SEWAGE DISPOSAL EDUCATION PROGRAMME

- Introduction
- Components of the Education Programme
- Success of the Education Programme
DURBAN
Where is it?

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

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
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
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.
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
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”.

**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 (cans, plastic), drinking straws, pretzels and plaster of paris.

**“If the river could speak!”**
Sustainability: Curriculum Guide Activity Sheets

MY SEWAGE 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 drain and closest stormwater manhole. It would be preferable to use a different colour for each of the two systems.

It's a fact! Stormwater drains and sewers are separate systems. They will never ever be mixed!

Ponds for Polishing Sewage:

- 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-planting 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:
  - 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.
Sustainability : 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.
This carnival atmosphere of music and dance provides an opportunity to delivery 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.
A highly interactive drama using humour reaches out to a broad spectrum of users of the sewerage system and particularly serves less literate communities.
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.
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.
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.
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”.
The pipe blockage and resulting overflow causes a disgusting, overwhelming stench.

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

Aah! That's better!
Delivery of Programme

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

These isigangi, vandals, use the pipes as dirtbins!
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.

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

What a big problem for everyone!
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.
The sewer pipe has been purposely broken so that the sewage can be used to irrigate a vegetable patch.

Uggh! He is watering his vegetables with sewage!
The broken pipe causes a health hazard in the community. “Mr Minister” is angry at this act of vandalism.

I think I’m going to be sick!
The homeowner shows that he was not responsible for the vandalism and resulting blockage, explains that it was the “isigangani” that did this terrible thing. “Mr Minister” apologises.

Everyone in the community must take responsibility for a clean and healthy environment.
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
Within a period of one year

- Approximately 550 performances
- Reaching approximately 35,600 adults
- And 40,000 school children
- Competitions and lucky draws encourage community participation
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
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 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.
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.
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

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