

**WATER SUPPLY**  
**DEMAND MANAGEMENT STRATEGY**



*July 2008*

# 1. Introduction

Historically, projections of water demand in urban areas showed continuous growth over coming decades. The chief influencing factors built into these projections included population growth, increasing urbanisation and changes in lifestyle. Meeting this increasing demand from existing resources is self-evidently an uphill struggle, particularly in water stressed or water scarce regions.

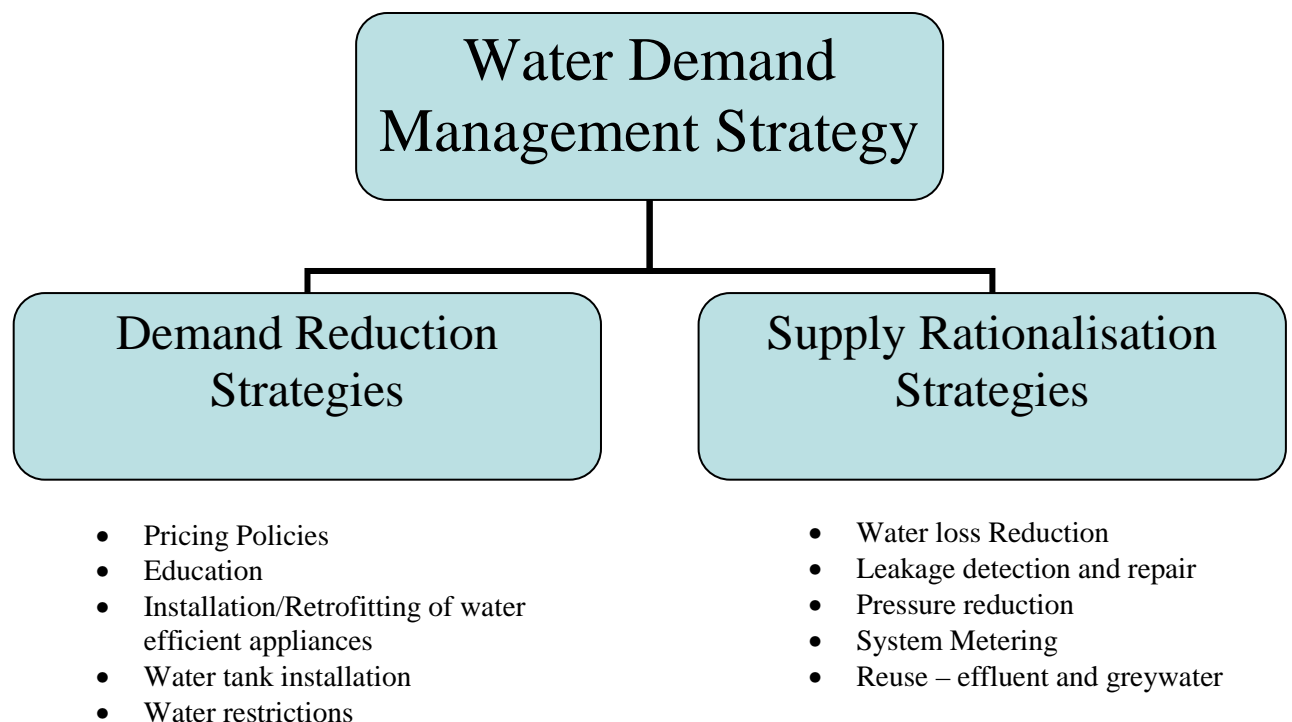
The detailed implications of climate change on existing and future water supply sources are not yet clear, but must at the very least increase the uncertainty in terms of security of supply.

There are typically two potential responses; either ‘supply-side’, meeting demand with new resources or ‘demand side’, managing consumptive demand itself to postpone or avoid the need to develop new resources. There is now considerable pressure from many areas of the community and regulatory agencies, to minimise the impacts of new supply projects (e.g. building new dams or inter-regional transfer schemes), implying the emphasis should be shifted towards managing water demand by best utilising the water that is already available.

The purpose of this Demand Management Strategy is to assist in the establishment and implementation of effective water demand management procedures.

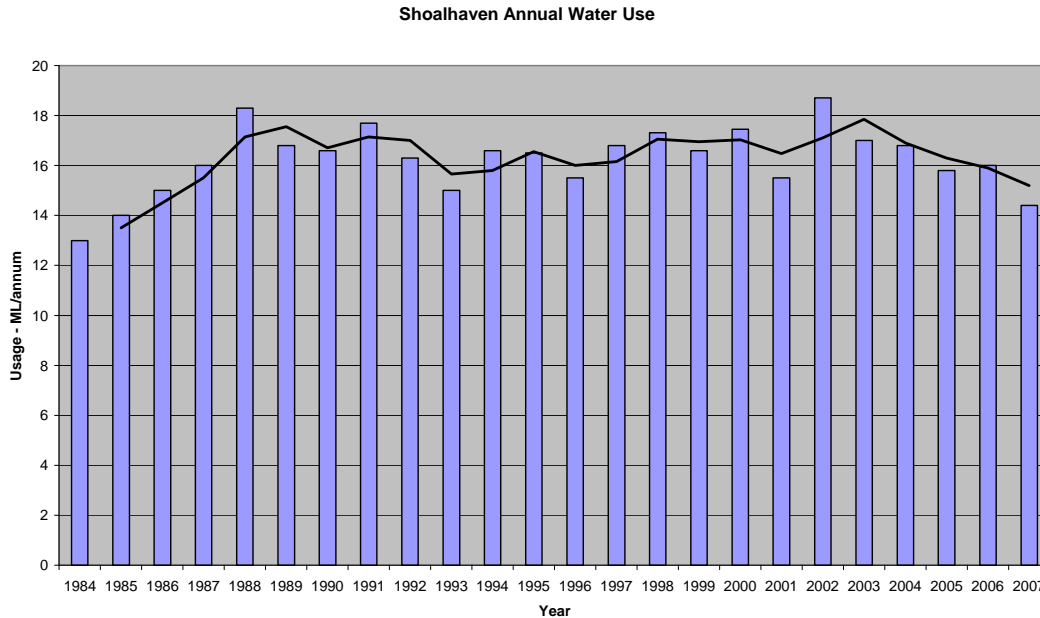
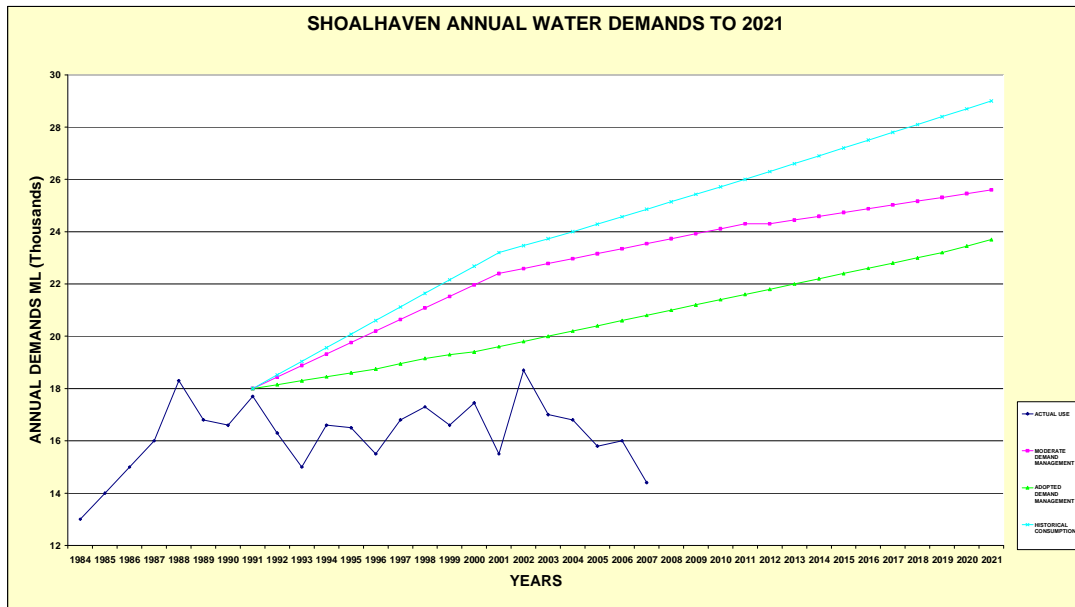
A number of water demand strategies exist. These are illustrated in the figure below and can broadly be classified as:

Demand Reduction strategies  
Supply Rationalisation strategies



## 2. Historical and Current Demand

Despite historical projections anticipating a continuously increasing demand for water, commensurate with population growth, recent trends in the Shoalhaven now indicate a significant modification to water demand behaviour. The figures below shows the anticipated demand projections from the early 1990s, together with the actual demand.



There are a number of factors that have contributed to this downward trend, including recent drought, volumetric pricing and increasing community awareness. Shoalhaven Water has undertaken a number of demand management strategies over recent years, and the intent of future programs is to build on and enhance these programs.

### 3. Demand Reduction Strategies

#### a) Pricing Policies

Best practice pricing sets the following principles for water supply pricing.

Appropriate water usage charge/kL based on the long-run marginal cost of water supply.

Residential water usage charges must be set to recover at least 70% of residential revenue.

To encourage water conservation, high water consuming residential customers should be subjected to a step price increase of at least 50% for incremental usage above a specified threshold. This threshold should not exceed 450 kL/a per household or 600 kL/a for LWUs outside the DWE Coastal and Tablelands Zone.

LWUs must bill at least three times each year (and preferably every quarter) to improve the effectiveness of pricing signals.

LWUs should include both water access charges and water usage charges in each bill to customers. In addition, any LWU planning to update its water billing system should move to comply with the National Guidelines on the layout and content of customer bills. The Guidelines have been prepared pursuant to Item 66(iv) of the National Water Initiative.

Shoalhaven Water has now implemented Best Practice Pricing through a staged process. In addition, all accounts sent out after 1 July 2008 will have all water and sewer access and usage charges included. The format of this new account complies with the National Water Initiative guidelines.

<b>Action</b>	<b>Timing</b>
Determine required water usage charge based on Best Practice Pricing	Annually
Provide regular feedback to customers on their water use and other issues relating to water cycle	Quarterly (with accounts), and on a needs basis as special programs arise

#### b) Education

Shoalhaven Water has also been proactive in its focus on water education. The highly successful Tapstar character was conceived in caricature over National Water Week in 1996 and has been performed regularly at Shoalhaven primary schools and other local events since 1997. The Tapstar Waterwise Education Program was further developed in 2005, and Shoalhaven Water now maintains the only interactive educational website for students authorized by the NSW Education Department.

Other ongoing community education activities include participation in local rural shows and water week activities, website information, targeted media campaigns and tours of facilities.

<b>Action</b>	<b>Timing</b>
Continue to make available up to date brochures such as : <ul style="list-style-type: none"> <li>• Using less water around the house</li> <li>• Guide to Rainwater Tanks</li> <li>• Plant selection guide</li> <li>• Irrigation in the garden to save water</li> </ul>	Ongoing
Investigate benefits and costs of joining SaveWater Alliance	Dec 2008
Investigate funding opportunities for development of Water Education Centre at Callala sewage treatment plant	June 2009
Continue the development of the Water Wise “Tapstar” mascot and character <ul style="list-style-type: none"> <li>• In schools</li> <li>• Public events (where high presence of primary children)</li> </ul> Provide stickers, balloons and other low cost merchandise	Ongoing
Continue involvement in National Water Week - Primary target school children, secondary target adults. Attendance at public events Shows, Spring Festival etc	Annually and as required
Conduct Tours of Water Facilities	Monthly and by demand
Inform community of total water usage and status of water supply, via web site and newspaper, and provide up to date information on water saving initiatives	Weekly
Continue to support and promote the Xeroscape Garden at the Berry Court House	Ongoing

### **c) Installation/Retrofitting of water efficient appliances**

Shoalhaven Water provides information on water efficient appliances through the website and brochures. A water audit can also be carried out by Shoalwater by request. A sustainable house is currently being constructed in the Nowra area, which will be used to showcase efficient appliances.

<b>Action</b>	<b>Timing</b>
Continue to provide water audit kits and other information for household use	Ongoing
Provide information to commercial/industrial customers where they can obtain professional advice for water audit and retrofit programs	Ongoing
Maintain links to any state or federal government retrofit or incentive program	By opportunity
Utilise sustainable house to showcase efficient water use and conservation	June 2009

### **d) Water tank installation**

The Building Sustainability Index (BASIX) stipulates that a new home in NSW must include an alternative water supply to mains water. A rainwater tank is one way to satisfy this requirement. BASIX also covers renovating old homes, ie properties that plan to install a swimming pool must use a tank to supply water to the pool.

For customers who wish to install rainwater tanks outside any mandatory BASIX requirements, Shoalhaven Water provides rainwater tank rebates. State government rebate programs are also advertised and encouraged.

<b>Action</b>	<b>Timing</b>
Continue to provide rainwater tank rebate and review effectiveness of program	Annually

### **e) Water restrictions**

The Drought Management Plan establishes how Shoalhaven Water will manage the water supply schemes during periods of drought. The Plan also provides the trigger points for the activation of various levels of water restrictions.

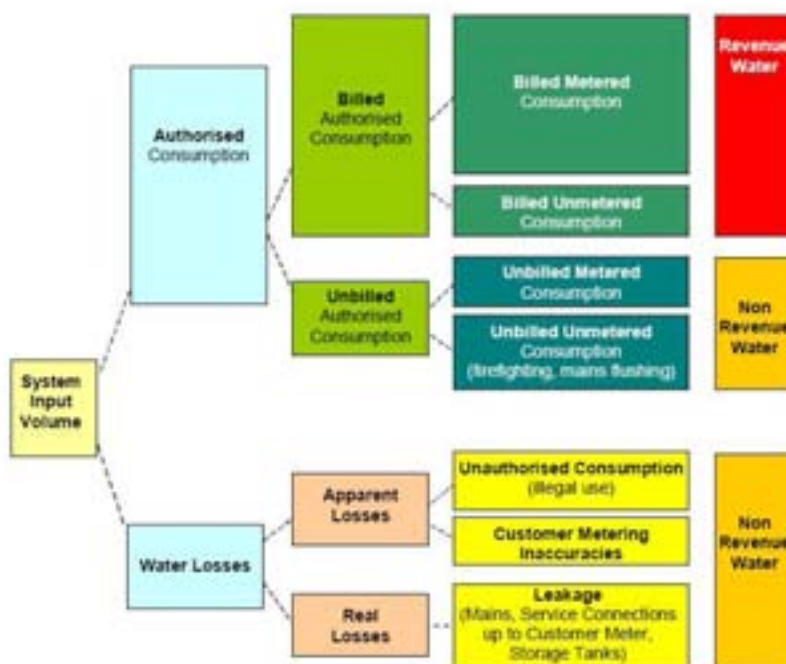
Permanent Water Conservation measures (equivalent to low level restrictions) have been considered to be unnecessary due to the extensive ongoing education programs in the Shoalhaven and the success of such programs as evidenced by reduction in water usage.

<b>Action</b>	<b>Timing</b>
Implement the Drought Management Plan as required, which includes the introduction of water restrictions	As required

## 4. Supply Rationalisation Strategies

### a) Water loss Reduction

In July 2000, the International Water Association (IWA) published a standard international “best practice” water balance, which has been adopted in the NSW Best Practice Management of Water Supply and Sewerage Guidelines. This balance is reproduced below.



Action	Timing
Calculate system losses and ILI as per performance reporting requirements	Annually

### b) Leakage detection and repair

Shoalhaven Water has been involved in the Water Loss Management Program (WLMP), which is a \$22M joint initiative of the Local Government and Shires Associations (LGSA) of NSW and the Water Directorate, with partial funding from the Australian Government (through the Water Smart Australia programme). A leak detection and repair project was implemented in the towns of Berry and Shoalhaven Heads in Feb-Mar 2008.

Acoustic leak detection technology was used to locate leaks in approximately 82 km of pipes. These were then excavated and repaired by Council.

Action	Timing
Investigate further towns for participation in the WLMP	Jan 2009

### **c) Pressure reduction**

Shoalhaven Water is currently investigating the use of pressure reduction as a means of reducing the number of main breaks, reduced water usage and reduce the amount of water loss through minor leaks. Pressure reducing valves (PRV's) are currently used to reduce pressure in a number of high pressure areas. Pressures in the Shoalhaven vary between 200kPa and 1000kPa.

<b>Action</b>	<b>Timing</b>
Further develop pressure reduction strategy and review effectiveness	May 2009

### **d) System Metering**

Shoalhaven Water uses flow meters downstream of reservoirs to record bulk water usage in each region, this information is recorded through the telemetry system. Consumer water usage is measured through individual property meters, which are read quarterly. The three monthly meter read cycle aids customers in better controlling their water consumptions and also aids in the calculation of seasonal demand and water losses.

There are a number of types and brands of water meters within the Shoalhaven, and maintenance of the meter fleets is a major issue to ensure accuracy of the meter throughout its lifecycle. Meters are currently reactively replaced on the basis of failure.

<b>Action</b>	<b>Timing</b>
Develop proactive meter management and replacement program	May 2009

### **e) Reuse- effluent and greywater**

Shoalhaven City Council is involved in the reuse of water from ten of its operating wastewater treatment plants involving re-use on 29 properties. The largest scheme is the Northern Shoalhaven Reclaimed Water Management Scheme (REMS). REMS is one of the largest and most complex water-recycling schemes undertaken by an Australian water authority. Construction was jointly funded by Shoalhaven City Council, the NSW and Commonwealth Governments and individual irrigators.

The REMS Stage 1A entered its fifth year of operation in 2006/07. There was approximately 110ML of the REMS water recycled for dairy yard wash down in 2006/07, replacing previous usage of potable water for this purpose. During 2006-07 nearly 2,000 ML of reclaimed water was beneficially re-used from all 10 sewerage schemes in the Shoalhaven, 30% of total reclaimed water produced. This compares favourably with the NSW State average of 18%.

The second stage of REMS is currently being designed and will utilise up to 80% of the reclaimed water from six Shoalhaven wastewater treatment plants to irrigate local dairy farms, golf courses and sports fields.

Greywater is the wastewater from the shower, bath, spa, hand basins, laundry tub, washing machine, dishwasher and kitchen sink, but doesn't include water from toilets

or urinals. It can be used on gardens (after appropriate measures taken), in order to save potable water.

Previously, council approval was required for greywater diversion devices to be installed in homes. Recent changes by the NSW Government means that this approval is no longer required if certain conditions are met. The Department of Water and Energy has published guidelines for greywater use in households.

<b>Action</b>	<b>Timing</b>
Implement Stage 1B of the REMS and promote demonstration farms set up for reclaimed water irrigation	2010
Encourage Local Reuse for feasible reuse on playing fields, parks, agriculture, horticulture, etc	By opportunity
Encourage utilisation of greywater as per state government guidelines.	Ongoing