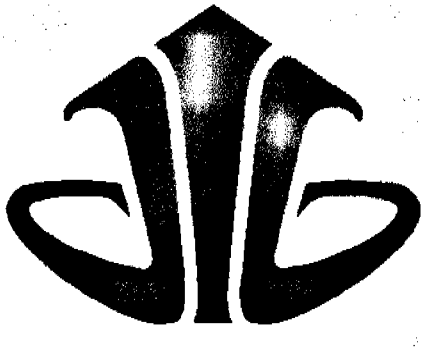
VIVENDI water

DURBAN WATER RECYCLING PROJECT



DURBAN WATER RECYCLING

Effluent. Pollutants. Sewage. Probably not one of the most sought after topics for after dinner conversation, yet the subject of one of the most imaginative industrial deals put together in the history of South Africa.

Durban recently witnessed the signing of a 20 year concession contract between **Durban Metro** and **Durban Water Recycling** (DWR). **DWR** has been formed by a consortium of local and international companies and includes **OTV** as a major stakeholder.

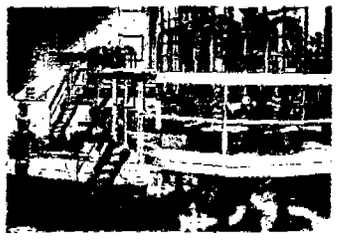
OTV

Simply put, the deal which is a public/private partnership allows the construction and operation of a **new waste water purification plant** that will treat domestic effluent supplied by Durban Metro, to

EFFLUENT.

No longer a dirty word.

an acceptable standard for industrial use. The recycled water will then be purchased by local industry within the Durban area. Current projections indicate that the new plant will be able to process in excess of 47 000 cubic metres of treated water per day.



Apart from the financial investment and the incorporation of world class technology into the new plant, major benefits will include a reduction in the overall industrial consumption of potable water and a decrease in the amount of treated sewage being released into the environment. Industry will also gain, as cheaper water will allow a significant reduction in local costs.

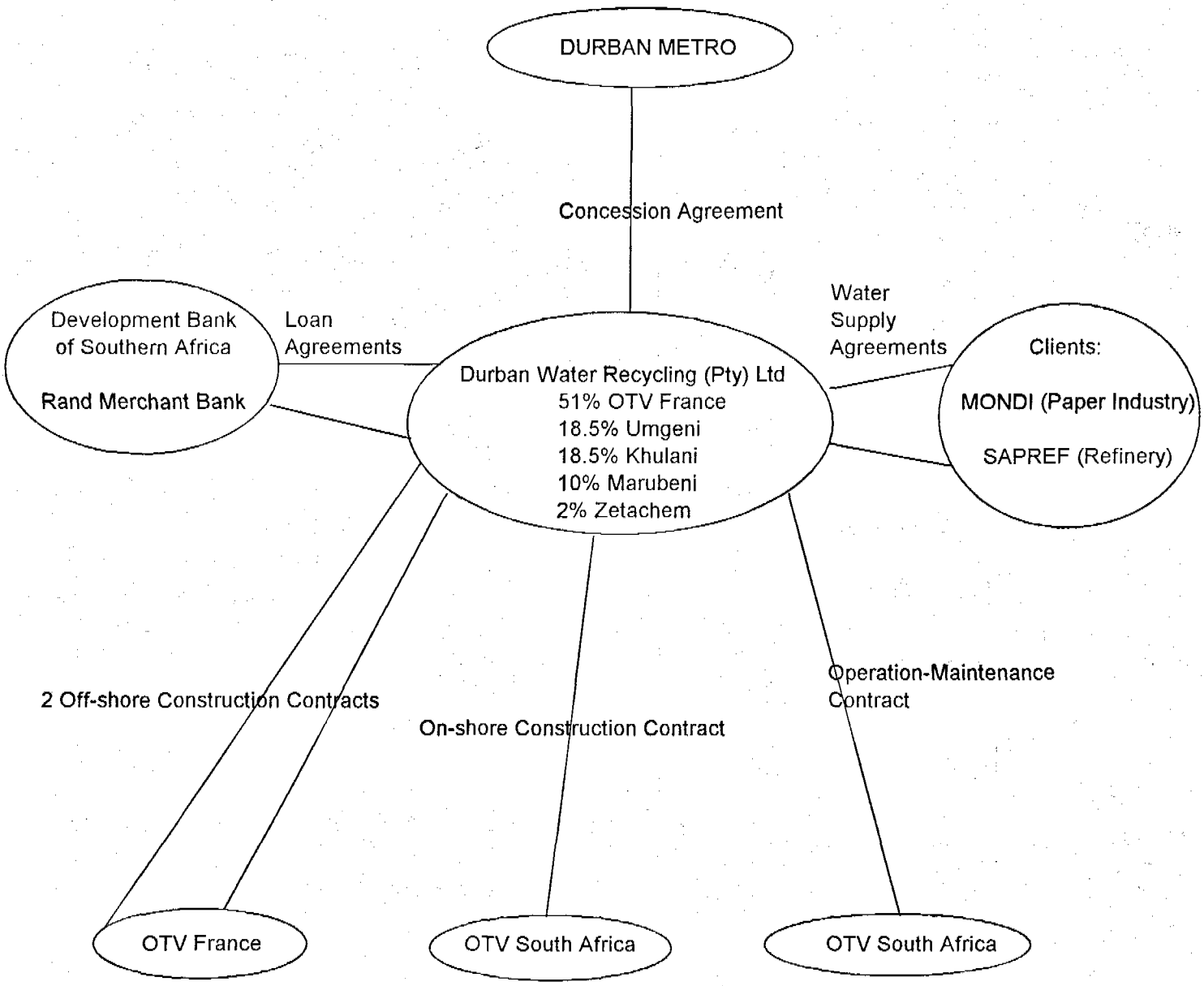
Since the announcement of the contract by **DWR**, several more of Durban Metro's industrial clients have expressed an interest in participating in the project, which may lead to a further increase in the demand for recycled water.

Which just goes to show that with some ingenuity, vision and hard work, even the most unpleasant of subjects can be given a fresh perspective.

DWR

Durban Water Recycling (Pty) Ltd. Tel: (031) 462-2598
Fax: (031) 469-0961 E. Mail: omarche@dwr.co.za

DURBAN PROJECT



OM / 00/02/18

VIVENDI water

DURBAN WATER RECYCLING PROJECT

A WIN-WIN PROJECT

- Environment :
  - Reduce pollution rejected to the ocean
  - Save raw water used to produce potable water
- Durban Metro :
  - Potable water immediately available for domestic use (townships)
  - Delay new investment in potable water production works
  - Financial
- Industrial customers :
  - Major savings on their process water expenditure (approximately 30%)
  - Close co-operation with water treatment specialists
- Vivendi Water :
  - First project in South Africa
  - Perfect reference
  - Financial

VIVENDI water

DURBAN WATER RECYCLING PROJECT

FINANCING

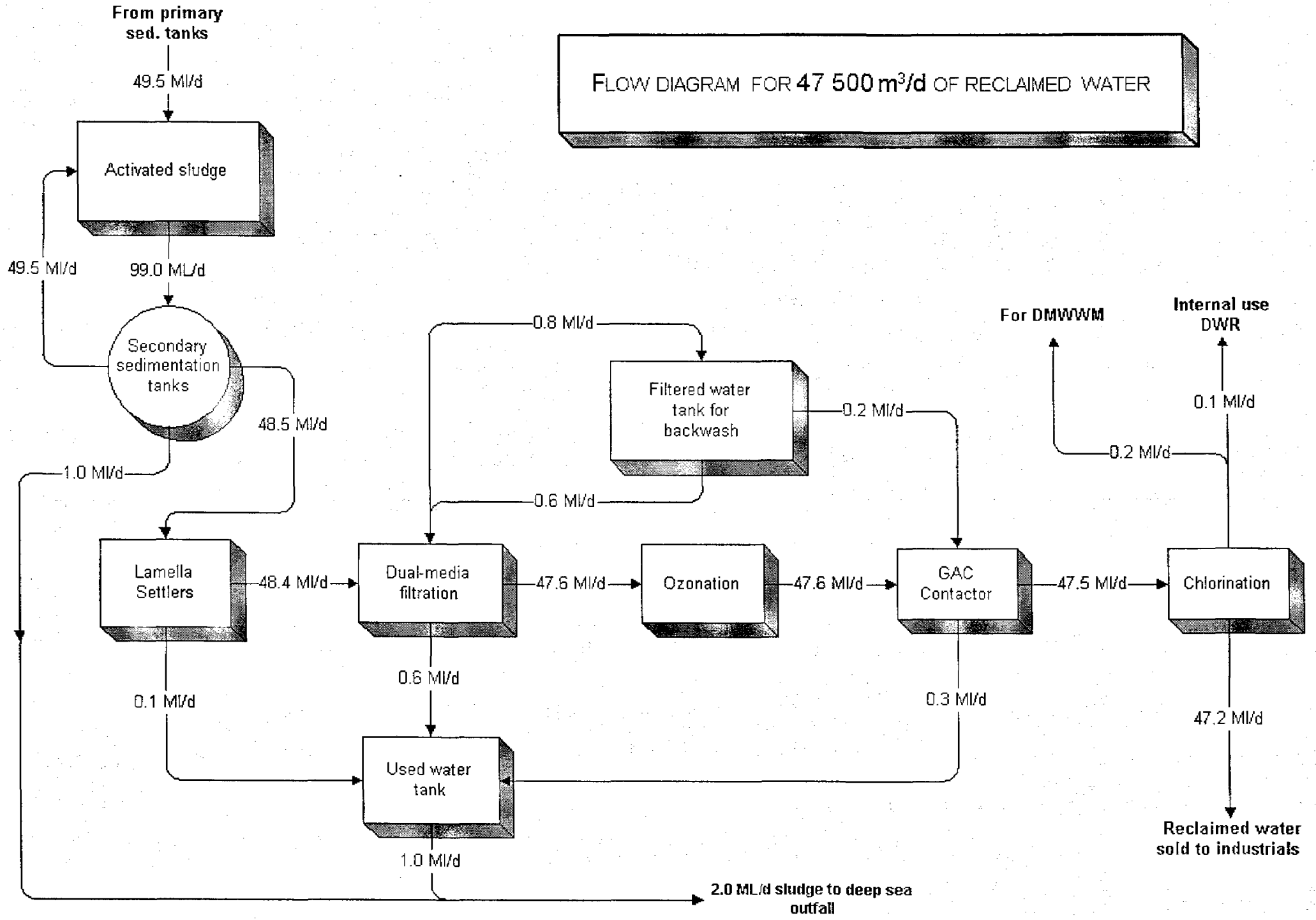
Project value	:	R74 million (Euro 11,3 million)
Equity from DWR shareholders	:	R14 million (Euro 2,3 million)
Development Bank of Southern Africa	:	R18 million (Euro 2,8 million)
Rand Merchant Bank	:	R24 million (Euro 3,9 million)
French Protocol	:	Euro 2,3 million

VIVENDI water

DURBAN WATER RECYCLING PROJECT

WATER QUANTITY

- Production Capacity : 47 500 m³/day
- Mondi (Paper Industry) consumption : 30 000 to 39 000 m³/day
- SAPREF (Refinery) consumption : 3 300 to 8 900 m³/day


FLOW DIAGRAM FOR 47 500 m³/d OF RECLAIMED WATER
From primary sed. tanks
49.5 Ml/d
Activated sludge
49.5 Ml/d
99.0 ML/d
Secondary sedimentation tanks
48.5 Ml/d
1.0 Ml/d
0.8 Ml/d
Filtered water tank for backwash
0.2 Ml/d
0.6 Ml/d
For DMWWM
Internal use DWR
0.1 Ml/d
0.2 Ml/d
Lamella Settlers
48.4 Ml/d
Dual-media filtration
47.6 Ml/d
Ozonation
47.6 Ml/d
GAC Contactor
47.5 Ml/d
Chlorination
0.1 Ml/d
0.6 Ml/d
0.3 Ml/d
47.2 Ml/d
Used water tank
1.0 Ml/d
Reclaimed water sold to industrials
2.0 ML/d sludge to deep sea outfall

Unique concession will see massive sewage re-use in Durban

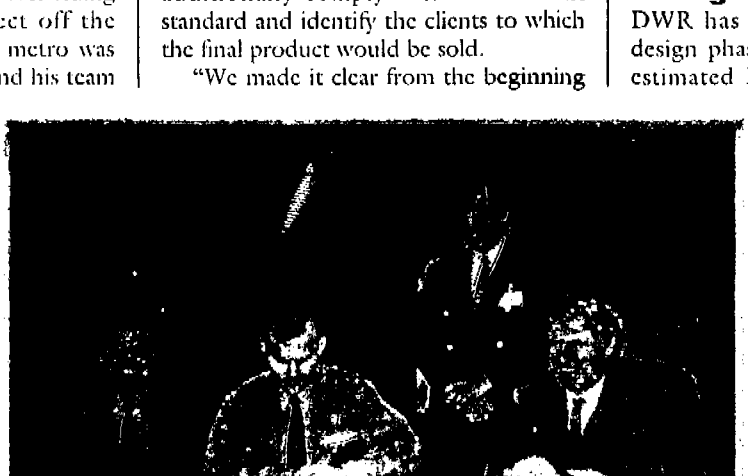
A world first was recently achieved with the signing of a contract between Durban Water and Waste and a consortium consisting of international and local companies. The 20-year concession contract will see the construction and operation of a new wastewater purification plant that will treat raw domestic sewage to an acceptable standard for industrial use. The plant will result in numerous advantages for the local authority, for industry and for the community of Durban, and will hopefully pave the way for other local authorities to engage in meaningful projects with the private sector.

Neil Macleod, executive director (water services) of Durban Metro Water Services told **IMIESA** in an exclusive interview that the municipality pursued the concept of sewage re-use as a result of industry concern over rising water prices.

The local authority began to research ways in which it could reduce the cost of water to industry. Its research culminated in a pilot project that was recorded in a paper presented at the 1996 Water Institute of Southern Africa conference.

The city council could technically produce purified water from domestic effluent, but funding was the over-riding barrier to getting the project off the ground. Determined that the metro was onto a good thing, Macleod and his team investigated the option of engaging the private sector in a public private partnership (PPP).

"We discussed the concept with our council and with 'labour'. Our arguments for a PPP were based on the fact that treating sewage for industrial re-use is not a core function of the local authority and should thus be out-sourced. We were given council blessing. The unions too agreed to the concept of a PPP, but with the proviso that council staff would know exactly how to run the plant in the event that the private sector abandoned ship," Macleod explained.



(Left to right): Kevin McNally, Neil Macloed and C. Mavet, vice-president International BOTA Projects of OTV (Standing) N Theunissen, legal council (Shepstone & Wylie) – at the signing ceremony of the Durban concession contract

Pre-qualification

With the support of its necessary stakeholders, Durban Metro called for the submission of pre-qualifiaction documents. Macleod said that 18 submissions were received and that the metro narrowed its choice down to four companies. The unsuccessful companies had access to information as to why they did not prequalify.

Water and Sanitation Services SA, Biwater, SAUR and OTV went onto the next round with final tender documents in hand. SAUR withdrew from the tender process leaving the council with three bids to adjudicate.

The remaining contenders were asked to comply with various criteria such as the soft issues: local content, affirmative action and training etc. Secondly, a graph was devised on which to adjudicate tenders whereby the quoted prices and proposed volumes of treated sewage were plotted. Each company was awarded points accordingly. The candidates had to additionally comply with a treatment standard and identify the clients to which the final product would be sold.

"We made it clear from the beginning that we were prepared to enter into negotiations. We thus questioned each bidder as to which issues they wanted to negotiate and we discussed any ambiguities in their bids. Our final decision was based on compliances with the soft issues, the highest score on the graph and the organisation that wanted to make the least changes to our proposed contract. That was the OTV-led consortium that has since been named Durban Water Recycling (Pty) Ltd.

The two unsuccessful tendersers were sent a detailed analysis of their bids describing why they had not been the preferred bidders.

Durban Metro Water Services then entered into a four-month negotiation with the OTV-led consortium, and finally signed the contract in December 1998.

The termination clause was specifically re-negotiated, as this had been the clause that all three bidders wanted to change.

Design phase

DWR has thus now entered into the design phase for the construction of an estimated R70-million treatment plant and a R18-million refinancing of an existing Durban Metro Water Services plant that will be integrated into the final plant. The new plant will initially treat 42, 75 Mℓ a day of raw domestic sewage supplied by the metro.

The plant is expected to be operational in around 18 months. It will treat a total of 10% of the metro's sewage and reduce the demand for potable water by eight percent.

DWR will pay Durban Metro Water Services an annual management fee and a fee for the lease of the land on which the plant is to be constructed. A further levy of R0, 24/m^3 will be paid to the council for the 20-year period of the concession, as the council will lose its cross subsidisation income from the participating industries.

The initial cost per cubic metre to industry will be R1, 65 a reduction of R0, 88 on the current price industry is paying for potable water in the Durban area.

"This contract has brought many advantages to our area of jurisdiction.

Treating 42 mℓ of raw sewage for industry use

The following is a brief description of the proposed treatment process for the new work:

Automated influent flow rate management

↓

Primary settling by Durban Metro

↓

Aeration regulation supplemented with oxygen

↓

Secondary clarification

↓

Balancing tanks

↓

Lamellar decarbonator

↓

PH adjustment with CO_2

↓

On-line coagulation and flocculation

↓

Dual media filtration (anthracite and sand)

↓

Ozonation

↓

GAC filtration

↓

Chlorination

Apart from new financial investment and world-class technology, we will be recycling effluent. This in turn reduces the demand for potable water, and reduces the quantity of effluent we put back into the environment. Industry will reduce their costs by accessing less expensive water."

Other areas

Since the announcement of the contract, several of Durban Metro's industrial clients have expressed an interest in the project. Macleod said this might well lead to an increase in demand for recycled water.

"We would thus have to investigate the possibility of directing domestic sewage from other areas to the new plant. This would extend the financial and environmental advantages of sewage re-use to other areas."

The concept of a concession contract solving financial constraints of local government has been debated widely in South Africa. Other PPP contracts in the water and wastewater fields are currently under negotiations. These have been subject to delays and complications.

Macleod said that the biggest stumbling block to concession contracts is Section 10 of the Local Government Transition Act that states that a local authority may not enter into a concession where the private sector collects the revenue. Our contract is not limited by this clause as DWR is not going to be collecting the revenue for a service which Durban metro would normally provide, nor will it be collecting any revenue that is due to the council. DWR will be providing a service to a client using a raw material that Durban Metro Water Services provides free of charge."

In Macleod's opinion other concession contracts in this industry will continue to be hampered unless the contracts can be reformulated or the Department of Constitutional Development revisits Section 10.

He however said that this should not put local authorities off, and offered any advice regarding this unique concession to his colleagues in other city councils.

Extremely enthusiastic

On contacting Brian Walford, chief executive of Umgeni Water for his comments on the project, he was extremely enthusiastic and commended Durban Metro for its decision to proceed.

"Umgeni Water through its commercial subsidiary Umgeni Water Services, was very pleased to become involved in this exciting and innovative project. Although the recycling of wastewater will in the short term negatively impact on our sales of water to Durban Metro, in the longer term it will defer major capital expenditure that would have been necessary to extend our infrastructure to meet water demands.

From a water conservation and environmental management point of view, this project is one that we felt we really must support and I believe that this will be the start of many similar projects elsewhere in southern Africa.

Vast advantages

Commenting on the 20-year Durban concession, Durban Water Recycling chairman, Kevin McNally told IMIESA that the project has vast environmental, technological and enconomical advantages for Durban and for the country.

"Expanding on the environmental advantages that Macleod and Walford have highlighted, I would like to add that the project will enable the participating industries (Mondi, SAPREF and Sasol) to comply with international and local environmental requirements. This is particularly true for Mondi, which will receive 30 000 m^3/day from the new plant. As Mondi exports a great deal of its product, it will be in a position to trade on the environmental benefit resulting from wastewater re-use," McNally said.

He commented that the project will bring international technology and expertise and that a valuable skills transfer will take place.

"From the investors' point of view, the economics of this project are sound and the return on their investment will be good. In addition, the project has brought direct foreign investment to the country to the tune of around R20-million. The French (OTV) have further underwritten the project by more than 50%," McNally added.

There is additionally an economic advantage for the participating industries. He said the lower water cost will enable the three companies to be more competitive, and if they are more competitive it helps the overall South African economy. "There will be vast exponential benefits all round from this project, which will be compounded if other local authorities take this route."

Who is in theconsortium?

Durban Water Recycling (Pty) Ltd is a consortium of the following companies:

- Zetachem
- Umgeni Water Services
- Khulani Corporate Services (Pty) Ltd
- Celtic Holdings (US) Inc.
- OTV (a subsidiary of Companie Generale des Eaux)
- Marubeni (A Japanese Investment Consortium)

McNally commented that the Durban Metro concession was pushed through in record time (around 10 months). He explained that this was possible because of the highly professional Durban Metro team. "Although the negotiations were tough, they were always fair."

He said the customers were also represented by professional teams around the negotiating table, which again helped speed up the process.

"Furthermore, the members of the consortium are all highly regarded and have each played a vital and significant role in getting this contract off the ground. In particular, our empowerment shareholders have and will continue to make meaninful contributions to this historic project."

The consortium's commitment to empowerment will go well beyond its shareholders. McNally explained that it has been decided to select three individuals from the previously disadvantaged communities bordering the plant site for the DWR bursary programme. The candidates will be able to undertake studies in the various disciplines of the plant. They will also be given extensive training on the Durban plant and other OTV applications around the world.

***IMIESA** will publish a detailed article on the technical aspects of the plant as soon as more information is available.* ■

How sewage will be re-used in Durban

IMIESA reported in the February issue that a world first was achieved with the signing of a contract between Durban Water and Waste and a consortium consisting of international and local companies. The 20-year concession contract will see the construction and operation of a new wastewater purification plant that will treat raw domestic sewage to an acceptable standard for industrial use. In this cover story the newly formed consortium, Durban Water Recycling, reports on the process that will be used in the plant.

Process description

General

The Process consists of using domestic raw sewage from the Umlaas trunk main and industrial raw sewage from the Jacobs trunk main currently discharging into the Durban council's Southern Wastewater Treatment Works and treating it to achieve high grade reclaimed water. Reclaimed water is then distributed to various customers, which will include Mondi, Sapref, and possibly other industries like Sasol Fibers.

The works will consist of modifying existing assets (mainly the existing secondary treatment works) and building new assets (Jacob feed pump at the head of the works, new meters, autosamplers, a tertiary treatment plant, and a reclaimed water reticulation system).

The design has been based on:

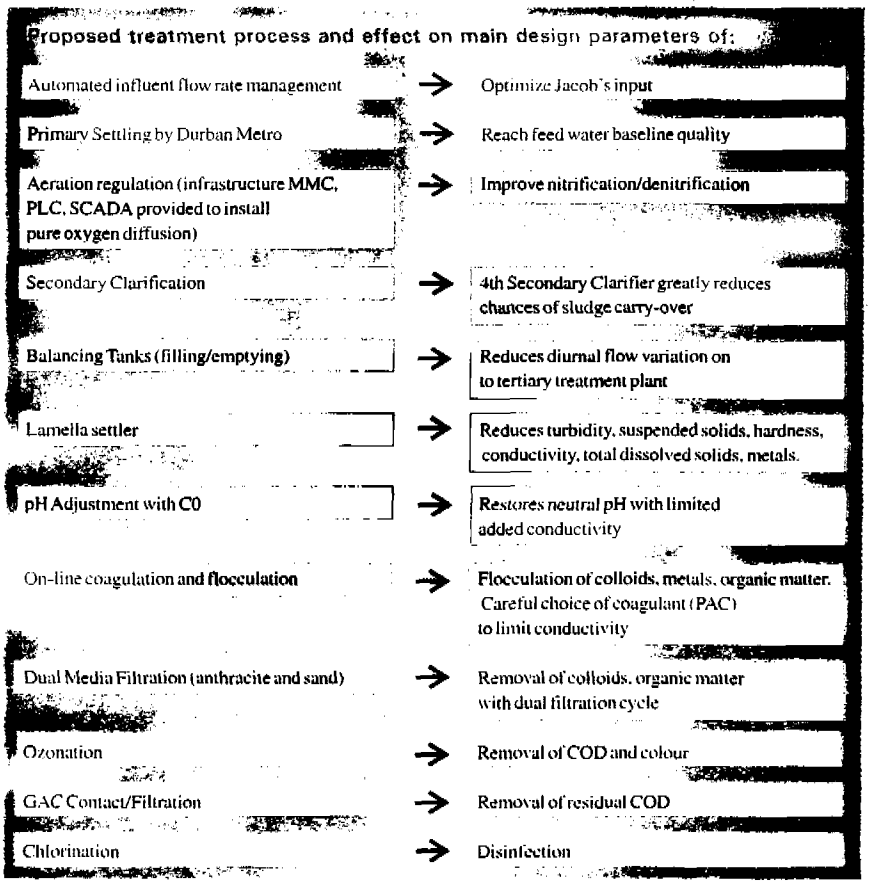
- Feed water characterisation
- Definition of customers demand
- Hydraulic co-modelling of feed water availability, customers consumption patterns, and hydraulic buffering by the on-line High Level Storage Tank (21 000 m^3)
- Water treatment engineering for the definition of the treatment steps
- Hydraulic modelling of the reticulation system

Reliability, compactness, cost-efficiency, and safety have been emphasised. In addition to designing to today's state-of-the-art practices OTV (the consortium leader) also included reliability of supply to the customers as its main priority.

Built-in redundancy between consecutive treatment steps has been included as well as a back up potable water connection to the reticulation system via the High Level Storage Tank (HLST).

The proposed plant will include for the most part the best available technologies in

Overall treatment approach



order to attain the treatment objectives of the plant. The only exception will be the down-scaling of desalination technology, which is clearly incompatible with the targeted water prices to guarantee the sustainability of the project.

Individual treatment steps

1 Jacobs sewage pumping station

Feed water onto the reclaimed water works is primarily made of domestic Umlaas sewage. However, industrial Jacobs sewage input will be required at times of low Umlaas availability. To guarantee the precision of Jacobs sewage input, a pumping station, with a total capacity of 400 m^3/h, will be installed with an electromagnetic flow meter.

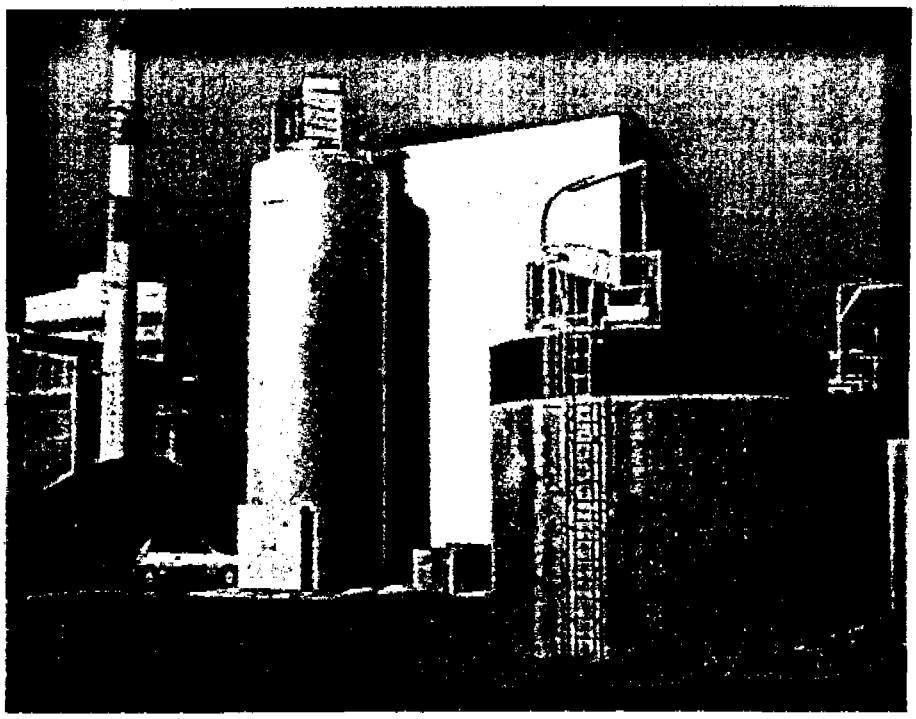
Conductivity of the Jacobs sewage and primary effluent is continuously monitored and pumping temporarily interrupted when the effluent quality degrades below Base Line Quality.

The pumped quantity of Jacobs sewerage is registered and pumping may also be stopped should the daily maximum volume be exceeded. This theoretical volume is determined by the SCADA, based on the accumulated primary effluent flow that has entered the aeration tanks at the time.

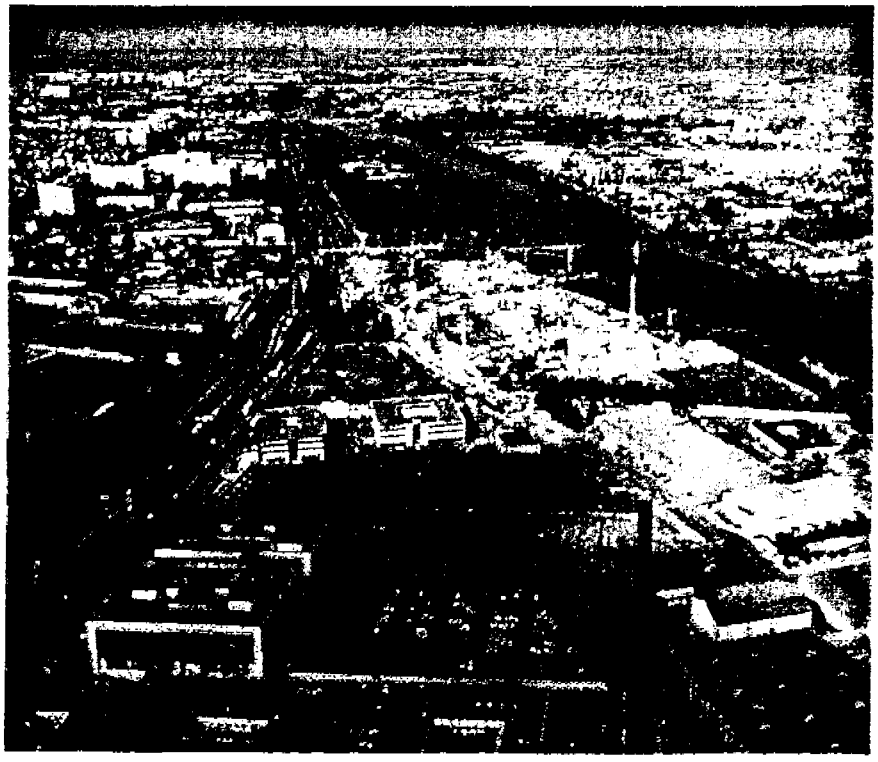
2 Secondary treatment

After testing of the existing secondary treatment works, the following conclusions were derived for the future process:

- The COD, suspended solids and nitrogen removal efficiencies observed are sufficient to allow further treatment in the tertiary treatment plant.
- A fourth clarifier of the same internal diameter as the existing three clarifiers (32,4 m wall-to-wall) will allow for the operation of the secondary treatment plant at 50 Mℓ/d capacity with peak flows of 77,4 Mℓ/d.
- The existing twelve surface aerators are able to introduce 992 kg O^2/h into mixed liquor during peak flow period.
- The pH of the primary effluent is continuously monitored to prevent acidic effluent to enter the aeration tanks. Upon detection of a pH < 4,0 the existing motorised penstock closes and by-passes the effluent.



Industrial water treatment plant for Hoechst Chemical Company - France



Colombes (France) - wastewater treatment plant

3 Tertiary treatment

3.1 Clarified effluent pump station / balancing tanks

A clarified effluent pumping station will be installed to feed the tertiary treatment. One of the duty pumps operates at a fixed speed while the second duty pump has variable speed in order to match the varying flow rates from the clarifiers.

Existing balancing tanks (total capacity of 8 000 m^3) will be used to store clarified water during the peak flow hours of the day. This stored water will be used to feed the tertiary treatment during the low flow hours.

Chlorine may be dosed to the clarified water prior to temporary storage in the balancing tanks. The dose will be up to 5 mg/ℓ Cl_2 and can be varied according to the actual chlorine demand. The existing chlorine residual monitor will be used for this purpose.

3.2 Lamella settlers

Should exclusively domestic Umlaas effluent, or Umlaas effluent with minor quantities of industrial Jacobs sewerage enter the secondary treatment works, the removal of

carbonate in order to reduce conductivity is not required. Lime will then be dosed at a low rate into the rapid mixing tanks at the inlet of the lamella settlers and precipitate primarily phosphate as calcium phosphate, removing heavy metals simultaneously.

An increased dose of lime is only required during periods of high conductivity in the clarified water. The lime injection precipitates first the calcium hardness, and then the magnesium hardness. The chemical reactions with lime are the following:

$Ca(OH)_2 + Ca^{2+} + 2HCO_3^- \rightarrow 2CaCO_3 + 2H_2O$

$Ca(OH)_2 + Mg^{2+} + 2HCO_3^- \rightarrow CaCO_3 + MgCO_3 + 2H_2O$

The chemical components $CaCO_3$ and $MgCO_3$ precipitate in the water in solid form of relative high density. Suspended solids and some other particles are dragged down with the precipitates. Silica (SiO_2) is adsorbed on $MgCO_3$ and settles in the same way.

The settling zone is equipped with modules, which are made up of inclined (60 °) slats (1 000 mm length) made of polyvinyl chloride with a prismatic profile. Thus two back-to-back slats form a module composed of sections with a hexagonal cross-section.

The flocculated water is then distributed beneath the modules through an orifice that has the distinguishing feature of extending across the full width of the apparatus. The water circulates upwards between the slats in the opposite direction (counter-current) to the flocs, which deposit on the plates and slide downwards under the effect of gravity.

The settled water is collected in steel pipes and combined at the outlet.

Internal recirculation of settled sludge to the rapid mixers improves the chemical reaction kinetics, flocculation and the subsequent settling of flocs. One recirculation pump per lamella settler continuously draws settled sludge from the bottom of the settler structure and pumps at a constant rate (5% of max. flow rate) to the rapid mixer at the inlet of the lamella settlers.

3.3 Dual-media filtration

The settled water flows by gravity after neutralisation with carbon dioxide from the lamella settlers to the dual-media filter plant.

The addition of a coagulant and/or a polymer (polyelectrolyte, PAM) can enhance the performance (turbidity, filtration rate) of filters.

Four dual-media filter cells are fed via a distribution channel. An inlet orifice with isolating penstock at each filter cell assures equal repartition of the flow.

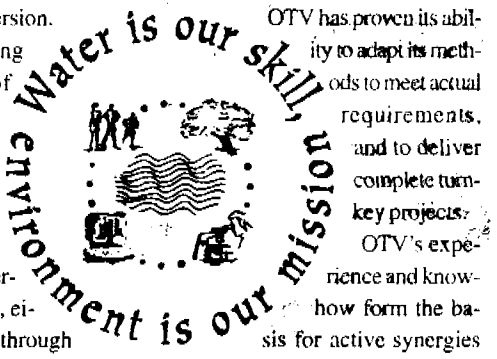
Who is in the consortium?

Durban Water Recycling (Pty) Ltd is a consortium of the following companies:

- OTV (a subsidiary of Companie Generale des Eaux)
- Khulani Corporate Services (Pty) Ltd
- Umgeni Water Services
- Zetachem
- Marubeni (A Japanese Investment Consortium)
- Celtic Holdings (US) Inc.

OTV – a new player in the SA market

Since 1933, the OTV Group has been active in the design, construction, upgrading and management of treatment plants for drinking water, wastewater and industrial effluent, as well as sludge incineration or conversion.



As the leading subsidiary of Générale des Eaux in the field of water treatment engineering, the OTV Group operates world wide, either directly or through its subsidiaries.

At the cutting edge of technology through its international research centre near Paris, France, the OTV Group develops customised solutions and is able to tailor its operational methods to all types of requirements, from small facilities to large-scale projects.

Two major precepts provide the thrust for OTV's research and development policy:

- satisfy both present and future needs of all customers,
- develop technologies that offer technical performance while coping with economical climates.

In addition to conventional wastewater treatment facilities, OTV designs and develops compact, covered or underground plants. These are fully integrated into the most sensitive locations. They fully respect environmental imperatives, and deliver 'zero nuisance' performance - without odour, noise or impairment to the landscape.

In design and construction, OTV has proven its ability to adapt its methods to meet actual requirements, and to deliver complete turn-key projects. OTV's experience and know-how form the basis for active synergies between construction and operation. In France, OTV is a leading operator of wastewater treatment plants.

On the strength of its foreign subsidiaries and the development of partnership agreements, the OTV Group now generates over half its total revenues in international operations.

In France, the OTV Group has built or refurbished 130 potable water treatment plants over the past ten years. These plants have a total capacity of four million cubic metres per day, and supply water to 20 million customers. OTV has other potable water facilities internationally which service a further 27 million people.

During the last decade, 200 wastewater treatment facilities were built in France and other countries.

Backwashing of the dual-filters may be triggered:

- through detection of clogging of the filters (increase in headloss),
- by means of a time-switch,
- manually (SCADA or local control panel).

The operator will be able to choose the manner in which the washing is started.

The design of the filters, and notably the thickness of the filter layers enables a complete washing (water and air) to be carried out in seven minutes, and rinsing (water only) in four minutes.

3.4 Ozone production and ozone contact tank

Ozone (O_3) gas is dosed for effective disinfection, colour removal and breakdown of complex organic matter. As ozone is a highly toxic substance, no ozone will be stored on site, and the instant demand will be generated from pure oxygen using last technology ozone generators.

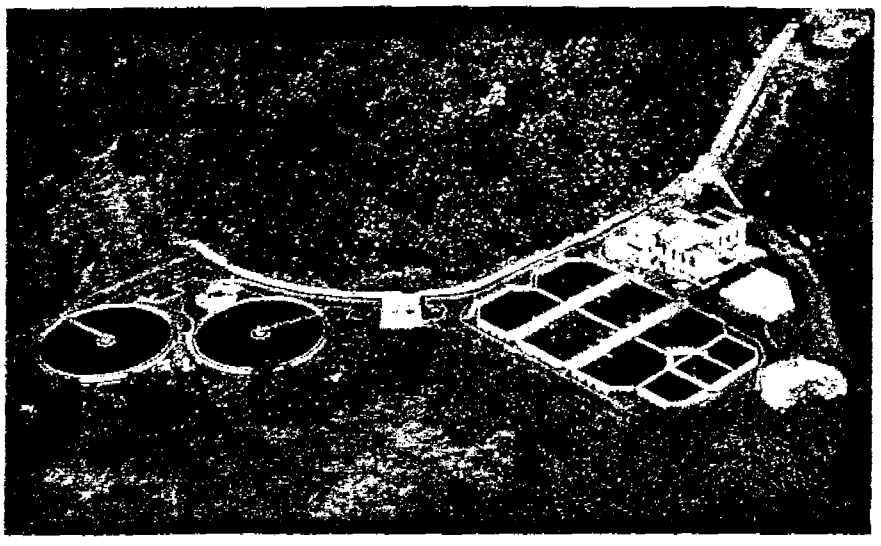
The ozonation system will be able to produce up to 12 kg of O_3 per hour, for a 5 g/m³ maximal dosage, based on a 85% gas transfer efficiency.

The simulations showed a satisfying efficiency of the ozone process, with an average concentration of 2 g of O_3 / m³ of water. This step of the process will reduce the colour and break a fraction of the hard COD remaining, in smaller molecules. The transformed COD will have the particularity to be biodegradable COD that can be treated on biological Granular Activated Carbon (GAC) contactors.

3.5 GAC contactors

The water flows from the ozone contact tank to the GAC contactors in a concrete channel that distributes the flow on four contactor cells. Although the contactor is basically a filter similar to the dual-media filters, its purpose is to provide contact between bacteria fixed on the activated granular carbon and the water. The term contactor is therefore preferable.

The backwash cycle is similar to the dual media filters, however, the contactor run cycles are significantly higher (three to five days). Since bacteria is responsible for the performance of the contactor, the GAC material does not require periodic replacement and regeneration as is the case with conventional activated carbon working on the adsorption principle. Replacement of the GAC is expected after approximately ten years operation due to attrition of the material.



An OTV wastewater treatment plant in Longwy, France

The design of the contactors, and notably the thickness of the material enables a complete washing (water and air) to be carried out in ten minutes, and rinsing (water only) in seven min utes.

3.6 Chlorine contact tank / reclaimed water pumping

The existing chlorine contact tank will be used for final disinfection of the reclaimed water with chlorine gas using the existing equipment. The chlorine residual is kept at approximately 0,5 mg/ℓ Cl2. The chlorine contact tank will be covered with a light roof in order to ensure that no contaminants can enter the reclaimed water in the last stage of treatment.

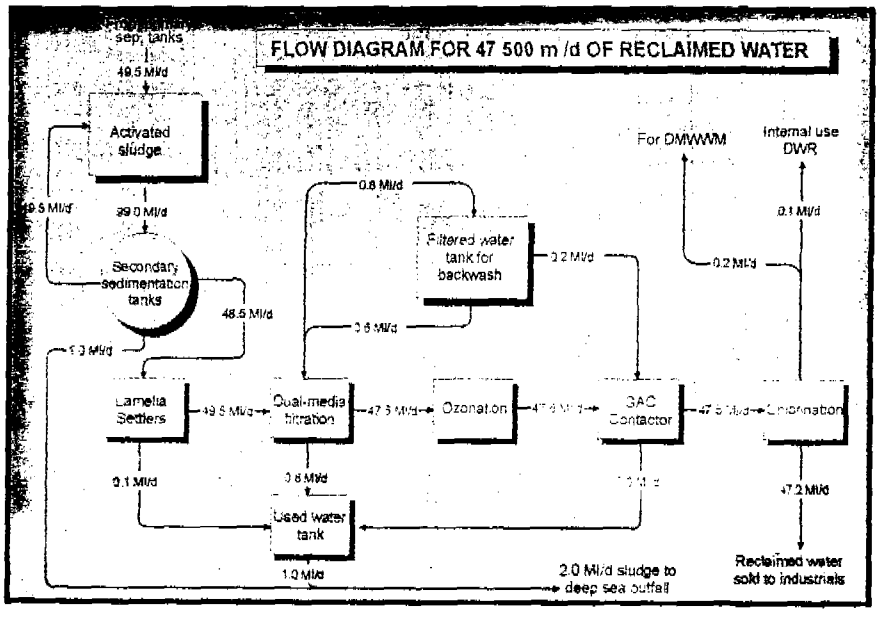
The chlorine contact tank also functions as a pump sump for the fixed speed reclaimed water pumps.

3.7 High level storage tank / potable water addition

The existing HLST is used for ensuring sufficient head for reclaimed water distribution and to provide additional operational safety. The incoming water is directed towards the tail end of the HLST while the reclaimed water leaves at the head end. Sufficient water exchange is thus ensured.

Potable water back up can be added to the HLST via a ND500 pipe. It can be added in large quantities by opening a ND500 motorised butterfly valve in order to replace or supplement reclaimed water.

Smaller quantities of potable water can be added at a proportional flow rate (dilution factor can be set at SCADA) to the instantaneous demand by industries (sum of all client flow meters). A temporary quality problem can thus be instantly corrected.



Press Release 26 October 1999

Building foundations for development

DBSA
Development Bank of Southern Africa

DBSA and RMB sign R55 million with DWR

The Development Bank of Southern Africa (DBSA) and Rand Merchant Bank, a division of Firstrand Bank Limited (RMB) today signed loan agreements totalling R55 million with Durban Water Recycling (Pty) Ltd (DWR). The funding is to expand the existing secondary treatment works at the Durban Southern Wastewater Treatment Works and to build a new tertiary treatment works with a maximum capacity of 47,5 Mega litres per day.

The total investment is approximately R72 million of which DBSA is contributing R34 million and RMB approximately R21 million. The DBSA contribution includes a French Export Credit Facility of approximately R15,4 million, emanating from a Protocol signed between the French Government and the South African Government.

The Project is a 20-year public-private partnership concession between the Durban Metropolitan Council (Durban Metro) and DWR for the treatment of domestic sewage and, to a limited extent, industrial waste water at the new tertiary treatment works. The treated water will be sold to high-volume water consuming industries in the southern Durban industrial basin, substituting potable water currently consumed by these industries.

Commenting on this agreement, DBSA Manager for Private Sector Investments John Barton-Bridges said: "the Project is the first build, own, operate and transfer (BOOT) project of its kind in the water sector in South Africa and will be partly funded by way of limited-recourse project financing."

DWR is a South African company formed by Omnium de Traitement et de Valorisation, OTV, a subsidiary of Vivendi, (a French Company and one of the largest and well-known water operators in the world) with local partners Khulani Holdings Ltd, Umgeni Water Services (Pty) Ltd, Zethachem (Pty) Ltd and Marubeni Europe Plc.

Barton-Bridges noted that the Project has substantial developmental impacts including:

- making available additional potable water for domestic use which enables the Durban Metro to delay capital expansion programmes for at least five years;
- a very strong environmental benefit by introducing a further treatment process before releasing effluent into the sea;
- it introduces the latest technology in water treatment to the South African market through foreign investment; and
- the Project will create several high-skilled jobs and will contribute to the development of the local community through a tertiary education programme for students with an interest in the water and waste water sector.

For further information, please contact:

Karen Breytenbach - Project Manager,
011 313 3522

or

John Barton-Bridges
Manager, Private Sector Investments
011 313 3004

Business Day

04 November 99

Industry to use water converted from effluent

Nicola Jenvey

DURBAN — Durban Metro Water Services has sealed a R74m public-private partnership that will result in industrial quality water, converted from partially tr ed effluent, being supplied to in- y instead of drinkable water.

Far from being unhappy about receiving water with a distinctly brownish tinge, large industries and the environment will reap benefits from the deal, which will also ease the demand for drinking water in Durban.

A consortium, Durban Water Recycling, has won the tender to treat about 25% of the Durban Metro Services' waste water.

It will receive partially treated effluent from the Metro Water Services, effectively alleviating the pressure on the metro services, which are struggling to cope with the inflow of water to its treatment plants.

The consortium includes French group Omnium de Traitement et de Valorisation, Marubeni Europe, Khulani Holdings, Umgeni Water Services and Zetachem.

The project, financed jointly by Rand Merchant Bank and the Development Bank of SA, allows the consortium to convert the effluent into industrial quality water and pass it on to contracted users.

The project received the green light when pulp and paper group Mondi signed up as the biggest user of the treated water, replacing its demands for potable water in the production process. Oil refinery Sapref has followed suit and Durban Water Recycling is negotiating with more industries.

Durban Water Recycling MD Oliver Marche said the participation by Mondi was significant, since the water demanded had to be consistent and without contamination that would disrupt the paper manufacturing process.

The close proximity to Durban Metro Water Services and the possibility of constructing the treatment plant next to Mondi further added to the project's viability.

Durban Metro Water Services executive director Neil Macleod said the project was "an ideal opportunity" to prove what was possible given co-operation between the public and private sectors.

Marche said: "Particularly pleasing is the environmental saving for Durban and its surrounding areas." The plant will be operational in 20 months.