

HASTINGS DISTRICT WATER SUPPLY

DROUGHT MANAGEMENT PLAN

Introduction

The only real certainty about weather is there is no certainty. Take drought, for example.

Drought is an intrinsic feature of the Australian climatic and landscape. In the Hastings area typically there is a minor-drought about every 10 years and a severe drought every 15 to 20 years. Droughts can be “short & sharp”, as seen by the 1968 drought, or long and sustained as experienced during the 2001 to 2004 period.

In relation to Council’s water supply system a drought can be defined as a period during which:

- There is insufficient available supply of water to meet expected demands due to extreme weather conditions and/or lower than expected river flows at Council’s water supply intakes.
- It is considered that a reduction in demand is necessary to avoid future water supply shortages.

The Drought Management Plan developed by Hastings Council provides both permanent water conservation measures, together with a timely and effective response to water shortages due to insufficient rainfall. The aim being to minimise, as much as practical, the social, environmental and economic impacts of drought conditions.

It ensures that even with minimal annual water yield from the Hastings River, water will still continue to be available on a restricted basis to meet water demands.

The objectives of the Drought Management Plan are to:

- Manage the water supply system with the aim of minimising the impact of drought, and the actions taken in conjunction with the impact of drought on water users and the environment.
- Define the conditions under which water restrictions will be implemented.
- Enable Council to meet statutory requirements, e.g. environmental river flow targets to minimise the impact of water supply demands upon the river and associated aquatic ecosystems.

Living with Drought

The provision of a “Drought-Proof” water supply system, without future water restrictions, is impractical because of the current environmental and economic impacts.

Council has adopted a responsible risk management approach to drought situations, which relies upon a combination of demand reduction measures and improvements to the existing water supply system.

Demand Reduction

- **Public Education**

Greater community understanding of water resources and education about water conservation – not only during periods of drought – is a basic component of Council’s Drought Management Plan. Council has an ongoing “WaterWise” campaign to continually encourage wise water usage, water conservation and elimination of water wastage.

The campaign is spearheaded by a school education programme, which includes class visits, teaching material and aids, field excursions and onsite school projects.

Information on water conservation for homes and businesses is available from Hastings Council. Council’s WaterWise team at local shows, exhibitions and open days at major facilities also extensively promote water conservation. The regular Cowarra Dam tours have provided a large number of residents an opportunity to gain a better understanding of local water supply and environmental issues.

- **Permanent Water Conservation Measures & Water Restrictions**

Permanent water conservation measures and water restrictions, especially when combined with a public education campaign, are effective measures to reduce water demands.

Council has adopted a number of permanent water conservation measures [Level 1 Water Restrictions], which are simple and commonsense ways for all the community to help conserve our water resources. Garden watering is now to be undertaken on “Odds & Evens” days matching house number and only between the hours of 4pm to 10am.

The introduction of further water restriction levels is based upon available flows in the Hastings River at Koree Island and the shortage levels in Council’s Port Macquarie and Cowarra off-creek storage dams. These off-creek storage dams rely upon water pumped from the Hastings River for refilling.

- **Water Pricing**

Hastings was one of the first regional Council’s in NSW to introduce a two-part user pays water tariff. The introduction of user pays has given customers a “financial” incentive to reduce water consumption.

The water tariff structure is currently being reviewed to provide greater incentives for water conservation and to better reward those consumers who reduce their water demands.

- **Pressure & Leakage Reduction**

The zoning of water supply reservoirs to provide adequate water pressure, while reducing excessive pressures has reduced water leakage in both Council's water supply network and consumer's internal plumbing.

Council's annual water main renewals programme targets aging pipework infrastructure to reduce system leakage [less than 15%] and minimise the number of water main breaks [less than 5 breaks per 100km], which result in water losses and also disruptions to consumers.

- **Water Sensitive Urban Design**

Development Control Plan No. 48 has been introduced by Council to ensure that the principles of both water and energy efficiency are incorporated into all future residential developments. This includes the provision of water tanks and water efficient appliances in all new houses.

Improvements to Existing Water Supply System

Council is constantly reviewing future water supply needs and available resources; a detailed 30-year capital works programme has been developed to meet anticipated water supply needs. Potential sources of water include increased river abstraction and water treatment, increased off-creek storage capacity, reclaimed water re-use and desalination.

All investigations and planning involve the basic concepts of affordable and sustainable development of natural resources.

- **Off-Creek Storages**

The ability to harvest water from the Hastings River during periods of normal river flows and store this water in both the Port Macquarie and Cowarra Dams will at this stage remain the primary source of water supply. During periods when river pumping is not possible due to drought conditions, low river flows or unsuitable water quality [e.g. high turbidity] the water stored in these dams will be used to meet consumer demands.

The future increase of the storage capacity of Council's off-creek storage dams is also being investigated and this will involve the raising the dam walls.

- **Water Treatment**

Presently, Council's water supply scheme relies upon the excellent quality of raw water, which is normally available directly from the Hastings River, without requiring any water treatment process except disinfection, which is achieved with the addition of chlorine.

The option of treating river water to remove solids, high turbidity and nutrient levels following rainfall events will continue to be investigated, so that this water could then be

used to fill the off-creek storage dams. This represents a possible long-term option to meet increased water supply demands associated with the anticipated growth of the local area.

- **Reclaimed Water Re-use**

Council views the re-use of water as a key element in reducing current and future drinking water demands. Typically more than half the water supplied to urban areas ends up as sewage, which must be treated and disposed in an environmentally acceptable manner.

Presently, some of the treated sewage effluent is used to provide irrigation water for golf courses and agricultural activities.

Council is now pursuing an ambitious project to further treat this effluent to produce “Reclaimed Water”, which can then be used to supply urban areas with an alternative source of water for approved uses. This would include commercial vehicle washing, business outdoor uses [e.g. nurseries and bowling greens], toilet flushing and the irrigation of playing fields and open spaces.

The first “Reclaimed Water” scheme will be operational in the Port Macquarie urban area during 2005. Additional schemes are currently being investigated for the Wauchope and the Camden Haven areas.

Depending upon the proven success of the reclaimed water treatment process it could be possible for this water to be approved for additional usage’s to further reduce water demands on the existing water supply system.

- **Desalination of Sea Water**

Obviously, the ocean represents a possible drought proof source of water supply and in many areas of the world desalination is used to meet drinking water supply demands.

However, desalination still remains a very expensive source of water supply. Both in terms of the capital costs associated with the reverse osmosis process equipment and ongoing high-energy costs associated with removing dissolved salts from seawater. The brine waste stream also needs to be disposed of in an environmentally acceptable manner.

As water treatment technologies continue to rapidly advance these costs will be reduced and Council will continue to closely monitor developments in this area. The “Reclaimed Water” project detailed above will provide Council with valuable operating experience with this type of technology.

At this stage it is considered that the investment by Council in further “Reclaimed Water” project will provide a more cost effective and efficient approach to cater for future water supply demands.

Expected Reductions in Water Demands for Each Restriction Level

In 2003 Hastings Council, adopted the “North Coast Region Consistent Water Restriction Levels”, which were developed by the North Coast Regional Drought Management Group with the assistance of the NSW Premier’s Department. This group included water supply professionals from each local government area from Taree to Tweed Heads, together with State Government agencies.

The Water Restrictions include six levels, which can be incrementally implemented to reduce water demands during periods of extended drought conditions as follows;

Level	Conservation/Restriction Objective	Target Reduction	Target Consumption [Litres/person/day]
1	Permanent water conservation measures	5-10%	230 - 330
2	<i>Not used by Hastings Council</i>		
3	Reduce non-essential use of water	10 - 15%	200 - 280
4	Reduce non-essential use of water	15 - 20%	180 - 260
5	Reduce non-essential use of water	20 - 30%	160 - 220
6	Eliminate non-essential use of water	30 - 40%	140 - 180

Council has adopted permanent water conservation measures, which are detailed under the Level 1 Water Restrictions. The implementation of further levels of water restrictions from Level 3 [mild restrictions] to Level 6 [critical restrictions] is based upon trigger points, which are associated with river flows, dam storage levels and climatic conditions.

WaterWise & Hastings Council Logos

For further information, contact:

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End of Text – Drought Management Plan, updated May 2004