CLEARFELLING and WOODCHIPPING IN TASMANIA - AN ECONOMIC APPRAISAL

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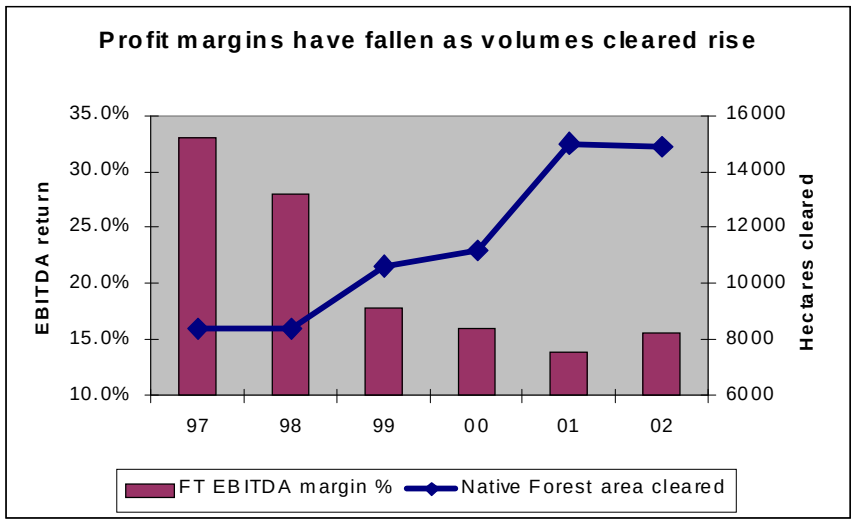
May 2003



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EXECUTIVE SUMMARY

Current management of state forest is characterised by: a predominance of clearfelling; high harvest volumes with low profit margins; and increasing output of woodchips. At least 25% of the timber being woodchipped in Tasmania is of sawlog or veneer quality. The report demonstrates that the major impediment to increasing downstream processing in Tasmania is the profit margin earned on woodchips, which is significantly higher than the profit margin earned on sawn timber. This relationship means that timber companies currently have a financial incentive for woodchipping as much timber as possible, even if it is of sawlog or veneer quality.

The analysis conducted in the report demonstrates that if we were to divert 25% of the pulpwood stream from state forest to downstream processing, the state would benefit to the tune of $15 million per annum in royalties, as much as $387 million per annum in product revenue, 1,230 new timber processing jobs and 1,070 indirect jobs. The increase in resource efficiency would enable 23% less forest per annum to be harvested to achieve the same profits and would have the added benefit of enabling the Tasmania Together forestry benchmarks to be met without any financial loss.

The analysis presented in this report demonstrates that clearfelling of native forest is economically unsound. Although clearfelling enables high volume flow of timber for minimal labour input, the practice causes the destruction of an estimated 1.4 million tonnes of special species timbers (including myrtle, sassafrass and celery-top pine) annually. The potential economic value of this timber is $53 million in royalties, $680 million in sawn timber and over 2,000 timber processing jobs.

Projects such as the Huon Wood Centre (Southwood), will do little to improve forestry's economic situation because it relies on high volume resource flow derived from clearfelling of native forest (838,000 tonnes per annum) and the major output is woodchips (74%).

The report concludes that the economics of clearfelling and woodchipping is little more than the economics of short-term greed where workers, human communities and the forest ecosystem are all degraded so that a privileged few can benefit. If Tasmania is to achieve a greater economic return from state forest, then clearfelling must be reduced and excluded at the very least from the 'Tasmania Together' forests which comprise about 18% of the current state forest available for pulp production. In all other forests we recommend that thorough community based economic appraisals be conducted on a coupe by coupe basis prior to clearfelling to:

- determine who the beneficiaries of clearfelling are
- assess what other values are at stake should clearfelling occur
- determine what alternative values could be delivered to the community if alternative management systems were implemented.

Acknowledgement

In compiling this report I acknowledge the input from members of Timber Workers for Forests who cumulatively have decades of practical experience in the use of Tasmanian timbers and a commitment to improving forest management practices in the state for the benefit of all Tasmanians.

About the author

Graham Green is a Tasmanian who has operated a small business in the timber industry since 1993. Graham is a builder who specialises in heritage techniques such as shingle roofing and has worked on restoration projects throughout the state. Graham formed 'Timber Workers for Forests' in 2001 out of his concern that escalating clearfelling and woodchipping was leading to the demise of quality native forests and diminishing opportunities for those who rely upon them.

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1.0 Introduction

Clearfelling has come under increasing scrutiny due to adverse public perceptions about wastage of timber[1], smoke from clearfell regeneration burns, loss of landscape aesthetics, loss of biodiversity, effect on catchment water yields, low employment requirements[2] and the use of poisons such as 1080 to kill native browsing animals. To date there has been little analysis of the economics of clearfelling. We do know that one of the drivers of the process is simply that 'time is money' since clearfelling enables the maximum amount of timber to be removed from a logged area (coupe) in the shortest possible time. This corresponds to the needs of the woodchip vendor who can then process the timber into woodchips in the shortest possible time.

This report provides an analysis of the economic return to the state of Tasmania in terms of the royalties received under the current clearfelling/woodchipping regime and the downstream processing generated. The report is in two main sections: Chapter 2 which provides an analysis of the projected returns to the state if 25% of current woodchip logs were used as sawn timber; and Chapter 3 in which there is an assessment of the economic value of the by-product of clearfelling – special species timbers such as myrtle, sassafrass and celery-top pine. The report also provides an economic appraisal of the non-timber values affected by clearfelling.

Within this context the report provides judgement as to whether Tasmania is being well served by clearfelling as the predominant harvesting method in state forest and woodchips as the predominant product.

[1] Green, G. (2002). Logging coupe inventory – Esperance 74D. Timber Workers for Forests publication.
[2] Green, G. (2002). Tasmanian timber industry jobs. Timber Workers for Forests publication.

2.0 Does woodchipping make economic sense?

Woodchip production from state forest has doubled in the last decade (**Figure 1**) however, Forestry Tasmania's profit margins are in decline (**Figure 2**).

Figure 1: Native forest wood production from state forest 1990-2002

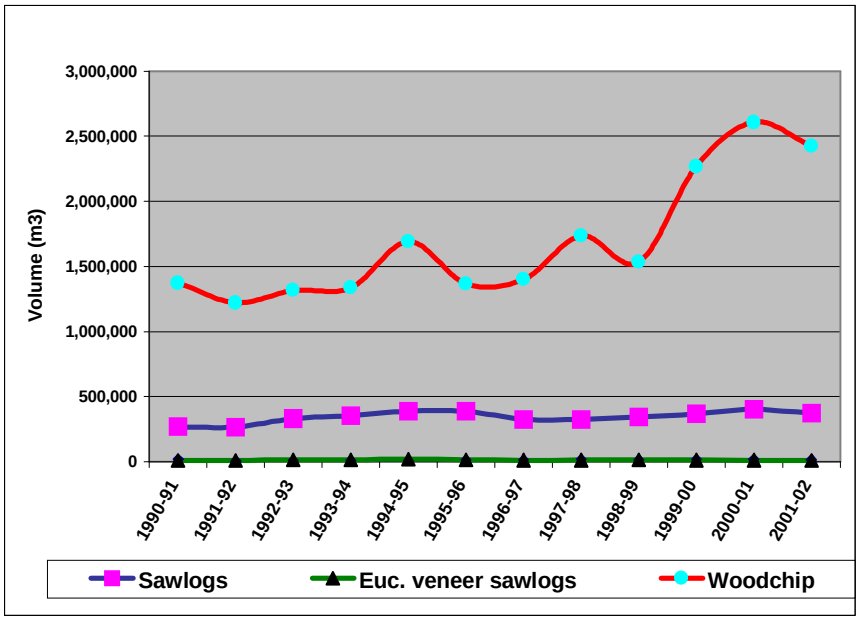
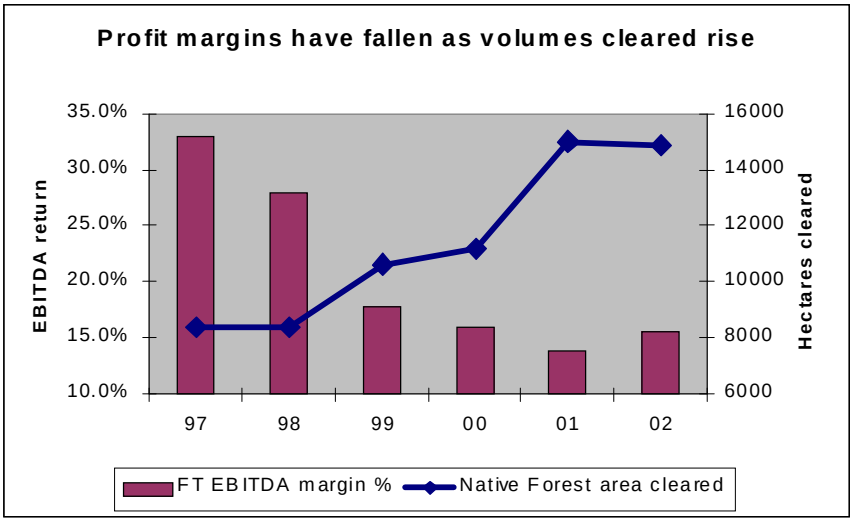


Figure 2: Forestry Tasmania's profit margin versus hectares of state forest cleared

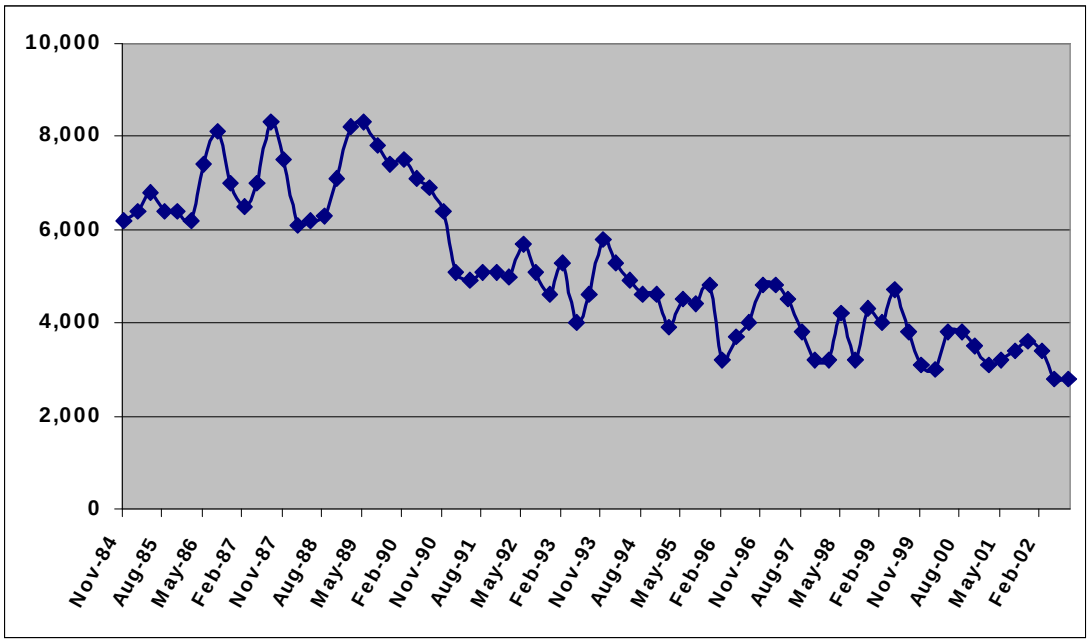


*All data for Figures 1 and 2 is derived from Forestry Tasmania annual reports

EBITDA = Earnings Before Interest, Tax, Depreciation and Amortization - the finance markets preferred measure of earnings

Additionally, the increased volume of timber production in Tasmania has not resulted in an increase in employment. Record levels of woodchipping[3] have resulted in a decline in jobs in 'downstream processing' of timber products in Tasmania (**Figure 3**).

Figure 3: Tasmanian timber industry jobs in downstream processing



Data source: Australian Bureau of Statistics quarterly labour force data 6291.0.40.001

With Forestry Tasmania's profit margin falling and declining jobs associated with the state's major forest product, why does woodchip production continue to increase? Part of the reason for the preference for chipping is the very high profit margin being achieved by Gunns Limited (Tasmania's largest timber company) on their native forest woodchip operations. For example, in 2000 Gunns achieved a 22% EBIDTA (profit) margin on its woodchip operations compared to a 12% margin on its sawn timber operations[4]. This inverted relationship between value adding and profit margins gives Gunns a financial incentive for low value adding. But what is best for Gunns Limited shareholders is not necessarily best for employment levels or statewide economics.

[3] Australian Bureau of Statistics Tasmanian statistical indicators showed that woodchip production broke records in seven consecutive quarters from March 1999 through to September 2000. Since then the volumes have been 'commercial in confidence'.

[4] E.L. & C. Baillieu Stockbroking Ltd – April 2001 review of GNS (Gunns Ltd)

So how could this situation of high volume, low profit margin and low employment be improved so that state forest provides more benefit to the people of Tasmania? In the following section we examine the potential financial and employment returns to the state if 25% of timber from the current export woodchip stream was processed locally into kiln-dried sawn timber.

2.1 What if 25% of pulp logs were used for sawn timber?

There has long been anecdotal evidence from timber workers that it is common practice for sawlogs to be split in the bush to enable a consignment of pulp logs to be filled. There is no doubt that at least 25% of current hardwood pulp logs sourced from state forest is of veneer or sawlog quality which is confirmed by the following quotes:

- Tasmania's Deputy Premier said recently in regard to the Huon Wood Centre (Southwood) project: 'The site is now ready for business to invest in the new value-adding processes which will see up to 25% more solid timber products recovered from the same area of forest - value adding our timber resource into rotary peeled veneers means that we can reduce the amount of wood that is currently being chipped'[5].
- The proposed Circular Head Wood Centre, involves the diversion of timber from the current pulpwood resource to veneer and sawlog production[6].
- In 2001/2002, over 86,000 cubic metres of whole logs sourced from the 'woodchip stream' were exported to China and South Korea, and there were rotary peeled or milled[7].

2.1.1 Increase in royalties

If 25% timber from the current pulp wood stream was used as sawn timber, 735,000 tonnes per annum of additional sawlog would be generated from the same area of forest and the royalty return to the state would increase by $15 million per annum **Table 1**.

[5] Paul Lennon - Huon News 27/11/02
[6] Felmingham, B. (2002). The economic contribution of the Circular Head Wood Centre. Report prepared by Symetrics for Forestry Tasmania.
[7] Forestry Tasmania Annual Report 2001/2002

Table 1: Increase in royalties by sawing 25% of pulp logs from state forest

	Current Practice* (2001/02)	**Diversion of 25% of pulpwood to sawn timber**
Pulpwood extracted		
tonnes	2,424,000 t	1,693,880 t
%	83%	58%
Sawlogs extracted		
tonnes	371,738 t	1,109,783 t
%	13%	38%
Total royalty value**	$47 million	$62 million
Additional value created		**$15 million**

Table notes:

*Figures from Forestry Tasmania Annual Report 2001/2002

**The royalty rate varies (Quote – John Gay, CEO of Gunns Ltd – 'we pay on average between $30-$40 cubic metre for veneer and sawlogs, $22-$28 m^3 for second grade sawlogs, and $14-$16 a tonne for pulp logs. Timber in remote areas might attract $8 a tonne' – John Caples, The Examiner 3/12/02).

2.1.2 Increase in downstream processing revenue and employment

There is a considerable difference between the value of woodchips and sawn timber:

- woodchips are worth $78/tonne (green metric tonne) at the point of export as the FOB price[8]
- Tasmanian eucalypt hardwood, weighing one tonne as raw resource, is worth (at a sawn timber recovery rate of 28%[9]): $242 as green timber, $484 as hardwood framing and $605 as dressed boards[10]

At the difference in value between pulpwood and finished hardwood of $527 per tonne, the 735,000 tonnes of additional sawlog generated by milling 25% of timber from the current pulp wood stream is worth an estimated $387 million per annum to Tasmania's economy. In terms of flow-on benefit, the additional processing is equivalent to 1,230 direct timber processing jobs and 1,070 indirect jobs[11].

[8] The current LAHCE for woodchips is $156 per bone dry metric tonne (BDMT). One green metric tonne of native pulp hardwood generates about 0.5 BDMT.
[9] Ryan, T. (1999). A review of log segregation and utilisation in Tasmania commissioned by the Forests and Forest Industries Council of Tasmania.
[10] Based on current retail prices of $2, $4 & $5 per super foot for green timber, framing timber and dressed timber respectively at a conversion rate of 432 super feet per cubic metre.
[11] From the eleven industry input/output model of Tasmania described in: Felmingham, B. (2002). The economic contribution of the Circular Head Wood Centre. Report prepared by Symetrics for Forestry Tasmania.

Forestry Tasmania would argue that they are currently developing projects for more downstream processing in the state. The projected annual returns from Forestry Tasmania's projects the Huon Wood Centre and Circular Head Wood Centre ($167 million and $51 million[12] respectively) look reasonable at first glance, however, the projects still rely on high volume resource flow derived from clearfelling of native forest (838,000 tonnes per annum) and the major output is woodchips (74%)[13].

3.0 Does clearfelling make economic sense?

Clearfelling enables high volume flow of timber for minimal labour input. Hence it is the favoured harvesting technique for timber companies that have high capital investment and a focus on maximising woodchip production. Clearfelling, however, considers only short-term timber economics and not long-term forest economics. Forests are not designed to cope with ecologically inappropriate profit-taking activities that designate one part of the forest system, the trees, as a commodity and consider other parts as competition, pests, waste and slash[14].

Timber companies can draw handsome profits due to the harvesting efficiency of clearfelling, however there are many hidden costs that are mostly borne by the community. These costs include: site preparation for re-harvesting, browsing control, tree thinning, bridge building, road construction and maintenance. Additionally, clearfelling forecloses on any other potential economic value (refer to Section 3.2) at the forest site until a new 'fibre farm' has regenerated which may be anything up to decades or centuries, depending upon the success or otherwise of the regeneration.

The eucalypt trees in old growth forests are often described by forest managers as 'over-mature' or 'decadent' and in need of logging before they rot or fall over. This kind of categorisation gives the managers justification for clearfelling, regardless of how much special species timber (e.g. celery-top pine, myrtle, blackheart sassafrass) will be destroyed in the process. Although the appetite for conversion of native hardwood timber to woodchips appears to be limitless, there is not an immediate market for all the special species timber that is logged under clearfelling operations. A glut of these timbers is therefore created because the quantity of material felled is far larger than the local market can absorb and so much

[12] Felmingham, B. (2002). The economic contribution of the Circular Head Wood Centre. Report prepared by Symetrics for Forestry Tasmania.
[13] "The Wood Centre –Southwood Resources – Huon. Development Proposal and Environmental Management Plan, August 2001, Forestry Tasmania, SEMF Holdings, Hobart, p.vii
[14] Hammond, H. (1993). Clearcutting: ecological and economic flaws. In Devall, B. Ed. 'Clearcutting, the tragedy of industrial forestry'. Sierra Club Books, Earth Island Press.

potentially valuable timber is classified as not being 'commercial'. For example, only a small proportion of the celery-top pine that is felled is marketed as craftwood or building poles, the majority is bulldozed and burnt in coupe regeneration burns[15].

3.1 The economic value of wasted special species timbers

The stronghold of Tasmania's special species timbers is the tall, wet, mixed forests and rainforests of the state's northwest, southwest and to a lesser extent, the northeast highlands. Harvesting in the wet, mixed forests is conducted almost solely by clearfelling.

The recovery of species timbers logged by clearfelling was analysed in old-growth coupe Esperance 74D, for which a detailed inventory was conducted[16]. The total amount of special species timber extracted from the coupe for use as sawlog or craftwood was 760 tonnes (**Table 2**), or less than 2% of total timber extractions[17]. Based upon this 'recovery rate' the projected royalty and sawn timber value of wasted special species timber logged from state forest is given in **Table 2**.

Table 2: Volumes and estimated values of special species timber logged but not used in 2002

	Special species timber used (tonnes)	**Special species timber cut (tonnes)**	**Special species timber cut but not used (tonnes)**	**Royalty value*** **	**Value as sawn timber**** **
One coupe (Esperance 74D)	760	62,500	61,740	$2 million	$29 million
State forest	16,600*	1,440,000**	1,423,400	$53 million	$680 million

*Derived from Forestry Tasmania Annual Report 2001/02

**Conversion rate based upon 1.2% recovery of special species in coupe Esperance 74D

***Median royalty of $37/tonne given that some of the timber would be craftwood quality ($14/t), out-spec sawlog ($15/t), utility sawlog ($30/t) and sawlog ($60/t)

****Assumes the average price for a range of special species timbers is $8 per super foot = $3,400 per cubic metre. Also assumes a conversion of 0.5 between green tonnes and bone dry tonnes and a sawn-timber recovery rate of 28%[18]

The information in **Table 2** demonstrates that special species timbers have become an economic casualty of clearfelling to the tune of an estimated $53 million annually in royalties and $680 million annually in

[15] Green, G. (2002). Logging coupe inventory – Esperance 74D. Timber Workers for Forests publication.
[16] Ibid.
[17] Ibid.
[18] Ryan, T. (1999). A review of log segregation and utilisation in Tasmania commissioned by the Forests and Forest Industries Council of Tasmania.

sawn timber value (**Table 2**). Aside from the monetary value, the huge volume of timber cut and not used also represents significant loss of employment potential to the tune of 2,390 timber production jobs and 2,080 indirect jobs[19].

There must also be a degree of concern in terms of long-term resource sustainability because almost 100 years of potential special species timber supply (at current usage rates) is logged every year. A previous study has already determined that there may be as little as 12 years supply of special species timbers left in production areas of Tasmania's southern forests if clearfelling continues at current rates[20]. At that point in time there would be a 400-year wait for full regeneration of forests holding mature celery-top pine, myrtle and black-heart sassafrass. If the point of ongoing sustainable yield is passed, the Tasmanian economy will lose, at the very least, the $35 million per annum that the special species timber industry currently generates[21].

3.2 Non-timber values affected by clearfelling

When a forest is logged by clearfelling there are many values, other than the timber values, that are compromised. These include: ecotourism; water yield and quality; soil degradation due to compaction, scraping and gouging; microclimate; carbon and nutrient cycling; and pollination services, which in Tasmania has been valued at $100 million per annum[22]. Other consequences of clearfelling such as fragmentation of forest landscapes, siltation of water supplies, loss of animal and plant species and loss of entire forest communities cannot be valued in dollars.

In state forest (often described as 'multiple use forest') the short-term financial value of a portion of the standing timber is what determines the immediate fate of the forest. Although other values are catered for, particularly tourism ventures, the sites allocated are very small islands amongst vast areas of forest the primary use of which is to maintain a high volume flow of timber for woodchip production. The 'multiple use' aspects of state forest are compartmentalised with no integration of values throughout the forest landscape. Biodiversity and integration of human values with the forest is significantly compromised.

Proper economic evaluation of any timber harvesting operation needs to consider the financial impact on other parties, not simply whether it is profitable when considered in isolation. When non-timber values are destroyed by logging, many people experience a change in the value they derive from the forest, and

[19] From the eleven industry input/output model of Tasmania described in: Felmingham, B. (2002). The economic contribution of the Circular Head Wood Centre. Report prepared by Symetrics for Forestry Tasmania.
[20] Green, G. (2002). Tasmanian timber industry jobs. Timber Workers for Forests publication.
[21] Harris, G, "Forestry Forum", Republic Bar, Hobart, 26/3/02.
[22] The Tasmanian Conservationist, October 2002. Newsletter of the Tasmanian Conservation Trust.

ideally, each should be compensated. The financial return received from logging needs be high enough to compensate all losers if policy is to be socially equitable. If the return derived from logging is not sufficient to cover the non-timber values, it should be left to provide the other uses it can deliver to the community.

It is difficult to assign non-timber values to forests in economic terms. However, we need to ask the question as to whether one-off financial returns at each clearfell logging rotation (30-90 years) are adequate to offset the non-timber values, which in essence, provide economic value and economic potential to the community every day. The decision about what is to be logged in state forest needs to incorporate the community, not just Forestry Tasmania, whose forest management practices are determined to some extent by contractual arrangements with their primary customers who do not necessarily have a long-term commitment to local timber communities.

4.0 Conclusion and recommendations

Current management of state forest is characterised by a predominance of clearfelling, high timber production volume, low margins, decreasing levels of downstream processing and detrimental impacts on alternative forest values which if maintained have the potential to provide a constant income stream to the community.

The analysis conducted in this report demonstrates that if 25% of the current pulpwood stream from state forest was diverted to local downstream processing, the state would benefit to the tune of $15 million per annum in royalties, $387 million per annum in processing revenue, 1,230 in direct jobs and 1,070 in indirect jobs. This increase in efficiency would lift Forestry Tasmania's royalty return from native forest harvesting by 31%. Alternatively, Forestry Tasmania could harvest 23% less forest per annum to achieve the same financial return as currently achieved. This would have the added benefit of enabling the Tasmania Together forestry benchmarks[23] to be met without any financial loss.

[23] Tasmania Together State Government community consultation process - Benchmark 24.2.1: area reduction of clearfelling in old growth forests. The benchmark covers both an end to clearfelling in specified high conservation value old growth forest by January 1 2003 and a complete phase out of clearfelling in old growth forest by 2010.

The projected annual returns from Forestry Tasmania's projects the Huon Wood Centre and Circular Head Wood Centre ($167 million and $51 million[24] respectively) are not as attractive as they may first appear. These returns rely on the same economically unsustainable management practices underpinned by clearfelling which causes the destruction of an estimated 1.4 million tonnes of special species timbers annually valued at $53 million in royalty and $680 million in processed timber.

Clearfelling in Tasmania is leading to the elimination of quality hardwoods and specialty timbers in state forest and will destroy the opportunity for a skills-based timber industry in the future if quality native forests continue to be clearfelled. Timber workers whose livelihoods depend upon forest products of world quality standard are seeing the destruction of their future resource base for questionable short-term returns. The diversity and abundance held by the state's native forests has taken geological timescales to develop, and when destroyed by clearfelling, cannot be renewed under the timescales (decades) that characterise the desired logging rotations of Forestry Tasmania.

Recommendations

If Tasmania is to achieve a greater per unit economic return from state forest, then clearfelling must be reduced and excluded at the very least from the 'Tasmania Together' forests[25] which comprise about 18% of the current state forest available for pulp production[26]. Ideally, these forests should be placed into Special Timber Management Units and their future use decided through a fully inclusive consultative process. Previous research has demonstrated that such a move would not adversely affect Gunn's ability to expand woodchip production[27].

In order to achieve more equitable 'multiple use' benefits from state forest there should be thorough community-based economic appraisals conducted on a coupe by coupe basis to:

- assess whether clearfelling is the best option for the community
- determine who the beneficiaries of clearfelling are
- assess what other values are at stake should clearfelling occur
- determine what alternative values could deliver to the community if alternative management systems were implemented.

[24] Felmingham, B. (2002). The economic contribution of the Circular Head Wood Centre. Report prepared by Symetrics for Forestry Tasmania.
[25] Tasmania Together State Government community consultation process - Benchmark 24.2.1: area reduction of clearfelling in old growth forests. The benchmark covers both an end to clearfelling in specified high conservation value old growth forest by January 1 2003 and a complete phase out of clearfelling in old growth forest by 2010.
[26] Edwards, N. (2003). Can Gunns afford to take the ethical high ground? – The finances of preserving the Tasmania Together targets.
[27] Ibid.