



**VAFI Submission in Response to
Draft Sustainable Water Strategy Central Region**

23rd June 2006

Section 1:

Timber production and water – Considerations in context

(The charts in this section are extracted from the PowerPoint presentation by Graeme Gooding at the VAFI sponsored Wood and Water Seminar – see VAFI's website)

The Victorian Governments White Paper is addressing a range of issues in regard to our future water supplies including water conservation in the cities. The Central Sustainable Water Draft Strategy is endeavouring to bring together all factors raised in the White Paper and subsequently through the consultation process that are relevant to the region. VAFI welcomes the efforts to ensure that water, timber production and a range of other factors are all considered in a broad context.

There are two initiatives from the White Paper that have particular relevance to timber production:

- Action Item 2.21 - Initiative: Harvesting in Melbourne's Water Supply Catchments
- Action Item 2.20 - Initiative: Impacts of New Plantation Forestry

These action items are the factors of primary interest to VAFI and these will not be completed for some time. The outcomes will need to be incorporated into the Strategy at a later date. As with the Strategy, considerations in finalising these action items should be in broad context including a full Triple Bottom Line analysis. The use of the sustainability assessment framework in the draft Strategy should provide a useful means of ensuring this occurs. However, the assessment framework does not necessarily include:

- consideration of the indirect impacts (e.g. if wood production is curtailed, the impact of alternative non-wood products on greenhouse or increased importation of wood from SE Asian forests)
- or necessarily place the water impacts in context with other water usage.

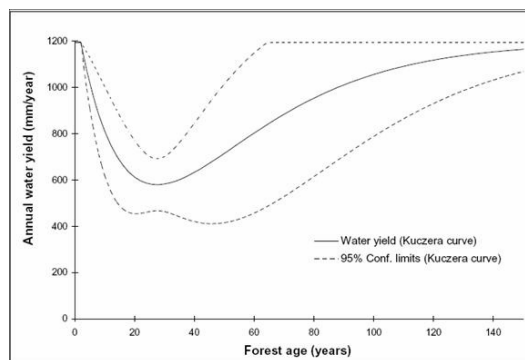
VAFI requests that these Action items are progressed taking into consideration the factors outlined below.

1) General background:

- a) Melbourne's water supply catchments cover about 157,000 hectares and an average of about 0.2% of this is potentially logged each year.
- b) Timber harvesting in Melbourne's catchment areas has been in place prior and subsequent to this Government-owned land being incorporated into Melbourne's water supply catchments in the late 1960s.
- c) Harvesting operations are carefully planned, and very strictly regulated. They currently run on an 80-year rotation basis.
- d) Most of the forest in these areas regenerated following the 1939 bushfires. These are not old growth forests.
- e) Only small, selected portions of any forest area are harvested at any given time, so the surrounding areas continue to grow and age. Two-thirds of the ash forests in the region will not be harvested.
- f) Timber harvesting is tightly controlled to protect water yield, water quality and ecosystem health. Melbourne's water has been voted the best quality in Australia.¹
- g) VicForests conducts timber harvesting in these State forest catchments: Thomson, Tarago Bunyip and four Yarra Tributaries catchments: Armstrong Ck, Mc Mahons Ck, Starvation Ck and Cement Ck. Bunyip and Tarago are currently not utilised for Melbourne's water supply.
- h) Harvesting in the Yarra Tributaries is limited to one of the four catchments in any one-year, during which time it is not used for water supply.
- i) Water yield in the affected catchments will continue to increase over time regardless of harvesting.

2) Timber options are much broader than - No logging vs Current Clearfelling

Some have attempted to simplify this to two options: clearfelling vs no harvesting and have used the Kuczera curve (below) to justify claims logging regrowth reduces water flow by 50% compared to mature forests.



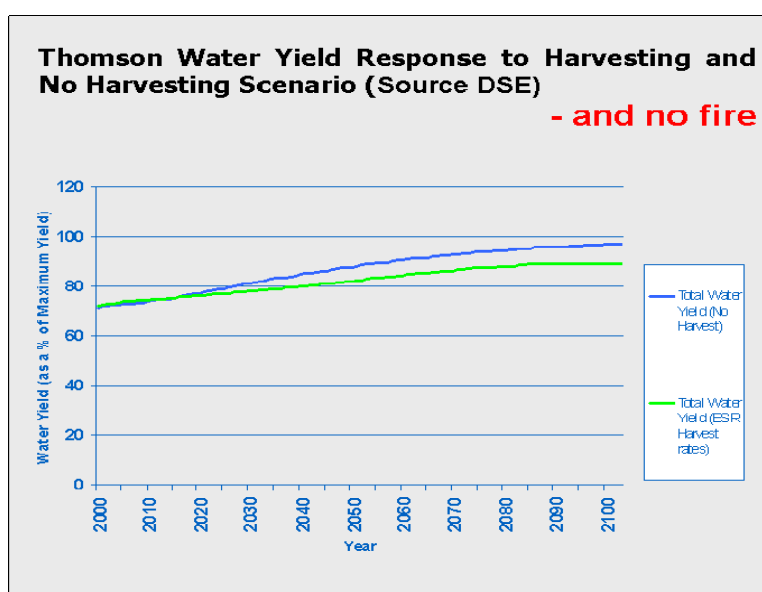
Annual water yield versus forest age (Kuczera Curve) from Watson et al. (1999)

¹ "The best-tasting drinking water in Australia comes from Melbourne. ... The panel of expert wine judges, scientists, sportspeople and celebrities commented that the winning water was "fresh, really appealing, like a good Riesling," adding that it was "an outstanding drop, clear, with good quality and smell ... very refreshing".
National Science Week Media Release August 12, 2003

HOWEVER:

- a) This curve is in part based on the impact of the 1939 fire regrowth, mainly mountain ash which does not necessarily translate to logging regrowth in Alpine Ash.
- b) Only a small portion of the catchment is actually harvested (approx 0.2% per year)

Most of the catchments will not be harvested at all. When this is taken into account, modelling by DSE suggests a small gain of some 3% in water will occur, provided fire does not intervene to recommence the life cycle (see d below). This does not take into account the potential benefits of thinning (see c below).



c) Thinning of regrowth forests can increase water yields

The models or thinning impacts on water yield are less certain but there is ample evidence that thinning of forests, if managed properly, can deliver significant water yield increases:

- i) Thinning of 39 fire regrowth in Melbourne Catchments in 1977 increased water yield by 20%. Predicted to take 25 years for the uniform thinning of ash (at 50% basal area reduction) to return to pre-treatment levels.²
- ii) A Western Australian Water Corporation Thinning Project is already underway: \$20 million will be spent on a thinning program over 12 years in the Perth Water Catchment. 62 % of the catchment is to be thinned. Aim is to increase total water yield by 25% to get an extra 4–6 GL at the cost of 23 cents per kilolitre³

² Nandakumar and Mein (1993)

³ PowerPoint Presentation by Dr Colin Terry WA Water Corporation on the Wungong Catchment thinning Project

d) Alternative supply from plantations (if viable) will have similar impacts on water yield in another location

Plantations exhibit similar trends in water yield impacts to regrowth forests. As noted elsewhere, the Alpine Ash from Melbourne's water catchments is the highest quality wood in the State. The region is the most important centre of value adding of hardwood timber in Victoria – if not Australia. No plantations in Australia have yet been able to provide wood of this quality and certainly none are available now.

e) Fire may intervene before predicted long term gains can be realised

The biggest threat to water yield within catchments is wildfire. A 75% stand replacing wildfire in the Thomson will result in 30% loss in water yield in 2030 and major impact on water quality.

A recent book (*“Wildlife, Fire and Future Climate – A Forest Ecosystem Analysis”*)⁴ considered in detail the relationship of fire in the forest ecosystems of the Mountain Ash forests in the Central Highlands of Victoria. The authors have estimated the likely mean interval between high intensity fires. They noted that past research had concluded that in nature, Mountain Ash will become locally extinct if tree-killing fires occur before seed production (less than 20 year old) or after seed is no longer produced (more than 350+ years) and that seed from adjacent areas will generally only fall a tree height in distance from adjacent source trees. All ash forests, after a period of drought, are highly flammable and will burn intensely under the right conditions. After testing all the different models they concluded that the mean fire interval of high-intensity fires in the Central Highlands Mountain Ash forest is within the approximate range of 75 to 150 years with the ‘best fit’ being approximately 100 years.

The predicted impact of timber harvesting on water yield in the Thomson is a maximum of 10% of reservoir catchment yield occurring in 120 years time. This represents 3-4% of Melbourne's water usage. A 75% wildfire in the Thomson will result in 30% loss in water yield in 2030.

Commercial forestry helps to fund the ‘critical mass’ of trained professionals and skilled machinery operators that can quickly be deployed to fight fires – people who know the area and are likely to be working in the area near the fires. They work with equipment needed to fight fires (like bulldozers) or with fire itself (such as regeneration burning and fuel reduction burning) in their day-to-day responsibilities. This means they are familiar with fire control when blow up conditions occur. They are an on-tap resource that is only paid for when deployed, and as such its ongoing maintenance and upgrade is not a constant drain on the public purse. Funding from log sales also maintains an extensive roading network, which is essential to gain rapid access to fight fires.

⁴ Chapter 3: “Wildlife, Fire and Future Climate – A Forest Ecosystem Analysis”, B Mackey, D Lindenmayer, M Gill, M McCarthy and J Lindesay 2002

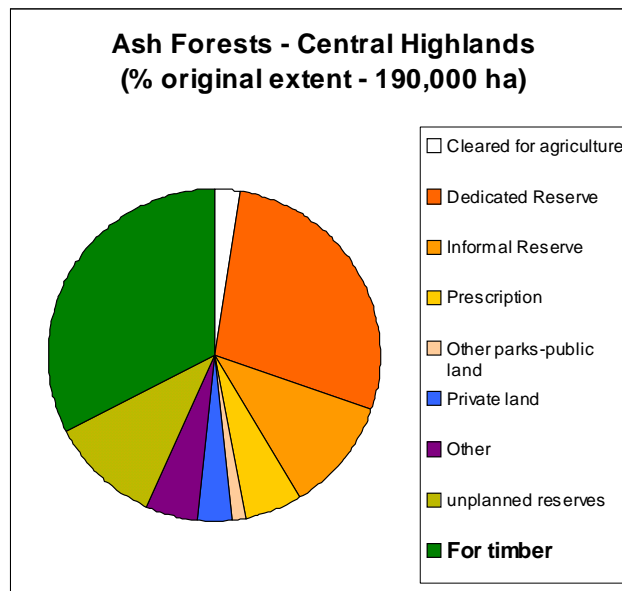
3) Considerations in the broad Triple Bottom Line context

a) Socio-Economic-Environmental trade offs have already been made on assumption areas remain available for harvesting

Current timber harvesting, including the areas within Melbourne's water catchments, and the reserve system have been determined after an exhaustive analysis through a Regional Forest Agreement process that has considering the right balance to the 'triple bottom line'. The 20 year Regional Forest Agreement for the Central Highlands sought to balance areas available for timber production and the associated regional socio-economic benefit and created additional reserves on the basis that those timber production areas would remain available. In the agreement the State and Federal Governments agreed that "*Victoria will manage the forest estate in the Central Highlands to at least maintain its timber production capacity in terms of volume, species and quality*". It further stated in regard to the projected sustainable yield at the time that: "*Economic and social issues have been taken into account in providing a land base that is expected to deliver these yields.*"

If harvesting is reduced in the catchments, there will need to be an adjustment to boost the socio-economic factors to maintain the balance. The agreement specifically outlined a process for ensuring that the net production capacity was maintained in the event that an area was removed from production. Accordingly it would be contrary to the objectives of the agreement to remove or curtail harvesting areas in the catchments without providing an alternative supply.

It should also be noted that already around two-thirds of the ash forest is excluded from harvesting on a landscape basis. The proportions are shown in the pie chart.



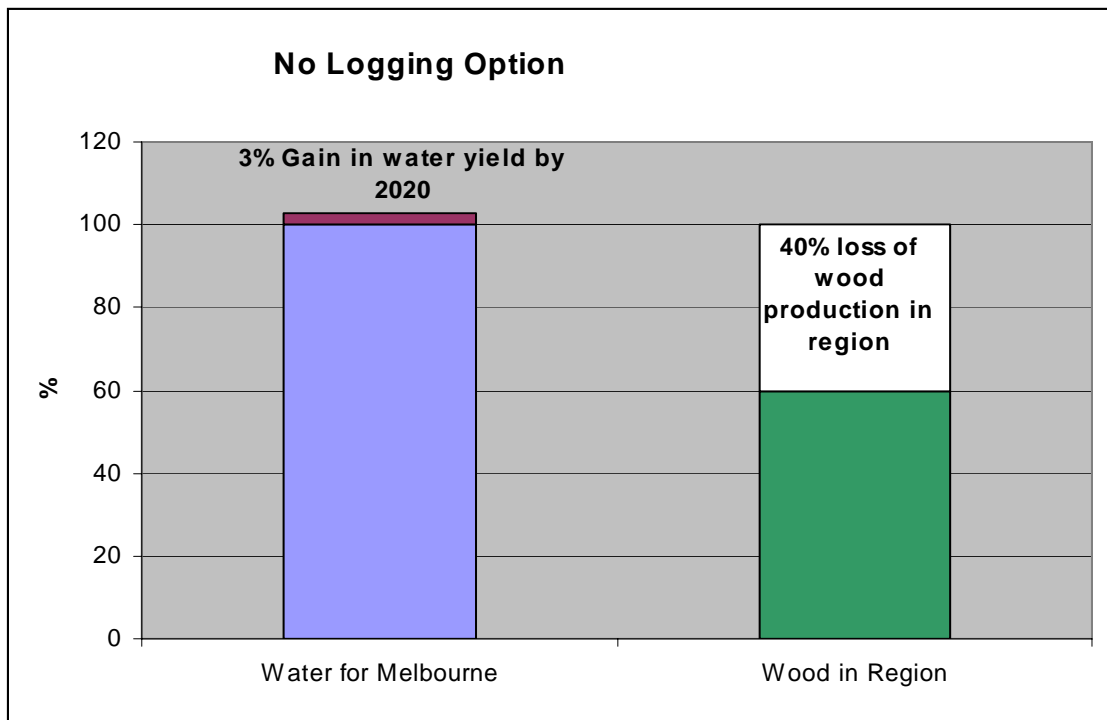
Given the above, if it is determined that harvesting should be reduced. It is reasonable that:

- the additional income for water yield should be used to fund the transition to an alternative plantation resource (if feasible). Recent studies suggest this isn't feasible, certainly in the medium term - or -
- that alternative public forests that is currently excluded from harvesting should be provided from outside the catchments as an equivalent exchange.

b) Socio-economic – Regional/City equity

A 3% gain is not going to solve water needs of Melbourne

- a small gain for Melbourne
- a large socio-economic loss for the Region



i) The expected socio-economic impacts if timber harvesting was to cease immediately are significant. (These impacts would be felt mostly in Heyfield, Traralgon, Morwell, Dandenong and smaller towns throughout the Central Highlands and Gippsland). The log supply from catchments is worth around \$90 million in processed forest produce. The West Gippsland area is already disadvantaged in comparison to the employment levels and community services.

“Latrobe LGA in particular, which is the base for much of the timber processing activity of the region, had an unemployment rate of over 12% reported at the 2001 Census. Latrobe LGA bore the brunt of substantial job losses associated with the privatisation and rationalisation of the power industry. Further job losses would be deleterious to the regional community, and would particularly disadvantage Latrobe LGA and the other “timber” communities.”⁵

The area is the centre of value adding in the hardwood industry. The cessation of harvesting in the Melbourne’s catchments would be a devastating effect, particularly on West Gippsland which is already suffering from a 50% reduction in supply post the Our Forest Our Future policy implementation. Further reductions would likely conflict with the State Government’s vision which is that by 2010 Victoria will have further strengthened its performance in ten specific areas including more quality jobs and thriving, innovative industries across Victoria.

“We also have the continuing challenge to ensure regional Victoria shares fully in the benefits of a strong economy.” (Victorian Government Vision)⁶

c) Decentralised industry benefits

The forest products industry is a naturally decentralised industry. Maintaining regional economies will reduce the pressure on Melbourne’s infrastructure (and water demand).

d) There have been some studies that have shown the net costs of forest management increase when commercial forestry is reduced or removed.

Budget allocations for public forest management will always struggle to compete with the big ticket items such as education, police and health and a self sustaining income stream has considerable value. It warrants closer analysis, but there is some evidence to support the claim that affordable, sustainable good forest stewardship on a regional basis is enhanced by the on-going presence of a commercial forestry sector within a landscape where there is a mixture of reserved and commercial forests. Considerations include:

- i) the critical mass benefits of professional forest management in a region
- ii) provision of a road infrastructure – for access for tourism, fire control, and management
- iii) associated R&D into natural sciences that flows from a commercial presence
- iv) enhanced fire control capacity (see later comments) – with wildfire being by far the biggest future threat to water catchments and old growth.

⁵ The Timber Industry in Gippsland: a Socio-economic assessment Gippsland Private Forestry Inc. 2005

⁶ A Vision for Victoria to 2010 and Beyond - Growing Victoria Together March 2005

e) Environment – forest reserves

An extensive reserve system was established under the Regional Forest Agreement process and a range of State Government land use processes. As noted above, this has already reduced the access for timber production to around a third of the total ash forests in the Central Highlands.

f) What are the environmental credentials of alternative products

- i) **Imported hardwood from illegal logging.** Illegal logging influences around \$400 million of Australia's forest products and wooden furniture imports which is around 9% of the total for these imports.⁷ The main competitor are other native hardwoods (eg Tas Oak), which are limited in supply or imported timber, particularly hardwoods from Asia which in general do not have the high standards of management. A significant portion of the imported wood comes from illegal logging. The log equivalent of the suspected illegally sourced wood products that are imported to Australia each year is equivalent to around 900,000 m³ of hardwood sawlog⁸. That is approximately equivalent to the entire production of hardwood sawlogs from public forests in Tasmania and Victoria.
- ii) **Wood vs Non wood alternatives:** The Canadian Wood Council have published the results of a study using the life cycle analysis (LCA) for three identical homes: one constructed with timber frames, one with light frame steel, and one with insulated concrete forms and slabs⁹. The results found that relative to the wood design, the steel and concrete designs respectively:
- embody 26% and 57% more energy;
 - emit 34% and 81% more greenhouse gases (increasing the risk of global warming);
 - release 24% and 47% more air pollution;
 - discharge 4 and 3.5 times more water pollution;
 - use 11% and 81% more resources from a weighted resource use perspective; and
 - produce 8% and 23% more solid wastes.

g) Other users of water in context to wood production impacts.

- i) Each year Melbourne loses about 38,000ML (8%) of its water supply through leaky pipes, and 19,000ML through miscellaneous means (including illegal use).
- ii) 35% of household water of high drinking quality is used on the garden and 41% is used for washing and bathing in the bathroom and laundry. Use of this grey water could save 5-40,000 ML per year.

⁷ Overview of Illegal Logging, Report prepared for the Australian Government by Jaakko Poyry Consulting, September 2005

⁸ Estimate by G Gooding Feb 2006

⁹ "Energy and the Environment in Residential Construction", Canadian Wood Council, download from www.cwc.ca

- iii) Use of water efficient shower heads could save 15,000 ML per year
- iv) The top 200 water users in Melbourne use around ten per cent of Melbourne's total urban water consumption. Industry and commerce account for almost one third of Melbourne's potable water use. VAFI welcome the fact that the Strategy will target water conservation measures with these users.
- v) Irrigation Releases: Southern Rural Water is responsible for managing the Macalister Irrigation District, including irrigators downstream of Thomson Reservoir. Southern Rural Water has a Bulk Entitlement providing a 45,000 ML share of Thomson Reservoir storage capacity and a 6% share of its inflows. Southern Rural Water uses an average of 35,000 ML from the Thomson River at and below Cowwarr Weir. Part of its Thomson entitlement is derived from the releases from its share of Thomson (10,000 ML), and part from the run-of river (which includes some of the Thomson Reservoir environmental flow releases (37,000 ML) and some from inflows to the Thomson downstream of the reservoir.
- vi) CSIRO Sustainable Ecosystems Oct 2002 reported on some comparisons of value outputs per water usage as follows¹⁰:

	Litres per \$ output	Energy per \$ output¹¹	Minutes of labour per \$ of output
Wheat and grains	245	11.6	1.8
Beef cattle	812	11.6	1.9
Dairy cattle and whole milk	1470	14.3	1.8
Veg and fruit	379	15.3	1.9
Pulp, paper and paper board	51	30.2	1.9
Accommodation, cafes and restaurants	75	9.6	2.4

10 Report of the Department of Immigration and Multicultural and Indigenous Affairs, CSIRO Sustainable Ecosystems Oct 2002

¹¹ It is worth noting also that most pulpmills can produce more energy than they use. For example the Maryvale mill in the Latrobe Valley generates electricity to run the plant equivalent to the power used by a regional city the size of Ballarat. The failed Wesley Vale mill would have generated power equivalent to Launceston's power consumption.

Conclusion

The Victorian Association of Forest Industries endorses the need for our water resources to be managed sensibly and sustainably to ensure the availability of supplies of potable water as well as vibrant and healthy aquatic and terrestrial environments for future generations.

Nevertheless there is concern amongst the forest and timber industries that forests and plantations are being unfairly targeted as major users of water somewhat out of proportion to their actual impact, and in isolation from their obvious environmental and socio-economic contribution to the Australian community.

Initially much anti-forestry water use rhetoric was generated by emotional campaigns opposing native forest wood production and, more recently, against plantation development that involves the one-off, limited use of herbicides, fertilisers, and pesticides.

Forestry and forest industries should not be singled out in any analysis given it is an efficient user of the water (sourced from rainfall) and has relatively less impact on the environment compared to other industries. A consistent approach to all industries and water users should apply. The sustainability assessment in the strategy does provide a useful framework, but it does not necessarily address all the factors outlined above. These should be considered as Action 2.0 and 2.1 are progressed and eventually incorporated into the Central Strategy.

Section 2:

Specific comments on the Draft Strategy.

Ch 2 p19

Approximately 1,000 businesses account for about half of the water used by industrial and commercial customers in Melbourne, with the other 122,000 companies using the remaining half. Some 500 of the 1,000 largest commercial water users (that use more than 10 ML per year) are manufacturing businesses. Hospitals, parks and golf courses, universities and hotels also feature in the top 1,000 water users.

VAFI Comment:

Note comments in section 1 regarding context.

Ch 2 p20

The Government encourages private forestry investment in Victoria with a view to delivering regional development and environmental benefits for the State. However, the potential impacts of plantations on water resources must be understood, and if significant, recognised in the planning frameworks within which these developments take place.

Existing management frameworks for plantations provide for the protection of natural resources including water, and are particularly directed towards the protection of water quality. However, apart from a few minor exceptions, these frameworks do not address the impacts of land-use change, including plantations, on the quantity of surface water and ground water resources.

*The importance of understanding, accounting for and, where necessary, managing the impacts of land use change on water resources has been recognised by the Government in *Our Water Our Future* and by the Council of Australian Governments in the National Water Initiative. In both cases, it is recognised that land use change can impact on other outcomes beyond water interception issues, such as economic development and employment, water quality, salinity, carbon and biodiversity, and that these factors must be taken into account.*

*Given this context, in order to address these issues and to ensure that Victoria's new water allocation framework can provide safe and secure entitlements for licensed water users and the environment, the Government remains committed to Action 2.20 from *Our Water Our Future*:*

- undertaking a statewide assessment to identify high, medium or low hydrologic impact zones for new plantation developments*
- developing appropriate tools, for example planning provisions, incentives and pricing systems, in consultation with stakeholders to account for the impact of new plantations (and other land use changes) on water resources, salinity, greenhouse and other environmental benefits and costs of plantations*
- applying existing planning arrangements until the new arrangements are in place.*

VAFI Comment:

Note comments in section 1 regarding context.

VAFI welcomes a scientifically driven assessment on these matters provided that forestry is not singled out for differential treatment. VAFI is particularly concerned at any actions that discriminate against plantations. This would only serve to discourage plantation development thereby undermining existing catchment health and resource security programs. It is also likely to 'kill off' any prospect of hardwood sawlog plantation development as a complementary resource to native forest timber supplies.

Research shows that potential impacts of plantation development are easily controlled through sensible planning. VAFI recommends such an approach to maximise the benefit for water and timber resource management.

Ch4 p31

Vegetation type and age are also important influences on water yield. In native forests, bushfires present a potential risk to water quantity and quality. Timber harvesting regimes (in particular the spatial extent of harvesting and rotation length) also have the potential to significantly impact on water resource availability.

The importance of accounting for and managing the impacts of land-use change on water resources has been recognised in the National Water Initiative and in Our Water Our Future. A Department of Primary Industries project has begun to develop appropriate tools for managing the impact of new plantations on water resources.

Our Water Our Future recognises the impacts of timber harvesting on water availability in the State forests in Melbourne's water catchments. A Department of Sustainability and Environment study is refining estimates of the impact of timber harvesting on water yield in these catchments and developing options aimed at improving the water yield, including potential changes to management practices and possibly phasing out timber harvesting in some areas. In addition, the Department of Sustainability and Environment, the Department of Primary Industries and the Department of Industry, Innovation and Regional Development are working together to assess the feasibility of establishing plantations outside State forests to offset any reductions in the availability of timber.

VAFI Comment:

Note comments in section 1 regarding the need to consider this in the broadest context. VAFI welcomes a scientifically driven assessment on these matters provided that forestry is not singled out for differential and that the triple bottom line assessments extend to consider the factors discussed in Section 1.

Ch 4 p33

In contrast to land-use changes that occurs gradually over time, bushfires are discrete events and are unpredictable. Bushfires can have a significant impact on catchment run off quantity and quality. If bushfires occurred in the mature mountain ash forests in the water supply catchments supplying Melbourne and to a lesser extent Geelong, run off would be reduced. This is because mountain ash trees do not generally survive bush fires and young mountain ash forests use significantly more water than mature forests

VAFI Comment:

Note comments in section 1 regarding fire, which is the greatest risk to catchments.

Ch 5 p39

The three key parts of the strategic framework are:

- *guiding principles*
- *sustainability assessment*
- *water allocation framework.*

Guiding principles

The following principles have been adopted to help deliver the Strategy objectives:

Managing risk and uncertainty

- *An adaptive management approach will be used to ensure that we will be prepared for the future as it unfolds.*
- *Decisions to implement options may be accelerated or decelerated to meet emerging needs and in light of new information.*
- *A seven-year buffer or contingency water in every urban water supply system will be introduced to provide the time needed to select and implement new options as required.*
- *A diversity of options, from conservation and efficiency to alternative sources and augmentation, should be adopted to minimise the risk of future shortfalls.*

Maximising flexibility

- *Committing to interconnecting our water supply systems will maximise flexibility for water sharing across the Region.*
- *Options currently not viable will be kept under consideration as new technologies emerge.*
- *Providing opportunities for individuals to make choices regarding their conservation methods will be a priority.*

Greenhouse gas emission neutral

- *Actions implemented under this Strategy, when considered together, will aim to result in no net increase in CO2 production.*
- *Lower preference is given to options that generate high volumes of greenhouse gas.*

Transparency

- *Decisions should be transparent in terms of the benefits gained or costs imposed, including impacts to natural assets.*

Sequencing

- *The range of options that can be implemented without causing significant further risks to the health of rivers and aquifers is extensive and should be exhausted first.*
- *The timing of an option will balance the need to ensure that we have sufficient water while avoiding premature investment or investment options that may not be needed in the future.*

Shared responsibility

- *Everyone needs to act to secure water.*

VAFI Comment:

While the sustainability assessment does address social and economic issues, there should be a specific mention of these matters in the guiding principles.

Ch 5 p41

A key role for a regional Sustainable Water Strategy is to provide strategic and regional context for plans developed to address local issues. Sustainable Water Strategies will deliver for Victoria the regional water resource planning envisaged in the Council of Australian Governments' National Water Initiative.

VAFI Comment:

We welcome the attempts to place these issues in broad context.

Ch6 p56

Industry

There is significant scope for industries in cities and towns to improve water conservation and efficiency measures.

Through the Pathways to Sustainability program, water authorities within metropolitan Melbourne are currently working with the top 200 industrial water users to develop plans to reduce their water use. Specific water conservation actions are identified and a plan is developed to implement those actions. This program could be expanded to target all industrial water users using over 10 ML a year, which are around 1,000 businesses.

Proposal 6.24 The Government proposes to:

- obtain a better understanding how water is used by different industry sectors and customers through metering and reporting by water authorities
- identify and establish 'best practice' benchmarks
- encourage the use of recycled water as an alternative to potable water where economically and technically feasible
- explore alternative pricing options
- explore the introduction of open disclosure reporting of water use.

In addition, it is proposed that the Pathways to Sustainability program within metropolitan Melbourne could be expanded from the top 200 industrial water users to the top 1,000 industrial water users.

VAFI Comment:

Note comments in section 1 regarding context and the need to ensure forestry and forest industries are treated equitable in comparison to other industries.

Ch7 p 77

Timber production out of the Yarra tributaries catchment area amounts to a retail value of \$22 million, including sawn timber, paper, woodchip, pulp and export.

VAFI Comment:

Noted – see comments in section 1

Ch 7 p82

Primary industries in West Gippsland contribute significantly to the Victorian economy. Dairying dominates agricultural production for the region, producing \$209 million worth of milk, with total agricultural production being \$400 million. The high rainfall and rich soils of the upper catchments support high value timber production, with a total annual value of about \$1 billion of value-added product.

VAFI Comment:

Noted – see comments in section 1. This is the most important centre of value adding in the native forest sector in Victoria. It is also a key area for the plantation sector.

Appendix1 p101

New options

<i>“Thinning” as a timber harvesting option in water supply catchments to increase yields</i>	<i>Currently the subject of investigation into yield impacts of forestry management practices</i>
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VAFI Comment:

Consideration of thinning is welcomed by VAFI. See comments in Section 1.

Appendix 2 p105

Assessing potential options

After considering the preferred options and their timing to meet the water needs of the region, the challenge was to ensure that options delivered the best economic, environmental and social outcomes for the region.

A sustainability assessment framework was developed to provide a consistent assessment of the impact of options. This framework refers to systematic consideration of economic, environmental and social values and issues. The Government has used a sustainability assessment framework for assessing other water projects, as have other water agencies in Australia and overseas.

The sustainability assessment framework is based on an agreed set of criteria and measures developed with key stakeholders. Through several iterations, the Central Region Sustainable Water Strategy Consultative Committee provided expert review during criteria development. An independent review of criteria was also completed by the Institute of Sustainable Futures, based at the University of Technology, Sydney. The criteria and measures involved in the sustainability assessment framework are outlined below.

It should be noted that the Central Region Sustainable Water Strategy does not represent a formal approvals process, and does not bypass, exclude or prejudice the formal statutory approvals process in any way. In order for any recommended option to proceed to implementation it must proceed through normal approvals processes, independent of the Central Region Sustainable Water Strategy.

VAFI Comment:

See comments below.

Appendix 2, P104 –108

Sustainability Assessment of Options

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The relative impacts of these proposals have been considered, using a sustainability assessment framework. Details of this assessment process, and the assessment of options, are provided below.

It should be noted that the sustainability assessment is a dynamic process. Some options are highly developed with relatively complete information enabling a comprehensive assessment. On the other hand, some options are conceptual in nature and consequently will require further review as more information becomes available. This stage of development is reflected in the “Confidence of success” criteria.

Assessing potential options

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Sustainability assessment – assessment criteria and scoring system

Criteria: Net Present Cost (\$/ML)

Criteria: Effect on Regional GDP and development

Criteria: Greenhouse gas emissions

Criteria: Impact on environmental flow objectives (river health)

Criteria: Impact on surface water, groundwater and marine water quality

Criteria: Effect on terrestrial ecosystems

Criteria: Cultural, heritage and recreational values

Criteria: Effort to ensure option meets public health standards

*Criteria: **Social Acceptability** (Marginal support across the community to Extreme support by the community.)*

Criteria: Fairness Flag - Distribution of cost and benefits

Criteria: Confidence of Success

VAFI Comment:

VAFI welcomes the attempts to assess all options in the broadest context. As noted earlier, forestry and forest industries should not be singled out in any analysis given it is an efficient user of the water (sourced from rainfall) and has relatively less impact on the environment compared to other industries.

A consistent approach to all industries and water users should apply. The sustainability assessment in the strategy does provide a useful framework, but it does not necessarily address all the factors outlined in Section 1. These should be considered as Action 2.0 and 2.1 are progressed and eventually incorporated into the Central Strategy. Unfortunately considerations of forestry and forest industries are often politically driven by poorly informed perceptions rather than good scientific analysis.

VAFI welcomes the systematic and science based approach to the analysis that is being undertaken. To ensure that the best option is not curtailed by poorly informed public opinion (see *Criteria: Social Acceptability*) the process regarding timber production needs to include an appropriate public awareness component to ensure the public is informed.