. This area includes the residential areas of the Bluff, Wentworth, Merewent, Merebank, Isipingo, Athlone Park and Amanzimtoti.⁵² The Durban South area was part of a pristine estuary teeming with indigenous vegetation, wildlife and an abundance of crustaceans. Indentured Indian labourers settled in this area from 1910 to 1920 and began to farm this land, after the expiry of their contracts. Since 1931 vast areas of wetland were drained primarily for industrial and agricultural development. This area has been referred to as 'a sad case of unplanned urban development allowing polluting industrial development to occur side by side.'⁵³ The Durban Municipality embarked on a transformation of land-use. Their policy was to create a productive racial

⁵² The area in question covers a cosmopolitan section of people. There are of varying income groups, the affluent living in Athlone Park and Amanzimtoti regions and the poorer sectors in the Wentworth-Merebank zone. In this economic separation, it is not difficult to distinguish the racial contingency of black people in poorer areas. This is also evident in the state of their respective suburbs, especially the lack of proper planning and the deteriorating standard of upkeep. These glaring disparities, together with their inability to perceive the harmful effects of the 'bad' air they breathe, accept these conditions as a way of life. Consequently the last thought on their 'stressed' mind is the protection of the environment.

⁵³ Michael Kidd op cit n6 151. A Eveleth 'Engen the biggest polluter in Durban' *Weekly Mail and Guardian* May 1995 'There are two giant oil refineries on either side, a massive paper mill, a chromium processing plant, an airport and a multitude of chemical industries... Many houses border on the factories directly and some families live only 20m from the oil refineries.'

zoning plan.⁵⁴ This area was proclaimed as a heavy industrial zone by the Durban Town Council in 1938. The affected people were the Indian community of Merebank and the coloured community of Wentworth. Hallows and Butler noted that these communities were located ‘downwind and downstream’ in the apartheid era.⁵⁵

The Durban International Airport is situated in this industrial region bordered in the south by the Engen Refinery and South African Petroleum Refineries being its northern neighbour. The current initiative to revamp the airport and extend its runway, albeit only temporarily, as the much-awaited King Shaka International Airport to the north of Durban shows some semblances of eventual fruition. Of greater concern is the future of this invaluable piece of real estate. Its future although uncertain is a test to the present incumbents to invite all participants in the decision-making process, thereby negating the past imbalances. The idea of sub-dividing this arable land into ‘mini-farms’ and affording the disadvantaged, the opportunity to sustain a living is most welcome. This may act as a cushion to contain the hazardous emission levels that are presently being experienced. An important perspective is the ‘osmotic’ effect that these ‘mini-farms’ will have on the environment, in its absorptive process to counteract this current proliferation of hazardous emissions.

⁵⁴ Diane Scott op cit n35 abstract (ii).

⁵⁵ Dianne Scott *et al* op cit n15 51.

2.2 EFFECTS OF AIR POLLUTION ON THE ENVIRONMENT AND THE WELL-BEING OF THE PEOPLE

Oil refining activities in the Durban South area have raised concerns regarding respiratory and other associated ailments.⁵⁶ Poverty together with rapid urbanisation in the new democratic South Africa, places a huge burden on the government to counteract the social imbalance practiced for many decades. One of its immediate tasks was to eradicate, *inter alia*, environmental pollution and inner-city decay. Inner-city decay is further exacerbated by the trend towards the migration of the service and financial sectors to the suburbs for greater security and a better environment. Many cases of cancer resulting from exposure to asbestos, arsenic, radon, cigarettes or other environmental agents are not always recognized as the cause of this disease, but subsequent findings indicate otherwise. Also excessive exposure to lead during early childhood may cause intelligence impairment.⁵⁷

⁵⁶ Jan Glazewski op cit n4 708.

⁵⁷ Fuggle et al op cit n21 591.

2.3 NON-GOVERNMENTAL ORGANISATIONS (NGO's)

2.3.1 ROLE OF THE NGOS

The South Durban Community Environmental Alliance (SDCEA) represents more than 250 000 residents which was formed in 1997 as an 'umbrella' organization for concerned environmental groups. The SDCEA embraces the many Community Based Organisations (CBOs) and Non-Governmental Organisations (NGOs).⁵⁸ The SDCEA's main concern is the reduction of hazardous emission levels to World Health Organisation (WHO) minimum standards and the community participation in the immediate and long-term objectives of the alliance. The organisation presenting a strong and unified body has entered into a number of environmental campaigns with local industry.

2.3.2 THE ROLE NON-GOVERNMENTAL ORGANISATIONS PLAY IN COMBATING ENVIRONMENTAL DEGRADATION

The MRA, being a ratepayer's organization is primarily concerned with the welfare of its secular representation, i.e. the predominately Indian sector. The issues it raises vary from community concerns of its residents and to a limited extent, the health and 'well-being' of the people it represents. It is for this

⁵⁸ CBOs: Bluff Residential Association, Bluff Ridge Conservancy, Merebank Environmental Committee, Merebank Residents Association, Merebank West Community Coalition, Simunye Youth Development Community, Wentworth Development Forum, Wentworth Co-ordinated Services and NGOs Earthlife Africa, Durban and Wildlife and Environmental Society.

reason that the Merebank Environmental Action Community (MEAC), protesting against Sasol Gas for the construction of the gas pipeline, was formed to apply pressure to arrest the gross injustices that the people of the area endure daily. The MRA concentrates on partisan issues and prefers not to upset the 'cordial' relationship it has nurtured over the years with the industry stakeholders and the local authorities. What agenda does the MRA follow? It voices its opinion on a number of issues but has yet to sue any of the polluting companies or the Department of Environmental Affairs for not protecting the people it represents.

MEAC being an infant organisation has been dealt a severe blow in a recent court action.⁵⁹ With respect Magid J, erred in his judgement as the remedy the applicant was seeking was not on a common law basis but was sought under the auspices of NEMA and the Bill of Rights, where the legal standing (*locus standi*) requirement was relaxed. He stated that "...a committee whatever comes before that word cannot conceivably be an association with *locus standi in judicio*.' It is clear that the judge was not *au fait* with the provisions of NEMA. The judge also contended that the applicant must show that he has a 'clear right, a reasonable apprehension'⁶⁰ of harm and no satisfactory alternate remedy. The *locus standi* provisions in the Bill of Rights seems to have been ignored. It seems that it was not pointed out to the learned judge in argument.

⁵⁹ *Merebank Environmental Action Committee v Executive Member of KZN Council for Agriculture and Environmental Affairs and Others*, unreported case 2691/01 (DCLD) 2001.

⁶⁰ My emphasis.

The Bill of Rights provides for persons who :-

- acting as a member of, or in the interest of a group or class of persons;
- acting in the public interest;
- an association acting in the interests of its members;

may approach a competent court with the allegation that their rights (in the Bill of Rights) has been infringed or threatened.⁶¹ Sections 32 and 33 of NEMA, *inter alia*, extend the constitutional clause by granting *locus standi*, for infringement of rights in the Bill of Rights and also gives the courts the discretion NOT to award costs against an individual or group under certain circumstances. Therefore in the MEAC case, the Judge erred in his finding: firstly, that the committee did not have *locus standi*; secondly, that there was no 'reasonable apprehension of damage or danger ... to the residents in question'. Furthermore, the provisions of NEMA that '... any breach or threatened breach of any provision of this Act... concerned with the protection of the environment or the use of natural resources...' were ignored. It is clear that in terms of the Bill of Rights, where a right has been infringed or threatened, relief can be sought. Thirdly, as regards to costs, 'Mr Aboobaker (counsel for applicants) argued that because this was an environmental issue different considerations applied to the question of costs. The learned judge said this of counsel's argument: 'He was, however, placed in some difficulty when I asked him whether, if he was successful, he would

⁶¹ Jan Glazewski op cit n4 148 'It should be noted however that this is only in respect of rights contained in the Bill of Rights but that this would include the environmental rights.'

because environmental factors were involved, agree that costs should not follow the result. He was not prepared, for understandable reasons, to make that concession’.

‘In my view there is no basis whatever for depriving the successful party of its costs in this matter, I am persuaded that it was a proper case for the employment of two counsel and, indeed, both the applicant and the third respondent employed two counsel in the matter.’ As NEMA⁶² provides innovative provisions for awarding of costs which gives the courts the discretion not to award costs to persons or group of persons acting reasonably out of concern for the public interest or the protection of the environment and no other means are available for relief sought, the court should have exercised this discretion. The decision on the MEAC case was also not adequately considered especially with the ‘liberation of the *locus standi* requirements by the Bill of Rights, coupled with extension of the circumstances in the NEMA...’⁶³ The counsel for the litigant when questioned about costs should have referred the Judge to the provisions of the Act, together with the requirements of *locus standi* and the infringement of a right or threat of such infringement as alleged in the Bill of Rights, which was not adequately addressed. This judgment would have an adverse effect on litigants who have to bear such onerous costs, especially in the promotion of humanitarian causes. In my view an appeal should have been lodged, to redress this iniquitous decision. The argument that a special environmental court staffed

⁶² Section 32.

⁶³ Jan Glazewski op cit n4 150.

with suitable qualified personnel, would have brought about a more equitable and just decision, will be justifiable. This case has now been taken on review, with success by the applicant.

In the *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others (cc)*,⁶⁴ where establishment of a temporary transit camp on state owned property for displaced people whose houses were destroyed by the flooding of the Jukskei River, was considered. The Kyalami residents contended that the activity constituted a change of land use and therefore compliance to the provisions of ECA and NEMA was necessary.

In opposing the interdict, the State argued that it had a constitutional obligation to the provision of housing to the flood victims and its entitlement as owner of the land to make it available. In term of the s24 (7), environmental impact assessment (EIA) requirement must be met if the activity is likely to have a significance effect on the environment and the activity required authorisation before commencement. The State's argument was based on the premise that being the owner of the land it did not require the necessary authorisation, the land zoned for undetermined use entitled it to build houses and agricultural buildings and that the legislation did not apply as the proposed activity was of a temporary nature.

The applicants argued that the provisions of ss 2(4) (g) and (k) of NEMA applied.⁶⁵ The Pretoria High Court ordered the Minister to reconsider the

⁶⁴ CCT 55/00 unreported 25.5.2001.

⁶⁵ 'Decisions must take into account the interests, needs and values of all interested and affected parties...'

decision after consulting with the residents. A subsequent Constitutional Court decision held that the principles of NEMA does not impose a duty on the organs of the state in the use of its property, but applied only in limited instances which included in the formulation of policy and the preparation of environmental implementation plans. The court also found that the affected people had a constitutional right to housing.

According to Terry Winstanley⁶⁶ the, judgment was flawed for the following reasons:-

Section 2 applies to actions of all organs of the state that may significantly affect the environment. Permission must be sought inspite of it not having a significant impact on the environment. EIA provisions of NEMA (s48) also bind the state. The 'disturbing precedent' that ownership is paramount and moreover since the state owns huge tracts of land and 'because it reflects retrospective thinking about the environment', will portray a negative view to the people it supposes to protect. Of greater concern is the task of the environmental authorities to ensure sustainable development if ownership gives them the right to act without compliance with environmental laws.

and the 'decisions must be taken in an open and transparent manner,....'

⁶⁶ De Rebus (September 2001) '*Environmental Law Update*' 62.

2.3.2.1 NGO AND COVERT TECHNIQUES

Environmental groups (NGOs) are dependent on government subsidies, public donations and subscriptions. There are no indications on how these organisations are funded. The SDCEA and MRA have offices with at least one full-time employee. The SDCEA emphatically denies any business funding and the MRA funds its operation from proceeds of an annual fair, but from information gleaned, MONDI PAPER, has funded the community centre and it is under the MRA's administration.

The lack of transparency from the role players in South Africa cannot be adequately compared with American 'front-groups'. When a large corporation, whose ultimate motive is wealth creation, intends to oppose environmental regulations or support a destructive environmental development, it may use its 'own-steam' or more profoundly and more effectively use people or experts, who publicly promote the end result of its funder while claiming to represent the public interest. 'Put your words in someone else's mouth...' ⁶⁷, is an argument that companies use in justifying that the public do not believe everything it professes, therefore they use front-groups.

⁶⁷ Sharon Beder op cit n46 27 Merrill Rose, Executive Vice President of PR firm Port/Novelli advises companies that there will be instances when the position you advocated will not be accepted by the public simply because who you are.

In the United States corporate front-groups flourished due to their large funding resources.⁶⁸ Many front-groups, especially, the 'pseudo-scientific' groups whose intention is to place doubt and create confusion and show some scientific claims to the cause they wish to portray.⁶⁹ Some groups publish propaganda that global warming will never happen and the same groups say that the United States would prosper in a warmer environment. Some groups acknowledge environmental problems but equate high costs, job losses and severe economic losses as a consequence of change. These are the same groups who regard themselves as moderate by using words or phrases implying their alleged concern and 'hiding their own extreme positions' eg. 'Coalition for Sensible Regulation, the Alliance for Sensible Environmental Reform and the Citizens for Sensible Control of Acid Rain.'

Throughout the world and including our country there are many organisations or front groups, (NGOs and CBOs) which proliferate, with their ultimate aim to promote their funder thereby manipulating the people's trust. The accounting records of all these 'so-called' front- groups must be scrutinised and their allegiance made public, so that they are accountable for their actions. NGOs and Community Based Organisations (CBOs) in this country

⁶⁸ Sharon Beder op cit n46 27 'In 1991, Dow Chemical was contributing to ten front groups, including the Alliance to Keep Americans Working, the Alliance for Responsible CFC Policy, the American Council on Science and Health, Citizens for Sound Economy and Council for Solid Waste Solutions'. Other companies that contribute to front groups are Chevron, Exxon, Mobil, Du Pont, Amoco, Ford, Phillip Morris, Pfizer, Monsanto, Procter and Gamble.

⁶⁹ Sharon Beder op cit n46 28 for example, if the Nutrasweet or Candarel Manufacturers should state that their artificial sweetener has no side effects, consumers would tend not to believe them, but if 'Calorie Control Council' were to say this, the consumer would probably believe them. They manipulate the public trust.

are loosely based organisations and they are not limited by any internal constitutional procedures or governed by legislative provisions. Therefore it's difficult to delve into their records, but the 'Promotion of Access to Information Act 2 of 2000', gives any person the right of access to any information that is required for the exercise or protection of any right. NGOs tend to fight popular causes but many of them fall under the 'restrictions and demands of their national and international financiers' ⁷⁰

Gutto, in his article in the *SAJELP* referred to above, states further that owing to different social classes, the poor live and work in 'environmentally unsound and harmful conditions'. Under the auspices of the Africa Charter Articles 45 and 55 and Rules 76 and 77 of the Rules of Procedures gives NGO's similar rights of legal standing for any environmental violations and the denial of this right, the aggrieved party may apply to the Commission for redress, provided all local remedies are exhausted or are inadequate. Apart from litigation, the Human Rights Commission can investigate any violation and apply the appropriate remedy of dispute resolution and impose the necessary sanctions.

⁷⁰ Sharack B.O Gutto 'Environmental Rights Litigation, Human Rights and the Role of Non-Governmental and People Organisations in Africa,' (1995) *SAJELP*.

3. THE BUSINESS CONGLOMERATES AND STAKEHOLDERS

There are many industrial companies that are responsible for the poor quality of the air in the Durban South Industrial Zone.⁷¹ Of great concern is the somewhat lackadaisical attitude of these companies or their blatant transgressions of the law. Effluent and emission discharge exceeds the WHO standards in this area (see Appendix B). The only response from these companies to these exceedingly high pollution levels, is the exorbitant cost they will have to incur to reduce or rectify them. Sapref and Engen have committed themselves to reduce their emission levels by investing in environmental and technological improvements.⁷² The government has also committed itself to spend R13 million for an 'industrial cleanup' in this area.⁷³ It is interesting to note that Sapref has spent R100 million since 1995 in improvements which, *inter alia*, include 'conducting extensive soil and groundwater survey for possible contamination', but in July and September

⁷¹ There are more than 13 companies that are primarily responsible for the quality of the air in this basin, but only two of these companies have responded to my enquiry.

⁷² Sunday Tribune Business Report 20 May 2001 Sapref – Since 1995 it has invested R100 million in the following projects: - converting from oil to gas firing, fitting double seals on tanks to reduce emissions, rerouting sour water off-gas to reduce sulphur dioxide emissions, conducting extensive soil and groundwater survey for possible contamination, flaring used as a safety measure only, R300 million SRU4/Scot project which will further reduce sulphur dioxide emissions by 46% when commissioned in October 2002. Engen proposed improvements are conversion to Sasol gas with a capital expenditure of R43 million and operational costs of R55 million per year, covering various sections of the effluent treatment plant to reduce odours with a capital expenditure of R2 million, vapour recovery systems reducing VOCs on effluent treatment plant, benzene road loading and gasoline road loading with a capital expenditure of R10 million, and various projects phased over several years for which R3 million has already been spent.

⁷³ Ibid. A health risk analysis was to be conducted by December 2001 and epidemiological and respiratory studies to determine the impact of pollutants on people's health to be completed by December 2002.

2001, more than 750 000 litres of petrol leaked from its pipelines. Criticism has been leveled at these self-regulated testing programs. A demand for an independent monitor as been suggested. Current legislative measures are adequate if properly enforced and it is in this respect that the relevant authorities have been found lacking.

Peter Davis in an editorial,⁷⁴ states that the 'dirty' industries in the South Durban Basin are seriously affecting the health of the people who live and work in this area. He further states that no matter how much money is spent, these industries would never be totally 'clean'. While the industry is spending millions in its cleaning-up process, it will not be sufficient to allay the fears of residents who have to contend with the ever increasing industrialization. A solution mooted by Davis is the relocation of the people to a healthier and better environment. The money saved by these large companies embarking on a programme of installing modern technology could be used to purchase these residential properties. These savings would adequately cover the costs incurred in the relocation process. This solution is laudable but the concerns of the residents have to be canvassed as differing views may thwart any good intentions in this regard. The Merebank Residents Association (MRA) is totally against such a plan.⁷⁵

⁷⁴ Sunday Tribune 15 October 2000.

⁷⁵ Op cit n26.

In the United States of America, British Petroleum has invested \$200 million in solar power and \$8.5 billion in exploration and production of fossil fuels in the same period. It also plans to increase its solar industry by \$1 billion by 2007. Considering it is a \$174 billion company, \$1 billion to be spent on its future solar industry is small. In its billboard campaign one of its advertisement reads 'Solar, natural gas, wind, hydrogen. And oh yes, oil. It's a start', portrays it to be an environmentally concerned company.⁷⁶ The question is asked whether it is 'embarrassed to admit what it does for a living'.

Only two companies that have responded to this author's questionnaire. The responses are detailed in Annexure A.

3.1 ARE PUBLIC RELATION COMPANIES, FRONT - ORGANISATIONS AND GRASSROOTS GROUPS BEING USED TO PROMOTE THEIR CORPORATE AGENDAS?

When a company's interest is at stake, it will oppose environmental regulations or support an environmentally damaging development. This may be done either openly or more effectively it may lobby to a group of citizens, experts or a coalition of such groups to promote the outcome it desires whilst claiming to represent the public interest. Where such groups do not exist, the

⁷⁶ Fortune Magazine vol 146 no 4 September 16 2002 18. Bob Malone, BP's regional president, said 'The oil business has a negative reputation. We are trying to say that there are different kinds of oil companies.' Another billboard reads 'We believe in alternative energy. Like solar and cappuccino'.

company pays a public relations firm to create such an entity.⁷⁷ These ‘front-groups’ acting under a veil of community concern, promote the interest of its funder.

Protection of whistleblowers provided for in s 31 (4) of NEMA, states that any person disclosing information of an environmental risk is protected from being civilly or criminally liable or from being dismissed, prejudiced or harassed, provided it is done in good faith. This disclosure may only be made to a committee of Parliament, provincial legislature, an organ of state responsible for protecting any aspect of the environment or emergency services, the Public Protector, the Human Rights Commission, or any Attorney-General. This disclosure is also protected when it is necessary to avoid an imminent and serious threat to the environment and to ensure that such threat is properly and timeously investigated or to protect himself or herself against serious or irreparable harm from reprisals or to give due weight to the importance of open, accountable and participatory administration. The law governing whistleblowers is explicit but in practice the risks inherent on the ‘so-called’ informant may outweigh the benefits. Any person who has any information regarding covert or manipulatory techniques of companies or organisations that causes harm to the people or the environment can now use the provisions of this Act very effectively.

⁷⁷ Sharon Beder op cit n46 27.

From questionnaires received and conversations with some of the companies in this country, none of them indicate any apparent financial support for such organisations. Understandably, covert techniques and sophisticated manipulations proliferate in many other countries but it seems to be non-existent in this country. Although many companies directly sponsor local community events and subsidise educational initiatives, they undoubtedly also sponsor covertly NGO's, front-groups or persons who will influence the outcome they desire.⁷⁸

The only solution is to compel these companies to disclose this information under the provisions of NEMA (s31), namely the access to environmental information and protection of whistleblowers. The Promotion of Access to Information Act 2 of 2000 is also available:-

‘To give effect to the constitutional right of access to any information held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected herewith.’

Front groups are not the only means corporate groups are using to convince politicians they have considerable support for their environmentally damaging activities. They are also using grassroots support. Public relation firms are using ‘specially tailored mailing lists, field officers, telephone banks and the latest in information technology....creating the impression of wide

⁷⁸ Sharon Beder op cit n46 31 ‘Corporate front groups are less well documented outside the United States, although it is reasonable to assume that wherever the multinational corporations who support them operate they do also’.

public support for their client's position'.⁷⁹ Astroturf (artificially created grassroots coalition) is a 'grassroot program that involves the instant manufacturing of public support for a point of view in which either uninformed activists are recruited or means of deception are used to recruit them.'⁸⁰

Sharon Beder⁸¹ in her concluding remarks, calls for a 'new wave of environmentalism', exposing corporate myths and methods of manipulation.

Dan Bertolet reviewing Noam Chomsky and David Barsamian⁸² where they discuss the 9-11 attack and its aftermath, the US directed hatred, the 'jingoistic bias' of western media and the blatant disregard of international law by the US. He calls for military restraint so as not to escalate the 'cycle of violence' where the innocent suffer while the rich and powerful preserve and increase their wealth and power at the expense of the weak.

⁷⁹ Sharon Beder op cit n46 32 "This sort of operation was almost unheard of ten years ago, yet in the US today,...it has become 'one of thee hottest trends in politics' and a \$800 million industry." Firms and associations that uses these services are Phillip Morris, Georgia Pacific, The Chemical Manufacturers Association, General Electric, American Forest and Paper Association, Chevron, Proctor and Gamble, American Chemical Society, American Plastics Association, Motor Vehicles Manufacturers Assoc., WMX Technologies, Browning Ferris Industries and the Nuclear Institutions.

⁸⁰ Sharon Beder op cit n46 32 – quoted form Stauber, John and Sheldon Rampton, (1995) 23 *Toxic Sludge Is Good For You! Damn Lies And The Public Relations Industry* , Common Courage Press, Munroe, Maine .

⁸¹ Sharon Beder op cit n46 243.

⁸² Dan Bertolet Thought Control *Resurgence* No 214 September/October 2002 62 reviewing Noam Chomsky and Davis Barsamian 'Propaganda and the Public Mind : Conversations with Noam Chomsky .

3 LEGISLATION

The inclusion of the environmental clause in the Bill of Rights and other enshrined rights makes our Constitution as one of the most progressive in the world. According to Jan Glazewski⁸³, the environmental right clause places a positive duty on the state and raises challenges in the country's developing status. But the question is posed: '...why do we need environmental law'.⁸⁴

Legislation relating to environmental law in South Africa was enacted by central government, with certain devolution of power to provincial or local authorities. In the new constitution, provincial authorities were given responsibility to create new laws regarding the environment and nature conservation, excluding national parks, national botanical gardens and marine resources.⁸⁵ In the previous government, although parliament was entrusted with the creation of laws regarding environmental protection, the administrative tasks in the implementation of these laws was divided between government departments, provincial and local authorities. Of special concern was that air pollution was the responsibility of Dept of Health and local

⁸³ David A. McDonald (eds) *Environmental Justice in South Africa* Jan Glazewski The Rule of Law Opportunities for Environmental Justice in the New Democratic Legal Order 2002 171. The environmental clause has a flavour of a 'fundamental right' in that everyone has a right to a environment that in not harmful to their health or well-being and a 'socioeconomic right' to prevent pollution and ecological degradation.

⁸⁴ Michael Kidd op cit n6 14 claims that 'The answer, it is submitted, lies in the reasons why the environment requires management'.

⁸⁵ Cheryl Loots 'Distribution of Responsibility for Environmental Protection' (1996) 3 *SAJELP* Working Draft of New Constitution: S 156 (2), read with schedule 5.

authorities and now transferred to the Department of Environmental Affairs and Tourism.

The Constitution stipulates that municipalities have executive authority and the right to administer certain functions. Air pollution falls under Part B of Schedule 4, which may be administered by local government, subject to overriding provisions in a matter that national government can specifically intervene where appropriate.⁸⁶ However, national and provincial authorities have a duty to ensure that municipalities are effectively performing their function.⁸⁷

A brief overview of the all-encompassing legislation on the environment follows.

4.1 ATMOSPHERIC POLLUTION PREVENTION ACT 45 OF 1965

It stipulates control measures for noxious and offensive gases, which was administered by the Dept of Health and Welfare. A registration certificate was mandatory for any person who carries out a 'scheduled process in or on any premises'.⁸⁸

⁸⁶ S 44 (1) (a) (ii).

⁸⁷ Jan Glazewski op cit n4 140.

⁸⁸ R F Fuggle and M A Rabie *Environmental Concerns in South Africa* (1983) 289.

4.2 HEALTH ACT 63 OF 1977

Air pollution emission may be regarded as a nuisance, the Minister of Health and Welfare may regulate, control, restrict or prohibit any procedure or condition that he may regard as such.

4.3 ENVIRONMENT CONSERVATION ACT 100 OF 1982

An acceptable mean between conservation and economic development was envisaged. This Act 'paid lip service to the environment'.⁸⁹ The act was a poor example of reform because it lacked the necessary enforcement provisions. Its main purpose was to co-ordinate environmental matters within the government without any provisions for environmental management. This Act was repealed by the Environment Conservation Act 73 of 1989.

4.4 ENVIRONMENT CONSERVATION ACT 73 OF 1989 (ECA)

The objective of this Act was to achieve a number of environmental policies, including an enabling provision where the Minister determined general policy by notice in the *Government Gazette*. The general environmental policy included the control of vehicles in the coastal zone and the classification of terrestrial and marine protected areas. Draft policy of hazardous waste management and global environmental changes has been proposed. NEMA

⁸⁹ Jan Glazewski op cit n 4 161.

repealed section 2 of ECA, subject to a saving provision that is consistent under the Act, but a number of these draft policies and regulations are still binding. The Act authorises the Minister of Environmental Affairs to 'identify activities which in his opinion may have a substantial detrimental effect on the environment'.⁹⁰ Part V of ECA* provides for environmental assessment which enables the Minister to declare activities or areas that are 'effected activities or limited development areas'. Part 4 of the ECA* deals with contamination of underground water resources by waste landfill sites and littering. Section 31A of ECA* applies where the environment is endangered or detrimentally effected which empowers the Minister, competent authority, local authority or government institution to take the necessary action.⁹¹

4.5 NATIONAL WATER ACT 36 OF 1998

The purpose of this Act is to ensure that the water resources are adequately protected and utilised in the most effective way.⁹² The Act also defines the use of water and its impact on agriculture, the environment, health, nature conservation, pollution, regional planning and development and soil

⁹⁰ Cameron May ENVIRONMENTAL LAW NETWORK INT: Contribution to the International Conference held in Milan October 1996.

* NEMA has not repealed these sections of ECA.

⁹¹ *MEC for Economic Affairs, Environment and Tourism v Mackay Bridge Farm c.c* 1996 (3)

All SA 340 (SE) where an order restraining the respondent from interfering with landscaping affecting the natural river bank. The court acknowledged that the environment is a natural prerogative and held that the applicant had not formed the required opinion with the meaning of this section. Section 31A was also invoked in the "Save the Brenton Blue Butterfly" in the Knysna area during 1998.

⁹² The preamble to the Act, recognises that water is a scarce and unevenly distributed natural resource. Water resource management is to achieve sustainable use of water for the benefit of all users.

conservation. Emergency incidents (s20) the spilling of harmful substances that finds or may find its way into a water resource is also protected. The responsibility for rectification rests on the person responsible for the incident. If the perpetrator fails to remedy the situation, the catchment management agency may recover all reasonable costs incurred (s20 7). In the *Hekspoort Environmental Preservation Society*⁹³ case, where the applicant contended that the action relates to an environmental matter and the primary allegation is one of environmental pollution to underground water where direct access to the Constitutional Court was requested under Rule 17.⁹⁴ The court held that there were no circumstances that warranted such a procedure.

An important concept relevant to environmental justice is the 'reserve'. The 'reserve' is the quantity and quality of water necessary to satisfy basic human needs and to protect aquatic ecosystems. Further innovations reflect a clear commitment to a more equitable access to our scarce water resources, include the abolition of the systems of riparian rights to water, a uniform system of licensing and the placement of all water resources under the custody of the state. The position of *dominus fluminis* is enhanced and the water resources are now classified as a *res publica* (a national asset managed by the state for all its people).

⁹³ *Hekspoort Environmental Preservation Society and another v Minister of Land Affairs and others* 1998 (1) SA 349.

⁹⁴ Where circumstances were so exceptional and the public interest and good governance were of such overriding importance that access could be granted.

4.6 NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998 (NEMA)

As stated, the ECA has not been entirely repealed by the enactment of NEMA, but only some of the provisions. NEMA codifies the environmental rights as embodied in the Constitution.⁹⁵ It provides for a general framework for the transformation of environmental legislation. Legislative processes are set out in enforcing environmental management in resource conservation and exploitation, pollution control and waste management, planning and development of land use, together with sustainable development. Provision is made for the important 'alternative dispute resolution' procedures and the inclusion of the public as a vital component in the environmental management system. It's also an enabling source for co-operative governance in the environmental sector. Chapter 2 of the Act makes provision for the National Environmental Advisory Forum (the Forum)⁹⁶ and Committee for Environmental Co-ordination (CEC).⁹⁷ The participation of civil society is an important factor in environmental governance in the Forum and Environmental Management Co-operation agreements. Part 2 of Chapter 7 provides for the access to environmental information, protection of 'whistle-blowers',⁹⁸ the '*locus standi*'⁹⁹ relaxation, the issue of private

⁹⁵ Section 24 of the Constitution.

⁹⁶ Ss 3-6 object to allow interested and affected parties to inform Minister on application of principle.

⁹⁷ Ss 7-10 to promote integration and co-ordination of environmental functions by organs of the state and to promote the application of environmental implementation and management plans.

⁹⁸ S 31.

⁹⁹ S 32.

prosecutions¹⁰⁰ and criminal proceedings.¹⁰¹ Included is the provision of costs¹⁰² in certain specific circumstances, where the court may order a person convicted on a private prosecution brought under subsection (1) to pay the costs and expenses of the prosecution, including the costs of any appeal against such conviction or sentence. The Act further provides enforcement of the environmental right in the Bill of Rights for the duty to care,¹⁰³ protection of workers who refuse to do environmentally hazardous work¹⁰⁴ and the control of emergency incidents.¹⁰⁵ National government and provincial departments must compile environmental implementation plan (EIP) and environmental management plans (EMP). Their purpose is to co-ordinate and harmonise environmental policies, plans, programmes and discussions of national, provincial and local levels to minimize duplication and promote consistency.¹⁰⁶ The Act delves into detailed provisions regarding content, submission, scrutiny, and compliance of the EIP and EMP. A confusing piece of legislation to implement these under 'Schedules 1 and 2' where various government departments need to carry out these plans namely, Department of Environmental Affairs and Tourism, Department of Water Affairs, Departments of Agricultural, Housing, Trade and Industry, Transport and Defence, Department of Mineral Affairs and Energy, Health and Labour.¹⁰⁷

¹⁰⁰ S 33.

¹⁰¹ S 34.

¹⁰² S 33 (3).

¹⁰³ S 28.

¹⁰⁴ S 29.

¹⁰⁵ S 30.

¹⁰⁶ S 12.

¹⁰⁷ S 11.

NEMA embodies an important if not unique provision of conflict resolution, which tries to resolve environmental conflict between different levels of government and also between private bodies and government. The dispute resolution procedures include facilitation, conciliation, arbitration and investigation.

4.7 INTERNATIONAL ENVIRONMENTAL LAW

International environmental law governs the right and duties between countries. Its emergence as one of the fastest developing sectors in the international legal arena is due primarily to the many conventions that have taken place to highlight the concerns of environmentalists.¹⁰⁸ The sources of international law are treaties, customary law, general principles of law, judicial decisions, and legal writings. There is also have the so-called 'soft law' although not binding but has a persuasive effect. International obligations and agreements are given prominence in chapter 6 of NEMA, where incorporation of these environmental instruments may be acceded to and ratified after recommendation by the Minister to Cabinet and Parliament. The Minister must report to Parliament annually regarding international environmental obligations and agreements, which falls under the Minister's responsibility.¹⁰⁹ The Minister must submit an Annual Performance Report on

¹⁰⁸ Jan Glazewski op cit n4 36 'Soft law' are principles embodied in the Stockholm Declaration, Rio Declaration and the Principles of Sustainable Development (The Brundtland Commission).

¹⁰⁹ S 26.

Sustainable Development¹¹⁰ to meet government's commitment to Agenda 21.

The common law is recognised as binding in the Republic of South Africa in terms of the Constitution, unless it is inconsistent with Constitution or an Act of Parliament.¹¹¹ All international agreements concluded before the enactment of the Constitution will continue to be in force. The American legal system, according to Thomas Berry,¹¹² does not protect the natural world. This coincides with his reference to the Federal Judiciary frequently ruling against the Environmental Protection Agency (EPA) and 'that a person might conclude that the environmental and ecological movements' as being declared unconstitutional. The American Constitution established a range of personal rights, especially rights to own and use property without any restriction by government. This right was further extended to industrial corporations with no inherent respect for the planet.

In South Africa, the protection of the environment although entrenched in our Constitution forms the basis of adequate environmental management principles after the enactment of NEMA. Sustainable development has been contextualised as the standard in most international declarations. The 1972

¹¹⁰ S 26 (2) (a).

¹¹¹ S 231 to 233.

¹¹² Thomas Berry 'Rights of the Earth' *Resurgence* Sept/Oct 2002 No 214 29.

Stockholm Declaration stated that the environment is essential for the ‘ultimate enjoyment of basic human rights – even the right to life itself.’¹¹³

The 1992 Rio Summit re-iterated the notion that human activities are a concern for sustainable development.¹¹⁴ The Brundtland Report commissioned by the World Commission on Environmental Development (WCED - a UN commission) stressed, *inter alia*, fundamental human rights, intergenerational equity, conservation and sustainable use, environmental standards and monitoring and sustainable development and assistance, as a basis for development of legal constitutional standards.¹¹⁵

The following international organisations are primarily involved in the development and implementation of environmental law: -

- The United Nations Environment Programme (UNEP)
- The UN Commission on Sustainable Development (CSD)
- UN Development Programme (UNDP)
- The International Law Commission (ILC)
- The Food and Agricultural Organisation (FAO)
- The United Nations Education and Scientific Organisation (UNESCO)
- The International Maritime Organisation (IMO)

¹¹³ Preamble (Chapter 2).

¹¹⁴ Jan Glazewski op cit n4 81: Principle 4 of Rio Declaration: “Human beings are at the center of concerns for sustainable development” And “[i]n order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it”.

¹¹⁵ Jan Glazewski op cit n4 81 – ‘Our Common Future’ *World Commission on Environmental Development, the Brundtland Report* (1987).

- The International Atomic Energy Agency (IAEA)
- The International Union for the Conservation of Nature (IUCN)
- International NGOs

Globalisation, with the proliferation of the internet and its inherent inexpensive access to information makes communication a tool to change the global perspective of the environment.¹¹⁶

In conclusion, the need for environmental reform remains of great importance for the sustainability of the environment for present and future generations.

4.8 THE CONSTITUTION AND HUMAN RIGHTS

The inclusion of the environmental clauses in the Bill of Rights chapter of our Constitution is the most important provision for the protection of the people in their quest to an environment that is not harmful to their health or well-being.

‘Our Constitution, by including environmental rights as fundamental justifiable human rights, by necessary implication requires that environmental consideration be accorded appropriate recognition and respect in the administrative process in our country’¹¹⁷. Further environmental

¹¹⁶ Chris Taylor *Why Mother Nature Should Love Cyberspace* Time Magazine Special Edition (April/May 2000) 81 ‘...more people are working from home. Companies are using business to business (B2B) websites to coordinate their supply chain more effectively; inventories are lower, meaning warehouses are emptier, although the paperless office has failed to arrive, online habits are reducing paper by millions of tons.’

¹¹⁷ *The Director: Mineral Development, Gauteng Region and Sasol Mining (Pty) Ltd v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA) 719.

legislation to emphasise the recognition placed on human rights, include NEMA, the various clauses in the Bill of Rights¹¹⁸ and the relaxation of the *locus standi* requirement.

Section 29 of the interim Constitution and S24 (c) of the final Constitution, which is couched in a negative format, 'not detrimental' and 'not harmful' to the health and well-being, implies that in both instances there is no guarantee of a right to a healthy environment. The extent of this Act does not impose 'a general duty on the state to protect and conserve for the benefit of present and future generations.'¹¹⁹ According to Du Plessis and Corder,¹²⁰ the right in s29 of the interim Constitution which is negatively formulated so as not to impose a duty on a future government whose responsibilities on socio-economic policies may be far more important than that of the environment. Socio-economic rights were included in the Constitution after much debate as to its appropriateness. The Constitutional Court addressed this concern that it would encroach on the rights of the legislature on grounds of budgetary implications. The court rejected this argument that certain rights such as the 'right to a fair trial or the provision of legal aid often have budgetary implications'.¹²¹ The court also held that socio-economic rights are not

¹¹⁸ Jan Glazewski op cit n4 77 '...number of other clauses which although not referring to the environment, are nevertheless pertinent to environmental concerns' - property clauses, the access to information, just administration action, the right to dignity, the right to life, the right to healthcare, food, water and social security.

¹¹⁹ D Davis, H Cheadle and N Haysom *Fundamental Rights in the New Constitution – Commentary and Cases* (1997) 260.

¹²⁰ L M Du Plessis and H Corder *Understanding South Africa's Transitional Bill of Rights* (1995) 184-185.

¹²¹ Jan Glazewski op cit n4 80.

universally accepted as fundamental rights but they are to some extent justiciable.

4.8.1 THE PROPERTY CLAUSE

This clause, *inter alia*, relates to dispossession of property after 19 June 1913 as a consequence of racially discriminatory laws or practices and to the restitution of property or payment of compensation. The restitution of these properties sometimes impacted on the environment. In these instances amicable solutions were concluded to satisfy both the community and the environmental interests.

4.8.2 THE ADMINISTRATIVE JUSTICE CLAUSE

This clause promotes administrative justice where everyone has a right to administrative action that is lawful, reasonable and procedurally fair. It further provides for persons adversely affected by administrative actions who have a right to be given reasons, a review of the administrative action by a court or by an independent or impartial tribunal.

4.8.3 THE ACCESS TO INFORMATION CLAUSE

Everyone has a right to access to any information held by the state and by another person and that information is required for the exercise or protection

of any right. However there are certain circumstances that are exempted from the provisions of the Act.¹²² NEMA has substantially extended the right of access of information for both citizens and the state. Every person is entitled to have access to information held by the state and organs of the state which relates to the implementation of this Act and any other laws affecting the environment, the state of the environment and the actual or future threats to the environment.

There are also provisions aimed at protecting ‘whistle-blowers’ who disclose evidence of environmental risk from being dismissed, disciplined, prejudiced or intimidated because of furnishing such information. There are certain limitations as to its application, namely the disclosure must be to a committee of Parliament or a provincial legislature, an organ of state responsible for the protection of the environment or emergency services, the Public Protector, the Human Rights Commission, or an attorney-general. It also applies to a disclosure that is necessary to avoid a serious and imminent threat to the environment.

4.8.4 LEGAL STANDING (*LOCUS STANDI*)

The Enforcement of Rights (s38) in the Bill of Rights states that anyone acting as a member or in the interest of a group or class of persons, or anyone acting in the public interest or an association acting in the interests of its members may approach a competent court alleging that a right has been infringed or

¹²² ss36(1)(a) and 70(1)(a) ‘an imminent and serious public safety or environmental risk’.

threatened. The relaxation of the *locus standi* rule enabled concerned individuals and NGOs in the enforcement of environmental laws. This relaxation in the Constitution is only in respect of rights contained in the Bill of Rights, which includes the environmental rights. The individual or an organisation has to assert that a constitutional right rather than a general common law right has been infringed or threatened. NEMA further extends this relief to include any breach or threatened breach of any provisions of the Act, including a principle in Chapter 1, or any other statutory provisions concerned with the protection of the environment or the sustainable use of natural resources.

The *locus standi* rule has been illustrated in a number of recent cases.¹²³ NEMA together with the Constitutional provisions specifies the rules regarding legal standing and the innovative provisions in the award of costs. As cost is an inhibiting factor in promoting public interest actions, the Act allows the courts the discretion not to award the costs against a litigant where the court is of the opinion that a person or group acted reasonably, for the interest of the public in the protection of the environment and that no other reasonable means were available for obtaining the relief sought. In S 32(3)(b) where a person or group of persons secure relief, the court may on application, order that the party against whom the relief is granted pay any reasonable

¹²³ *Minister of Health and Welfare v Woodcarb (Pty) Ltd and Another* 1996 (3) SA 155(N) where it was held that the applicant could rely on the public interest clause in the interim Constitution for the *locus standi* rule to apply for an interdict. *Wildlife Society of South Africa and Others v Minister of Environmental Affairs and Tourism of the Republic of South Africa* 1996 (3) SA 1095 (Tk) where Pickering J held that the society had the necessary *locus standi* requirement.

costs incurred by such person or group in the investigation of the matter and the preparation for such proceedings.

Other legislation concerning to the environment include the equality clause, the right to dignity, the right to life and the limitation clause.

4.9 LEGAL REMEDIES

The inclusion of an environmental clause in the Bill of Rights has given considerable importance to its legal development. The various legislative processes including the common law, provide the basis for implementation and enforcement of the law.¹²⁴ The current legislative procedures in NEMA where air pollution is included in Part B of Schedule 4 gives local authorities greater powers, as they have been given specific executive authority and the right to administer Part B matters.¹²⁵ National and provincial authorities have a duty to ensure that the municipalities show due diligence in the performance of their functions. As pollution is a concurrent matter national or provincial governments can promulgate air pollution acts, but in terms of the Constitution national government has overriding powers to ensure exacting standards are set. There are administrative and judicial measures to enforce the law. Judicial measures include, criminal and civil sanctions, judicial review and interdicts whilst administrative measures include the application of

¹²⁴ Jan Glazewski op cit n4 142 '...South Africa has at its disposal a plethora of environmental laws and statutory provisions.'

¹²⁵ S 156 (1) (a).

subordinate legislation, regulations, statutory directives, permits, licenses and abatement notices.

According to Cormac Cullinan¹²⁶ a replacement of the present system of criminal justice of 'revenge' with 'restorative justice' is demonstrated by our Truth and Reconciliation Commission (TRC). Whether this system of restoration as applied by the TRC is an ideal proposition is doubtful. As the shortcomings of the TRC are many and the 'restorative' justice may not be the deterrent capable of ensuring that the environment and the people are protected.

4.9.1 CRIMINAL SANCTIONS

The application of criminal sanctions can adopt a primary or secondary function. In the primary sanction the offending environmental activity is prohibited whereas in the secondary sanction, it is only invoked if the administrative function is breached or not complied with.¹²⁷

¹²⁶ Cormac Cullinan *Justice for All Resurgence* No 214 Sept/Oct 2002 37.

¹²⁷ Jan Glazewski op cit n4 144.

4.9.2 NON-CRIMINAL SANCTIONS

4.9.2.1 PRIVATE PROSECUTIONS

Any person may in the public interest or in the protection of the environment institute and conduct a prosecution against a breach or threatened breach of any duty, unless it is a public duty of an organ of state, where the duty embraces the protection of the environment and the breach is an offence.¹²⁸

The Act provides an exception to the Criminal Procedure Act 51 of 1997 in that the person conducting the private prosecution shall not be required to produce an Attorney-General's certificate stating that he has refused to prosecute. Also the person prosecuting shall not be required to furnish security provided he does it through an attorney or an advocate entitled to practise in the Republic and the written notice of intended prosecution has been given to the appropriate public prosecutor. As regards to costs, the convicted person may be ordered to pay for all expenses of the prosecution, including any costs of appeal, unless the private prosecution was not made in the interest of the public or the protection of the environment or that the prosecution was unfounded, trivial or vexatious.¹²⁹ Other means of non-criminal sanctions are judicial review, interdicts, permits, licensing, abatement notices and directives.

¹²⁸ S 33 (1).

¹²⁹ S 33 (4).

4.9.2.2 ALTERNATIVE DISPUTE RESOLUTION (ADR)

The alternate dispute resolution came into prominence in the labour law sector of South Africa and has been successfully applied to other spheres of law. This innovative introduction to the law of the environment creates elaborate provision to facilitate conciliation, arbitration and investigation between different tiers of government and between different private sectors and the government.

4.10 IMPROVEMENTS TO THE LAW

Civil society, business, government and the NGOs have an important and distinctive role to play in modeling the world to 'develop strategies that promote change quickly without increasing human suffering'.¹³⁰ In the Southern African context, the state authorities must implement and enforce adequate legislative provisions to restore the ecological integrity of the country and beyond its borders.

4.10.1 CONTROL OF ENVIRONMENTAL LAW

In the Department of Environmental Affairs and Tourism, the environment and tourism, which are largely diverse components, are included in one department. A more logical and synergistic result would be to place

¹³⁰ Lester R Brown et al op cit n25 190.

environmental affairs in the Department of Trade and Industry (DTI), as the governance and operation of corporate companies are regulated by the various provisions of the DTI. Consequently, the inclusion of environmental affairs to this department is a logical conclusion as industry is one of the main contributors to the poor state of our environment.

The Department of Environmental Affairs can also be combined with the Department of Water Affairs and Forestry. As stated, tourism is not in any way connected with environment whereas forestry and water are.¹³¹

4.10.2 ENFORCEMENT PERSONNEL

Many local and provincial authorities entrusted with implementation and enforcement of the Act ¹³² are 'woefully understaffed and under-resourced'.¹³³ The Chief Directorate of Environmental Quality and Protection (CAPCO) is in charge of the administration of air quality and according to Jan Glazewski ¹³⁴ only four of the seven air quality officers' positions have been filled, which brings into question the quality of the air in our environment. Air pollution being of a concurrent national and provincial jurisdiction where provinces have their own administrative officers manning the departments of environment and health but there appears little or no

¹³¹ Michael Kidd op cit n6 86.

¹³² Atmospheric Pollution Prevention Act 45 of 1965.

¹³³ Jan Glazewski op cit n4 720.

¹³⁴ Ibid.

consultation with their national counterparts. The Act is inadequately enforced owing to lack of personnel and its inability to independently monitor emissions and it relies on industry to report its statistics. There have been very few successful prosecutions for transgressions of our pollution legislation. This is due to the lack of trained legal experts in the relevant government departments and the 'matter of attitude'¹³⁵ that environmental crimes are not 'real crimes'. When realistic penalties are imposed, the perception that acts of pollution are trivial would change.

4.10.3 FRAGMENTATION OF THE LAW

With specific regard to air pollution, the Constitution provides the principles for the legislative, executive and judicial branches of government in the administration of environmental law. As pollution control was implemented and enforced by different national, provincial and local authorities, its control was fragmented.¹³⁶ This problem has not been sufficiently addressed by the new Constitution and has been further exacerbated by creating concurrent national and provincial powers and also giving local government control in certain instances.¹³⁷

¹³⁵ Michael Kidd 'Integrated Pollution Control' (1995) 1 *SAJELP* 52.

¹³⁶ Jan Glazewski *op cit* n4 632 '...the general criticism that the administration of environmental laws is diffuse and uncoordinated.'

¹³⁷ Chapter 4 of the Constitution. Also (1996) 3 *SAJELP* 85 'Distribution of Responsibility' –previously law-making power was centralised but implementation and enforcement was fragmented. Now law-making power and administrative functions are fragmented.

In s2(l), NEMA states that there must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment. This is one of the principles in Chapter 1 of NEMA, but the interaction of all the organs of the state to promote environmental law is somewhat bewildering as there are many communication lapses as indicated in some of the current incidents.¹³⁸

Significant changes were proposed in the 1991 President Council's 'Report on a national environmental management system', which *inter alia*, changes the structure of governmental agencies responsible for pollution control and to overcome the fragmented control, by various government departments. A Pollution Control Branch was proposed to implement policy and enforce the law. If a single department was responsible for the environmental control, it would address these various shortcomings by assembling a team of legal practitioners well versed in the environment to draft laws and together with experts trained in environmental matters to enforce them.¹³⁹ The fragmentation of the law has resulted in the neglect of environmental enforcement due to the additional burden of funding these larger departments at national, provincial and local levels.

The report recommends 'best practical environmental option' (BPEO) and opposed to 'best practical means' (BPM),¹⁴⁰ the former approach is consistent

¹³⁸ The Western Cape, Kwazulu Natal and the Gauteng Legislature are flaunting central government guidelines by providing the anti-retroviral drug 'NEVIRAPINE' to pregnant women. The incumbent Minister of Health contented that she was not consulted either by the Western Cape or Kwazulu Natal authorities in the provision of this drug.

¹³⁹ Michael Kidd op cit n6 85.

¹⁴⁰ Fuggle and Rabie op cit n21 454 "The primary distinction between the two approaches rest in the flexibility afforded BPEO strategists. Whereas BPM focuses on 'end-of-pipe' technological fixes for

with the holistic value placed by the President's Council to environmental management.

4.10.4. ENVIRONMENTAL COURT

The establishment of an environmental court in major centres in South Africa may alleviate the current system of enforcement by our over-burdened judiciary. The availability of qualified technical personnel to work these courts and with the support of specialised judicial officers well schooled in environmental law, these courts will bring back their faith that the people had in the judiciary. It is presumptuous to assume that the establishment of these courts will adequately rectify the problems facing the environment. A concerted effort by all stakeholders must be mobilised to make this a success. Application of the law is incoherent due to the lack of unified structures in environmental cases.¹⁴¹

Environmental investigative or advisory body (ombudsman) has been established in many countries. In our country, the Human Rights Commission whose duties include environmental rights, as enshrined in the Bill of Rights,

pollution control, BPEO will first and foremost address the potential for waste elimination from a given process."

¹⁴¹ Sir Robert Carnwath 'Environmental Litigation – Way Through the Maze?' Journal of Environmental Law Vol 11 No 1 (1999) 13. In the Lord Morris Memorial Lecture, October 1998, Lord Woolf referred to the parallel of the Environmental Court of New South Wales and said: 'I have long been in favour of a one-stop emporium. A court centre where environmental, criminal and civil issues can be resolved. Where the need for judges to have the benefit of technical assessors is recognised. A situation where the divide between inspectors who conduct inquiries and judges who sit in courts is bridged. A situation where an appropriate team of decision makers can be deployed on the nature of the dispute.'

have a duty to protect its people even if all other legislative or administrative procedures fail to provide these fundamental rights.

Continuing education must be provided for judges and prosecutors so that they are familiar in the ever-changing status of environmental legislation.

Italian supreme court justice, Amadeo Postiglione proposed the creation of an International Court of the Environment, with similar standing as the International Criminal Court and member countries must accept the court's jurisdiction.¹⁴² Postiglione also stated that NGOs and private citizens must also be able to institute actions against transgressors.

Justice Paul Stein¹⁴³ stated that many minor cases (approximately 10000 per year) were brought before magistrate courts and the larger cases to the Land and Environmental Courts in Australia. He also said that a contravening company must send a special notice to all its shareholders setting out the details of its environmental transgressions and the fine imposed with an addendum that a part of the company's profit must also be paid as an additional penalty.

The idea of an environmental 'ombudsman' to investigate and impose penalties on environmental transgressors is welcome provided it does not supersede the judicial process but it must be regarded as a necessary

¹⁴² Brown et al op cit n25 187 'More support exists for proposals to transform UNEP into a World Environmental Organisation that could serve as an umbrella for the current scattered collection of treaty bodies and promote more coordinated implementation and enforcement.'

¹⁴³ Justice Paul Stein, an Australian Land and Environmental Court judge, speaking at the World Summit 2002: Environmental Law Foundation for Sustainable Development at the University of Natal, Pietermaritzburg August 2002.

intervention to rectify the current inadequacies from escalating into a catastrophe.

4.10.5 SELF- REGULATION

Self-regulation allows for the creation of an atmosphere of co-operation rather than coercion, which will also be more cost effective. Due to the failure of the administration of environmental law and the problems becoming far more complex to monitor, environmental expectations were not met. Self-regulation can take place where industrial companies voluntarily meet standards set by local authorities either through unilateral or negotiated agreements.

Gaines and Kimber, argue that 'self-regulation as it is currently formulated is unsuitable for large enterprises for two sets of reasons.'¹⁴⁴ Firstly, too many barriers for effective self-regulation, where profit motive is sometimes paramount. Secondly, they tend to avoid direct participation of the state and the public. Public participation is necessary in the monitoring of these self-regulatory agreements in order to achieve an equitable balance.¹⁴⁵

¹⁴⁴ E S Gaines and C Kimber 'Redirecting Self-Regulation' *Journal of Environmental Law* Vol 13 No2 (2001) Oxford University Press.

¹⁴⁵ Gaines et al op cit n144 184 'Because the environment is a matter of public interest, public participation in its regulations has intrinsic value, a value which is affirmatively recognised in democratic societies.'

5 PRACTICAL SOLUTIONS

In finding a solution that is both practical and economically viable, a common agenda must be pursued by industry as the perpetrator, the state as the arbitrator and the people as the innocent victims.

‘[t]his we know: the earth does not belong to man: Man belongs to the earth....Whatever befalls the earth, befalls the sons of the earth. Man did not weave the web of life: he is merely a strand in it. Whatever he does to the web he does to himself’.¹⁴⁶

Destroying the environment is neither the deliberate actions of evil men nor the by-products of technology but the lack of restraint and the demand for resources far exceeding our needs, and placing our selfish interests instead of taking a more responsible attitude to the environment.¹⁴⁷

5.1 CARBON SINKS

Sachs et al, states that if all countries ‘followed the industrial model, five planets will be required to provide the carbon sinks needed by economic development.’¹⁴⁸ Carbon dioxide emissions can be alleviated to a limited

¹⁴⁶ Edith Brown Weiss ‘Our Rights and Obligations to Future Generations for the Environment’ 84 *American Journal of International Law* 198 (1990).

¹⁴⁷ Brown et al op cit n25 192.

¹⁴⁸ Wolfgang Sachs et al ‘Fairness in a Fragile World’ *Resurgence* September/October 2002 No 214 7.

extent by forest re-growth and deforestation.¹⁴⁹ The ocean serves as a vast sink for carbon dioxide, but how this is achieved is still uncertain.¹⁵⁰ The Presidential Committee of Advisors on Science and Technology has recommended increasing the funding in the U.S. Department of Energy's Research and Development programme (R&D) for carbon sequestration.¹⁵¹ In order for the techniques and practices to be successful the requirements that were agreed upon were the effectiveness and cost competitiveness, its stable and long term storage and the notion of being environmentally 'benign'. Carbon sequestration using present technology costs between \$100 to \$300/ton of carbon emissions avoided, their goal is to reduce it to \$10 or less per ton by 2015. The report further stated that in the mid-term, the 'direct' and 'indirect' options are being developed. The direct option being the capture of CO₂ at the power plant before it enters the atmosphere and the indirect option involves 'integrating fossil fuel production and use with terrestrial sequestration and enhanced ocean storage of carbon'.

5.2 EMISSION RIGHTS

Bridging the gap between the North and South must be narrowed by a combination of innovative market reforms. Greenhouse gas trading schemes

¹⁴⁹ Royal Commission on Environmental Pollution – 22nd Report – 'Energy the Changing Climate' (2000) 31°..simplistic suggestions that climate change can be prevented by planting trees are wide of the mark.'

¹⁵⁰ National Geographic Vol 193 No 5 (May 1998) – 'Untangling the Science of Climate' 47 'Yet only about half of our emissions – 3 billion tons – remain in the air. The rest is taken up by terrestrial and marine plants, buried in ocean sediments, absorbed in seawater or otherwise sequestered.'

¹⁵¹ www.fe.doe.gov/coal_power/sequestration/index.shtml viewed 3 October 2002. Its main aim to provide science-based assessment of the prospects and costs of CO₂ sequestration. One of the factors to be considered is the direct injection of CO₂ into the ocean and the stimulation of phytoplankton growth.

as envisaged in the Kyoto Protocol not only seem to be reducing emissions but also sharing the responsibility.

5.3 TRAPPING OF CARBON DIOXIDE

The oceans are a huge reservoir of carbon dioxide. Stimulating the growth of microscopic marine plants or injecting liquid carbon dioxide into seawater which may be an effective way of 'locking-up' carbon dioxide, but the consequences of which must be studied before proceeding with this alternative. The U.S. Government has embarked on an ambitious R&D into carbon sequestration (see footnote 151).

The release of large quantities of carbon dioxide can be fatal as in '1986 when carbon dioxide rich waters from a lake in Cameroon suddenly welled to the surface and suffocated 1700 people in nearby villages.'¹⁵² Although scientists contend that sudden catastrophic release of carbon dioxide from storage sites is unlikely but environmentalists are concerned about the ecosystems, particularly if it is injected into the ocean.

A natural gas plant in central North Dakota, USA where 5000 tons of compressed carbon dioxide is channeled through 200 miles of pipelines to be stored in an oilfield in Saskatchewan, Canada. The carbon dioxide is pumped into these depleted oil reservoirs, where it is expected to remain for

¹⁵² New York Times Sunday (June 17 2001) 'Trapping a Deadly Gas Under Land and Sea.'

thousands, or if not for millions of years. The most appropriate solution would be 'minimizing the creation of CO₂ in the first place.'¹⁵³

5.4 ALTERNATIVE ENERGY SOURCES

Change from a fossil fuel base energy to solar energy, apart from environmental benefits, imply 'long supply chains, which in turn imply long chains of value creation'¹⁵⁴ which can be avoided. There is usually a long distance between extraction of the resource and its final use. This inequality of high cost with most gains and jobs arising elsewhere can be redeemed with alternate energy resource of much shorter supply chain with resulting income and jobs at regional and local level. The harnessing of energy progressed from the burning of wood to coal and eventually to oil and gas. It is predicted that hydrogen will replace oil and natural gas. This will be achieved by splitting of water into hydrogen and oxygen from solar, wind and other forms of limitless renewable energy resources. Of all the renewable energy sources, wind power has shown a spectacular growth.¹⁵⁵ Hydropower, geothermal power and biomass energy had a slower but steady growth over the last decade. Technologies harnessing wave and tidal energy may prove a viable alternative but its efficacy has still to be researched. Solar photovoltaics

¹⁵³ New York Times op cit n152 Quoted by David Hawkin's Air and Energy Program Director for the Natural Resources Defense Council.

¹⁵⁴ Sacks et al op cit n148 9.

¹⁵⁵ Brown et al op cit n25 94. '...averaged a 24 per cent annual increase in the 1990's and is now a \$4 billion industry.'

(PVs), which convert sunlight into electricity, has also shown some growth and cost reduction.

Decarbonisation does not mean reduction in energy use and economic growth as perceived by many governments and businesses. The change in harnessing energy from wood, coal, oil and gas progressively reduces the amount of carbon emissions to acceptable future levels of energy derived from other sources, limitless and renewable.¹⁵⁶

According to World Energy Council (WEC) energy demand will increase by 50% to 70% by 2020 with the result, CO₂ emissions will be at least four times higher than the reduction of greenhouse gases as proposed by the Intergovernmental Panel on Climate Change (IPCC).¹⁵⁷

Nuclear power may not be adequate as it only supplies about 5% of the world's energy requirements.¹⁵⁸ The dangers inherent and its vulnerability to terrorism and its final waste disposal is a debilitating factor on its success.

5.5 CONSERVATION

Many companies consider their share rating on the stockmarket and their profitability to be a greater concern than being considered an environmentally friendly organisation. This is considered to be a constraining factor on their

¹⁵⁶ Brown et al op cit n25 84.

¹⁵⁷ Wouter van Dieren 'Taking Nature into Account' *A Report to the Club of Rome – Copernicus* (1995) New York 282 'IPCC wants, greenhouse gas emissions to be reduced by 60 to 80 per cent to prevent dangerous acceleration of global warming.'

¹⁵⁸ Wouter van Dieren op cit n157 283 'Assume a tripling of nuclear power over the next 30 or 40 years nuclear power would increase to 15% and in the meantime the energy requirements are doubling, therefore effectively only increase is 7.5%.'

profitability. But according to Gary Gardner,¹⁵⁹ the profit motive can be launching pad towards sustainability, as consumers would pay more for 'green products'. Many companies are regarding pollution and waste as inefficient production processes and thereby recycling their by-products to create additional revenue.¹⁶⁰ Sustainable development is meant to be an 'alternative to growth, not a semantic replacement'.¹⁶¹

There must be more pressure exerted by the financial sector of the economy. Lenders, investors and insurers must not only be aware of their financial risk but also of the environmental risk in the sector of the business dealing. Many investment management companies are promoting 'ethical investments' as an alternate investment without compromising your principles.

5.6 TECHNICAL EFFICIENCY AND EMISSION REDUCING IMPROVEMENTS

Automobile manufacturers are investing in research and development to eradicate the use of fossil-fuel in motor vehicles. Their task is slow due to the enormous power wielded by the fossil-fuel cartel in the protection of their 'enshrined' right to prolong their vested interests. A small number of automobiles are being produced using fuel cells by combining hydrogen fuel with oxygen from the air so it can produce energy silently and without

¹⁵⁹ Brown et al op cit n25 198 – 'Accelerating the Shift to Sustainability.'

¹⁶⁰ Supra – Asahi Breweries of Japan sends dregs of its beer production to cattle raisers as feed.

¹⁶¹ Wouter van Dieren op cit n158 84.

combustion, therefore no emissions and smog.¹⁶² The aim is to achieve air quality in a scientific and cost effective method, therefore engine technology and fuel research must be addressed simultaneously.¹⁶³ This process must take into account other factors which include vehicle size and weight, better utilization of fuel (lean burn), synchronized transmission systems and hybrid vehicles (combination of petroleum and other energy/fuel derivatives). The change to better fuel specification to reduce emissions may require processing and hence generate more CO₂.¹⁶⁴

5.7 ECONOMIC INCENTIVISATION PROGRAMMES

Economic incentives attempt to ameliorate the harmful effects of the degradation of the environment over legislative enforcement. Globally fossil fuel subsidies total \$120 billion a year whereas natural gases (lower carbon emissions) receive hardly any subsidation.¹⁶⁵ The imposition of carbon taxes and the removal of subsidies are methods which will hasten the move towards lower carbon fossil fuels. Subsidies can be redirected towards social programs. Whereas carbon taxes, although placing a burden on the poor, can be used to 'reduce taxes on wages and employment to minimize economic impacts'.¹⁶⁶

¹⁶² Time magazine op cit n116 71 – Ford Motor Co.

¹⁶³ 'Belgium Fuel Technology Report No: 99.55' *Concawe Review* (October 1999).

¹⁶⁴ World Rainforest Movement op cit n141 'The benefit of lower CO₂ emissions from engines may outweigh any additional refinery process required to achieve this result.'

¹⁶⁵ Brown et al op cit n25 91.

¹⁶⁶ *Supra*

6. CONCLUSION

‘This fight is for our lands, our precious culture and life-giving sources. That is all we seek. Money and power breeds death and destruction.... We do not ask for money or riches. We have our wealth in our lands and our cultural beliefs and values. Please let us just live in nature, it is our way, it is the only way to preserve a future for our children, grandchildren and the generations yet unborn’.¹⁶⁷

In order to propel change in civil society, business and the government, need to identify the underlying factor that can make this change a reality. Although civil society lacks the power compared to government and business but their support is necessary for initiatives undertaken by them.

Fear is an important behavioural change where the consequences affect the way of life.¹⁶⁸ Environmental psychologists contend that people do not make environmental behavioural changes by simply acknowledging that their behaviour is detrimental to the environment, but ‘actions of their peers, direct appeals, effective communication, and enticing incentives’, motivate them to change.¹⁶⁹ Resistance to change has always been an issue. The reasons for change are ominous. Resistance can take many forms, some of which are

¹⁶⁷ World Rainforest Movement op cit n1 11.

¹⁶⁸ Brown et al op cit n25 195 – shift from British beef after an outbreak of mad-cow disease in 1996 to organic foods.

¹⁶⁹ *Supra*.

human behaviour, ethical and political influences.¹⁷⁰ Companies and individuals have choices to resist change and perish or embrace change and prosper. Companies can reduce or stop environmental damage rather than seeking profit as the only motivation. Consumer awareness to environmentally friendly products and their willingness to pay more for these products can boost the profitability of these companies. This is evident by the support these companies receive.¹⁷¹

The overwhelming emphasis on equality over ecology has deleterious environmental consequences. This is primarily due to the enormous economic power of the large corporations and the oil producing cartels. In protecting their vested interests they are prepared to sacrifice humanity in the present for speculative gains in the future.

Environmental racism is prevalent in many countries where oil extraction constitutes a major source of revenue. In the Niger Delta abuses by the government and multinational oil companies are continuously being denounced. The location of the polluting industries in California, especially adjacent to black communities is also a cause for concern.¹⁷² Certain sectors of the people in our country not only suffered environmental racism but also endured racism based purely on ethnicity ('apartheid'). The poor due to the

¹⁷⁰ Wouter van Dieren op cit n157 281 '.... We have our doubts. As to the willingness of governments and politicians to really strive for truth, for honesty, for other than short-term profit and benefits, and to pick up the gauntlet of difficult long-term policies and measures requiring imagination and courage.'

¹⁷¹ Sharon Beder op cit n46 176 'Greenhouse marketing not only ensured that markets would not shrink but boosted sales of products that were labeled green'. Brown et al op cit n25 198 Dolphin- safe tuna, chemical- free fertilizers and pesticides to produce 'green products.'

¹⁷² World Rainforest Movement op cit n1 37 – '...Chevron refinery in California, which is being accused of releasing dangerous pollutants. Several cases of environmental racism – such as location of polluting industries among poor, generally black communities – have been denounced in that country.'

apparent lack of will on the part of the authorities to vigorously apply and enforce the wide discretionary power of the CAPCO.’¹⁷⁵

It has been pointed out by Cairncross¹⁷⁶ that South Africa lacks a comprehensive system of measuring and monitoring air quantity and it is in need of urgent review. The guidelines must be based on WHO values to create a comprehensive air quantity management system. The world’s growing population cannot achieve the standards of the more affluent Western counterparts by following conventional paths to development. The resources needed are too expensive and damaging to the ecosystems. Sachs et al, contends that there is an opportunity to turn this ‘underdevelopment’ into a blessing where their economies were lacking to leap-frog into a ‘post fossil-fuel age’.¹⁷⁷

Renewable sources of energy achieving little or no carbon emissions will be capable of meeting world’s energy needs.¹⁷⁸ Renewable energy in South Africa may not be cost effective but it has to deliver energy to all sectors of the population and especially those who lack this important facet in their everyday life. To deny them this opportunity will not resolve the many social problems that they currently endure but aggravate it. Some form of temporary subsidy through environmental taxes or diverting existing taxes would alleviate the dilemma facing the underprivileged. Environmental

¹⁷⁵ Jan Glazewski op cit n4 733.

¹⁷⁶ Ibid.

¹⁷⁷ Sachs et al op cit n148 7.

¹⁷⁸ Brown et al op cit n25 95 Brent Sorensen ‘Long Term Scenario for Global Energy Demand and Supply’ (Roskilde Denmark, Roskilde University January 1999) ii 77-150. ‘But the study also stresses that significant additional technological and policy development would be required to realize the scenario.’

purposefulness. As the only creatures known to plan change, we boldly dip into our history and alter the course of our own development.’¹⁸²

One has to propel change for the sake of the environment, as it is a public domain. People have a natural inclination to overuse natural resources with little incentive to conserve them. According to Brown et al¹⁸³ society has developed four strategies to persuade people to change, namely law, education, religious beliefs and small group management.

Every individual in accelerating sustainability must change their behaviour, if not for their fellow human beings but for their dependants, as Mahatma Gandhi professed ‘ You be the change you wish to see in the world.’¹⁸²

The present generation has the power to change and adopt radical approaches to the conservation of the environment. This thought of presenting the next generation a planet very different from the one we have inherited will always be a challenging goal.

¹⁸² Brown et al op cit n25 190.

¹⁸³ Brown et al op cit n25 192-193 The ‘use of force of law or officially sponsored incentives, to determine how resources are to be used and by whom.’ Education although it influences the course of any society but its bias is criticized as formal education is focused towards ‘status quo societal values.’ Education has not challenged the modern worldview, in fact it has led to the current global environmental crisis as it ‘places nature at the service of humankind and splinters knowledge into disconnected disciplines.’ Religious beliefs have persuaded people to act for the common good. Many cultures have used small group management to protect common resources, eg. the village of Torbel in the Swiss Alps, which manages its forest and grazing lands on a communal basis since the thirteenth century.

¹⁸² www.motivationalquotes.com

ANNEXURE A

The U'wa tribe (in footnote 2) stated that the drilling of oil in their native territory posed a real danger not only to them but the world at large. They rejoiced that the oil giant Oxy, left for technical reasons, after only drilling once, for more than a depth of 3600m, which revealed only faint traces of gas and water. According to independent geologists, it is unusual for a company to spend more than US\$100 million with a potential worth of more than US\$50 billion, to abandon this project. The U'wa wants to know where the oil disappeared to? The U'wa believe that their elected spiritual leaders, the 'mysterious and secretive *werjayas*, physically drove it away from the company's test well site after praying and fasting for many months.'¹ The *werjayas* were concerned about the rest of the world that they believed that the world would end if Oxy took the oil.

'The money king is only an illusion. Capitalism is blind and barbaric. It poisons the water and the air and destroys everything. And to the U'wa it says that we are crazy – but we want to continue to being crazy if it means we can continue to exist on our dear mother Earth.'

Many Amazonian tribes fight oil companies, with some accepting money and development, but others like the U'wa refuse everything the state or the companies offer. The U'wa struggle may be short-lived as Ecopetrol, the

¹ Mail and Guardian May 24 2002 31 John Vidal 'An answer to their prayers'.

Colombian state oil company as assumed control of Oxy's exploration rights as it intends to continue the oil exploration. It is in the interest of the ruling party of Columbia to continue this process as any diminished foreign earnings be ameliorated by its '*own and selfish*' concern for its people.

APPENDIX

1 MONDI PAPER

Annual capacity is in excess of 500 000 tons mainly of newsprint and 'SC Magazines' papers for the publishing companies and office papers. Mondi has a conversion capacity of more than 80 000 tons of recovered magazines and newspapers for recycling. The internationally recognized standards have been reached by Mondi, the ISO 9002 and most recently the ISO 14001 in June 2000. According to Mondi Paper's – 'Safety, Health and Environmental Report 2000' states that:-

EFFLUENT DISCHARGE

Effluent discharge per ton of paper reduced by 8% to 18m³ / ton with the resulting water consumption of 29 760 m² per day (a reduction of 7%)

TOTAL SUSPENDED SOLIDS

Effluent was 1.2kg per ton of paper produced (24% reduction)

SOLID WASTE

180 313 tons to landfill sites consisting mainly of bark, sawdust, sludge, ash and generic waste.

EMISSIONS TO AIR

CO₂– an increase of emission due to higher production. Approximately 10 tons / h of CO₂ emitted from the coal boiler to manufacture Precipitated Calcium Carbonate (PCC)

SO₂ – reduced due to conversion of boilers to gas firing.

PARTICULATE EMISSIONS

Increased due to increased production and the corresponding increase in coal utilization. Particulate emissions of 15mg / m³ and 18mg / m³ equaling to 33mg / m³ is as stated below their legal requirement of 120mg / m³.

COMMENTARY

Mondi Paper's Report on Safety, Health and Environment is commendable, but the harsh realities have to be confronted.CO₂ emission were 'slightly higher' in 2000 but no accurate figure is given so as to place a comparison against comparable local and international companies, and WHO standards. An increase in particulate emissions¹ total emissions if 33mg / m³ which they regard as below the legal requirement of 120mg / m³. Increased particulate emissions "penetrate in small airways and lungs bypassing the 'micro-ciliary defence' (the trapping of germs and dust by secreted mucus and cilia on epithelium along the respiratory tract).CO₂ is one of the greenhouse gases that causes rising sea levels and resulting of polar ice caps

¹ According to their report – increased paper production and corresponding increased coal consumption:

with the consequent flooding of low lying areas. The positive aspect is the maintenance of the Earth's ambient temperature of 15°C rather than -18°C without any greenhouse gases.

SULPHUR DIOXIDE (SO_2)

Sulphur dioxide affect the respiratory system as it forms acidic coating that damage the epithelial lining of the alveoli and aggravates asthma attacks.²

PHOTOCHEMICAL SMOG

Photochemical smog is a mixture of pollutants, which include particulates, nitrogen oxides, ozone, aldehydes, peroxyethanoyl nitrate, unreacted hydrocarbons. It causes headaches, eye, nose and throat irritations.³

2 INDUSTRIAL OLEOCHEMICAL PRODUCTS (IOP)

Processes vegetable oils from soyabeans, sunflowers, linseed and pine trees.

Heavy furnace oil is used in the boilers but their own 'vegetables oil pitches' are replacing this process resulting in a cleaner burning and sulphur-free emission. Jim Crawley, IOP Development Director, in his magnanimous and punctual response is highly commended and together

² www.geocities.com/xavier viewed 10.7,2001.

³ www.geocities.com op cit n2 2.

with his succinct reply indicates that being the first of 2 replies to my 10 requests, acknowledges the environmental crisis we are enduring.

3. OTHER COMPANIES, GOVERNMENTAL AND LOCAL AUTHORITIES

Requests for information from various companies and entities listed below have been made, a response is still awaited.⁴

4. EMISSIONS AND QUANTITIES

With the exception of pollution generated by vehicles, stationary fossil fuel processes produce the bulk of air pollution in this country.

Primary pollutants, the most important of which are sulphur and nitrogen oxides (SO_x and NO_x), particulate matter (Pm), carbon monoxides (CO) and volatile organic compounds (VOC) are discharged directly into the atmosphere. Chemical transformation of these primary discharges, in the presence of sunlight or other primary sources (such as VOC's and NO_x) may result in the formation of secondary pollutants such as ozone and peroxyacylnitrates.

⁴ Engen Refinery; Shell and BP Petroleum Refineries (Pty) Ltd; Island View Storage; Sasol Fibres; National Chemical Products; Hulets Sugar Refinery; African Explosives and Chemical Products; Dept of Environmental Affairs and Tourism, Pretoria, Cape Town and Durban; Dept of Traditional and Environmental Affairs, Ulundi; Dept of Environmental Planning, Environmental Affairs Unicity Durban and The City Health Dept; The Natal Techikon, Environmental Health Dept, Durban.

Tiny particulates are formed from the burning of fossil fuel, mainly in the form of soot from incomplete combustion. This is one of causes of photochemical smog, the others being nitrogen oxide, ozone, aldehydes, peroxyethanoyl, nitrates and unreacted hydrocarbons. The conditions conducive to photochemical smog are sunlight, hydrocarbons, nitrogen oxides and particulates, which acts as a catalyst.⁵

The energy sector⁶ (electricity generation, emission from oil and coal refining to produce petroleum products, coal mining, gas extraction, burning of coal and oil for industrial purposes) is the single largest source of carbon dioxide and sulphur dioxide emissions in South Africa.

Emissions from vehicles contribute 44% of total national nitric oxide emissions and 45% of the total national volatile organic carbon emissions. Anthropogenic emission of carbon dioxide and other gases has also contributed to the greenhouse phenomenon and global climate change.⁷

Particulate matter mainly dust, soot and smoke is regarded as the greater contributor to air pollution than all the other emissions. According to Jan Glazewski,⁸ the Caltex Oil Refinery emits an average of 28 tons of sulphur (SO₂) a day (with previous levels as high as 70 tons per day).

⁵ www.geocities op cit n2 2.

⁶ Business Report Friday January 18 2002 – Special Survey, The National Association of Clean Air (NACA) Review.

⁷ Jan Glazewski op cit n4 707 South Africa emits about 300 million tons of CO₂ annually (1.6% of the global total).

⁸ Jan Glazewski op cit n4 708.

ANNEXURE C

ACTUAL CASES OF HEALTH IMPAIRMENTS

1. UNITED STATES OF AMERICA

A neighbourhood in Houston, is suing the Oil Company, Chevron for \$500 million. The Gulf Oil Company, which owned the land, used to store vast quantities of crude oil in unlined pits. In 1927 when it was no longer required, the pits were drained. In 1960 Gulf Oil sold the property to a developer who built a residential complex known as the 'Kennedy Heights'. The Gulf Oil Company including its liabilities was subsequently sold to Chevron.

Many residents were subsequently diagnosed with lupus, cancer, heart ailments, reactive airway disorder and malignant tumours. A few have died from these diseases.

2. SOUTH AFRICA

2.1 DURBAN SOUTH

2.1.1 BLUFF

- | | |
|-----------------|---|
| Marine Drive | - 10 cases of cancer and leukaemia deaths. |
| Hilltop Road | - 3 cases of cancer and related deaths. |
| Lighthouse Road | - 1 person treated for colon cancer , 5 cases died of cancer. Two dogs also died of cancer. |

In the neighbourhood, more than 20 cases of cancer related diseases were reported.

2.1.2 MEREBANK

There are many documented cases of inflection of diseases: -

- Tasmeen Omar (3) of 2 Golconda Place - leukaemia.
- Joel Naicker (18 months) of 6 Golconda Place - developed lumps on his back.
- Nathaneal Bedessy (3) of 36 Dinapur Road – died of acute lymphoblastic leukaemia.
- Jordache Naidoo of 124 Dinapur Road – diagnosed with stomach cancer.
- Shama Gounden (8) of 26 Lakhimpur Road – died of leukaemia.

- Clement Naicker (7) of 59 Lakhimpur Road – diagnosed with tumour of the spine at age two and half years, died in 1992.
- Raveshni Gounden (11) of 44 Satara Road – died of cancer of the spine and thigh.
- Chantal Naidoo (15) of 85 Junagarth Road – died of cancer which began in her mouth.
- Patrick Pulliah (13) of Alwar Road – died in August 2000 from brain cancer, diagnosed at age 6.
- Roshelle Ria Govender (7) of 53 Sambalpur Road – diagnosed with leukaemia in December 1999 on treatment (chemotherapy).
- George Lutchman (72) of 144 Warangal Road – died of cancer.
- Poonsamy Moodley (78) of 106 Badulla Drive – died of cancer.
- Mrs Baby Govender (47) of 108 Badulla Drive – died of cancer.

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