SUMMARY

Major advances in existing water towage technology now make it possible to convey water in large quantities over thousands of kilometres, at reasonable cost and in an eco-friendly manner.

This means that, in Australia, the national water crisis can be resolved by 'harvesting' the required water from its Northern and Tasmanian rivers without any negative effects on their flow regimes or eco systems.

It would provide the envisaged lasting solution, un-affected by climate change.

The technology is currently being commercialized in order that current proposals to the Melbourne Water Corporation and the Queensland Water Commission will be upgraded to firm quotations as soon as realistically possible.

INTRODUCTION

Australia is frequently referred to as a dry continent because of its low rainfall per square kilometre.

However in its tropical north and in the western regions of Tasmania there is a high rainfall intensity. As a consequence the discharge of Australia's rivers into the surrounding oceans is enormous: well in excess of TEN THOUSAND MILLION TONNES of water per year!

This means that, per head of population, more than 500,000 litres of almost potable water is lost into the sea each year! This is far higher than in the case of other developed nations such as, for example, the United States, the European Union or Japan.

The above figure amounts to a wastage of more than 1000 litres per person per day. This is equivalent to each Australian household keeping a tap running at full bore for more than two hours, each day of the year.

In other words: per head of population, *Australia is, in fact, a wet continent, blessed with abundant, perpetual, sources of fresh water of excellent quality!*

In stark contrast to traditional water conveyance, by canal, pipeline or supertankers, the Watertow technology makes it possible to convey the water in large quantities over long distances at relatively low cost and in an eco-friendly manner, with the required energy entirely generated by carbon neutral biofuels derived from vegetation unsuitable for human consumption.

All-in cost per kilolitre (KL) is significantly lower than in the case of other available technologies. The principal reason for this is that the amount of energy required to tow a WATERTOW container, even over thousands of kilometres, is still substantially lower than the energy required to produce a similar volume of fresh water through a desalination process.

It is an undisputable fact that a high amount of energy is required to remove all salts (18 kg) from one thousand litres (1 KL) of seawater, even with the most advanced technology available.

WATERTOW's cost advantage becomes even more pronounced if the energy required for recycling of waste water or for desalination would be generated in an eco-friendly manner by wind turbines, solar panels or by generators run on carbon-neutral biofuel rather than by sourcing the required electricity (below-cost) from public utilities which largely rely on the -environmentally damaging- practice of burning dirty coal.

It is anticipated that the Federal Government, as a signatory to the Kyoto Protocol, will enforce the required conversion through legislation, in order to meet the stringent greenhouse gas reduction targets specified during last year's climate change conference in Bali.

Finally: the daily supply of sufficient water to Australia's metropolitan areas requires less than 5% of the annual discharge of its rivers.

This means that there would be sufficient surplus water left for large scale irrigation and supply to coastal towns and industries in the Pilbara. (From the Ord River and, to a lesser extent, the Fitzroy river)

TECHNOLOGY AND OPERATION

Offshore towage of water in huge fabric bags is a proven technology.

It is currently in operation in the Mediterranean, with water being towed from Turkey to Greek Islands in fabric 'bags' with a conveyance capacity up to 30,000 T.

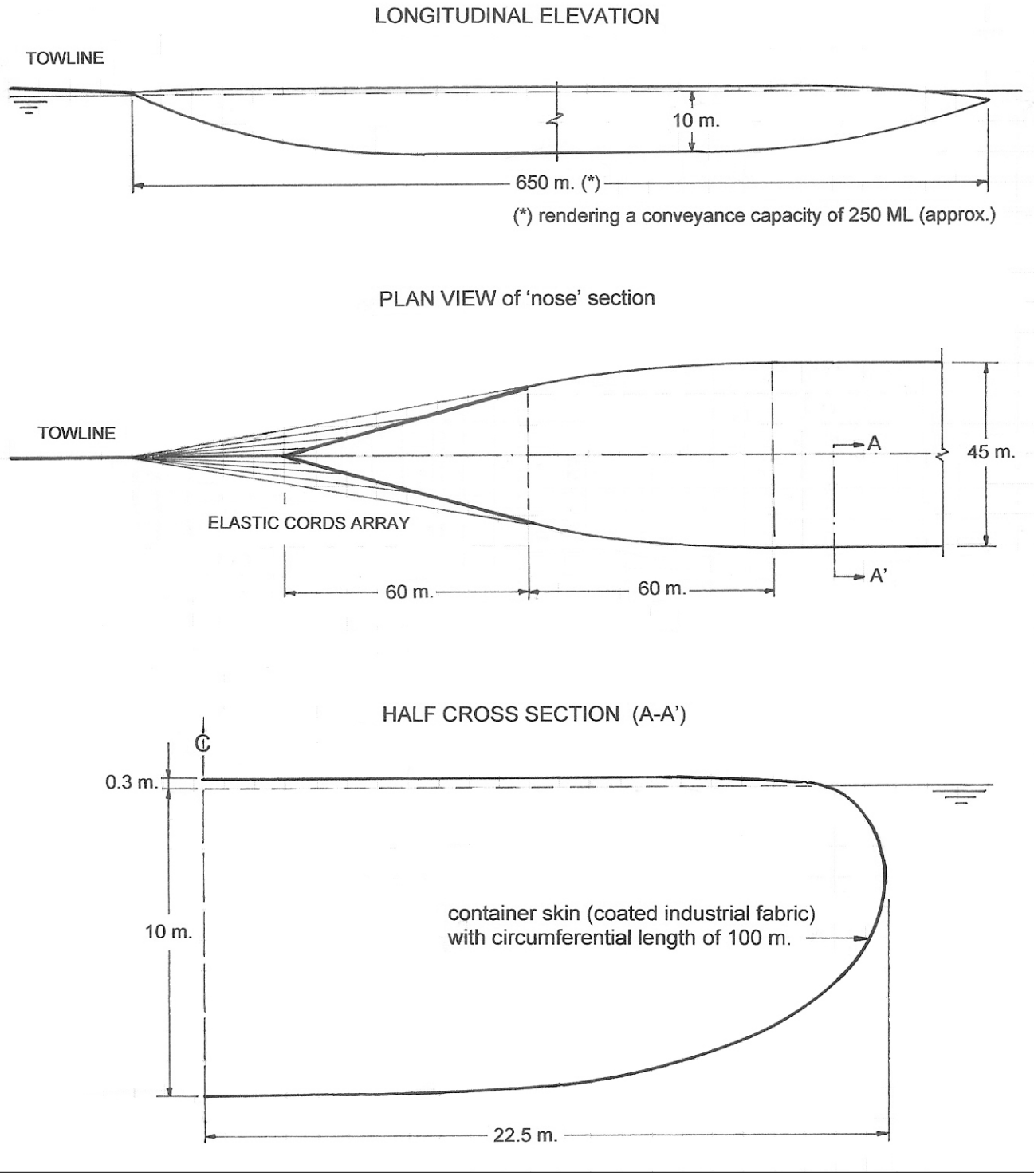
The bags have relatively low towage speed in the water due to relatively poor streamlining. As a consequence, this form of conveyance would be too costly in case of long towage distances.

Note: this also applies to traditional methods of water conveyance by means of a canal, pipeline or supertankers due to the fact that frictional flow resistance and associated energy cost per KL would be too high.

Drawing on more than forty years experience in ocean engineering and by application of fundamental fluid mechanics principles, Marecon managed to greatly reduce the towage resistance of the bags (hereafter called 'containers').

This has been accomplished by various technical innovations and by minimization of the so-called form drag through optimized 'fishtailing' of the container profile at both ends as shown below:

SCHEMATIC DRAWING OF 'WATERTOW' CONTAINER (principal features only)



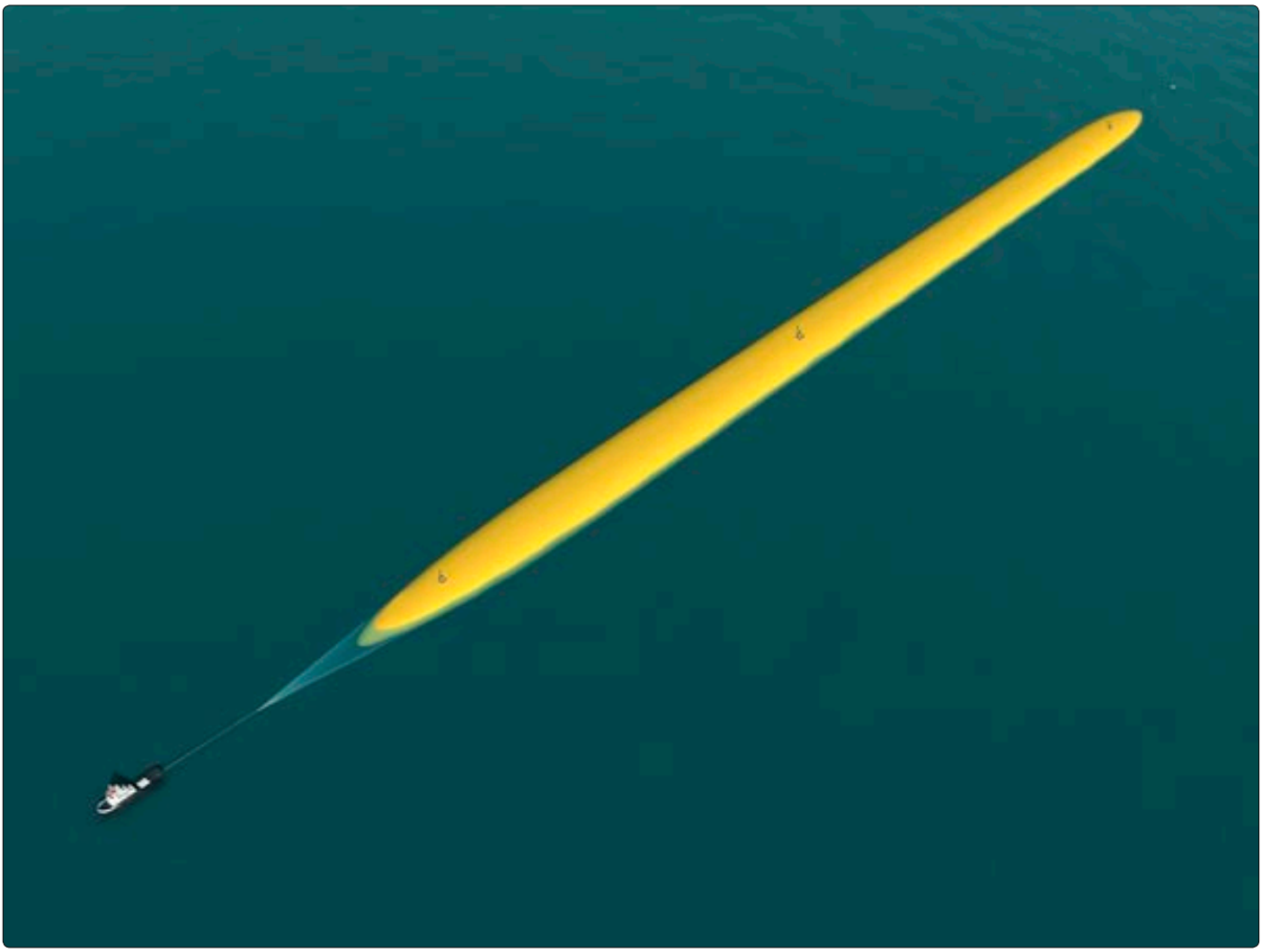
By applying a special method (*) of compacting the emptied containers, the towage vessel's return voyage to the 'upstream' single point mooring can be undertaken at high speed, close to the vessel's hull speed limit. This minimizes return trip time and maximizes the total volume of water that can be conveyed per towage assembly per year. (*) patents pending

By applying an industrial fabric stronger than steel it is now possible to fabricate containers as large as supertankers. This greatly reduces transportation cost per KL.

As a consequence it is now realistically possible to convey water over long distances, well in excess of 2000 km, in a reliable manner and at highly competitive cost.

The WATERTOW containers are to be fabricated in Australia by one of the world's largest manufacturers of high-strength industrial fabrics. The containers are towed by tugs or towboats operated by a reputable Australian towage company.

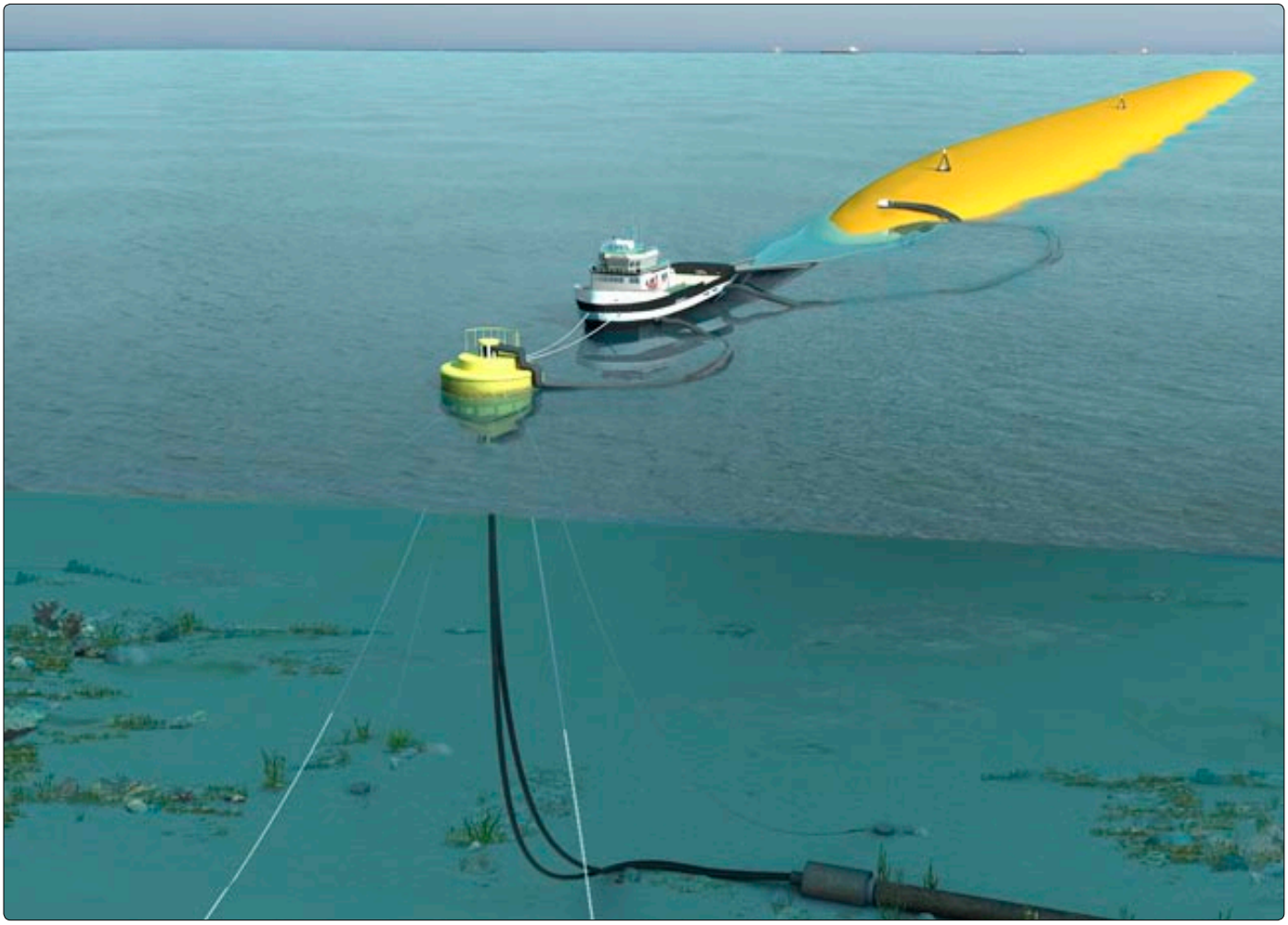
The connecting towline is relatively short as shown below:



This enables the assembly to change direction over a short distance as required to negotiate narrow fairways or bends in estuary channels.

However, it necessitates the use of high-stretch tow rope in combination with specially designed (*) elongation provisions on the towage vessel in order to reduce the peak force in the towline during severe wave action. (*) Patent pending

Water is pumped into and from a container by means of proven *Single Point Mooring (SPM) technology* as commonly used for the filling and discharging of supertankers in the oil industry. The system incorporates flexible hoses and an operational control vessel which is permanently moored at the SPM buoy as shown below:



Towage vessel, generators and pumps are all powered by bio-diesel, a carbon neutral fuel derived from 'dry soil' crops unsuitable for human consumption. This implies that the WATERTOW technology is *eco-friendly, without any biological or climatic disadvantages.*

Capital cost of implementation per KL of conveyed water is relatively low, amounting to less than half the cost of alternative water supply technologies such as recycling of waste water or desalination of seawater.

The WATERTOW system can respond quickly to changes in water demand by the deployment of additional towage assemblies or, conversely, by reducing the number of operational units during periods of higher than average rainfall. This can be accomplished without incurring significant additional costs.

EXISTING PROPOSALS

Queensland

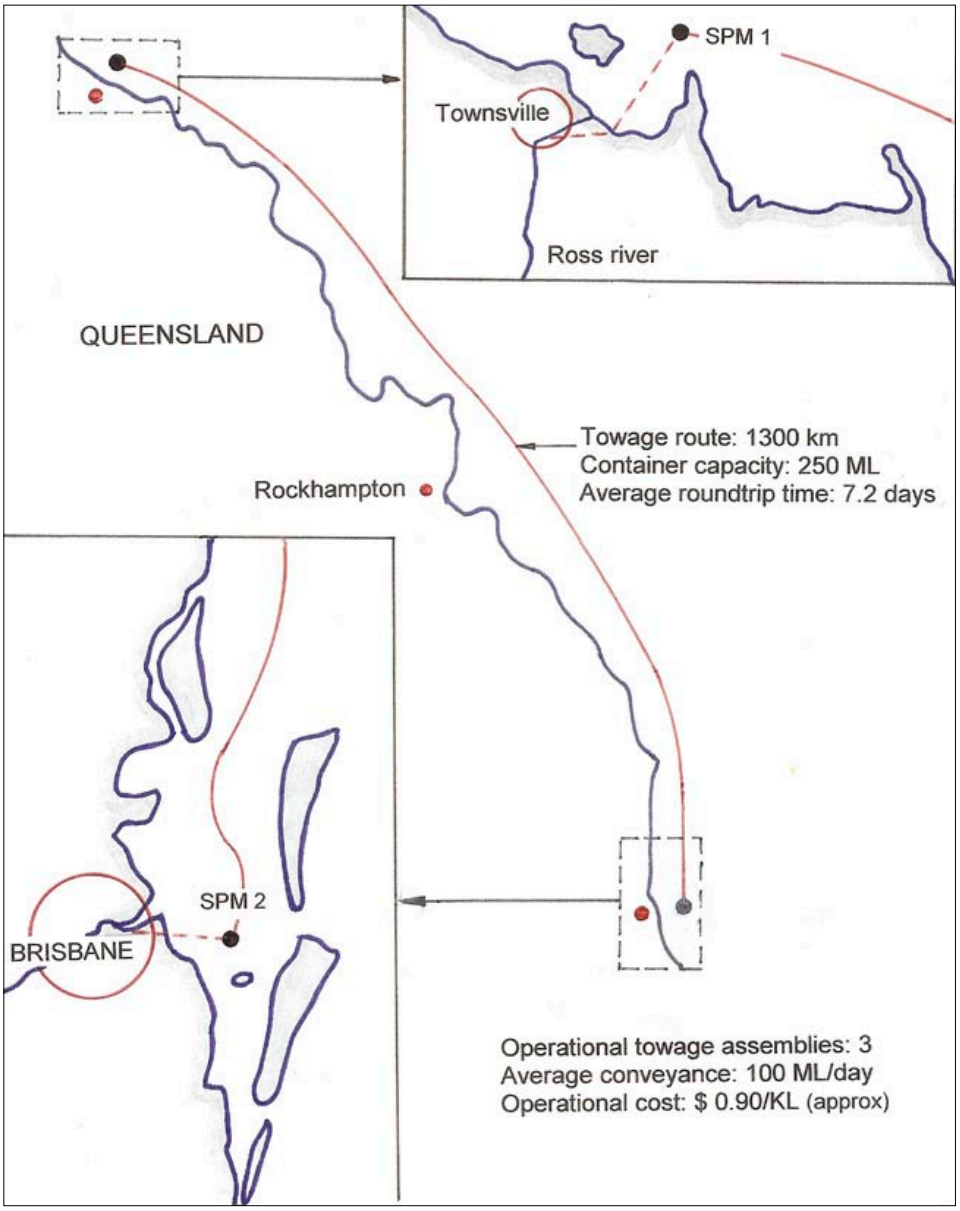
In response to a request for submissions by the Queensland Water Commission a detailed outline proposal was submitted in September 2007.

It provides for the conveyance of 100,000 Tonnes (100 ML) of water per day on average, to be sourced from the Ross river near Townsville and subsequent conveyance to an onshore reservoir near Brisbane.

The proposal highlighted the potential benefits in regard to substantial capital and operational cost savings in comparison to other water supply options and the prevention of the emission of harmful greenhouse gasses.

The strength of the prevailing East Australian Current, which runs in southerly direction at an annual average of at least 2 km per hour, substantially reduces towage time and, as a consequence, renders a significant reduction in cost per KL of water conveyed.

The proposed towage route is shown below:



Victoria

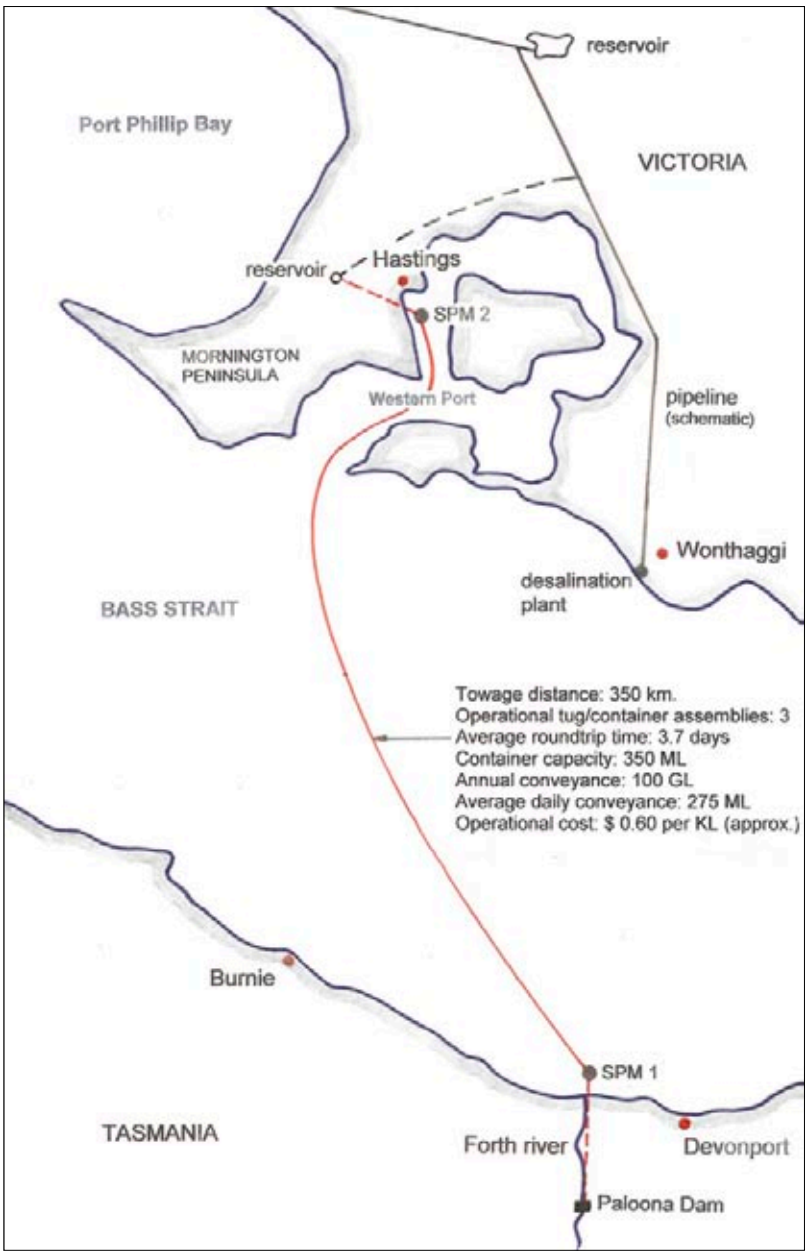
In July 2007 a detailed outline proposal was presented to Melbourne Water Corporation. *It highlights the many benefits of supplying water to the Mornington Peninsula by towage from Tasmania,* with the containers to be discharged at the port of Hastings.

The proposal was submitted after the Tasmanian authorities had informally confirmed that the required water could be sourced, long term, from the Forth river.

The proposal also has the full support of the Hastings Port Authority and local labour organizations, given the fact that the proposed scheme would substantially benefit the port whilst creating long-term employment for many people. (Towage crews and operational staff onshore)

Upon implementation of the scheme, *the peak capacity of the desalination plant at Wonthaggi could be reduced by the volume of water landed at Hastings.* It shortens the piping distance of the water by some 80 km at an overall cost saving of -at least- $ 0.50 per KL.

More detailed information is provided in the chart below:



Western Australia

In response to a recent call for submissions by the Economic Regulation Authority of Western Australia (*) a proposal is currently being prepared in regard to the towage of water from the Fitzroy River to the Perth metropolitan area as an environmentally preferable and lower-cost option to a second desalination plant. (*) With ref. to Notice 03-Dec-07 on website **www.era.wa.gov.au**

A preliminary analysis has indicated that this may be possible without any negative effects on the river's flow regime or ecology, by drawing on the Dutch experience in environmentally beneficial management of the river Rhine. (It has led to full ecological restoration of the river, including the 'come back' of previously endangered fish species)

Following recent discussions with senior staff of the Kimberley Lands Council, a feasibility study is currently in progress. Its primary purpose is to demonstrate that the envisaged scheme would be economically viable and that the environmental consequences -if any- would be insignificant due to the fact that the total volume of water to be drawn from the river would be limited to only a few percent of its annual runoff.

If the envisaged scheme could be brought to fruition it would be especially beneficial to the Kimberley's indigenous residents in regard to the long-term creation of employment and income whilst providing extensive training and educational opportunities.

The sourced water would be piped to a loading buoy offshore Broome and towed from there to a discharging buoy offshore Fremantle in containers with a capacity in the order of 350,000 Tonnes.

It is estimated that the study will take about six months to complete after which a comprehensive report will be submitted to the ERA, copied to Western Australia's Water Corporation.

A separate study will shortly commence in regard to diverting some of the sourced river water to Industries and coastal towns in the Pilbara.

PARTICIPATING COMPANIES

MARECON is a specialized consultancy in the field of the marine application of high-strength industrial fabrics, having acted –since 1984- as Australian Agents for Robusta Holland, a major international supplier of geotextiles for civil engineering application. (Onshore and offshore)

Robusta's fabrics are also applied in the so-called FLEXMAT technology owned by Marecon. (A proven system for revetment works, boatramps and stabilization of marine pipelines, with reference to website **www.marecon.com**)

Marecon's Principal, P J (Jan) de Geeter, obtained his Masters degree in civil engineering at Delft University of Technology in the Netherlands in 1961, majoring in coastal engineering.

During two years military service, as an officer in the Royal Netherlands Navy, he was seconded to Delft Hydraulics, put in charge of a seabed mobility study sponsored by NATO. This was followed by four years lecturing at the University of Nigeria after which he joined Shell International (in 1968)

After various assignments in the Netherlands, Africa, and the UK he arrived in Australia in 1982 to be engaged as senior pipeline engineer on Woodside's N.W. Shelf Rankin project. (Until it's completion in 1984)

Over the past three years the company developed the WATERTOW technology in close consultation with leading international manufacturers of high-strength industrial fabrics.

In regard to the software developed for the design of the containers, valuable advice was provided by the world-renowned Maritime Research Institute of the Netherlands. Its service will be retained during continued optimization of the container's hydrodynamic and towage performance. MARIN's expertise and extensive testing facilities are highlighted on website **www.marin.nl**

Substantial support was also received from Svitzer International Towage in regard to studies and towage (scale) tests undertaken. Svitzer's local associate, Riverside Marine and other reputable Australian companies act as formal advisers in regard to the proposal recently submitted to the Government of Queensland.

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