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DERWENT VALLEY COUNCIL

Submission

House of Representatives
Standing Committee on Agriculture, Fisheries and Forestry

Inquiry into future water supplies for Australia's rural industries and communities.

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1. Overview

The Derwent Valley Region

The Derwent Valley has a municipal area of 4,116 square kilometers and an assessed annual value of $30,121,035.
Geographically, The Derwent Valley Council's responsibility comprises the middle reaches of the Derwent River catchment from Granton on the western shore and Boyer on the eastern shore through to Westerway as well as significant areas of South-west Tasmania from Maydena to Strathgordon.

The New Norfolk Township is the main commercial, residential, administrative and recreational centre in the Derwent Valley with a population of approximately 6,500. The municipality has a total population of 9,844 *(ABS Regional Statistics 1999).*
The town is situated at the navigable head of the River Derwent and was first settled in the early 1800,s by New Norfolk Islanders. Other towns and settlements include Granton, Molesworth, Sorell Creek, Lachlan, Magra, Plenty, Bushy Park, Glenora, Fitzgerald, Moogara, Uxbridge, Black Hills, Rosegarland, Karanja, Westerway, National Park, Maydena and Strathgordon.

Major features of the municipal area include:

- its people - the population is approximately 9,844,
- its work force – skilled and semi-skilled forestry, agriculture, health care and service industry workers,
- its land and fresh water resources – the region has lake and river water supplies and productive soils,
- its farmland and agriculture industries – the region has traditional farming of beef and sheep, an internationally competitive hop industry as well as emerging specialties agriculture such as essential oils, viticulture
- its forest and timber supplies – the region has access to extensive, productive forest that support the Norske Skog paper mill and Gunns veneer mill at Boyer, local sawmills and woodchip mills outside the district,
- its wilderness and natural areas – the region has national and world standard parks and conservation areas,
- its lakes, rivers and water storages – the region has hydro electricity generation operations as well as fresh water fishing and related recreational and tourism activities,

- its unique river valley environments – the region has spectacular mountain and river landscapes and is a popular rural residential area and scenic area for tourism,

- its proximity to Hobart metropolitan area – the area is approximately 30 minutes from Hobart which provides opportunities for employment, services and potential growth and,

- its history – first settled by New Norfolk Islanders as early as 1807. The Valley has retained a fine array of colonial architecture ranging in variety from oast houses, humble cottages, grand mansions, and a heritage railway linking many of the historic towns and villages, Mt Field National Park and Hobart.

Approximately 3,300 people are employed in the municipal area as follows-

Industry	**Percentage**
Agriculture, forestry, mining, manufacturing	30.6
Construction	4.5
Wholesale and Retail	14.8
Finance and Property	4.5
Public Administration	3.9
Community Services	26.5
Other	15.5

Source; ABS 1991.

Derwent Valley Council – Strategic Plan 2001 – 2005

This submission to the *Inquiry into water supplies for Australia's rural industries and communities* directly reflects the Strategic Direction, Vision and Mission statement and Key Objectives that underpins the Derwent Valley Council Strategic Plan 2001 – 2002 being;

Strategic Direction – the principal functions of the Derwent Valley Council are to represent its community and provide leadership in planning for, developing and managing the Valley in the best interests of the community,

Vision – Our vision is for a vibrant Derwent Valley community that enjoys a safe and healthy environment, economic wellbeing and quality lifestyles,

Mission – Our mission is to lead our community on a path that will provide an environment of health, safety and economic wellbeing in partnership with our residents and stakeholders.

As such Council will take all steps necessary to;

a) formulate, implement and monitor policies, plans and programs for the provision of appropriate services and facilities to meet the present and future needs of our community;

b) facilitate and encourage the proper planning and development of the municipal area in the best interest of our community;

c) manage, improve and develop efficiently and effectively and/or protect the resources available to our municipality area;

d) develop, implement and monitor strategic plans for the development and management of our municipal area;

e) provide for the health, safety and welfare of our community;

f) represent and promote the interests of our community; and

g) provide for peace, order and good governance of our municipal area.

Key Objectives

The key objectives for Council for the next 5 years that are relevant to this submission are;

Infrastructure and Service Objectives:

IS1 To maintain the standard of the Valley's infrastructure assets.

IS2 To maintain high standards in the provision of all Council services in line with community needs, Council's policies and regulatory requirements.

IS5 To develop partnerships with State Government and, where applicable, other relevant stakeholders, including neighbouring Councils, on the development, management and maintenance of services in the Valley.

Social Objectives:

S3 To improve employment and training opportunities and access to jobs.

Economic Objectives:

Ec2 To facilitate greater opportunities for business development.

Ec4 To support the retention and expansion of regional services.

Ec5 To develop partnerships with State Government, industry and regional bodies to promote economic and employment development.

Environmental Objectives:

En1 To manage and, where required, protect the Valley's natural environment and resources.

En2 To have a catchment management plan for the Valley.

En3 To review the Valley's planning scheme.

En6 To develop best practice waste management activities.

2. Rural Industries – Future Water Requirements

The Water Development Plan for Tasmania.

The State Government of Tasmania has directed the Department of Primary Industries, Water and Environment, Water Resources Division, to develop an action plan for sustainable water use (a copy of the *Strategic framework and action plan for sustainable water use and development* is attached).

Although it would appear that the Water Development Plan contains a raft of water supply schemes, the majority of the Derwent Valley is not being considered in its requirement for additional water resources that are needed to provide for the health, safety and economic wellbeing of the community.

The River Derwent and its catchment.

Since the construction of a number of hydro electricity generating operations on the Derwent systems and the diversion of water from the Great Lake via Poatina and the South Esk River, average flow levels in the River Derwent have decreased.

Studies of the River Derwent conducted to assess current flow rates have indicated that during the months of December through to May that any additional water extraction would result in unsustainable environmental flows (Davies. P. 2002).
The studies were conducted using the Instream Flow Incremental Methodology (IFIM) to accurately determine the amount of habitat available under different flow rates and water levels.
The study also identified that on an average rainfall year the flow rate of the river exceeded the environmental flow required for a low risks assessment between the months of May and November.
The overall effects of Hydro regulation have resulted in;

- reduced flood frequency and magnitude (loss of floods 150 to 300 cumec, reduction in frequency of > 500 cumec floods from 1 per 6 months to 1 per 3.3 years),
- raised baseflows (macroinvertebrates diverse but modified), and
- greater variability on hourly time scales (diversity reduced by regulated flow regime).

At a recent presentation of the results from a feasibility study commissioned to investigate options in relation to water supplies including the extraction of water from the River Derwent, it was stated that it would be unlikely that additional licenses would be granted for water extraction in the summer period (Harradine. A. pers. comm.).

Current Situation Limiting Expansion in the Agricultural Sector.

The limitations of additional water resources through the summer period is of major concern in that it is restricting the expansion of the higher value agricultural industries which would benefit the region.
Intensive agriculture/horticulture and the associated increases in value from output provides for opportunities such as increased employment, additional support for industry service businesses and investment in infrastructure.
Over the past decade there has been a significant shift from traditional and lower value agricultural output to more intensive export targeted crops where water is available. There has been some considerable investment in such areas as the establishment of cherry orchards and associated plant and equipment for processing and packing.

Agricultural and visitor need for water below Meadowbank Dam

The region below the Meadowbank Dam is going to experience exponential growth in industries such as the cherry industry over the next five years.
Agricultural enterprises in the region also likely to experience growth are raspberries, blackberries, grapes and dairy.
All will have a requirement for supplies of water.

Visitor Needs.

The tourism strategy for Tasmania and this region in particular indicates this region can expect an increase in visitors from 175,000 to 225,000 per annum.
In addition, the increase in agricultural activity will probably drive a need for seasonal labour from December to March each year in the order of 500 people in a full season. This figure allows for a turnover factor of 50%.
As tourism grows and Willow Court among other enterprises gain momentum, they will also drive the need for drinking quality water.
If Lachlan river establish an accommodation centre for students at the former RDH site, this will add further requirement for water.

Options Available to Address Summer Water Shortages.

- construction of water storage areas for the retention of water from winter flow availability from the River Derwent,
- supply of treated wastewater and stormwater for irrigation purposes, and/or
- access to groundwater.

The construction of water storage areas is seen as the most preferable option because it provides for,

- high reliability of supply,

- good average quality with little variance, and
- long term security of investment.

The reuse of treated wastewater and stormwater for irrigation purposes poses problems as,

- limited quantity with seasonal variance that may require costly construction of storage facilities and specialised reticulation and delivery systems,
- variable quality and resultant limitations for use,
- user acceptance, product purchaser acceptance,
- pumping cost from treatment plant to end user,
- lack of suitability for use other than irrigation, and
- source of potential pollution and salinity problems.

Access to groundwater supplies are seen as the least preferred option due to:

- limitations of groundwater availability, and
- variable quality.

3. Domestic Water Supplies – Sustainability and Quality of Supply.

In the Derwent Valley Municipality there exist a number of settlements that do not have access to reliable supplies of water for domestic consumption in terms of quality and quantity.

Bushy Park and Glenora.

The majority of the residents of Bushy Park and Glenora receive their domestic water supply from a private scheme operated by Bushy Park Estates. Water is currently sourced from the Styx River and distributed by the company's hop field irrigation race.
The existing scheme consists of an open water race that is subject to environmental, agricultural, human and animal contamination. The company has issued a permanent "Boil Water Notice" in an attempt to protect the health of the users. The water is neither filtered or disinfected.

In November 1999 the company informed Derwent Valley Council that it would cease supplying water for domestic purposes in April 2003.

The reasons given for the withdrawal of supply were:

- The company was a hop grower, not a supplier of domestic water.
- The quality of the water being supplied was very poor with no filtration or treatment.
- Installation of a new irrigation scheme would make the water race redundant.
- Maintaining the water race is expensive and time consuming.
- Water from the race leaks underground into the hop fields causing problems.
- There were legal implications of supplying unfiltered or untreated water.

As a result of this decision the Derwent Valley Council has commissioned a Water Supply Options Scoping Document from Hobart Water as the first stage of a feasibility study.
The objectives of the study were to identify the options that would provide a reliable and safe reticulated water supply to the residents of the Bushy Park and Glenora Townships to replace the existing private water supply that is to be abandoned by the present undertaker, Bushy Park Estates.

The townships which effectively form one settlement area contain approximately 70 – 80 permanent households with an estimated population of 200 persons, which is expected to increase as new agricultural and tourism ventures are established. In addition the Glenora District High School has approximately 280 staff and students and is serviced by an independent treated water supply installed and maintained by the Education Department.

The Scoping Document identified three viable options for improvements to the water supply;

- Rainwater tanks,

- Pumping, treatment, storage and reticulation from the River Derwent, and

- Supply, storage, re-chlorination and reticulation of water from a connection from the Hobart Water Fenton bulk water pipeline.

Rainwater tanks.

Rainwater tanks are the lowest cost options and will have the advantage of reducing wastewater flows for on-site disposal. The viability of this option will, however, depend on rainfall. Given the recent dry conditions over previous summers and the predicted continuance of such a trend, this option may not offer security of supply. In addition, this option does not provide adequate fire protection.

This option has a lower quality outcome with potential health risks from direct contamination and the possibility of atmospheric contamination from agricultural spray drift, wood smoke (creosote) and forestry coup burns.

Drinking water at the Bushy Park public swimming pool is currently collected in a rainwater tank from the roof of the amenity block and is not treated. Water used in the showers is taken directly from the Styx River and is untreated.

This option will do nothing to alleviate this potential health risk posed by the existing domestic water supply for the pool.
The number of visitors to the area is increasing, especially following the recent upgrade of the Mt Field National Park Visitors Centre. With the traditional tourist attractions and the tourism developments announced at the Salmon Ponds and Strathgordon it is predicted that the tourism will become an increasingly important industry for the area.

This option will also constrain further development of the townships, especially for tourism.

Pumping, treatment, storage and reticulation from the River Derwent.

The River Derwent is a relatively reliable source and due to volume of flow, however, it is subject to contaminants and high variations in turbidity. This water will require pumping, storage and treatment.

This will involve high capital expenditure and may result in high on-going costs for operations and maintenance.

An alternative is a permanent "Boil Water Notice".
Supply, storage, re-chlorination and reticulation of water from a connection from the Hobart Water Fenton bulk water pipeline.

The Fenton pipeline takes water from the weir at Lady Barron Creek, Mt Field for supply to Hobart. The supply is chlorinated at Mt Field and gravity fed to Hobart. This is the source of supply for a number of waysiders and communities within the Derwent Valley municipality, including the National Park and Westerway Townships.

The fenton line crosses Uxbridge Road, approximately 3.4 kilometers from the intersection with Glenora Road at Bushy Park. There are a number of wayside connections near this point, specifically at the old landing ground.

This option would require re-chlorination to meet NHMRC drinking water guidelines. A supply reservoir would also require to be constructed.

The chlorinator on the Glenora District High School water system was recently upgraded to a sodium hypochlorite system. The pipes are, however, in bad repair and there are issues regarding the potential for back flow contamination to this supply.
The Derwent Valley Council currently maintains the system under contract to the school.

Adoption of this option will allow the existing private water supply to the school to be decommissioned, thereby saving the Department of Education ongoing operation costs and future capital upgrades on the plant.

This last option is the preferred option for the improvement of the water supply to the Townships and as such will meet the criteria for the supply of water that;

- will meet the requirements of the *Public Health Act that uses the* NHMRC guidelines for Drinking Water Quality for the provision of a clean and safe water for human consumption,
- will provide the volume of supply required for fire fighting purposes, and
- will provide opportunities for economic expansion and the social benefits associated.

Current estimates for the construction and commissioning of this preferred option - $1,100,000.00.

Rosegarland.

The settlement of Rosegarland, which in recent years has expanded due to the building of new houses, has similar problems in relation to the lack of a safe and reliable domestic water supply and unreliable rainfall.
Approximately 30 houses are serviced by a manually controlled system which draws water from the River Derwent, it is unfiltered and untreated and as such does not meet the NHMRC guidelines for drinking water quality.
A small sewage treatment plant that services the village of Gretna discharges to the river approximately 1.5 kilometers upstream of the water intake for Rosegarland.
Due to the mode of operation (manual pump switching) the stored volume of water adequate for fire fighting purposes cannot be guaranteed to be immediately available.

The exact condition of the pumping equipment, delivery/supply lines and storage reservoir is unknown but reportedly in good condition.

In order to upgrade the system to provide for a safe and reliable supply that meets the NHMRC guidelines for drinking water quality, and a reliable volume of supply for fire fighting purposes the following works would be required,

- installation of a filtration and chlorinating plant,
- automatic switching controls.

Estimated costs for the above works - $70,000.00

Westerway

The township of Westerway receives a high quality supply of domestic water from the Hobart Water Lake Fenton Pipeline. The Westerway water system also delivers domestic water supply to the settlement of Fentonbury, which is in the municipal area of Central Highlands Council. The entire supply system is maintained by Derwent Valley Council and is considered to be in fairly good order with a long expected life span.
Shortcomings of the system are due to small diameter piping and the long distances over which water is required travel for delivery. Residents at the far end of the system do experience reduced pressure at times.
More importantly is the concern of limited water storage for fire fighting purposes along the route between the Westerway storage reservoirs that have a capacity of only 45,000 litres and Fentonbury.

This problem is relatively easy to overcome by the installation of a larger reservoir that would increase holding capacity for fire fighting and for domestic supply purposes in the event of system failure.

Estimated costs for reservoir - $150,000.00.

Throughout the municipality a number of private water supplies are drawn from various rivers and creeks. All users and suppliers of such water are required to be registered by Council under the provisions of the *Public Health Act 1997, Section 134.*
Suppliers of drinking water are required to submit regular water analysis reports or notify customers that the water source is an untreated supply and water must be boiled for 3 minutes prior to drinking.

4. Wastewater Resources – Treatment and Reuse Potential

Township – Maydena

Discharge Point – Tyenna River

The township of Maydena, which is situated in the upper catchment area of the Tyenna River, has 140 connections to sewage. The town is comprised of residential houses, a primary school, shops, accommodation and restaurant facilities, railway station, a community hall and various recreation facilities including a swimming pool.
Australian Newsprint Mills originally constructed the town in the 1940's and 1950's, which formed part of the infrastructure for the supply of timber to the Boyer Paper Mill.
Derwent Valley Council has been responsible for the maintenance of water and sewage services since the early 1960's.

Sewage Treatment.

Primary sedimentation – Imhoff Tank with a trickling filter and chlorination.

The infrastructure is in decline, chlorination is at a fixed rate, which does not follow the inflow rate, resulting in over dosing at time of low flow (late night – early morning) and under dosing during periods of rainfall due to stormwater infiltration.
The treated solids drying beds are uncovered and consequently does not allow for effective drying during periods of wet weather.
The infrastructure is of a technology of the 1950's and as such is inadequate and requires upgrading.

Stormwater.

Stormwater connections to sewer cause inadequate dispersion and overloads the sewage treatment plant when it rains which causes failure to adequately treat the effluent.
This is a major concern with down stream properties using the river as a water source to which the effluent is disposed.

Recent investigations undertaken by Council have to-date identified that in excess of 40% of the houses in Maydena have stormwater connection to sewer.

Estimated costs for works,

Removal of stormwater to sewer connections - $25,000.00.

Upgrade of sewage treatment plant - $40,000.00.

Township – Westerway

Discharge Point – Tyenna River

The township of Westerway is located on the banks of the Tyenna River and is not connected to sewage treatment plant. Effluent disposal relies upon septic tank systems and on land discharge via AWTS systems.
There is evidence within roadside drainage that septic tank effluent is not contained within properties. This evidence is further reinforced through the results of extensive water monitoring of the Tyenna River that has been conducted over an extended period of time.

Westerway consists of approximately 70 dwellings, accommodation houses, shops, a primary school, fire station and community hall. A number of such are located within meters of the river and as such the land in which septic tanks are positioned experience regular inundation at times of high river flow levels.

Apart from consideration of the negative impacts upon the aquatic system of the river, other major concerns arising from contamination of the water is that of the health and safety of downstream users including a growing aquaculture industry and residents that draw their domestic supply from the river.

The installation of a sewage treatment plant with on-land discharge facilities is the only viable option for the township that will address the issue of contamination of the river.
An in depth feasibility study has yet to be undertaken. Such a study would be required to be undertaken by both Central Highlands and Derwent Valley Council in order to assess all properties that are within the township.

Estimated costs of works,

feasibility study - $20,000.00,

construction of sewage treatment plant - $500,000.00 – 800,000.00.

Township – Rosegarland

Discharge Point – River Derwent

Rosegarland township has a privately owned common sullage drain serving domestic septic tanks disposed to a single absorption drain.

The main concern with the system is that there is evidence of ineffective effluent disposal within the absorption trench, effluent is evident within the roadside drainage. Although this system is not the responsibility of Council, there are frequent complaints about odour and concerns about effluent reaching the River Derwent in times of rain periods.

Records show a long history of concern in relation to effluent entering the river which it should be noted that the off-take for the Hobart Water supply (approximately 60% of the total supply) is located downstream of the township.

The most cost effective option to address the problem would be the construction of a small capacity treatment plant and disposal of the treated effluent on-land to be utilised for irrigating high water demand crops. This would ensure the most effective uptake of available treated wastewater from the system.

Estimated costs of works - $70,000.00.

Township – Sorell Creek

Discharge Point – River Derwent

Sorell Creek is a relatively small settlement in the municipality that is without a reticulated sewage system. Septic tanks are the typical application for the treatment and disposal of effluent.
There is evidence within the roadside drainage that septic tank effluent is not contained within properties. Residential blocks are general of a small size, they are in close proximity to Sorell Creek and the River Derwent to which non contained effluent enters.

Council receives numerous complaints in relation to this issue particularly during the summer months.

To-date little work has been undertaken in relation to feasibility and costs to address the problem. However, it appears that the most likely option would be to connect the dwellings in the area to a common line and pump the untreated sewage to the Turiff Lodge Sewage Treatment Plant at New Norfolk.

Preliminary estimates for required works - $250,000.00.