Presentation to the Melbourne City Council

CLEARFELL LOGGING IN MELBOURNE’S NATIVE FOREST WATER SUPPLY CATCHMENTS - Water Yield Issues -

Co-written by
Melbourne Water Catchment Network
&
Otway Ranges Environment Network

March 2008

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Melbourne's forested catchments to the north east have historically met the demand for water of about 500 Giga litre per annum.

Over the past 10 years, Melbourne has consumed an average of 480,000 ML of water a year from the Yarra (71%), Thomson (27%) and Goulburn (2%) Basins. This represents around 9% of the total average streamflow in these Basins. After use, some 70% of this drinking water inflow is collected and treated at Melbourne’s two main sewage treatment plants. By far the majority of treated effluent from these plants is discharged to the marine environment in Port Phillip Bay and Bass Strait. Currently, only around 1% of all treated effluent from these two treatment plants is recycled.

Almost half of Melbourne’s domestic water supply catchments are State Forest where logging can occur.

<table>
<thead>
<tr>
<th>Melbourne’s Catchments: Public Land Use</th>
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<tbody>
<tr>
<td>Watershed</td>
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<tr>
<td>------------</td>
</tr>
<tr>
<td>Yarra</td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Bunyip</td>
</tr>
<tr>
<td>Thomson</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>% catchment total (157,000ha)</td>
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</table>

**Melbourne Water Authority**

The principle water authority, Melbourne Water, and successive State Governments have created a perception that most of Melbourne’s water supply comes from closed catchments protected within National Parks.

This is not the truth.
Old growth Mountain Ash forest has the highest water yield and is generally not logged.

Old growth forest

Most of the old growth ash forest within the Melbourne water supply catchments is located inside the Yarra Ranges National Park and is not subjected to logging.
Clearfell logging targets 70 year biodiverse Ash forest in the high rainfall areas of the Melbourne catchments.

70 years old
Much of the Ash forests targeted for logging in the Melbourne catchments has regenerated from the 1939 bushfires. These forests would need to grow for another hundred years before they mature into old growth forest and to provide the highest water yield.

Foothill forests
About two thirds of the State forest catchments are within low rainfall areas that only contribute a third of the water run off. These forests are much more fire prone but have eucalypt species that are much more likely to survive fire. Logging does not target these low sawlog and water yielding forests.
Wood-fibre is taken from biodiverse native forests in the Melbourne catchments using a highly destructive practice called Clearfell Logging.

What does Clearfell Logging do?
Clearfell Logging involves the removal of almost all vegetation from a given area, leaving the site bare and the soil highly disturbed. The process is similar to clearing the forest for agricultural purposes. After logging the area is burnt.

Regrowth after logging
Close inspection of regrowth after clearfell logging reveals a young dense even-aged plantation of young trees has established. As these trees grow, water runoff decreases due to the trees transpiring water from their leaves.
Less water is produced from Ash forests which are clearfell logged over an 80 year rotation.

- Ash forests occupy about 50% of the catchment area and yield about 80% of the water runoff for Melbourne.
- Ash forests are of strategic importance for Melbourne's water supply. Melbourne gets the most water from the areas that are targeted for logging.

**Kuczera Curve**

**Relationship Between Mountain Ash Forest Age and Water Yield**

- It takes 150-200 years for water yields to return to their pre-logging state.
- Water loss from 80-year logging rotation.

This indicates that at 30-40 years of age, regrowth Ash forest will reduce average water yields by 50% (Dashed lines denote 95% confidence limits).
Analysis of State Forest in the Thomson catchment shows clearfell logging is concentrated along the high rainfall slopes of Mt Baw Baw.
The rate of logging that is targeting the high rainfall ash forest in the Thomson catchment is alarming.
Independent research by Read Sturgess and Associates in 1992 indicated that if logging in the Thomson catchment was stopped now, mean annual flow would increase by more than 20% in 60 years.

**Thomson water gain**

In 1992, Read Sturgess modelled different logging rotations compared to the status quo (logging approximately 12,640 ha of ash forest over an 80 year rotation). Results found a 20% water yield reduction occurred when comparing the ‘status quo’ with the ‘no logging’ scenario.

**All catchment water gain**

- An estimate of the total water loss "magnitude" for all State forest catchments, can be calculated by extrapolating the known water yield losses for the Thomson, based on the logging scenario and timeline used by Read Sturgess in 1992. Results show water gains in the range of 65 to 85 GL could be achieved in 60 years if all logging was stopped today.
- Pro rata estimates are valid as the Kuzcera curve was developed at a regional level using stream flow data from across eight of Melbourne’s water supply catchments.

**FIGURE 3.3: EFFECT OF HARVEST ROTATION LENGTH (OPTIONS 1 TO 5).**
Water lost from logging, perspective 1:
Conservative estimate of annual water gained due to cessation of logging in Melbourne Catchments.

1GL = 1 Billion Litres = 1000 ML

In 30 years, the water gained by ending logging in the Melbourne catchments could be greater than the annual 39 GL water consumption of a city the size of Greater Geelong (300,000 people).

*Source: Barwon Water Fact Sheet (2004). Greater Geelong = Geelong City, Bellarine Peninsula, Torquay, Anglesea, Aireys Inlet, Lorne, Skene’s Creek, Apollo Bay, etc
Water lost from logging, perspective 2: Household consumption
Each of Melbourne’s 1.4 million households currently uses 830 litres of water per day. Water lost through logging is equivalent to 130 litres per household per day- or 16% of average consumption.

The Victorian Government’s Central Region Water strategy document (October 2006) reveals that per capita water use in Melbourne is currently 320 litres per day. This amounts to consumption of 830 litre per day for each household.

The cessation of logging in our catchments will create an additional 130 litres per day for each household, within 30 years.
### Water lost from logging, perspective 3: Desalination plant comparison

Costs to augment water by not logging in catchments are overwhelmingly attractive when compared with desalination.

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<thead>
<tr>
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<th>Stop logging catchments</th>
<th>Desalination plant</th>
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</thead>
<tbody>
<tr>
<td>Capital cost</td>
<td>$20 million*</td>
<td>$3 billion</td>
</tr>
<tr>
<td>Water produced (30 years)</td>
<td>50GL</td>
<td>150 GL</td>
</tr>
<tr>
<td>Energy consumed</td>
<td>nil</td>
<td>substantial</td>
</tr>
<tr>
<td>Water Cost (annual)</td>
<td>nil</td>
<td>$150 million**</td>
</tr>
<tr>
<td>Water quality</td>
<td>Pure/natural</td>
<td>synthetic</td>
</tr>
<tr>
<td>Greenhouse gas impact</td>
<td>nil</td>
<td>substantial</td>
</tr>
</tbody>
</table>

*  Indicative cost of terminating current logging licences.
** Based on cost of $1000 per ML (Conservative).
A comparison of the economic value of logging and water production overwhelmingly favours cessation of logging in Melbourne’s catchments and the consequent maximisation of water production.

ECONOMIC VALUE OF SAWLOGS AND PULP LOGS HARVESTED FROM CATCHMENTS

Net present value = $68-88 million

ECONOMIC VALUE OF WATER GAINED BY CESSIONATION OF LOGGING IN CATCHMENTS

Net present value = $361-468 million

Water values exceed logging values by a factor of five
A worst case wildfire could cause over 50% reduction in water yield from Melbourne's forested catchments. However, major wildfires are naturally very infrequent in the wet forests which produce 80% of Melbourne's water.

If a worst case bushfire occurs in the year 2020, converting all the ash forest to regrowth, by about 2045 average catchment yield could drop about 290GL below pre-fire average yields. However, note that there is substantial uncertainty regarding this estimate- 90% confidence limits range from 125GL to 480GL.

Source: MMBW Prediction of water yield reductions following a bushfire in ash – mixed species eucalypt forests. 1985

Before European settlement, the natural fire occurrence in wet forests is once every 300-500 years. Mountain ash forest can exist over 300 years and eventually be replaced by rainforest plant communities in the absence of fire.

Mature rainforest in the Melbourne catchments has not naturally experienced wildfire for thousands of years.
In 1996, legislation was created to supply the Latrobe Valley pulp mill with at least 300,000 cubic metres of woodchips per annum until the year 2030. Source area includes Melbourne’s State Forest catchments.

Forests (Wood Pulp Agreement) Act 1996

Under Section 14(2) of the Act, the Victorian Government is required to find at least 300,000 cubic metres of woodchip per annum for the Latrobe Valley pulp mill until the year 2030.

The Act defines a “Forest Area”, shown within the thick line on a map, as the area where these woodchips must be sourced.

This “Forest Area” includes almost all of the Melbourne State Forest catchments as shown highlighted in blue.

An average of 130,000 cubic metres of woodchips have been taken from the Melbourne State Forest water catchments over the six years to 2004-2005. This rate is projected to continue until the year 2030*.

Ending woodchips from Melbourne's catchments will not cause any job losses at the Latrobe Valley pulp mill.

Pulpwood: Both Read Sturgess (1994) and WaterSmart (2002) reports found substitute woodchip can readily be found for the Latrobe Valley pulp mill if logging was stopped in the Melbourne catchments.

Woodchips for the Latrobe Valley pulp mill do not have to be sourced from the Melbourne catchments.

Source: FOI log volume data
- Statewide total output (1999-2004) - approx. 1.4 million cubic meters per annum. Two thirds exported primarily to Japan.
- Australian Paper requirements - approx. a third of Statewide total output.
- Average from Melbourne catchments - approx. 9% of State total output and currently used by Latrobe Valley pulp mill.
Three strategies, in combination, can compensate for the loss of sawlogs taken from Melbourne’s catchments.

Melbourne catchments projected to supply 12% of State-wide sawlog output.

- B+ grade sawlog: 10% = 74,000 m³
- C grade sawlog: 15% = 107,000 m³
- D grade sawlog: 3% = 25,000 m³

Average woodchip and sawlog output
Central Gippsland and Dandenong FMA (1999–2004)

- Woodchip: 72% = 510,000 m³

Strategies to offset lost sawlogs

1. Substitute plantation/other materials for low grade (C & D) hardwood used to make:
   • Pallets, palings, scantling
     (At least 50% Central Highlands timber production. Source ABARE 1998)

2. Better utilisation of native forest woodchip logs:
   • Residual log → sawlog

3. Obtain sawlogs from areas less strategically important for water production purposes.

Impact on native forest logging industry

Source: FOI log volume data

Sawlogs that have been split: destined for Midway export woodchips.

Source: Photo taken travelling south on Western Ring Road Feb 2008.
Before the Central Highlands Regional Forest Agreement (RFA) was signed, it was argued there is plenty of water so logging the Melbourne State Forest catchments should continue.

This photo, taken in September 2007, shows the Thomson dam at only 25% full. The yellow line is the high water “full” mark.

Too much water in the Thomson dam

A-Team

“In the last 12 months, excess water has run over the spillway of the Thomson Dam twice. This excess water continues despite the catchment having been logged for 16 years. This is a wasted resource which doesn’t have a value if it can’t be sold and demonstrates we can harvest both the timber and the water from the catchment”

Source: 1990’s propaganda distributed by “The ‘A Team”

Central Highlands RFA re: Thomson

The next augmentation of Melbourne’s water supply is not due until well beyond 2020. Given the reduction in water demand over the last few years and the limitations on timber harvesting in the catchment, it is likely that the next augmentation will be delayed by several years. On this basis the benefits of harvesting both water and timber from this catchment can be achieved.

Source: Central Highlands Regional Forest Agreement, Directions Report, Sept 1997, page 42.
Water Smart committee recommended a strategy be put in place “within two years” to phase logging out of the Melbourne catchments. Five years later, studies and strategies have not been completed.

**Water Smart Recommendation 15 (October 2002)**

**RECOMMENDATION 15:**

The Committee recommends that:

- Melbourne Water, within two years, undertakes hydrological studies and releases a report on the impact of logging on water yield in the Yarra tributaries and Tarago Reservoir catchments and the Government investigates the economic, social and environmental benefits and costs of establishing plantations to allow the phasing out of logging in these catchments.

- The Government, within two years, undertakes a detailed investigation and releases a report of the economic, social and environmental costs and benefits of establishing plantations to allow the phasing out of logging in the Thomson Reservoir catchments.

- The existing agreements between the Department of Natural Resources and Environment and Melbourne Water concerning logging rates in the catchments are not renegotiated until the above investigations are completed.

**Water White Paper (June 2004) did not specify a time frame to have studies completed.**

**Action**

2.21 The Government will:
- undertake hydrological studies on the impact of logging on water yield of catchments in State forests supplying water to Melbourne;
- develop options aimed at improving the water yield, including potential changes to management practices and phasing out logging in these areas;
- assess the feasibility of establishing plantations outside State forests to offset any reductions in timber availability. This will be informed by the results of modelling and mapping work on high, medium and low-impact zones for plantations (refer impacts of new plantation policy above); and
- investigate the economic, social and environmental benefits and costs of these options.

Once they have been completed, the Government will report on the findings of these studies and begin consultation with the timber industry, the community, and other stakeholders to develop a long-term plan that will aim to improve water yield outcomes for Melbourne’s catchments, while continuing to meet timber supply commitments.
Otways Precedent: From 1999 -2002 OREN and GCF “Water not Woodchips” campaign shut down all native forest logging in the Geelong domestic water supply catchments.

About 300,000 people in South West Victoria rely on Otway forested catchments for their domestic water supply.

The Otway Ranges Environment Network (OREN) and the Geelong Community Forum (GCF) raised community awareness regarding the impact of logging on water quality and quantity from the Otways.

Critical Otway hydrology research was conducted in 2000 by SKM with community group stakeholders and completed within seven months (not over five years).

Practical results to date.
- The State government suspended all logging within the Geelong-Otway water supply catchments after the 2002 State election. This is now five years ago.
- Most of the strategic Geelong and Warrnambool water supply catchment were added to the Great Otway National Park in 2005.
- Public land Otway forest logging will end in 2008.
Councils, on behalf of 300,000 people in South West Victoria made it clear to the Victorian State Government that they wanted logging halted in the Otway water supply catchments.

After presentations from OREN, local governments voted unanimously to oppose logging in the Otway catchments.

**Greater Geelong City Council**

*Agenda for Ordinary Meeting 24 November 1999*

WEST VICTORIA REGIONAL FOREST AGREEMENT Recommendation:

That Council advises the Victorian Regional Forest Agreement Steering Committee that:

2) It recommends the introduction of new measures restricting logging operations to areas which are less strategically important for water catchment purposes.

**Warrnambool City Council**

*(c) NOTICE OF MOTION No. 2058*

Notice is given that at the Ordinary Meeting of Council to be held on Monday 17 December 2001, I propose to move:-

“*That the Council inform the Minister for Environment and Conservation, the Hon. Sherryl Garbutt, MP that Warrnambool City Council opposes all logging and clear felling of native forest in the South West Water catchment area of the Otways. Accordingly, Council requests the Minister to halt all logging in the catchment area immediately, and to stop the proposed building of a new road this summer season to a coupe in the lower Atkins Creek area*”.

CR. JOHN KENNEALLY

12 December 2001

**The Moyne and Surf Coast Shires also supported a ban on logging in Otway water supply catchments.**
Broad local community support based on facts and science was the key to resolving the Otway catchment logging issue. This now needs to be done for Melbourne's State Forest catchments.

- The 3.6 million Melbourne residents, through their local councils, need to be active in lobbying the State Government which is responsible for Melbourne's water catchment management.

- Under Action 2.21 of the Water White paper, the State government has started the “Harvesting in State Forests supplying water to Melbourne” project. Over the next 12 months this process is an opportunity for the broad community to express views about logging in Melbourne's State Forest water supply catchments.

**Suggested Government policy**

**State Government Policy**
There are 62 State MPs whose constituents depend on water from Melbourne's State Forest water supply catchments. These State MPs have an obligation to their constituents to put water security before logging. The State government must adopt a policy to *significantly improve water yields and reduce catchment fire risk by stopping all logging in the Melbourne water catchments immediately.*

**Local Government Policy**
There are 30 councils that represent the greater Melbourne population. By taking a ‘no logging in catchments’ position it does not mean councils are anti-logging. The Local Government policy position could be for *logging to be immediately moved to areas of less strategic importance for water production purposes.*
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