

**A CASE STUDY OF ENVIRONMENTAL
HEALTH IN THE SOUTH DURBAN BASIN**

BY

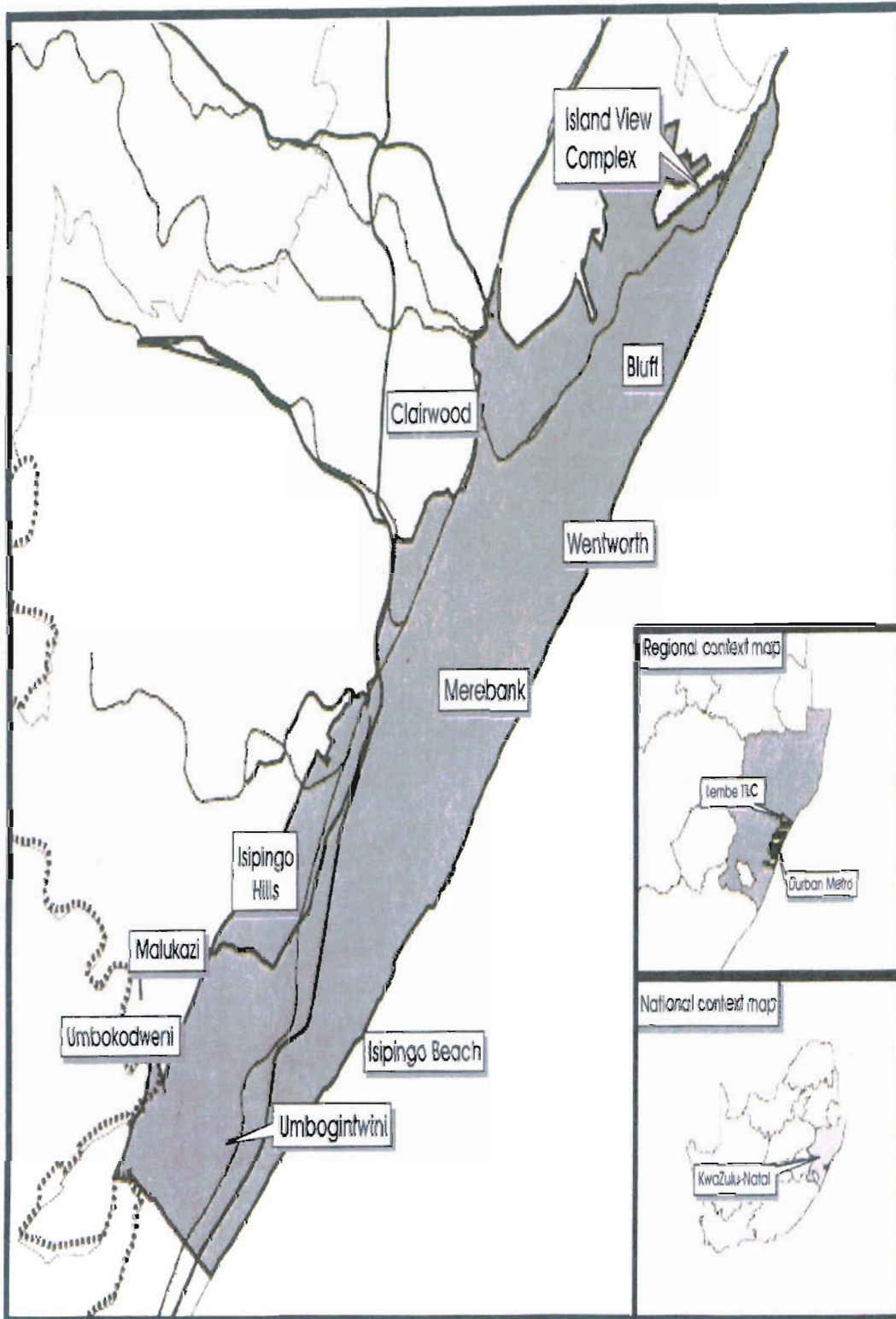
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SOUTH DURBAN BASIN



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GLOSSARY

CBD	Central Business District
DOT	Department of Transport
DTI	Department of Trade and Industry
IDP	Integrated Development Plan
MRA	Merebank Ratepayers Association
PPT	Pipeline Performance Technologies
SAPREF	South African Petroleum Refineries
SDB	South Durban Basin
SDCEA	South Durban Community Environmental Alliance
SDI	Spatial Development Initiative
SEA	Strategic Environmental Assessment

1. INTRODUCTION

South Durban area is located approximately south east of the eThekweni Municipality in the kwaZulu Natal province. It is bound to the east by the Indian Ocean. The Central Business District (CBD) forms the northern corner and Umlazi is located on its western edges while Isipingo lies to the south. The South Durban Basin comprised of five major industrial belts, namely:

- The Valley Industrial Belt (Engen, Mondi, Sapref)
- The Jacobs Industrial Belt
- The Navy/Mobeni Industrial Belt
- The Island View Industrial Belt
- The Umbogintwini Industrial Belt

Within these industrial areas, there are several affected residential areas namely Bluff, Clairwood, Isipingo, Merebank, Umlazi and Wentworth. These communities continue to endure, as they have for decades, the environmental, health, and socio-economic costs of pollution, resulting from either the deliberate or accidental release of harmful substances from adjacent industries. In addition to this, the situation is further compounded by exhaust fumes from heavy traffic on nearby major roads.

In the South Durban Area, the industries that have been the most frequent culprits of atmospheric pollution incidents are oil refineries, notably Engen and Sapref. Thereafter there is the paper company, Mondi and the sugar companies, Illovo and Hulett, as well as other chemical plants. In total, over one hundred and forty seven potential polluting industries were identified by an Ecoserv inventory in 1998 and mapped by an Environmental Non-Governmental Organization known as South Durban Community Environmental Alliance (SDCEA). According to the 1996 census, approximately two hundred and fifty thousand people live in the South Durban Basin.

The South Durban Basin community's plight against exposure to hazardous environment mainly perpetrated by the petrochemical industries and one hundred and forty seven other potentially hazardous industries. The residential areas of South Durban Basin suffer very high levels of air, ground and water pollution. Pollution has been a pressing concern for local communities in South Durban Basin for decades. From the 1950s the area has been the site of simultaneous industrial development and forced relocation of African, Indian and Coloured communities under the Group Areas Act.

The organization known as South Durban Community Environmental Alliance (SDCEA), led by Mr. Desmond D'Sa and Ground work led by Sven 'Bobby' Peek, have been at the forefront of redressing the inequalities and injustices of the past. According to the 1996 census, approximately two hundred and fifty thousand people live in the South Durban Basin.

Apartheid left deep scars on the environment, and its legacy continues to pose "numerous hazards to public health and people's daily lives" (Kaplan: 2000). The South Durban Basin demonstrates the 'conscious' intent of apartheid politicians and top public officials to locate polluting industries close low-income black South African townships. Low-income communities in South Durban continue to inhale the deadly fumes from the environment. They bear the public health costs of a poor environment, mainly due to the petrochemical industry in the South Durban Basin. These health costs include high levels of asthma, severe chest complaints, and cancer.

In the attached Digital Video Disk (DVD) entitled *Dying to Breadth* June 2004 highlights that the heads of government that met in Rio 1992 have failed to live up to their promises. The poor and marginalised continue to struggle for a world free of poverty, inequality and environmental degradation in the South Durban Basin.

2. RATIONALE

Mr. Sven "Bobby" Peek, the director for Groundwork spoke of his loss of family members, sports colleagues and neighbours through the environmental pollution in the South Durban Basin. Toxins and other hazardous pollution are spewed out of the refinery onto our doorstep at a rate ten times higher than that of similar refineries in America and Britain. Mr. Peek mentioned that three of his close friends he played rugby with died of cancer below the age of thirty-four. Mr. Peek continued to say that his mother and niece age twelve died of cancer. Groundwork is at the forefront of holding the South African Petroleum Industry accountable for the numerous occurrences of respiratory illnesses, cancers and deaths in the surrounding communities and to force industry to clean up its act.

"Everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation...." As per Section 24 of the South African Constitution, much commended for laying the basis for a progressive human rights culture that even protects the rights to a healthy environment. This is yet to be realized for the communities in the South of Durban, a subtropical port city on the east coast of South Africa.

3. BACKGROUND

The struggle for a clean environment in South Africa originated in the struggle against apartheid politics and spatial planning discourse and practice. Durning (1990) states that Apartheid was not only an example of political injustice but it was also the most glaring example of environmental injustice (apartheid). Apartheid left deep scars on the environment, and its legacy continues to pose "numerous hazards to public health and people's daily lives" (Kaplan: 2000)

The zoning strategy of apartheid and its "racialized" separate development philosophy resulted in black South Africans being coerced to live in overcrowded "Bantustans" and townships located "downwind or downstream from industrial complexes (Kaplan: 2000). Consequently the black South African communities are overburdened by both disparate exposure to industrial pollution and socioeconomic deprivation. They live in extreme poverty in hazardous conditions.

The South Durban Basin demonstrates the 'conscious' intent of apartheid politicians and top public officials to locate polluting industries close to low-income black South African townships. Low-income communities in south Durban continue to inhale the deadly fumes from the environment. They bear the public health costs of a poor environment, mainly due to the petrochemical industry in the South Durban Basin. These health costs include high levels of asthma, severe chest complaints, and cancer.

When considering the South Durban industrial basin cognisance of the apartheid legacy, particularly spatial planning and its impact on black communities (generic term for Indian, Coloured and African) who reside close to "toxic" industries and inhale fumes which are harmful to both humans and the environment. The low-income communities are located in the following residential townships Wentworth, Merebank, and Bluff.

Apartheid urban planning ensured that these racial groups lived apart (segregated) while maintaining separate residential development for white communities. Desmond D'Sa, environmental justice activist with South Durban Community Environmental Alliance (SDCEA) maintains that, apartheid spatial planning deliberately sited black residential areas near dirty industries in order to facilitate easy access to cheap labour, and generally these black townships were located within close proximity of toxic dumps, sewerage treatment plants, and polluting industries.

Apartheid was a clear example of environmental inequalities, that was coupled with human rights abuses, socioeconomic, and public health violations. The post apartheid South Africa has an enormous task to redress these inequalities. Kaplan (2000) states that apartheid has left an indelible scar on the environment, which in turn has resulted in numerous hazards to public health and people's daily lives.

4. PROBLEM EXPLANATION

South Africa's political transition has largely coincided with globalisation and its economic policies broadly reflect the neo-liberal policies, which have guided the process. These policies promote investor friendly regimes open to international capital and global markets - which are largely shaped by the interest of the more powerful and richer countries. The decision-making process is fast being removed from parliament and the democratic process as officials engaged in multilateral negotiations increasingly respond to the context of global governance at the cost of taking domestic opinion into account.

The spatial arrangement in the South Durban Basin has a long history of racist planning. As far back as 1931, the pre-apartheid Durban Town Council started planning the industrial modernisation of South Durban at the direction of the local Chamber of Commerce. This project involved appropriating land used for market gardening and to use it for small businesses and housing by segregating people on the basis of colour to provide cheap labour for industry. The plans were later consolidated under the apartheid government's infamous Group Areas Act. In the process, thousands of black people were forcibly removed, restricted and/or resettled in South Durban.

5. ADDRESSING THE ISSUES

The eThekweni Municipality has formulated a Multi Point Plan for the South Durban Basin. It was founded on democratic principles such as consensus building, transparency and co-operation. Its success and sustainability hinges on all stakeholders, namely community, industry and the three spheres of government, working together towards a common goal.

The principle objectives of the Multi Point Plan: South Durban Basin is:

- To provide an improved and integrated decision making framework for air pollution management at local government level;
- Move towards reduction in air pollution to meet health based air quality standards; and
- To achieve an improved quality of life for the local community.

The core elements include:-

- Air Quality Management Plan
- Phasing out use of dirty fuels
- Health Risk Assessment and Epidemiological Studies
- National Strategy for Vehicular Emissions
- Setting of Air Quality Standards

Mlaba (2003), mayor of eThekweni Municipality, announced that, two important tenders, both crucial for the success of the Multi Point Plan have been awarded by the eThekweni Municipality. These are the R9million tender for the establishment of an Air Monitoring Network and the R7million tender for the Health Study.

The objective of the Air Quality Management Plan is to improve air quality so that the health and well-being of people and ecosystems are not compromised. The Plan focuses

primarily on developing an emission inventory and air dispersion modeling system and thereafter, seeks to establish the air quality-monitoring network.

Bolowana (Mercury, 2 February 2004: 4) reports "The fight for fresh air in the South Durban Basin has been taken to new levels, with eleven new air quality monitoring stations being established in the area. They are part of a multi-point plan for the South Durban Basin, an air pollution monitoring network established by the eThekweni municipality and national Minister of Environmental and Tourism, Valli Moosa.

Speaking at the launch of the twenty one million rand project at Settler's Primary School in Merewent, where two stations have been placed, the national Deputy Minister of Environment and Tourism, Rejoice Mabudafhasi, highlighted that these stations would provide concrete evidence of pollution which would also help to establish new legislation. The Minister maintained that this, "system will inform the government and the public about how much pollution is generated from industry and traffic, where the significant sources of pollution are and to what extent our air quality is affected by pollution. An air quality monitoring station will play an important role in measuring how many pollutants occur in our living space. In the past, air pollution management was a contested terrain as there was mistrust over data sets, mistrust over governance and our legislation was ineffective." The Minister further explained that air quality levels exceeded limits, legislation would ensure that action was taken to identify sources and set stricter emission limits.

6. CHALLENGES

Engen Refinery in South Durban is a business unit of the Engen Petroleum Limited, a wholly subsidiary of Engen Limited, South Africa. Engen Limited is however a subsidiary of a Malaysian National Oil Company, Petroliam Nasional Berhad (Petronas). In mid-1996, Petronas purchased a 30% stake and controlling interest in Engen. It was considered a major success story of foreign investment (worth approximately US\$460 million) in that decade, and in 1999 Petronas became the sole owner of Engen.

Up until 1990, Engen was wholly a South African company with no foreign interest. It initially operated as Vacuum Oil Company of South Africa and then as Trek Beleggings Beperk. The change of name to Engen Limited came into effect in May 1990 following an acquisition (in 1989) of Mobil's refineries and marketing business in Southern Africa. Mobil Oil sold the company because of public pressure in America for divestment. However, what is interesting and ironic is that Mobil Oil refused to sell its business to a consortium of Indian and African businessman (who had a higher offer), and instead sold such assets to Gencor, the South African holding company that was predominantly Afrikaner nationalist.

The Engen refinery in South Durban is the focus of environmental concern about industrial pollution. Apart from being the largest oil refinery in Durban as well as one of the two largest source of sulphur dioxide pollution in South Durban, Engen Refinery is closely located to two residential low low - income black communities, Merebank and Wentworth.

During the apartheid era, the refinery was considered a strategic infrastructure or National Key Point, and thus was able to avoid close scrutiny from the public regarding its environmental impact and public health costs. The refinery operated under the Officials Secrets Act, which prevented the community from dealing at any level with the

public about the business . The refinery was also encircled in a razor wire, guard towers and symbolically, this characterized the fortress mentality inherent in most supposedly strategic industries in the apartheid economy.

The environmental costs of the Engen refinery in South Durban could be traced back to the period it operated as Mobil Oil refinery. In the late 1980s the Merebank local community (the Merebank Ratepayers association) complained about refinery management's unresponsiveness to environmental pollution. A memorandum was sent to the refinery management in 1990, and it raised community concerns regarding the refinery's pollution and problem areas. The community identified the problem areas to include regular flaring, sulphur dioxide emissions, and oil spills. Management responded by arguing that the pollution was wind blown from other factories, flaring occurred for safety reasons, and that some oil spillage was beyond their control. However, with the commencement of democratic South Africa in 1994, Engen had to revisit its relationship with the South Durban Basin community. The wind of change driven by 1994 democratic elections required Engen doing consultation with locally affected communities, Peek (2000). Engen had to step out of its fortress mentality and to seek consultation with the local community.

Bolowana (Mercury 2 February 2004,p.4) reports “ Environmental activist Desmond D’sa of the South Durban Community Environmental Alliance, said that he appreciated the use of the air monitoring equipment because the equipment was comprehensive and would provide credible data. However, he was skeptical about implementation of strict legislation. The five stations already in the area had produced some results, but there had been no action from the government to reduce pollution. The data captured had not led to any pollution reduction. There has been no impact nor sanctions. We need stringent and strong legislation enforcing the law and sanctions on those companies violating the law.”

7. IMPACT

The effects of air pollution on human, and animal life varied according to the duration, concentration, and toxicity of the pollutant. The following adverse effects of air pollution have been reported.

7.1 EFFECTS OF POLLUTION ON HUMAN AND ANIMAL LIFE

The two primary parts of the human body which are susceptible to air pollutants are the eyes and the respiratory system. Air pollutants irritate the eyes and the eyes normally flush out foreign materials using tears. More severe is the passage of air carrying different types of pollutants into the lungs causes a variety of breathing related diseases. One frequently reported medical condition in South Durban Basin is asthma.

A health study conducted at Settlers Primary School located between two refineries (Engen and SAPREF) revealed a very high level of Asthma. This was found to be triggered by SO₂ and NO_x released mainly from Engen during the day. Other pollution related cases reported are cancer (Leukaemia), skin diseases and allergies. The depth of health problems linked between 1998-2002. During this period more than 800 complaints were registered and are categorised in Table 7.1 below.

TABLE 7.1: SUMMARY OF POLLUTION RELATED COMPLAINTS IN SOUTH DURBAN BASIN (1998-2002)

Smell	Total	Feel	Total	Sight	Total	Noise	Total
Sulphur	169	Burning eyes & nose	18	Flare	10	Hissing	43
Gas	160	Breathing Problems	18	Fallout	52	Undefined	26
Unspecified bad smell	147	Vibration	10	Smoke	31	Siren	10
Oily	61	Nausea	8	Fire	6	Blasting	6
Rotten eggs	56	Unspecified sickness	2	Toxic cloud	5	Rumbling	4
Petrol	28	Skin irritation	2	Steam	3		
Burning unspecified	25	Dizziness, nausea	2	Dust	2		
Gunpowder	13	Dizziness	2	Oil spill	1		
Burning rubber	12	Cough	2				
Diesel	10						
Sour	7						
Bitter	7						
Pungent	6						
Solvent	6						
Acrid	1						
Sweet							
Hot Plastic	1						

SOURCE: SDCEA-DN LOCAL ACTION PROJECT 2004 - 2005: OUTPUT 2, APPLIED METEOROLOGY AND CLIMATOLOGY IN SOUTH DURBAN, 2004:35

Carnie (Mercury, 5 March 2004: 3) reports” Refinery fumes gas pupils and teachers at Merebank. More than a dozen people – including school children, teachers and residents were treated by paramedics after being poisoned by airborne gas fumes next to the Engen fuel refinery in south Durban yesterday. At least six people were taken to hospital after clouds of black smoke and petroleum fumes belched from two refinery stacks shortly before lunch time.

Local councilor Richard Mouton stated that, “If adults collapse from the gas, what does it do to the health of young children?”

Though the school is in a residential area, it is surrounded by three of the biggest polluting industries in south Durban, the Engen and Sapref refineries and Mondi Paper mill. A recent study by researchers from the university of Michigan and Durban’s Nelson Mandela Medical School Found the rate of asthma at that school was the highest they could find in a worldwide search of medical literature. Officials from the City Health Department refused to comment officially on yesterday’s incident, referring queries to eThekweni City Manager Mike Sutcliffe who said the incident was being taken very seriously.”

8. EVALUATION

A leak from SAPREF pipelines spilled 1.000 tons (1million liters) of petrol, on the 7th July 2001. A housewife in the South Durban Basin first identified the leak. It has been asked if the refinery should have detected the loss. Annual production is reported as 1.786.100 tons. If the refinery can report production with that degree of accuracy, it should be able to detect the loss on an annual basis.

The quality of crude oil used by both SAPREF and Engen is of very poor quality. Naturfredningsforening (2004), maintains that in comparative study of four petroleum refineries two from Denmark (Shell and Statoil) and two from South Africa (SAPREF and Engen). The sulphur content in the South African crude oil was 1.6% whilst the Danish refineries ranged from 0.25 to 0.3%; five times more sulphur is present in the South African crude oil, which is of inferior quality to the Danish crude oil. This has greater effect on the air pollutants prevalent in the South Durban Basin.

Carnie (Mercury, 12 October 2004 : 5) reports that multimillion rand repairs needed for Durban's rusting petrol pipelines. A new report on Durban's underground petrol pipelines has revealed serious rust-protection problems, which should have been dealt with several years ago- and has called for a multimillion rand revamp to avoid leaks. The final repair bill could total more than five hundred million rand for the Sapref and Engen refineries. Overall, however, the engineering consultants who prepared the report believe that the fuel pipelines do not have to be ripped out and replaced entirely. Instead they suggest a series of maintenance and repair measures to avoid the risk of future failures.

A local environmental watchdog, the South Durban Community Environmental Alliance, is still studying the report but has insisted that the entire petrol pipe network be replaced, an option that could be twice as expensive as selective repair work.

Some of the twelve pipelines which run from the refineries to Durban harbour date back to the early 1950's; others were installed in 1970's.

The full report, prepared by Pipeline Performance Technologies (PPT), was released by City Manager Michael Sutcliffe and the managers of the two city refineries at a press conference in Durban yesterday. Funded in equal measures by the city and each refinery, the report was commissioned after a series of underground pipe failures, which included a leak of more than 1.2 million litres of petrol in the Wentworth residential area in 2001.

Several homes were evacuated near the leak site to reduce the risk of exposing residents to benzene and other petrol fumes. Small quantities of petrol are still being sucked from the ground today, more than three years later.

Sutcliffe said the report was intended to ensure better safety and health protection for residents in the south Durban area, and to redress the lack of control over major industries during the apartheid era. Noting several historical pipeline safety "inadequacies" by both refineries, Sutcliffe said that the city was "considering its options in terms of the degree of sanction that will be issued".

However, he said the city was also heartened that recent rust prevention and inspection measures were considered adequate by international standards. Nevertheless, the PPT report is highly critical of the generally "poor" rust protection measures by both refineries.

It notes that certain cathodic protection standards used by the Sapref(Shell/BP) and Engen refineries did not comply with those of their international parent companies, The Shell Group and the Malaysia-based Petronas group. Report authors Dr Chris Ringas and Martyn Sherratt suggest that the root cause of rust related pipeline problems was the failure of both refineries to install adequate cathodic protection devices to guard against the unusually high number of stray underground electric currents generated from railway lines.

Ringas and Sherratt note that the refineries' managements have been aware of the inadequacy of the cathodic protection measures since an oil industry report in 1964. Further warnings about the cathode protection system were contained in reports published in 1991,1995 and 2001. And in the case of Sapref , the protective sealing on two of its seven underground pipelines appeared to have been "cooked" in the 1960s and 1970s , when fuel products were pumped through them at very high temperatures.

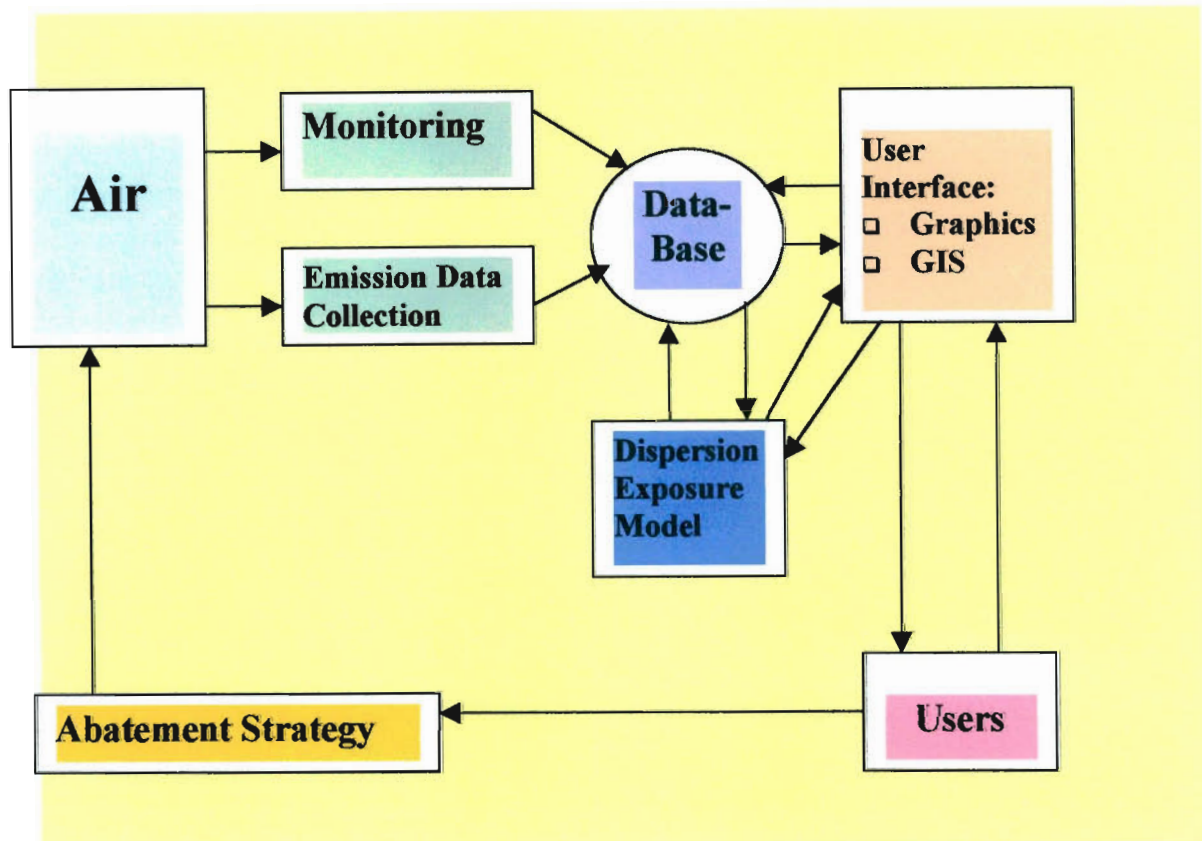
Sapref Managing Director Wayne Pearce said the refinery had set aside R6.5 million for the immediate upgrading of its cathodic protection system. Over the past few years, Sapref had spent R160 million to cut out and repair sections of the pipelines where more than 50% of the metal wall thickness had been destroyed by rust. Pearce anticipated that Sapref would have to spend another R300 million to R400 million over the next few years to repair and protect its pipe network.

Engen Production Manager Willem Oosthuizen said his refinery had spent R20 million so far on repair work, and estimated that it would cost another R50 million to R60 million to complete repair and upgrading work. Oosthuizen said the reason for the different figures was that the damage to the Engen pipelines was confined to a limited area, while Sapref's rust and pipe coating damage appeared to extend over a larger area. The PPT report suggests that the long-term integrity of the pipe network is not in question if the recommended work is done.

However, it warns that serious rust damage can appear very quickly on badly protected pipes. The important issue is that until the cathodic protection and coating problems are addressed, the risk of incurring serious corrosion within one year is still a distinct possibility."

9. WAY FORWARD

FIGURE 9.1 AIR QUALITY MANAGEMENT PLAN FOR THE SOUTH DURBAN BASIN



Source: South Durban Basin Multi-Plan Information Newsletter No.2 July 2003

9.1 EMISSION INVENTORY AND AIR DISPERSION MODELING

The objective is to quantify the linkage between emissions and ambient concentrations. Emission relates to air pollution from industrial point sources, mobile line sources and general area sources. Concentrations are the resultant ground level air quality experienced in space and time as result of emissions. Concentrations are influenced by meteorology, emission rates, relative distances and topography.

The Dispersion Model linking concentration and emissions is operated via central processing unit (CPU). Input to the Model includes emission inventory information and meteorological data. The Model then generates a distribution of ambient concentrations in space and time. The graphical representation will indicate air quality concentrations against set standards to establish compliance or non-compliance by the industries located in the South Durban Basin.

9.2 ESTABLISHMENT OF THE AIR MONITORING NETWORK

The Air Monitoring Network comprises of 16 stations where air pollutant and meteorological parameters are measured. The monitoring site locations are City Hall, Harbour, Wentworth, Settlers School, SAPREF, SAPREF Bluff, Warwick, King Edward, Grosvenor School, Jacobs (two stations), Ganges School, Southern Works, Prospecton and Alverstone. Data collected from the various stations will be used to enforce bylaws and legislation.

Carnie (Mercury, 3 August 2004: 4) reports, that South Africa's first legal enforceable limits for industrial air pollution should become a reality before the end of the year. This was the promise offered by the Environment Minister Marthinus Van Schalkwyk yesterday after a "toxic tour" of the residential areas and industrial complex in the south of Durban.

Minister Van Schalkwyk said in his budget speech earlier this year that it was time our children stopped growing up under the belief that the natural colour of our skyline is brown – and with the new Air Quality Bill soon to be a reality this day is not far off.

Community leader Vish Chowthee claimed that a "gas chamber" was being prepared in south Durban. "We are living on death row, waiting for a slow and agonizing death.... You can be our savior or our exterminator," said Chowthee.

"Noting that residents of south Durban and other hot spots around the country had suffered long enough, Van Schalkwyk said he was appealing to parliament to pass the

new Bill before the end of the year. Once enacted it would establish the first legally binding standards to regulate ground level emissions of several pollutants. For decades, control of air pollution had relied on voluntary compliances by industries, but the new National Air Quality Act would provide the legal teeth needed by regulators, allowing them to take action against polluters and impose “heavy fines”. The minister also handed a list of proposed amendments to the Bill to Elizabeth Thabete, chairman of the national portfolio committee on environmental affairs.

In turn, Van Schalkwyk was handed a separate document by the South Durban Community Environmental Alliance, urging him to set up, within a year, a joint task group between the government and the community to deal with several pollution and land use issues. The alliance has called for law amendments to ensure that industries are held liable for damages for death or injury from air pollution.

He was also urged to intervene on behalf of the community against the recent approval of a major expansion and waste burning project by the Mondi paper company at Merebank. Alliance chairman Desmond D’Sa called for clarity on the future land uses of Durban

International Airport and the Clairwood race course. Responding to the airport question, eThekweni City Manager Mike Sutcliffe said he was aware of recent suggestions for a petrochemical hub by Economic Affairs Minister Mike Mabuyakhulu. Sutcliffe offered the assurance that there was “nothing final” about the broad proposal and communities would be consulted fully.”

Carnie (Mercury 17 June 2004, p.10) reports: “ Anti-pollution measures will keep our air clean, but they’re unlikely to stop the fossil fuel industry. The air in South Africa should start to become slightly cleaner eighteen months from now, when a total ban on leaded petrol and a further cut in sulphur content levels is introduced.

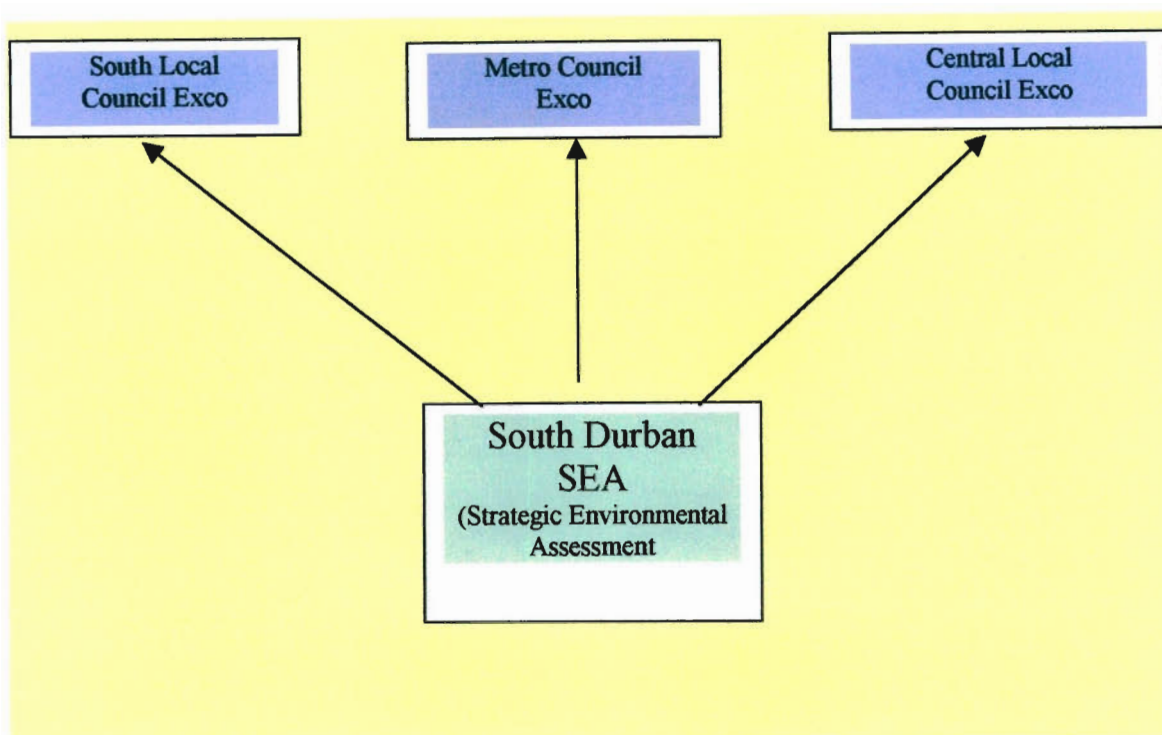
From 2006, all refineries will also have to sulphur content in diesel and petrol to 0.05%(or 500 parts in a million).Lead and sulphur curbs will cost South African

refineries billions of rand. The country's biggest refinery, the Durban based Sapref refinery, said it would have to spend seven hundred million to comply with the government's new fuels directive.

Speaking at the launch of his company's cleaner fuels project last week, outgoing Sapref Chairman Fred Phaswana said the joint Shell/BP refinery would be the first completely lead-free and heavy-metal-free refinery in Africa. The Shell/BP refinery had "responded positively" to the government directive on lead and sulphur, he said, after making a choice to start cleaning up "not because we feel ourselves compelled to do so by law". Critics have said they believed Shell and BP could have made that "choice" decades ago, when they were forced to cut lead at refineries in the US and Europe."

Durban South Basin Strategic Environment Assessment (Final Integrated Report ,August 1999,p.94-97) .The Strategic Environmental Assessment has identified four key management periods. Institutional Structures to address specific requirements of each development period are illustrated in the following figures:

Accepting responsibility requires conformation from all Local Councils that they will commit budgets and personnel to resolve conflicts that exist between residents and industry and promote long term planning and management of the Durban South Basin.

FIGURE 9.2 ACCEPTING RESPONSIBILITY

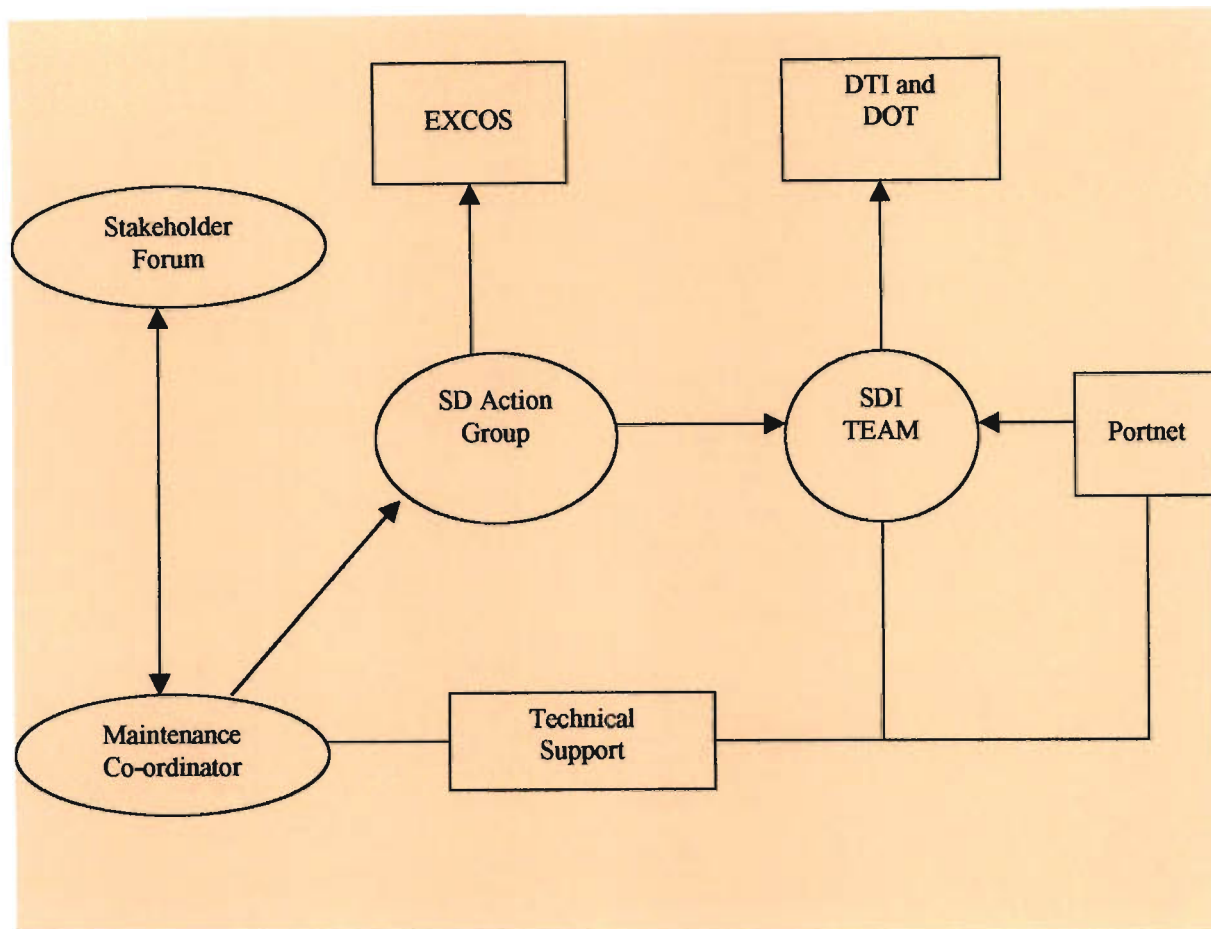
SOURCE: DURBAN SOUTH BASIN STRATEGIC ENVIRONMENTAL ASSESSMENT – FINAL INTEGRATED REPORT AUGUST 1999 (1999:97)

9.3 ESTABLISHING A PRESENCE

This can be achieved during the period when initial projects are undertaken. These are orientated towards maintenance /improvement of service in order to improve the Existing Situation without preempting any development path. They might typically include infrastructural maintenance and improvements, traffic calming schemes to slow traffic through residential areas and prevent access by heavy goods vehicles, policing particularly of crime in business areas and traffic offences along through roads. During this period all Development Options see the need for a dedicated Maintenance Coordinator with a support team based in the Durban South Basin. It is also proposed that this period be used to coordinate planning and develop as clear a development plan as possible with active involvement from all stake holders.

FIGURE 9.3 ESTABLISHING A PRESENCE

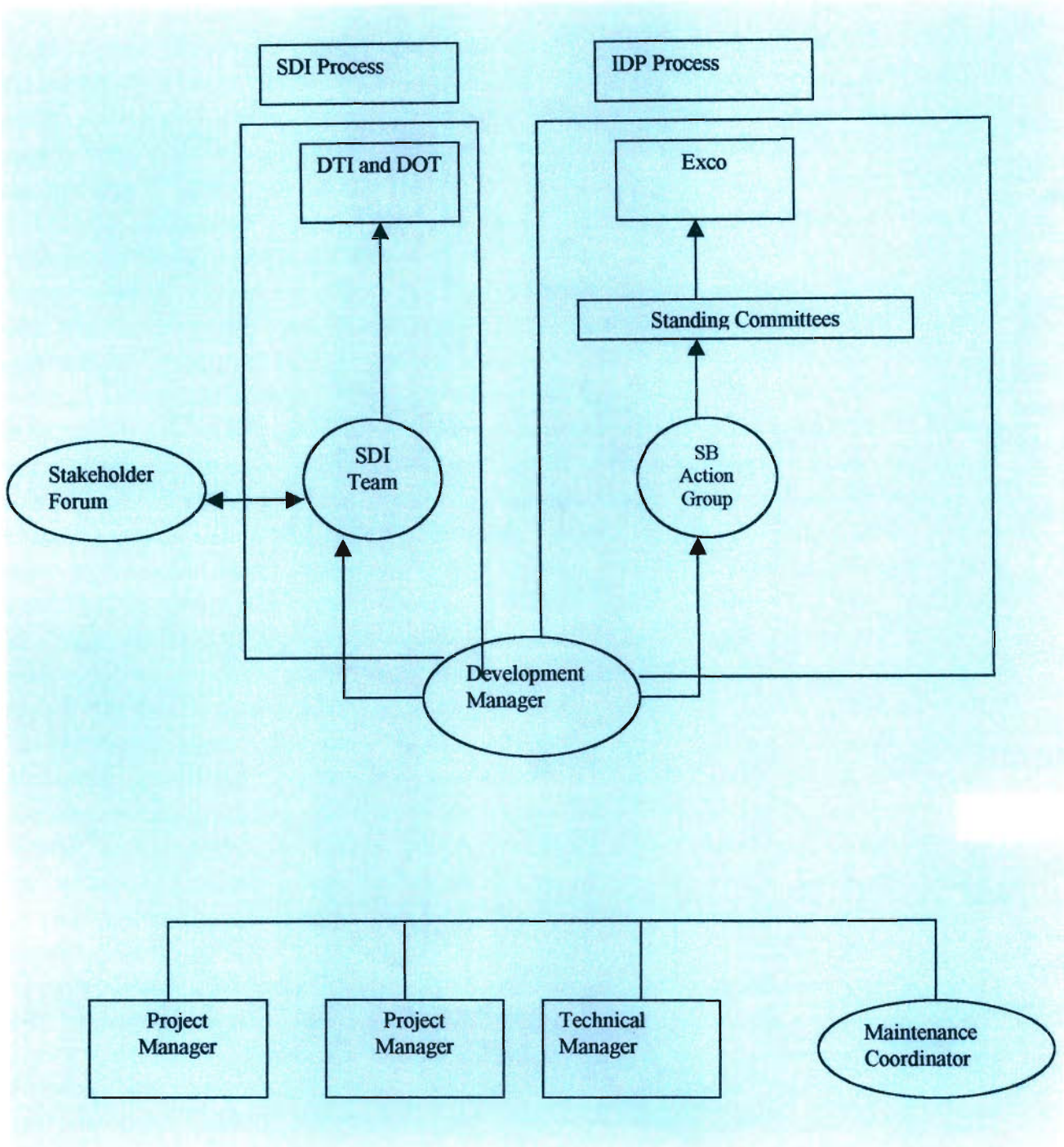
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SOURCE: DURBAN SOUTH BASIN STRATEGIC ENVIRONMENTAL ASSESSMENT – FINAL INTEGRATED REPORT AUGUST 1999 (1999:98)

Getting things done can be achieved during the period of major development and restructuring. Institutionally the Strategic Environmental Assessment sees the need for a Development Manager to coordinate between Industry, government and Local Councils. The Development Manager will need to draw on the expertise and knowledge that exist within Local Councils to manage the overall project and develop key projects to implement the development plan.

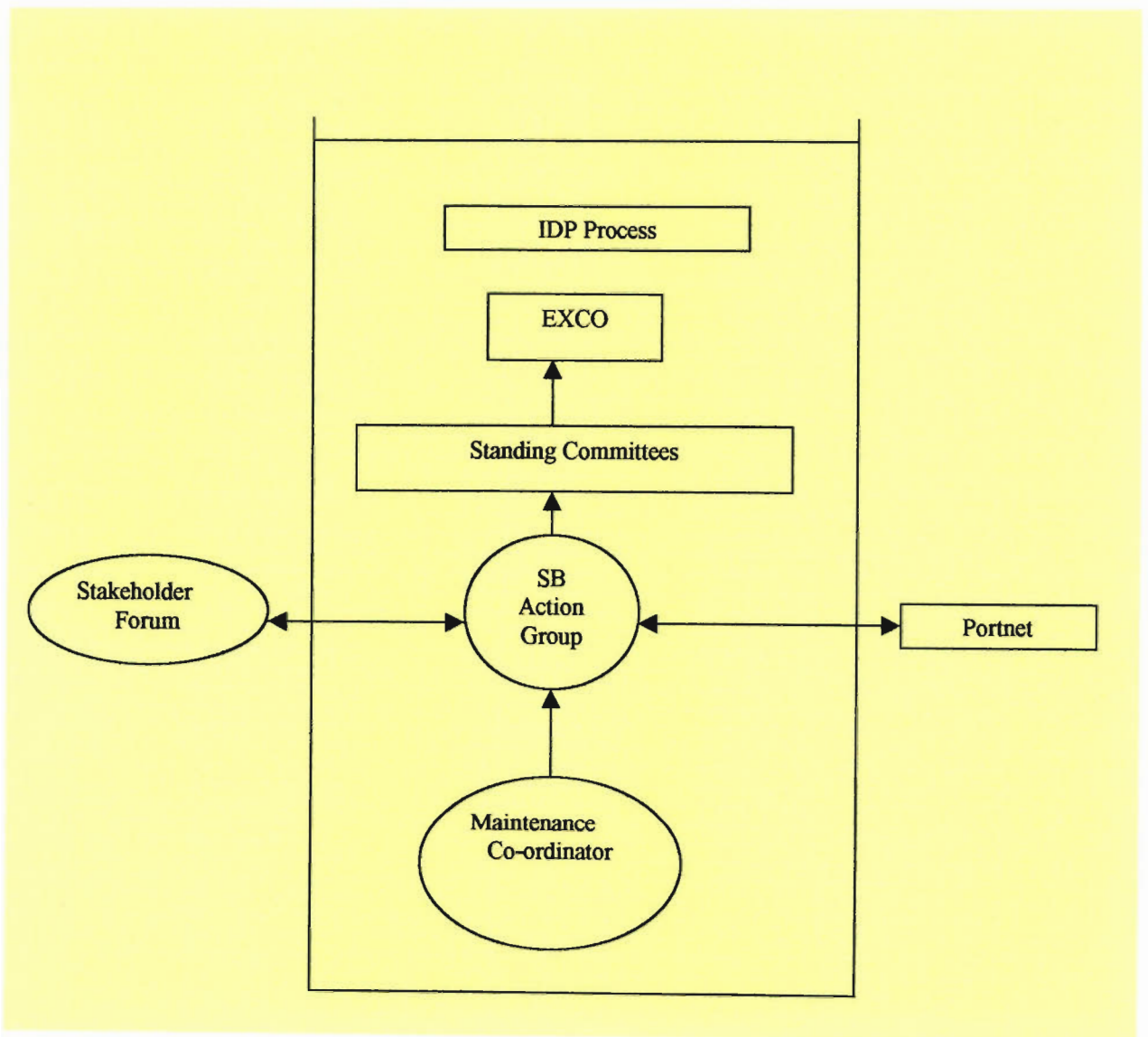
FIGURE 9.4 GETTING THINGS DONE



SOURCE: DURBAN SOUTH BASIN STRATEGIC ENVIRONMENTAL ASSESSMENT – FINAL INTEGRATED REPORT AUGUST 1999 (1999:98)

Maintaining a presence is required when all current major development projects and necessary restructuring has been completed. During this period a role will emerge for a Maintenance Coordinator to ensure that maintenance projects are addressed across Local Council Boundaries and line functions.

FIGURE 9.5 MAINTAINING A PRESENCE



SOURCE: DURBAN SOUTH BASIN STRATEGIC ENVIRONMENTAL ASSESSMENT – FINAL INTEGRATED REPORT AUGUST 1999 (1999:99)

10. CONCLUSION

The South Durban Basin represents a clear case of environmental racism linked to apartheid spatial planning that essentially shifted the cost of petrochemical industries to poor black communities.

Environmental inequalities in post colonial/apartheid systems as social structures of accumulation and how traditional black communities continue to bear both the environmental and public health costs of these repressive systems. The South Durban Basin depicts a struggle for a clean environment, improved air quality, improved working and living conditions.

The South Durban Basin community recognized the pitfalls within South Africa's environmental laws and air pollution regulations. The community representatives thus called upon technical and legal experts to help them understand the technical questions. This approach afforded credibility to their quest for an environment free of air pollution.

Government officials have little to bring to the table. The community expected government to protect their right to a healthy environment. Unfortunately, government's environmental legislation and regulations are outdated. For example the Atmospheric Pollution Prevention Act (Act. 45 of 1965) serves as the main law governing air pollution. This piece of legislation is outdated and in dire need for review and overhaul, to bring it in line with international standards and norms. Therefore, government officials did not have the legal backing to coerce Engen and SAPREF to implement improved environmental practices and air pollution control since the refinery was operating with the prescribed emission permit.

Bringing an environmental issue to public attention is critical for increasing leverage and broadening the arena for conflict. The local community capitalized on former President

Mandela visit to Engen Refinery to capture publicity on their environmental struggle. Thus they were able to gain access simultaneously to political leadership and the media.

Carnie(Mercury 7 July 2003,p.6)reports:” Project leaders of Durban’s seven million rand health/air pollution study have made it clear at the at the start that they don’t expect to find all the answers. Any attempt to cast scientifically-based light on the complex and often intangible issue of air pollution is no easy matter.

It’s unlike like water pollution, for example, where a visible trail of distinctly coloured water can be traced back via a pipeline to the original pollution source. There may be several smoky factories in sight, but often there’s no “smoking gun” evidence because you cannot really see or touch the air. When several polluting companies are sited close together, how is it possible to distinguish which portion of the jointly polluted air emanates from where?

Scientists can detect unique chemical “signatures” to help pinpoint the likely source, but what if the air is laden with a soup of several different chemicals which combine with each and change form? There are tests to measure the toxicity of a chemical at a given dose level – but humans are extremely complex and variable organisms.

The body of a healthy adult may be better equipped to withstand poisonous assaults more readily than that of a young child or an elderly person. And some illnesses, including cancer, may not become apparent until many years after exposure to a single, high dose of poison.

Add into this complex scenario the fact that industry is not the only source of pollution in South Durban. Motor vehicles, trucks, trains and aeroplanes also belch out poisonous fumes. The rooms inside many houses can be laden with anything from tobacco smoke to pesticides or tiny particles of lead-based paint. Dust, mould, insects or animal hair may aggravate or promote allergies, asthma and other breathing problems.

It's a messy business to untangle to the satisfaction of rival interest groups. Nevertheless, despite inadequate funds and a short –time frame, this is the task facing a team of academics drawn from the University of Natal and other research bodies.

Whatever conclusions are drawn, it will add to the growing body of knowledge and be peer-reviewed in national and international medical journals. The study forms part of Valli Moosa's so-called "multi-point plan", a broader initiative which will be used to address similar concerns in other South African hotspots such as Sasolburg,, Sercunda, Cape Town, Gauteng and Mpumalanga. It will combine a health risk assessment and epidemiological investigation using a combined sample of about two thousand people, and focus on asthma, bronchitis, and other respiratory related illness among children, adults and the elderly. The project team acknowledges that the study is not designed to detect the total number of cancer cases and many other serious diseases which could be related to air pollutants in South Durban. To do that said project Dr Rajen Naidoo, a much more expensive study lasting ten to fifteen years would be needed to ensure scientific credibility.

Nevertheless the researchers hope to capture some information on cancer an other diseases and to analyse air and dust samples for the presence of highly toxic chemical compounds which have never been sampled officially in the city. These tests are likely to include dioxins and furans, benzene, chrome six and carbonyls, some of which are deadly at very low levels. Adding to the cost of the chemical analyses will be several hundred tests for non industrial pollutants and allergy agents such as dust mites, cockroaches, rodents, tobacco smoke, mould and exhaust fumes. Several of these tests have been incorporated into the study to accommodate the concerns of local industries which are anxious to avoid conclusions predetermined by an exclusive emphasis on industrial pollution. Bobby Peek, director of the groundwork environment watchdog, thinks it will take decades to resolve the underlying problems in South Durban. But he hopes the study will build up a comprehensive body of "baseline" data, against which the health of residents can be measured in future."

11. QUESTIONS AND STATEMENTS FOR DISCUSSION

- 11.1 In the previous dispensation racialism and suffering was based on race and colour, now it is based on environmental racism and economic status. Critically evaluate this statement.
- 11.2 Government has a wider responsibility for assessing socio economic status. The then Minister for Agriculture and Environmental Affairs states that government is not in the pockets of industry. Do you agree or disagree with this statement. Motivate.
- 11.3 Shell and British Petroleum announced that they were International Standards Organisation (ISO) 14000 accredited. However, they had two of the largest leaks in the South Durban Basin. They were the million litre petrol pipe line leak and tetra ethyl lead leak. How does this multinational correlate these environmental mishaps with its ISO 14000 accreditation? Substantiate.
- 11.4 Are environmental monitoring systems used in South Africa inferior to environmental monitoring systems used in the North? Discuss.
- 11.5 Is it possible for industry and the residents of the Durban South Basin to live in harmony side by side? Is there a need to relocate either? Discuss.
- 11.6 Is the South African government deregulating laws, in order to attract foreign investors at the expense of it's environment and the poor of South Africa? Discuss.

- 11.7 The failure of the South African government to sanction industries in the South Durban Basin is seen by its people as actions of genocide. Critically evaluate this statement.
- 11.8 Benzene levels were found to be two to five times higher in the Durban South Basin than a freeway in Detroit, Michigan, USA during peak time. The South Durban Basin has residential roads and not five lane freeways. Settlers Primary School, also in the South Durban Basin has a 52% rate of respiratory disorders and asthma in its school population, than the world average of below 20%. Are the lives of residents in the South Durban Basin dispensable? Do the residents of the South Durban Basin condone industry and governments inaction in redressing the situation, because industry provides a strategic resource to the country?
- 11.9 Community organizations such as the South Durban Community Environmental Alliance, Groundwork and Merebank Ratepayers Association continue to play a vital role in the South Durban Basin in highlighting environmental pollution and the plight of the residence. Discuss.
- 11.10 The eThekwinini Municipality has formulated the Multi Point Plan for the South Durban Basin. Formulated under democratic principles with consensus from all affected stakeholders at a substantial costs. Is this a genuine attempt to remedy the situation or is it a diplomatic approach to silence the residence of the South Durban Basin? Constructively evaluate these views.

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