



Durban Metro Water Services

DEPARTMENT OF
WASTEWATER
MANAGEMENT

Sewage Disposal
Education
Programme





SEWAGE DISPOSAL EDUCATION PROGRAMME

- Introduction
- Components of the Education Programme
- Success of the Education Programme



DURBAN

Where is it?

Durban
Metropolitan
Area :



- 1365 km²
- 2 400 000 pop
- major tourist destination
- SA's major port





Background

Durban Metropolitan Area : Past imbalances

- Modern, industrial city
 - International tourism
 - Thriving business, conference centre
 - International sports arenas
- Many communities are without basic facilities, i.e. water and sewerage services
 - Poor maintenance and management of these services



Sewage Disposal Systems : The Current Situation

Within the Durban Metropolitan Area -

- 50% of dwellings have access to a conventional waterborne sewerage system;
- 10% have access to satisfactory on-site sewage disposal facilities;
- 40% of dwellings have no formal means of sewage disposal.



Durban Metro Water Services

DURBAN METRO WATER SERVICES

was formed in 1997 to provide the water and sewerage needs of the newly created Metro area.



Problems Facing Durban Metro Water Services

Historical imbalances resulted in communities placing little value on the proper use and maintenance of sewerage systems.

Abuse and misuse of sewerage systems was costing the Council about



**R6 million
per annum**



Abuse and Misuse of Sewerage Systems caused by:



- Vandals
- People throw rubbish into the pipes causing blockages



Abuse and Misuse of Sewerage Systems



- Sewer pipe has been purposely broken to water a vegetable field
- Some people try to illegally connect their toilet pipes into the main systems which results in the pipes being damaged



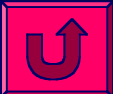
Launch of Sewage Disposal Education Programme

DURBAN METRO WATER SERVICES have launched an **EDUCATION** and **PUBLIC INFORMATION PROGRAMME** to inform people that the provision of improved services must be accompanied by **CORRESPONDING RESPONSIBILITIES.**



Objectives of the Education Programme

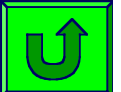
- To create a better understanding of the workings of the sewerage system amongst all communities
- Focus on first-time users of these services
- To provide a vastly improved service to the newly incorporated township areas





COMPONENTS OF THE EDUCATION CAMPAIGN

- Initial Education Campaign to Schools and Communities
- Sustainability of the Programme
 - Curriculum Guide
 - Roadshow
 - Street Theatre Performances
 - Education Awareness Centre
 - A Legal Framework to Pollution Management





Initial Education Campaign to Schools and Communities

A perception study was undertaken to investigate people's attitudes, opinions and false perceptions by means of a survey questionnaire.

The results of this study were used as a guide to the development of the education programme.

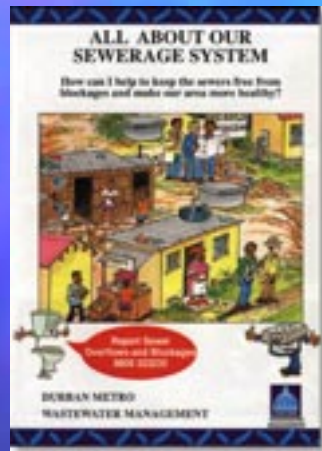


Resource Development

Educational material, designed in English and Zulu for both illiterate and semiliterate persons, were produced to develop a sense of ownership of sewerage services amongst adults and scholars.



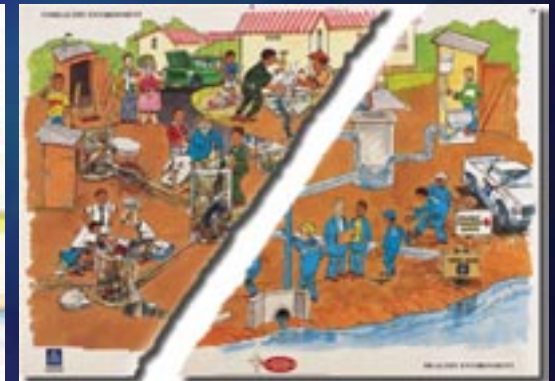
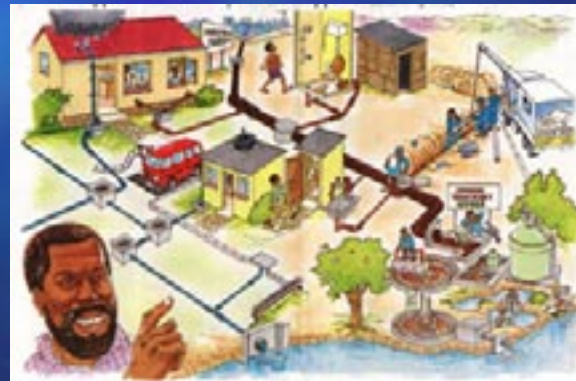
Resource Development



Leaflets
distributed to
communities



Posters contrasting healthy and
unhealthy environments





Resource Development



Working
model of
sewerage
system

Video clip of
working model



Delivery of Programme



Sewage
Education
Programme
delivered to
schools and
communities





Sustainability : Curriculum Guide



A Curriculum Guide for learners and educators was produced. The central theme of this Guide is water and the disposal of sewage, and is used by educators and learners during “Schools Sanitation Awareness Week”.



Sustainability : Curriculum Guide Activity Sheets



DIFFERENT DRAINS

Introduction

- Using the poster 'Stormwater drains and sewers' which can be found in the pocket in the back of this file, present a participative lesson on the 2 different drainage systems operating in the Durban Metropolitan Area.

stormwater drains

- Ask learners to brainstorm a list of all the litter and other materials that are found on the roads, verges and pavements that could get washed into the stormwater drains. Remind them that this is a straight-through system. Everything lands up in the rivers or in the sea! Ask learners to discuss why this is a problem.
- Photocopy and hand out the sheet entitled "If the River Could Speak". Ask learners to complete and colour the drawing of the stormwater outlet by adding in all the rubbish that was identified in the above activity. Have them write a short poem or essay using the suggested heading.

sewage pipes and sewers

- Learners could build a model of a house drain such as a kitchen sink or bath, leading into a street sewer. Any range of materials could be used, including recyclable waste (cooldrink bottles, cans, plastic), drinking straws, pretick and plaster of paris.



Participate in the "Adopt-A-Drain Project" which is run by the Keep Durban Beautiful Association and The Daily News. phone 3601587 for more details.



DUMP NO WASTE TO RIVER

DRAINS



Learners could ask permission from their local council to paint logos onto the street stormwater drains. eg - THIS DRAIN IS ONLY FOR RAIN! - DRAINS TO BAY! - DUMP NO WASTE, DRAINS TO RIVER!



"IF THE RIVER COULD SPEAK!"



Sustainability : Curriculum Guide Activity Sheets

activity

MY SEWERAGE AND STORMWATER MAP

- Ask learners to find all the plugholes, sewage pipes and stormwater drains at their houses. They should investigate where each one starts and finishes and what job it is doing.
- Ask learners to count the total number of sewage pipes that are needed to take sewage away from the house.
- Ask learners to count the total number of stormwater pipes that are needed to take stormwater away from the house.
- Ask learners to measure the circumference of these pipes using a piece of string which is then measured against a ruler.
- Ask learners to locate and measure the distance between the stormwater drains along the sides of the road. They should also measure the distance between their houses and the closest sewage manhole.
- Ask learners to locate and measure the distance between stormwater manholes in the street stormwater drains and the . They should also measure the distance between their houses and the closest stormwater manhole.
- Ask learners to draw a map showing the position of their house in relation to the closest sewage manhole, and the position of the sewage pipes. They should also include their stormwater drains and closest stormwater manhole. It would be preferable to use a different colour for each of the two systems.

Look for the drains - but don't poke around in them

WARNING

Do this activity at school first before venturing out to investigate these homes.

It's a fact!
Stormwater drains and sewers are separate drainage systems. They must never ever be joined!

activity

PONDS FOR POLISHING SEWAGE

Some of the plants and animals found in the maturation ponds

wear plastic gloves if there is a need to touch the water

WARNING

- During the visit to the treatment works, ask the learners to observe and record the full variety of plants and animals that live in the maturation ponds. (For safety reasons and to prevent over-trampling of the edges of the ponds, it may be wise to select only 2 or 3 learners to explore the ponds under the supervision of the excursion leader. A teacher can help the other learners to get on with the Bird Watching Activity suggested in this section.)
- Once back at school, ask the learners to share their findings with the class. In small groups, learners should then develop a
 - food chain or
 - food web
 that may occur in the maturation ponds.
- During this activity learners can be introduced to the following concepts. Where relevant they should identify these in their study of the ponds:
 - producers (autotrophic)
 - consumers
 - herbivores
 - carnivores
 - omnivores
 - decomposers
 - energy flow
 - ecology
 - living and non-living components
- Ask learners to explain and discuss how the plants and animals do their 'job' of further 'cleaning up' or polishing the sewage in the ponds.

The booklet "Hands On Stream and Pond Life" is available from Ungeest Water or Shere - H&L. It may be useful for identifying the creatures and finding information about what they eat.





Sustainability : Roadshow

Video clip of
Roadshow

Durban Metro Water Services, in conjunction with Coca-Cola, has developed an education roadshow which visits communities, hostels, schools, etc. on a regular basis.



Sustainability : Roadshow



This carnival atmosphere of music and dance provides an opportunity to deliver the poster-based education programme and theatre production to large crowds.





Sustainability : Roadshow



The roadshow also provides an opportunity for councillors to demonstrate their active support for Durban Metro Water Services education programme.





Street Theatre Performance

A highly interactive drama using humour reaches out to a broad spectrum of users of the sewerage system and particularly serves less literate communities.



Street Theatre Performance

The “minister”, or local politician, is invited to help resolve a blockage problem, and it soon becomes apparent that his perception of the water service and sewerage system differs from that of the local people.



Street Theatre Performance

Through these interactions the audience learns how wastewater systems work and gives the audience a better understanding of the purpose and correct manner of use of the sewage disposal system.



Delivery of Programme

Hello, this is
Durban Metro
Wastewater -
can I help you?



Metro Wastewater receive hundreds of calls a day on their toll free number. Crank calls waste time and money and block the lines for callers with real problems.



Delivery of Programme

People who
make false calls
are losers!

This time we
do have a
very real
problem here.



The Metro
Wastewater
maintenance
team arrive at
the site of the
reported
blockage
along with “Mr
Minister”.



Delivery of Programme

The overflow must be around here somewhere, but the cause of it may be elsewhere.

Aah! That's better!



The pipe blockage and resulting overflow causes a disgusting, overwhelming stench.



Delivery of Programme

These isigangi, vandals, use the pipes as dirtbins!



Blockages are caused by:

- Vandals
- People throwing rubbish into the pipes
- Some people trying to illegally connect their toilet pipes into the main systems which results in the pipes being damaged

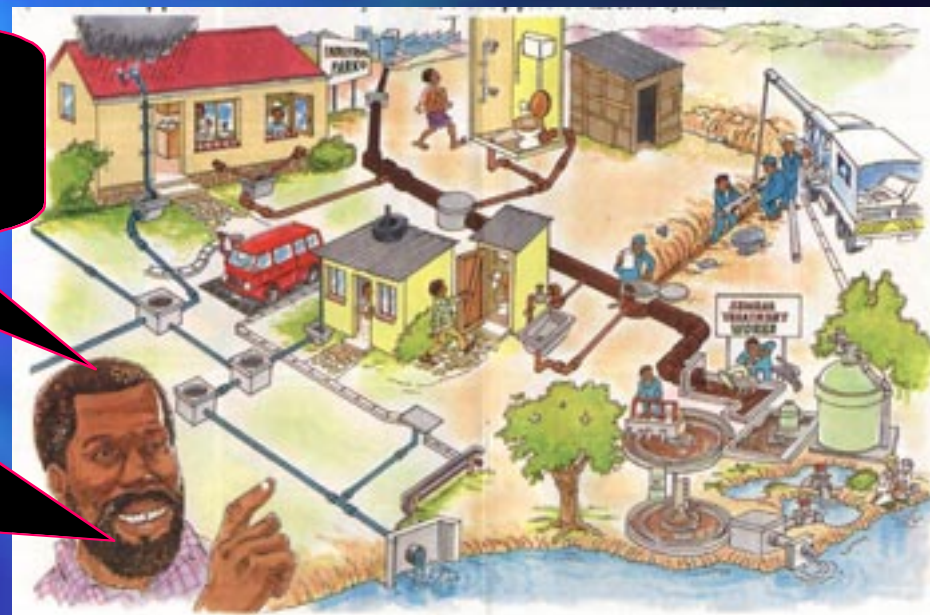


Delivery of Programme



One set of pipes is for rainwater which flows away to the rivers.

Wastewater is very unhealthy and harmful if it gets into the rivers!



There are three kinds of water systems:

One system brings fresh water to your home, the other two take water away.

The second set of pipes is for wastewater only. This water is from baths, toilets, kitchen sinks and factories.



Delivery of Programme

Where sewage overflows
it gets into rivers and it
can make people very sick.



Wastewater contains harmful bacteria and must flow along the pipes to the sewage treatment works where only Metro Wastewater Department can make it safe before it is discharged into the rivers or the sea.



Delivery of Programme

What a big
problem for
everyone!



“Mr Minister” helps
to find the cause of
the blockage, but
someone has built
a container spaza
over the manhole.



Delivery of Programme

I am so impressed Mr Minister, you have located the source of the problem.

Ooh, this is hard work!

“Mr Minister” gets his hands dirty to help uncover the blockage.





Delivery of Programme

Uggh! He is watering
his vegetables with
sewage!



The sewer pipe
has been
purposely broken
so that the
sewage can be
used to irrigate a
vegetable patch.



Delivery of Programme

I think I'm
going to be
sick!



The broken pipe causes a health hazard in the community. "Mr Minister" is angry at this act of vandalism.



Delivery of Programme

The homeowner shows that he was not responsible for the vandalism and resulting blockage, explains that it was the “isigangi” that did this terrible thing. “Mr Minister” apologises.



Everyone in the community must take responsibility for a clean and healthy environment.



Delivery of Programme



A willing and enthusiastic crowd recall important lessons learned from the performance.



Street Theatre Performance

Performances have been held at

- Taxi ranks
- Shopping centres
- Clinics
- Hospitals
- Councillor ward meetings





Street Theatre Performance

Within a period of one year

- Approximately 550 performances
- Reaching approximately 35 6000 adults
- And 40 000 school children
- Competitions and lucky draws
encourage community participation





Sustainability : Education Awareness Centre

The Wastewater Education Awareness Classroom at the Northern Treatment Works allows a completely flexible approach to learning about the role that the Treatment Works plays in health and environmental protection, from first hand practical experience.



Sustainability : Education Awareness Centre



Northern Treatment Works



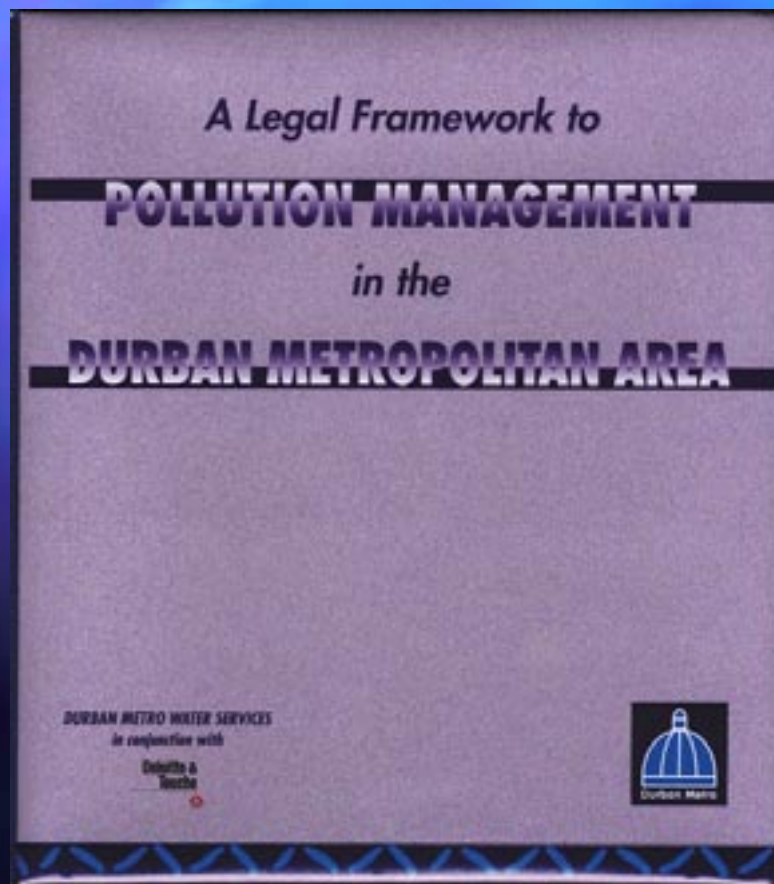


A Legal Framework to Pollution Management

In 1999 the Metro Wastewater Department introduced significantly amended Sewage Disposal Bylaws as a positive step towards becoming South Africa's first and only city with first world environmental standards.



A Legal Framework to Pollution Management



A guidebook “A Legal Framework to Pollution Management” has been developed to assist industry in understanding and conforming to recent changes in legislation.



A Legal Framework to Pollution Management

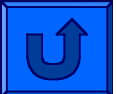
The Sewage Disposal Education Programme has been extended to incorporate buy-in from industries in the Durban Metro area, aimed at effective and sensitive management of our environment.

This ensures a better guarantee that the environment is respected and constantly enriched.



A Legal Framework to Pollution Management

Posters have been produced which highlight the importance of pollution management and environmental issues.



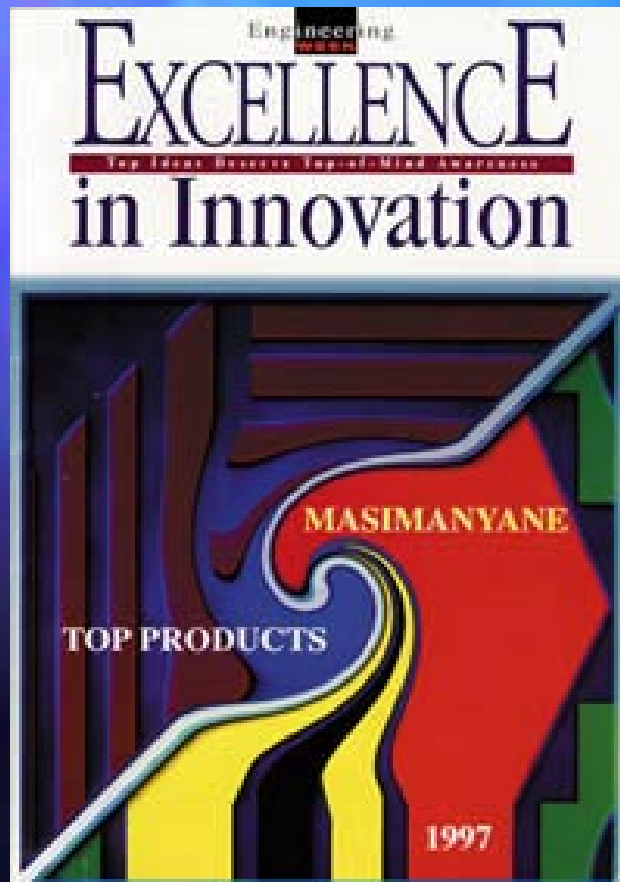


SUCCESS OF THE EDUCATION CAMPAIGN

Blockages through the Metro area have reduced by one third over a 12 month period, indicating an attitudinal and behavioural shift has occurred as a result of this ongoing educational programme.



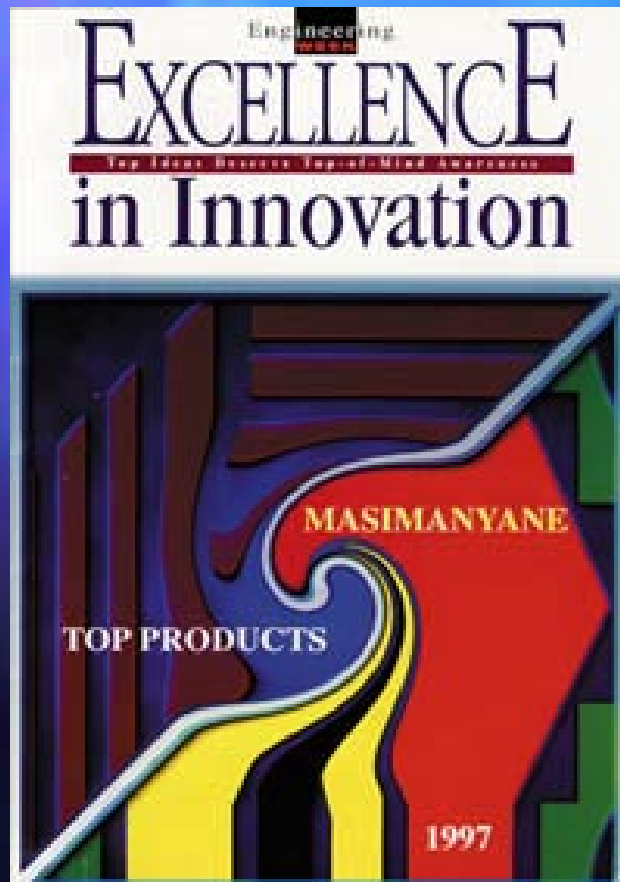
SUCCESS OF THE EDUCATION CAMPAIGN



The Sewage Disposal Education Programme has been chosen as a category winner in a prestigious national competition which rewards “initiative and innovation programmes” that uplift the quality of life of the country’s previously disadvantaged citizens.



SUCCESS OF THE EDUCATION CAMPAIGN



Education programme achieves results

A waste water education programme introduced to schools and communities in the urban and peri-urban surrounds of the Durban metro region resulted in a reduction of blockages being achieved in sewerage systems.

This endorsement confirms the long-term sustainability and success of this programme.

