

Improving Municipal Wastewater Management in Coastal Cities

The Khayelitsha residents must have thought this the strangest 'township tour' they'd ever encountered. Instead of a group of snap-happy foreign tourists visiting their homes, markets and shebeens, this rather studious-looking bunch were only interested in their toilets!

The tour was part of a five-day training course on "Improving municipal wastewater management in coastal cities", presented by UNESCO-IHE Institute for Water Education and the UNEP/GPA Co-ordination Office, both based in the Netherlands. The International Ocean Institute at the

University of the Western Cape - as an existing member of the UN/DOALOS Train-Sea-Coast Programme - facilitated the South African presentation of the course, and arranged the field trip to Khayelitsha.

Participants expecting to be given a tour of high-tech wastewater treat-

ment facilities were in for a humbling experience as they learned about the pros and cons of various dry sanitation systems, such as Enviroloops and UDTs (urine diversion toilets), which are being tested in the township. Even more sobering were the areas with no sanitation facilities whatsoever, forcing



Left: About 30 people attended the training course on "Improving municipal wastewater management in coastal cities", held at the University of the Western Cape in August.



Top: Course participants interview a municipal engineer as part of a stakeholder consultation exercise.



Top: Solonzi Mzamo, an environmental health practitioner for the City of Cape Town, led the field trip to Khayelitsha. He explained that this dunefield (**left**) acts as an ablution area for the adjacent community.



Top: Khayelitsha is a sprawling township, made up of informal settlements as well as low-cost housing.



Dr Eric de Ruyter van Steveninck, of UNESCO-IHE Institute for Water Education, presented the course.

residents to use coastal dunefields or river corridors for open-air ablutions.

The field trip was ideal for illustrating the need to 'think outside the box' in managing wastewater, particularly for scenarios where flush toilets are not a feasible option, at least in the short term.

"Most participants have an engineering background, so in principle they know the technical aspects of sewerage systems," says Erik de Ruyter van Steveninck, the course presenter. "We don't go into all the detail of modern technologies, but instead try to teach them a different concept – how to approach wastewater management and develop project proposals that will address existing problems."

NO CHARGE

The training course was offered at no charge, with participants only expected to cover their travel and accommodation costs. More than 20 people from around South Africa - mostly from civil engineering firms, local authorities and Department of Water Affairs and Forestry Head Office - took advantage of this



Children are worst-affected by poor sanitation, partly because they often play in polluted soil and water. A study in Khayelitsha found alarmingly high infestation by *Ascaris* worms among children, prompting the implementation of a sanitation and hygiene education and awareness-raising programme.



opportunity. Another six people from Mozambique, Sri Lanka, Turkey and the Philippines were sponsored to attend the course as well as a follow-up 'train the trainers' session, so that they will be able to present the course in their own countries in future.

The course is designed to improve the capacity of project managers at city level to design, finance and implement projects; identify and use appropriate technologies; involve local stakeholders, and communicate and co-operate effectively with other institutions.

"Capacity-building in wastewater management is a pressing issue almost everywhere," says Robert Bechtloff, the UNEP-GPA programme officer, "and regional consultative processes identified the need for practical training."

"We try to provide realistic, fundable solutions for wastewater treatment, taking operation and maintenance into context."

COASTAL CITIES

Why the focus on coastal cities? Nearly half the world's population lives within 100 km of the coastline, placing enormous pressure on the nearshore marine environment. Discharge of inadequately treated sewage into the sea not only threatens human health and coastal ecosystems, but may also have an economic impact if it compromises coastal industries such as fisheries, aquaculture and tourism.

"Most of the course is equally applicable to upland areas though," remarks Erik, "because whatever you do in inland catchments might ultimately impact on the coast."



The field trip took in the toilets of Khayelitsha, allowing participants to compare different dry sanitation systems.

The course comprises three main modules. The first covers objective oriental planning, when participants learn how to undertake logical analyses of problems, objectives, options and stakeholders.

“Using case studies, we force participants to find out - in a systematic way - the real cause of an identified problem, and what should be addressed to resolve it,” explains Erik.

“Next we provide some background information on current approaches to wastewater management, and potential alternatives. We like to change the thinking of the ‘hard’ engineer by showing that there are alternatives that are often more cost-effective and sustainable. Waste is in fact a valuable resource, which is just in the wrong place at the wrong time! We should strive to reuse its nutrients, water and organic matter, with the objective of getting more efficient wastewater treatment in a more cost-effective and sustainable way.”

“The third module focuses on presentation techniques, because it’s important to be able to ‘sell’ your proposal to others, and convince them that it’s the way to go.”

GUIDELINES

The training course builds upon the *Guidelines for Municipal Wastewater Management*, a joint UNEP/WHO/HABITAT/WSSCC publication with support from UNICEF and UNESCO, covering approaches and policies, institutional arrangements, technological options and financing mechanisms for appropriate and environmentally sound wastewater management systems. The guidelines include checklists of recommended practices and procedures, as well as the following ten keys for local and national action on municipal wastewater:

- ◆ Secure political commitment and domestic financial resources
- ◆ Create an enabling environment at national and local levels
- ◆ Do not restrict water supply and sanitation to taps and toilets
- ◆ Develop integrated urban water supply and sanitation management systems also addressing environmental impacts
- ◆ Adopt a long-term perspective, tasking action step-by-step, starting now
- ◆ Use well-defined time lines, and time-bound targets and indicators
- ◆ Select appropriate technology for efficient and cost-effective



Much of the wastewater of coastal cities is not treated at all before it is discharged into rivers, and ultimately the sea.

UNESCO-IHE

The history of the IHE dates back to 1957, when it first offered a postgraduate diploma course in hydraulic engineering to practicing professionals from developing countries. Over the years, IHE developed into an international education institute providing a host of postgraduate courses and tailor-made training programmes in the fields of water, environment and infrastructure.

It also became increasingly involved in conducting applied research, implementing institutional capacity building and human resource development programmes, participating in policy development, and offering advisory services worldwide.

In November 2001, UNESCO's 31st General Conference decided to make IHE an integral part of the Organisation. By March 2003, the necessary treaties and agreements between the IHE Delft Foundation, UNESCO and the Netherlands Government were signed - and the new UNESCO-IHE Institute for Water Education was born.

UNESCO-IHE envisions a world in which people manage their natural resources in a sustainable manner, and in which all sectors of society, particularly the poor, can enjoy the benefits of basic services.

The mission of the Institute is to contribute to the education and training of professionals and to build the capacity of sector organisations, knowledge centres and other institutions active in the fields of water, the environment and infrastructure, in developing countries and countries in transition.

Website: www.unesco-ihe.org

UNESCO-IHE
Institute for Water Education



UNEP-GPA

The Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities was adopted in November 1995, when 108 governments and the European Commission met in Washington DC, and declared their commitment to protect the marine environment from the adverse environmental impacts of land-based activities.

The United Nations Environment Programme (UNEP) was tasked with providing the secretariat, and established a GPA Co-ordination Office in The Hague, The Netherlands.

The GPA is designed to be a source of conceptual and practical guidance in devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation from land-based activities.

The discharge of untreated wastewater was recognised as a major cause of marine pollution, so in November 2001 - at the first intergovernmental review of the GPA in Montreal - a Strategic Action Plan on Municipal Wastewater was adopted to promote concrete actions at both local and national levels. The plan is implemented through the UNEP Regional Seas Programme and aims to:

- ◆ seek consensus and commitment
- ◆ promote alternative solutions
- ◆ facilitate partnerships and regional co-operation.

Since technology transfer and capacity building is considered critical to global implementation of the plan, various guidelines, demonstration projects and training courses are being developed.

Website: www.gpa.unep.org



use of water resources and consider ecological sanitation alternatives

- ◆ Apply demand-driven approaches
- ◆ Involve all stakeholders from the beginning and ensure transparency in management and decision-making processes

- ◆ Ensure financial stability and sustainability
 - Link the municipal wastewater sector to other economic sectors
 - Introduce innovative financial mechanisms, including private sector involvement and public-public partnerships

- Consider social equity and solidarity to reach cost-recovery.

Both the Guidelines document and the course Training Manual can be downloaded from the website: www.gpa.unep.org/training.

