



# **Social Impact Assessment Baseline Report Southern Wastewater Treatment Works**

*Prepared for RHDHV*

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**ACRONYMS**

<b>ASGISA:</b>	Accelerated and Shared Growth Initiative – South Africa
<b>EA:</b>	Environmental Authorisation
<b>EIA:</b>	Environmental Impact Assessment
<b>EIR:</b>	Environmental Impact Report
<b>GEAR</b>	Growth, Employment and Redistribution Strategy
<b>HRA:</b>	Health Risk Assessment
<b>IFC:</b>	International Finance Corporation
<b>ISRDP</b>	Integrated Sustainable Rural Development Programme
<b>JIPSA</b>	Joint Initiative on Priority Skills Acquisition
<b>MDGs:</b>	Millennium Development Goals
<b>MTSF:</b>	Medium Term Strategic Framework
<b>NDP</b>	National Development Plan
<b>NEPAD:</b>	New Partnership for Africa’s Development
<b>NGP:</b>	New Growth Path
<b>RDP</b>	Reconstruction and Development Plan
<b>SDB:</b>	South Durban Basin
<b>SIA:</b>	Social Impact Assessment
<b>SWWTW:</b>	Southern Wastewater Treatment Works
<b>UNDP:</b>	United Nations Development Programme
<b>URP</b>	Urban Renewal Programme
<b>VOCs:</b>	Volatile Organic Compounds
<b>WISA:</b>	Water Institute of Southern Africa
<b>WWTW:</b>	Wastewater Treatment Works

## EXECUTIVE SUMMARY

This Social Impact Assessment (SIA) Baseline Report is compiled for the proposed Southern Wastewater Treatment Works (SWWTW) located at 2 Byfield Road, Merewent, on the north-eastern bank of the Umlaas Canal. The Wastewater Treatment Works (WWTW) is surrounded by residential and industrial development. The proposed development is planned within the eThekweni Metropolitan Municipality, in the KwaZulu-Natal province of South Africa. This SIA baseline is part of the Specialist input towards an overall current Environmental Impact Assessment (EIA) process underway. The EIA itself is currently in the Scoping Phase.

While specific social impacts are inferred through scrutinising the current social environment, its receptors and identifying potential impact drivers, macro economic impacts are gleaned through a similar exercise. A summary of the results will be encompassed within the full SIA which will be available in the Impacts Phase.

## 1 INTRODUCTION

RHDHV has been commissioned by eThekweni Metropolitan Municipality to manage the process of obtaining an Environmental Authorisation (EA) from the relevant environmental authorities as part of the objective to propose the upgrade of the Southern WWTW to reduce the quantity of raw industrial sludge being disposed of through the sea outfall by re-commissioning existing and developing new sludge treatment facilities.

Details pertaining to the EA application follows hereunder:

The work will be undertaken in 2 phases, with Phase 1 being the immediate upgrade and Phase 2 being the future upgrade. The Phase 1 upgrade will result in the primary treatment of approximately 60 Mega (million) litres (or 63.5%) of the present combined flow (i.e. 95 Mega [million] litres) being discharged from the Jacobs and Wentworth Valley Trunk Sewers. The solids (or sludge) to be removed will then be combined with that currently being removed from the treatment of the sewage effluent being discharged from the Umlaas Trunk Sewer, before being pumped to the anaerobic digesters. The biogas (which is made up of approximately 60% methane and 40% carbon dioxide) and emanating from the anaerobic digestion process will be stored in gas holders. The options proposed for the use of the biogas are as follows:

- Consumption of at least one third of the stored volume for heating of the sludge (as part of the digestion process) and flaring (or burning) of the remainder.
- Utilising most of the stored gas to dry the sludge through a mechanical thermal drying process and then using the waste heat from the drying process to heat the sludge. It is important to note that the drying of sludge would greatly reduce the road transportation requirements for removal of sludge off site.

The work to be completed under each phase, is as follows:

Phase 1:

- Refurbish and bring back on line two out of six existing primary settling tanks.
- Refurbish and bring back on line existing two anaerobic primary digesters and secondary digester and construct two new primary digesters and one secondary digester, all of same capacity as existing.
- Refurbish and bring back on line existing raw sludge gravity thickener and construct a new gravity thickener of the same capacity.
- Refurbish and bring back on line existing gas holder and construct a new gas holder of the same capacity.
- Refurbish and bring back on line various existing (unused) electrical substation buildings and small pumping stations.
- Establish a new mechanical sludge dewatering facility on site and 2 x 150 000 litres fully enclosed steel sludge storage silos.
- Establish a new mechanical sludge thermal drying facility on site.
- Provide additional effluent storage capacity of 23 000 000 litres at existing low level pumping station and install two new 350 kilowatt pumps.
- Replace the last 70 m of the landline section of the sea outfall pipeline with new 2 x 1 000 m diameter pipe.
- Construct new road tanker effluent discharge bays in close proximity to the entrance of the Works.
- Install new medium voltage and low voltage electrical cables and equipment.
- Minor road works and a new access road.
- The installation of a standby generator.

Phase 2:

- Refurbish and bring back on line remaining four of the existing six primary settling tanks and construct two new primary settling tanks of the same capacity as existing.
- Construct four new anaerobic primary digesters and two new secondary digesters, all of the same capacity as existing.
- Construct a new raw sludge gravity thickener, of the same capacity as existing.
- Construct a new gas holder.
- Install additional mechanical sludge dewatering equipment.

As part of the EIA application, a Social Impact Assessment will be undertaken. This Report constitutes the Social Impact Assessment Baseline Report for the Environmental Impact Assessment (EIA).

## 1.1 Project Context and Background

The Southern Wastewater Treatment Works (SWWTW) is located at 2 Byfield Road, Merewent, on the north-eastern bank of the Umlaas Canal. The SWWTW is surrounded by a mixed development node of both residential and industrial developments.

### 1.1.1 *The Current Treatment Process*

The SWWTW receives the majority of its raw sewage effluent through three large (1 500 mm diameter) trunk sewers, i.e. the Main Southern Trunk Sewer (referred to as the Jacobs Trunk Sewer), the Wentworth Valley Trunk Sewer and the Umlaas Trunk Sewer. Other smaller diameter pipelines coming to this Works include those from Mondi and SAPREF (each separately discharging at the inlet of this Works) and Illovo (discharging closer to the outlet of this Works). The total average daily flow to this works is in the region of 130 Mega (million) litres per day and all the treated flows leaving this works are discharged directly to sea (by gravity and by pumping) through a 1 500 mm diameter, 4,2 km long sea outfall.

The Umlaas Trunk Sewer which serves the areas of Chatsworth and Umlazi discharges effluent to this Works that is predominantly domestic in origin. The discharged flow [currently in the region of 35 Mega (million) litres per day] is immediately directed to a separate treatment facility where it undergoes preliminary, primary, secondary and tertiary treatment. The secondary and tertiary treatment processes are managed by a private entity (Veolia Water) who stores and sells the tertiary treated (or reclaimed) effluent to industry. All sludge generated from the treatment of this effluent is discharged to sea.

The Jacobs Trunk Sewer which serves the residential areas of Yellow Wood Park and Woodlands and the industrial areas of Jacobs and Mobeni discharges sewage effluent that is a combination of domestic and industrial in origin. The Wentworth Valley Trunk Sewer which serves the areas of the Bluff, Wentworth, Clairwood, Bayhead and Island View discharges sewage effluent that is also a combination of domestic and industrial in origin. The flows conveyed by these two trunk sewers [currently in the region of 95 Mega (million) litres per day] combine at the main inlet works and undergo preliminary treatment only (i.e. removal of screenings and grit) before being discharged to sea.

In addition to the pipeline discharge of sewage effluent to this works, smaller volumes of effluent are also discharged by various road tankers. The effluent discharged by these road tankers also undergo preliminary treatment only before being discharged to sea.

### 1.1.2 *Communities Likely to be Most Affected*

Communities that lie in close proximity to the SWWTW, and within the South Durban Basin are found below. Approximate distances<sup>1</sup> from the SWWTW are also reflected.

- Merebank (20 meters, minimum);
- Wentworth (20 meters, minimum);
- Bluff (4,2 kilometers);
- Isipingo (5,3 kilometers); and

<sup>1</sup> Straight line distance

- Umlazi (8 kilometers).

On the SWWTW’s western and north-western side is the formal residential community of *Merebank East*. It lies at a minimum of 20 meters from the SWWTW’s boundary. On the eastern side is the formal residential community of *Merewent*<sup>2</sup>, which also lies at a minimum of 20 meters from the SWWTW’s boundary.

A site map is attached hereunder. The development footprint is outlined in red.



**FIGURE 1-1 : SITE MAP**

## 1.2 Report Structure

This report commences with an overview of the project’s context and background followed by an assessment of the most relevant national legislation, reflecting on the SWWTW. Thereafter, an overview to the history of the settlement of humans in the Merebank area is rendered. At this point in the scoping phase, an indication of impacts that would be most applicable to a development of this nature is given, along with the impact method that will be used in the proceeding impacts phase of the project. The structure is as follows:

- Section 1** : Introduction to project, reflecting context and background;
- Section 2** : An assessment of relevant legislation and local level context;
- Section 3** : A brief overview of the affected area;

<sup>2</sup> A combination of the Merebank and Wentworth communities



- Section 4* : Impact considerations and identification for this study; and
- Section 5* : Impact methodology to be used.

## 2 LEGISLATION AND LOCAL AREA CONTEXT

This SIA baseline report forms part of the Specialist input towards an overall current Environmental Impact Assessment. It is important to understand the national backdrop against which social and economic development is proposed, and this we try to ascertain through a review of various national and local level strategic plans and policies.

### 2.1 South African Millennium Development Goals

The Millennium Development Goals (MDGs) consist of eight development priorities. The eight Millennium Development Goals range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education and form a blueprint agreed to by all the world's countries and all of the leading developmental institutions in the world. As a member state of the United Nations, South Africa is a signatory to this agreement.

The eight MDGs, in numerical order, are:

- 1) To eradicate extreme poverty and hunger (MDG1);
- 2) To achieve universal primary education (MDG2);
- 3) To promote gender equality and empower women (MDG3);
- 4) To reduce child mortality (MDG4);
- 5) To improve maternal health (MDG5);
- 6) To combat HIV/AIDS, malaria and other diseases (MDG6);
- 7) To ensure environmental sustainability (MDG7); and
- 8) To develop a global partnership for development (MDG8).

(Country Report 2010, UNDP)

The New Partnership for Africa's Development (NEPAD) was launched in 2002 and was designed to address the current challenges facing the African continent. Issues such as the escalating poverty levels, underdevelopment and the continued marginalisation of Africa are seen to need radical intervention. The NEPAD states that it is spearheaded by African leaders to develop a new vision that would guarantee Africa's renewal.

The primary objectives of NEPAD are:

- 1) To eradicate poverty;
- 2) To place African countries, both individually and collectively, on a path of sustainable growth and development;
- 3) To halt the marginalisation of Africa in the globalisation process and enhance its full and beneficial integration into the global economy; and
- 4) To accelerate the empowerment of women.

The national agenda implemented through the Reconstruction and Development Plan (RDP) and Growth, Employment and Redistribution Strategy (GEAR) in the first fifteen years of democracy and through the National Development Plan (NDP) and New Growth Path (NGP) going forward constitutes a 'continuity of change.' (MDG, South Africa, October 2013). Since 1994, there have been a great number of development initiatives. These are outlined in the table below.

**TABLE 2-1 DEVELOPMENT INITIATIVES SINCE 1994**

<b>Programme/ Strategy/ Plan</b>	<b>Objectives</b>
<b>Reconstruction and Development Plan (RDP)</b>	<ul style="list-style-type: none"> <li>i. Meeting basic needs;</li> <li>ii. Developing human resources;</li> <li>iii. Building the economy; and</li> <li>iv. Democratising the state and society.</li> </ul>
<b>Growth, Employment and Redistribution Strategy (GEAR)</b>	<ul style="list-style-type: none"> <li>i. Restructure the economy;</li> <li>ii. Create plentiful jobs;</li> <li>iii. Create environment for attracting foreign investment; and</li> <li>iv. Create and implement policies to counter high inflation.</li> </ul>
<b>Integrated Sustainable Rural Development Programme (ISRDP)</b>	<ul style="list-style-type: none"> <li>i. Accelerate rural development;</li> <li>ii. Create economic opportunities in rural areas;</li> <li>iii. Decrease levels of poverty and unemployment; and</li> <li>iv. Implement access to free basic services (water, sanitation and electricity)</li> </ul>
<b>Urban Renewal Programme (URP)</b>	<ul style="list-style-type: none"> <li>i. Accelerate urban renewal;</li> <li>ii. Create economic opportunities in 21 nodal areas of poverty;</li> <li>iii. Decrease levels of poverty and unemployment;</li> <li>iv. Implement access to free basic services (water, sanitation and electricity); and</li> <li>v. Access to housing.</li> </ul>
<b>Accelerated and Shared Growth Initiative - South Africa (ASGISA)</b>	<ul style="list-style-type: none"> <li>i. Halve unemployment and poverty;</li> <li>ii. Improve the capacity of the state; and</li> <li>iii. Reduce the regulatory burden on small and medium enterprises (SMEs); etc.</li> </ul>
<b>Joint Initiative on Priority Skills Initiative (JIPSA)</b>	<ul style="list-style-type: none"> <li>i. Improve skills base required by the economy for accelerated growth; and</li> <li>ii. Focus on scarce and critical skills; etc.</li> </ul>
<b>New Growth Path (NGP)</b>	Employment creation
<b>National Development Plan (NDP)</b>	<ul style="list-style-type: none"> <li>i. Eliminate poverty and reduce unemployment;</li> <li>ii. Improve the quality of school education;</li> <li>iii. Deconstruct the spatial patterns of the apartheid system;</li> <li>iv. Reduce unemployment from 27% to 14% by 2020 and to 6% by 2030;</li> <li>v. Decrease the level of inequality, as measured by the Gini coefficient, from 0.7 in 2007 to 0.6 in 2030; and</li> <li>vi. Become a less resource intensive economy, adopt sustainable development practices, etc.</li> </ul>

**2.1.1 South Africa’s Medium Term Strategic Framework**

The Medium Term Strategic Framework (MTSF) (MTSF 2009-2014) is a statement of government intent. It identifies the development challenges facing South Africa and outlines the medium term strategy for improving living conditions of South Africans. The MTSF base document is meant to guide planning and resource allocation

across all spheres of government. National and provincial departments in particular need to develop five year strategic plans and budget requirements, taking into account the medium-term imperatives. Similarly, informed by the MTSF and their 2006 mandates, municipalities are expected to synergise their integrated development plans in line with the national medium-term priorities (UNDP Country Report 2010).

The MTSF's strategic priorities are captured in the table below.

**TABLE 2-2 LINKAGE BETWEEN MEDIUM TERM STRATEGIC FRAMEWORK AND MILLENIUM DEVELOPMENT GOALS**

Linkage between South Africa's national development planning and the MDGs		
MTSF STRATEGIC ELEMENTS		RELEVANT MDGS
1.	Strategic Priority 1: Speeding up growth and transforming the economy to create decent work and sustainable livelihoods	MDG 1, MDG 2, MDG 3, MDG 8
2.	Strategic Priority 2: Massive programme to build economic and social infrastructure	MDG 1, MDG 3, MDG 8
3.	Strategic Priority 3: Comprehensive rural development strategy linked to land and agrarian reform and food security	MDG 1, MDG 2, MDG 7
4.	Strategic Priority 4: Strengthen the skills and human resource base	MDG 2
5.	Strategic Priority 5: Improve the health profile of all South Africans	MDG 4, MDG 5, MDG 6
6.	Strategic Priority 6: Intensify the fight against crime and corruption	MDG 2, MDG 3
7.	Strategic Priority 7: Build cohesive, caring and sustainable communities	MDG 2, MDG 3, MDG 7
8.	Strategic Priority 8: Pursuing African advancement and enhanced international cooperation	MDG 8
9.	Strategic Priority 9: Sustainable resource management and use	MDG 2, MDG 3, MDG 7
10.	Strategic Priority 10: Building a developmental state, including improvement of public services and strengthening democratic institutions	MDG 1, MDG 2, MDG 3, MDG 8

Source: UNDP Country Report 2010

## 2.2 South Africa's Accelerated and Shared Growth Initiative (ASGISA)

ASGISA which is one of South Africa's government programmes which promotes economic development is structured around the following framework of key interventions:

- Bulk infrastructure investments through all three spheres of Government, State Owned Enterprises and Public-Private Partnerships;
- Immediate, top and medium priority investments in specially selected sectors of the economy;
- The building of Human Capital from very basic primary school infrastructure to tertiary education level;
- Provision for a Joint Initiative on Priority Skills Acquisition (JIPSA);
- Special focused Second Economy Interventions that incorporate youth, women and people with disabilities in sector investment strategies, mass roll out of the Expanded Public Works Programme, Small Micro and Medium Enterprises promotion and Micro credit facilities; and
- Strengthening Governance and Institutional arrangements for service delivery.

## **2.3 The Constitution of the Republic of South Africa (Act No. 108 of 1996)**

The Constitution defines the role of the public in the activities of all three spheres of government, namely national, provincial and local government (Sections 59, 72, 118, 152 and 154). Section 59 refers to the National Assembly, Section 72 refers to the National Council of Provinces and Section 118 refers to the Provincial Legislature. These Sections state that public involvement in the legislative and other processes of the Assembly/ Council/ Legislature must be facilitated, where its business is in an open and public manner. Section 152 of the Constitution states that one of the objects of local government is to encourage the involvement of communities and community organisations in its matters, whilst Section 154 states the requirement that draft provincial and national legislation be published for public comment and feedback. Chapter 10 of the Constitution (Section 195) states that the basic values and principles governing public administration include encouraging public participation in policy-making and responding to public need.

Chapter 3 (Section 40) requires all spheres of government to adhere to the principles (Section 41) of cooperative governance by informing one another of, and consulting one another, on matters of common interest and providing effective, transparent, accountable and coherent governance for the Republic as a whole.

## **2.4 The National Environmental Management Waste Act (Act No. 59 of 2008)**

The South African regulation that is most appropriate to this project is the National Environmental Management Waste Act, 2008. All applicable expectations with respect to stakeholder engagement during an Environmental Impact Assessment process, will be applied.

## **2.5 The National Sanitation Strategy, Bucket Eradication Programme and Free Basic Sanitation Implementation Strategy (2005 onwards)**

In February 2005 the government launched a programme to eradicate the use of bucket toilets. Bucket toilets consist of a bucket placed under a toilet seat; in formally established settlements the buckets are emptied on a daily basis by the municipality and the content is brought to a treatment plant. However, buckets are also used in newly established informal settlements. There were 250 000 bucket toilets in formally established settlements as of 2005. According to <http://en.wikipedia.org>, as at March 2008, 91% of the bucket toilets were replaced by flush toilets or Ventilated Improved Pit Latrines where water was not readily available. However, communities resisted the construction of latrines, forcing construction to a standstill and asking for flush toilets. There had been no community participation in the choice of technologies. The programme was very much focused on the provision of infrastructure, with little emphasis on sustainability and hygiene promotion, so that the health impact was limited. The deadline to complete the program was moved from 2007 to 2010.

In August 2005 a National Sanitation Strategy was published. It covers, among other things, "the roles and responsibilities in sanitation delivery, planning for sanitation, funding sanitation, implementation approaches, regulating the sanitation sector, and monitoring and evaluation." It was followed by a Free Basic Sanitation Implementation Strategy in March 2009, with the aim of reaching universal access to sanitation by 2014. According to one observer, the strategy was "deliberately vague" because the issue of free provision of sanitation services is so controversial. There is no legal obligation to provide free basic sanitation. The implementation strategy includes eight different options to channel subsidies. The policy was piloted in 17 municipalities in 2010, and in a further 23 municipalities in 2011, although it is unclear which subsidy mechanism is being used. (<http://en.wikipedia.org>)

## 2.6 Wastewater Treatment

Fifty five percent (55%) of wastewater treatment plants, especially smaller ones, do not meet effluent standards and some do not even measure effluent quality. In analogy to the blue drop certification system for drinking water, the government has launched a green drop certification for municipal wastewater treatment. As of May 2011, 7 out of 159 water supply authorities were certified with the green drop, and 32 out of 1 237 wastewater treatment plants. In 2009, when 449 wastewater treatment plants were assessed, according to official government data 7% were classified as excellently managed, 38% "performed within acceptable standards" and 55% did not perform within acceptable standards. According to Bluewater Bio, an international firm specialising in wastewater treatment, out of 1 600 wastewater treatment plants in South Africa - not all of which were included in the Green Drop assessment - at least 60% are not meeting regulatory compliance requirements.

According to a study by the South African Water Research Commission in partnership with the South African Local Government Association published in June 2013, 44% of wastewater treatment plants included in a representative sample used inappropriate and unnecessarily expensive technologies. There is a lack of funding for maintenance because of low tariffs, insufficient collection and the absence of ring-fencing of revenues for the purpose of maintaining assets, so that municipalities "run assets to failure". (<http://en.wikipedia.org>)

### 2.6.1 *The Southern Wastewater Treatment Plant*

In 1999, Durban Water Recycling (Pty) Ltd was awarded a 20-year concession contract for the production of high quality reclaimed water. Located in the south of Durban in the grounds of the eThekweni Water Services' SWWTW, the plant was commissioned in May 2001. The R74m sewage-to-clean-water recycling plant planned to treat 47.5 million litres of domestic and industrial wastewater to a near potable standard for sale to industrial customers for direct use in their processes. ([www.eThekweni.gov.za](http://www.eThekweni.gov.za)). The new plant re-treats approximately 10% of Durban's wastewater. In addition, the use of this reclaimed water by the industries reduces the industries' demand for potable water by 8% (Bohlweki Environmental, unknown date).

Socio-economic issues identified by Bohlweki in their paper entitled "Water reclamation project in an environmentally stressed area" (Paper presented at the Biennial Conference of the Water Institute of Southern Africa (WISA) in 2002), included:

- During the construction phase, there were benefits to the local economy through the employment of local labour and contractors.

- Approximately 15 local people were contracted in sustainable employment to operate and maintain the plant.
- There was a delayed capital investment for future potable water supply infrastructure, with a greater volume of treated water now being available for potable use.
- The project was financially sustainable, with all finance being made available from private banks and a French soft loan programme, which was therefore at no cost to the local taxpayer.
- The potable water price increased at a slower rate because investment in potable water production would be delayed by 3 000 m<sup>3</sup>/d, and that water which industries were using was now made available for domestic use.
- Tax on every cubic metre of reclaimed water sold to industries increased long-term water revenue to eThekweni Water Services.

The paper's end note states "This project serves as a model for others. It demonstrates that by pooling resources in a public-private partnership, and by focusing on long-term sustainability goals, all participants can gain, including the environment."

### 3 SOCIO-ECONOMIC BASELINE

The project development area lies within the South Durban Basin, found within the eThekweni Metropolitan Municipality, and thus, relevant data to this local context is reflected within this section.

#### 3.1 Brief Overview of the History of Human Settlement in the Merebank Area

Between November 1860 and 1911 nearly 152 184 indentured workers from across India arrived in Durban. By 1910, nearly 26.85% indentured men returned to India, but most chose to stay and thus constituted the forbearers of the majority of present-day South African Indians.

Indentured labourers had to be given accommodation by their employers; however, they had to find their own way after indenture. Those who turned to agriculture usually stayed on the land which they were renting. The government realised that there was an escalating housing problem and thus set aside several locations for Indians in areas around the then 'Natal.' The main areas that Indians allowed to occupy were beyond the Umgeni River, in Riverside and Prospect Hall and further inland at Duikerfontein and Sea Cow Lake. Springfield and Sydenham were also predominantly Indian. Indians also settled in areas such as Mayville, Cato Manor, Clairwood and Magazine Barracks, and the Bluff.

By 1936, approximately 20% of Indians owned houses in Durban that were made of brick, stone or concrete, and the rest lived in wood and iron structures. By the 1940's the Pegging Acts of 1942-43 and the Ghetto Act of 1946 were passed. This act gave the government the right to remove and destroy shacks and homes in some areas under the pretext of improving unsanitary living conditions.

The Ghetto Act paved the way for the Group Areas Act passed in 1950, which proclaimed certain areas "White." This meant that the non-White communities who found themselves in these areas would have to be moved to other areas designated as 'Indian', 'Coloured' or 'African'. Therefore, Indian residents in Durban, like all non-White South Africans, were segregated by race. By the 1950's Indians were removed from the residential areas of Mayville, Cato Manor, Clairwood and Magazine Barracks, and the Bluff. One of the areas they were resettled to had, over time, purpose-built houses replacing the poor settlements. By the late 1950's a reconstructed Merebank offered cheap houses for which the purchaser had ten years to pay. (<http://www.sahistory.org.za/indian-community>)

#### 3.2 The South Durban Basin and its Health Challenges

The South Durban Basin (SDB) is an area approximately 4 kilometres wide and 24 kilometres long, extending from the Durban Central Business District southward toward Umbogintwini. In present day, it contains a mixture of industrial (including heavy industry, chemical storage facilities, sewage works and a number of smaller



industries) and residential areas in close proximity to each other. This was allowed to develop as a result of poor planning practices. The SDB is also a focal point of major transport routes, including highways and a harbour.

Communities in the SDB started to express concern about deteriorating air quality as far back as the 1960's, and efforts intensified in the 1980's and 1990's as air quality deteriorated even further. Persistent complaints to Government about high pollution level, odours, chemical leaks, flares, visible emissions and health complaints ultimately led to a national response to the problem. The Minister of Environmental Affairs and Tourism at the time (Mr Valli Moosa), decided that "the peculiarities and worrying levels of pollution in the South Durban area warranted a singular and co-ordinated approach from Government." Various issues of concern were debated between representatives of government, industry and community and a way forward to addressing the pollution 'hot spot' problem was formulated. Subsequent to that the South Durban 'Multi-point Plan' was officially announced by the Minister in November 2000.

There are many 'key achievements' noted in the South Durban Basin Multi-Point Plan Case Study report (October 2007), but for the purpose of highlighting health issues the following is extracted: "Health risk and epidemiological studies were completed in June 2006. Results indicated higher air pollution concentrations were associated with reduced lung function in children with asthma. Children attending school in south Durban had an increased risk of persistent asthma compared to those in the north, while adults residing in the south had a higher incidence of hay fever than their northern counterparts."

There are also many 'problem areas and outstanding issues' noted in the report (South Durban Basin Multi-Point Plan Case Study Report, October 2007), but for the purpose of highlighting health issues the following is extracted: "There are no noticeable odour reductions and no indication of improvements in Volatile Organic Compounds (VOC's) and other chemicals, despite activities to reduce VOC emissions."

### **3.2.1 Health Study and Risk Assessment for Durban South Multipoint Plan (February 2007)**

The broad objectives of the study were:

- To determine the health status of the south Durban residents, with specific reference to respiratory health outcomes and other chronic diseases and to determine the relationship between environmental pollution, those identified health outcomes and the quality of life within the community, particularly among susceptible populations; and
- To describe the range of ambient exposures and to assess the potential risks posed by such exposure to the health of the community in the south of Durban.

The purpose of the Health Risk Assessment (HRA) was to estimate the effects of ambient air pollutants on human health, emphasising chronic or long term impacts (for example cancer) due to inhalation exposures. The assessment was a screening level risk assessment. The risk assessment and its supporting information identify a number of toxic contaminants. The study states that it "identified a number of toxic contaminants of potential concern that warrant attention due to health risks including cancer and non-cancer effects" (Page 71, Health Study and Risk Assessment).

A site visit of the directly impacted areas was undertaken in March 2014. A few pictures are included below.



**FIGURE 3-1 : RESIDENCES EN ROUTE TO SWWTW**



**FIGURE 3-2 : ROAD TO SWWTW**



**FIGURE 3-3 : FORMAL, DEVELOPED HOMES IN CLOSE PROXIMITY TO SWWTW**



**FIGURE 3-4 : BIRD'S EYE VIEW OF LOCATION OF SWWTW IN RELATION TO RESIDENCES**



**FIGURE 3-5 : SITE MAP : POTENTIALLY AFFECTED BEACH AREA**

## 4 IMPACT CONSIDERATIONS AND IDENTIFICATION

The land identified as the proposed development area is in a 'brownfields' site located within the South Durban Basin. It is located in very close proximity to residential homes, as it has been since the very start in the early 2000's. The full extent of the potential of such a development to positively or negatively impact on the area and its people must be supported through a visual and oral verification exercise (on-site). The most critical aspect to factor into the impact report would be whether there would be additional long term impacts and the future scenario when accounting for cumulative impacts in the already impacted area.

### 4.1 Impact Considerations for this Study

At this point in the study, the following impacts would have to be further investigated for quantification.

- Perceived increased in odour and repellent gases (impact on nearby communities and businesses);
- Increased perceived health disadvantages due to the perceived increased odour and carcinogenic properties;
- Increased perceived disadvantages to the quality of life of residents and workers alike from the surrounding areas;
- Temporary restricted access to portions of the beach due to upgrade of outfall pipes;
- Added to the increased ocean outflow (design capacity of approximately 215 M<sup>3</sup>/day under pump discharge) there may be the potential negative impact of a loss of livelihood directly related to fishermen, and potentially to sea-faring tourism events;
- Potential impacts on property values, on the one hand a possible increase due to improved sanitation services and on the other hand a possible negative impact due to the presence of odours and repellent gases;
- Perceived effects of increased construction vehicles to community health and safety as well as increased traffic loads during peak periods;
- The potential positive air quality benefit of storing sludge in a contained silo; and
- Potential noise and air pollution that may be caused by the generator which is meant to be operational only during times of power failure/s. The location and power output of the generator within the development footprint would impact on the noise and air quality factors – where residences may be directly impacted.

### 4.2 Identification of Impacts

The assessment of social impacts is complex because of the multi-faceted nature of human systems and organization, the potential inter-connectedness of impacts, and differing implications of the same impacts for different receptors.

The following perspectives will guide the SIA :

- The SIA must be based on sound social economic assessment and the comprehensive description and understanding of social and economic baseline conditions.

- Impacts are defined as the social and economic consequences of project driven changes in the baseline environment.
- Impacts might flow directly from project activities (for example the loss of land and crops due to the construction of a facility), or they might be indirect. Indirect impacts could be a consequence of the project itself (for example improved quality of life where an employee of the project is bringing an income to a household), or they might be a secondary outcome (for example credit facilities due to an improved local business outlook).
- Impacts might also be isolated or cumulative. Cumulative impacts are typically those with many links in the local socio-economic system. They also arise from multiple activities associated with the initial project.
- Impacts must be assessed for different phases of the project cycle. The IFC<sup>3</sup> proposes a four-phase breakdown<sup>4</sup> that is, design and planning; construction; operations; decommissioning and closure. For the purposes of this report impacts are assessed at three levels, that is, pre-construction, construction and operation.
- Impacts can be positive or negative. The same change in the baseline condition might be experienced as positive by one section of an affected community, and as negative by another. In principle, all changes are seen to have the potential to initiate development, if the impacts are managed creatively and effectively.
- The mitigation of impacts must be recommended. However it should be noted that responses to impacts can range from focused and specific mitigation and compensation to broad and inclusive contributions to sustainable development.

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<sup>3</sup> IFC – International Finance Corporation (International lenders. Project typically complies with international guidelines for environmental and social requirements).

<sup>4</sup> International Finance Corporation: Good Practice Note – Addressing the Social Dimensions of Private Sector Projects

## 5 IMPACT METHOD TO BE USED

The RHDHV impact rating method that will be used is found in the table below. The impact assessment will account for impacts that are likely to be experienced during the three phases of a project, that is the pre-construction, construction and operation phases.

The following impact rating table will be used.

**TABLE 5-1 IMPACT SIGNIFICANCE RATING TABLE**

Descriptive criteria	
Nature	Category
Extent (E)	Categories 1 – 5
	1 Footprint / site
	2 Local
	3 Regional
	4 National
5 International (trans-boundary)	
Duration (D)	Categories 1 – 5
	1 Short (few days to a few months, less than a phase)
	2 Short (few months, or less than a phase in total)
	3 Medium (a few years, significant part of a phase)
	4 Long (lifespan of development (i.e. all of operation))
5 Permanent	
Frequency (F)	Categories 1 – 5
	1 Very rare to remote (once or twice a decade)
	2 Unusual to occasional (once or twice every 5 years)
	3 Frequent (a few times a month)
	4 Very frequent (a few times a week, to daily)
5 Continuous (daily to a significant percentage of every day)	
Intensity (I)	Categories 1 – 5
	1 Very low – natural processes not affected
	2 Low – natural processes slightly affected
	3 Medium – natural processes continue but in a modified manner
4 Medium-high – natural processes are modified significantly	

	5	High – natural processes disturbed significantly so that they cease to occur (temporarily / permanently)
<b>Probability (P)</b>	Categories 1 – 5	
	1	Improbable (less than 24% chance of occurring)
	2	Probable (25 – 49%)
	3	Likely (50 – 69%)
	4	Very likely (70 – 89%)
	5	Definite (90 – 100%)
<b>Significance</b>	<b>Significance = E + D + F + I + P</b> Minimum value of 5, maximum of 25 Status determines if positive / negative	
	<b>Any positive value</b>	No impact. High to low consequence, probability not an issue as positive, <b>no mitigation required.</b>
	– 5	Low. Low consequence, probable, <b>minimal mitigation may be required.</b>
	– 6 to 10	Medium. Medium consequence, probable, <b>mitigation is advised / preferred.</b>
	– 11 to 15	Medium to high. Medium to high consequence, probable to very probable, <b>mitigation is necessary.</b>
	– 16 to 20	High. High consequence, probable / definite, <b>mitigation is essential.</b>
	– 21 to 25	Extremely High. Very high consequence, definite, <b>Fatal flaw!</b>



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