2026 FOREST VALUATION SUMMIT

Melbourne
30-31 March, 2026

Genesis of the NZIF Forest Valuation Standards
Bill Liley, Indufor Asia Pacific

Initiation …

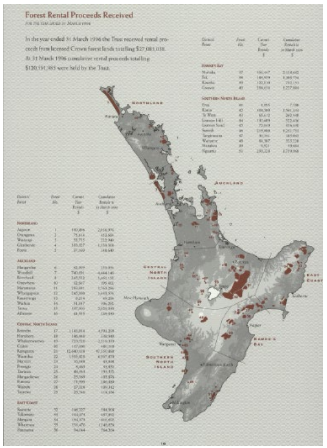
A formative influence on the Standards was the NZ Crown Forest Asset Sales (CFAS).

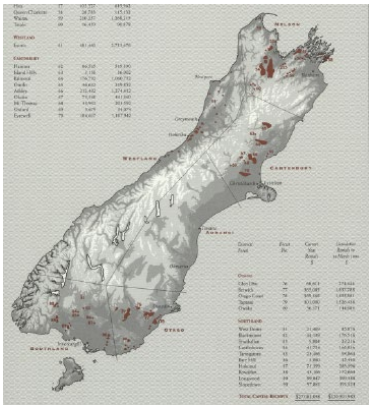
The forests were owned by the Crown (i.e. the state) and when put up for sale, at 537 000 ha, they represented approximately half of the national planted forest estate

The sale involved 88 defined plantation parcels, located across the length of NZ

Under original plans, they would have all been sold in July 1990. In practice, most blocks were sold by 1992.

They had a full range of age classes. Despite being dominated by one species, radiata pine, they were evidently heterogenous.





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Aspects of the sale process

- There was an imperative to complete the process quickly

- Correspondingly, a suite of full and informative forest descriptions were required, supporting a competitive bidding process
- The government required its own assessment of what each sale package might receive.
- As the sale process progressed it increasingly communicated where its expectations lay

Other factors?
- Through having a full span of age classes most of the resource was immature
- With a couple of exceptions, there were no long term wood supply agreements
- There was a demonstrated but relatively new log export market
- Price point was delivered at mill door or at wharf gate

Anything else?
- Through a late injunction by the Federation of Maori Authorities, the Crown agreed that it would not sell the land. A rental regime involving Crown Forest Licenses was implemented

Valuation Method

Faced with the three recommended methods of valuing assets– ***comparable sales, income*** *and* ***cost*** – the compelling candidate for the CFAS process was the *income* approach. Reasons included:

- There was very little useful in-country transaction evidence
- Individual forests were very different in their circumstances and performance. Any process of extending comparable sales evidence was inherently challenging
- The commercial viability of the forests was still being proven. This denied the credibility of a cost-based approach.

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What fell into place…?

- New Zealand had, by that stage, a strong research history with radiata pine. The species had been domesticated, substantially transformed from its wild origins
- The Forest Research Institute, through cooperation with a range of forest owners had developed capable nationwide stand growth modelling
- Forest estate modelling had made an impressive start – notably IFS, RMS2020 and FOLPI.
- Foresters were getting PCs. Computer technology and computer literacy were revolutionising how individual resource foresters could deploy growth models, forest estate modelling and DCF analysis.

What fell into place…?

- The School of Forestry, University of Canterbury, had from its outset placed a strong emphasis of forest economics.
- Combined with initiatives under the Economics of Silviculture programme at the FRI, a large cadre of forestry managers and analysts were well familiar with DCF analysis – there was no “Faustmann who”?
- The broad upshot was that those advising the sell side and those advising the bidders were in broad alignment on how it could be done.

Original authorship of the NZIF FVS

MEMBERS OF NZIF FOREST VALUATION WORKING PARTY	Dr Bruce Manley (Convenor)
	Mr Alan Barnes
	Mr Peter Berg
	Mr Peter Clark
	Mr Steve Croskery
	Mr Jeremy Fleming
	Mr Peter Gorman
	Mr Bill Liley
	Mr Peter Casey (since 1994)
	Ms Tanya Lieven (since 1995)
	Mr Kevin Cooney (since 1996)
	Mr Brian Rawley (since 1996)

Representatives from industry, academia, consultancy and financial reporting

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The early 1990s…cementing the approach

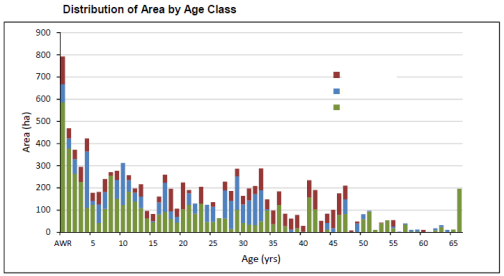
- Tree growing as a business gained popular credibility. NZ underwent a third planting boom, but arising from a different funding source - smaller private owners and investment syndicates

- There was a perfect storm of contributing factors
    - Log price spike, and correspondingly an expectation of satisfactory returns on investment
    - De-regulation of land use under the RMA – forestry could come down from the hinterland
    - Less assurance of state support for eventual superannuation
    - The prominence given to commercial forestry by the CFAS process
    - Further revision to the forestry tax regime

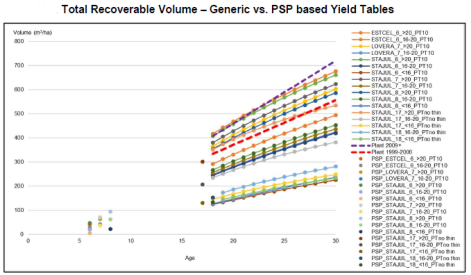
- The 3rd planting boom was comparatively short lived, and in the aftermath of the price spike, log prices adopted a disappointing trajectory.
- Nevertheless, the business of forest growing had become very firmly decoupled from the business of processing the tree crop. Forest growing was a profit centre in its own right and needed the measurement systems that would support this

DCF Employing a Forest Estate Model

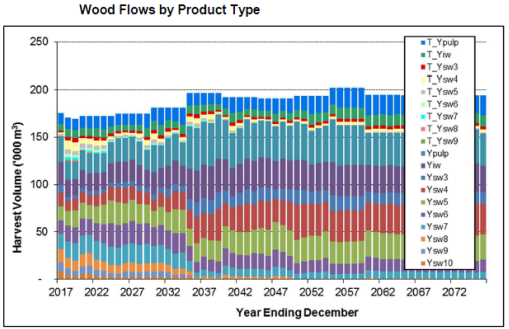
Age Class Distribution



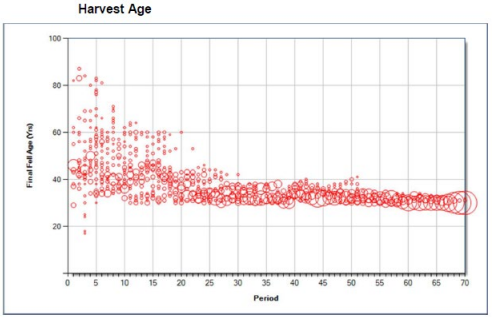
Yield Tables



Projected Woodflows



Age of Harvest



DCF Employing a Forest Estate Model

Projected Woodflows and Cashflows

PERPETUAL WOOD FLOW & CASH FLOW

Year End December			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	20
SUMMARY																				
Volume																				
Roundwood volume from forest harvesting activity	[000 m3]		88.8	170.7	169.2	172.8	172.5	172.9	172.9	172.9	175.2	175.2	175.2	175.2	175.2	181.5	181.5	181.5	181.5	1
Roundwood equivalent volume from used roadside	[000 m3]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Delivered Wood Product Volume	[000 m3]		88.8	170.7	169.2	172.8	172.5	172.9	172.9	172.9	175.2	175.2	175.2	175.2	175.2	181.5	181.5	181.5	181.5	1
Cash Flow																				
Revenue	NWC:	[AUD 000]	6 309.6	11114.7	11083.6	11202.7	11226.8	11195.4	11189.2	11156.9	11247.1	11282.4	11302.7	11281.0	11291.6	11239.8	11270.7	11065.5	11070.3	110
Production Costs	NWC:	[AUD 000]	(1605.7)	(3 200.4)	(3 097.3)	(3 209.7)	(3 215.2)	(3 130.2)	(3 194.3)	(3 270.0)	(3 407.0)	(3 445.7)	(3 389.6)	(3 424.7)	(3 523.9)	(3 607.6)	(3 774.7)	(3 582.1)	(3 635.6)	(3 75
Transport Costs	NWC:	[AUD 000]	(1 204.7)	(2 134.3)	(2 179.5)	(2 158.6)	(2 253.8)	(2 168.3)	(2 115.5)	(1 957.3)	(2 035.1)	(1 973.4)	(2 027.5)	(1 917.0)	(1 968.7)	(2 029.2)	(2 049.9)	(1 948.7)	(1 943.4)	(19
Third Party Share		[AUD 000]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Operating Margin		[AUD 000]	3 399.2	5 778.0	5 806.9	5 675.4	5 657.8	5 888.9	5 879.3	5 929.6	5 805.0	5 863.4	5 885.6	5 939.3	5 799.2	5 603.0	5 454.1	5 534.8	5 491.3	53
Operational Expenditure	NWC:	[AUD 000]	(340.6)	(616.3)	(932.1)	(956.6)	(792.6)	(1066.9)	(920.2)	(1051.7)	(605.6)	(372.6)	(795.6)	(932.0)	(964.2)	(972.4)	(935.4)	(912.7)	(901.4)	(9
Capital Expenditure		[AUD 000]	(214.0)	(526.7)	(319.6)	(247.7)	(524.0)	(385.6)	(479.5)	(406.5)	(385.7)	(370.0)	(425.4)	(441.4)	(344.0)	(391.5)	(378.2)	(494.5)	(426.0)	(4
Area-Based SG&A Expenditure	NWC:	[AUD 000]	(564.4)	(1129.0)	(1095.1)	(1089.2)	(1085.2)	(1085.2)	(1089.2)	(1092.6)	(1092.6)	(1092.6)	(1092.6)	(1092.6)	(1094.5)	(1094.5)	(1094.5)	(1094.5)	(1094.5)	(10
Harvest Based SG&A Expenditure		[AUD 000]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SG&A Modelled Using the 'Other' Worksheet		[AUD 000]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Investment Cash Flow before Non-Cash Charges		[AUD 000]	2283.2	3302.0	3461.0	3235.8	3255.2	3411.1	3384.2	3284.8	3441.2	3528.8	3572.0	3473.3	3354.5	3144.0	3045.9	3123.0	3069.4	29
Non-Cash Freehold Land Use Charge		[AUD 000]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net Investment Cash Flow		[AUD 000]	2283.2	3302.0	3461.0	3235.8	3255.2	3411.1	3384.2	3284.8	3441.2	3528.8	3572.0	3473.3	3354.5	3144.0	3045.9	3123.0	3069.4	29
Cash Flow Timing																				
Opening date of annual modelling period	[Date]		01-Jan-17	01-Jan-18	01-Jan-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28	01-Jan-29	01-Jan-30	01-Jan-31	01-Jan-32	01-Jan-33	01-Ja
Date of yield event in modelling period	[Date]		30-Jun-17	30-Jun-18	30-Jun-19	30-Jun-20	30-Jun-21	30-Jun-22	30-Jun-23	30-Jun-24	30-Jun-25	30-Jun-26	30-Jun-27	30-Jun-28	30-Jun-29	30-Jun-30	30-Jun-31	30-Jun-32	30-Jun-33	30-Ju
Closing date of annual modelling period	[Date]		31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29	31-Dec-30	31-Dec-31	31-Dec-32	31-Dec-33	31-De
Days between opening and closing dates	[Days]		365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	
Days to yield event from opening date	[Days]		180	545	910	1276	1641	2006	2371	2737	3102	3467	3832	4198	4563	4928	5293	5659	6024	
Date of cash flow occurrence	[Date]		30-Jun-17	30-Jun-18	30-Jun-19	30-Jun-20	30-Jun-21	30-Jun-22	30-Jun-23	30-Jun-24	30-Jun-25	30-Jun-26	30-Jun-27	30-Jun-28	30-Jun-29	30-Jun-30	30-Jun-31	30-Jun-32	30-Jun-33	30-Ju
Days from valuation date to cash flow occurrence	[Days]		0	365	730	1096	1461	1826	2191	2557	2922	3287	3652	4018	4383	4748	5113	5479	5844	
Cash Flow Discounting																				
Discounting multiplier	[x]		100.0%	94.2%	84.9%	79.3%	72.1%	66.5%	61.3%	56.5%	52.0%	48.0%	44.2%	40.7%	37.5%	34.6%	31.9%	29.4%	27.1%	25
Harvest dependant cash flow multiplier	[x]		50.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	10
Non-Harvest dependant cash flow multiplier	[x]		50.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	10

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Cornerstones of the original NZIF FVS

- Big forests as the *general* case – smaller forests and woodlots were *special*

- Future projections of woodflows and cashflows. Current standing stock might be assessed, but this was primarily to provide start points for yield projections.
- Modelling systems were required for:
    - Stand growth modelling
    - Forest estate modelling – within these allocation and transport modelling, as well as the facility to test different silvicultural management alternatives
    - Projections of market and price development

- Discounted cashflow analysis
    - Needs a discount rate - and this was a motivation for the long-running series of discount rates surveys that Bruce Manley has continued
    - Invites treatments of debt funding, tax and then, necessarily, inflation.

Subsequent refinements?

- Things we thought better of:
  - Land Expectation Value (LEV) and its role in attributing a value to the land

- Things we explored further:
  - Cost based approaches
  - Notional rental treatment, for handling the tree crop value: land value nexus

- Things we remained uncertain about:
  - Treatment of tax (but with an awareness that someone needed to provide guidance on the idiosyncrasies of the NZ Cost of Bush tax treatment)

- The Working Party remained generally firm in resolve that use of the IDR as a unit of comparison, meaning that we were respecting the sales comparison approach.

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Consequence of the refinements

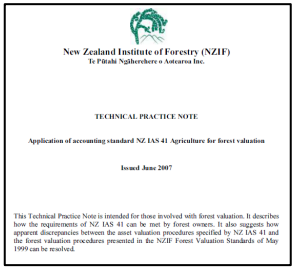
The Working Group produced technical papers that provide additions and updates to the FVS:

The compatibility of the NZIF FVS and IAS41

The treatment of land in a forest valuation

Cost-based approaches in valuing NZ's forests

Forest valuation recognising the NZ Emissions Trading Scheme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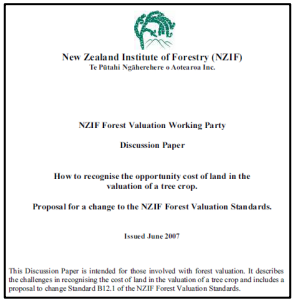
TECHNICAL PRACTICE NOTE

Application of accounting standard NZ IAS 41 Agriculture for forest valuation

Issued June 2007

This Technical Practice Note is intended for those involved with forest valuation. It describes how the requirements of NZ IAS 41 can be met by forest owners. It also suggests how apparent discrepancies between the asset valuation procedures specified by NZ IAS 41 and the forest valuation procedures presented in the NZIF Forest Valuation Standards of May 1999 can be resolved.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NZIF Forest Valuation Working Party

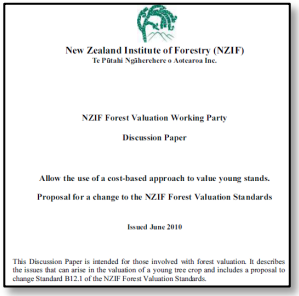
Discussion Paper

How to recognise the opportunity cost of land in the valuation of a tree crop.

Proposal for a change to the NZIF Forest Valuation Standards.

Issued June 2007

This Discussion Paper is intended for those involved with forest valuation. It describes the challenges in recognising the cost of land in the valuation of a tree crop and includes a proposal to change Standard B12.1 of the NZIF Forest Valuation Standards.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NZIF Forest Valuation Working Party

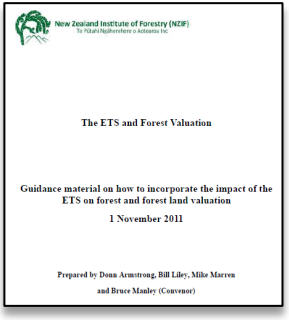
Discussion Paper

Allow the use of a cost-based approach to value young stands.

Proposal for a change to the NZIF Forest Valuation Standards

Issued June 2010

This Discussion Paper is intended for those involved with forest valuation. It describes the issues that can arise in the valuation of a young tree crop and includes a proposal to change Standard B12.1 of the NZIF Forest Valuation Standards.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The ETS and Forest Valuation

Guidance material on how to incorporate the impact of the ETS on forest and forest land valuation

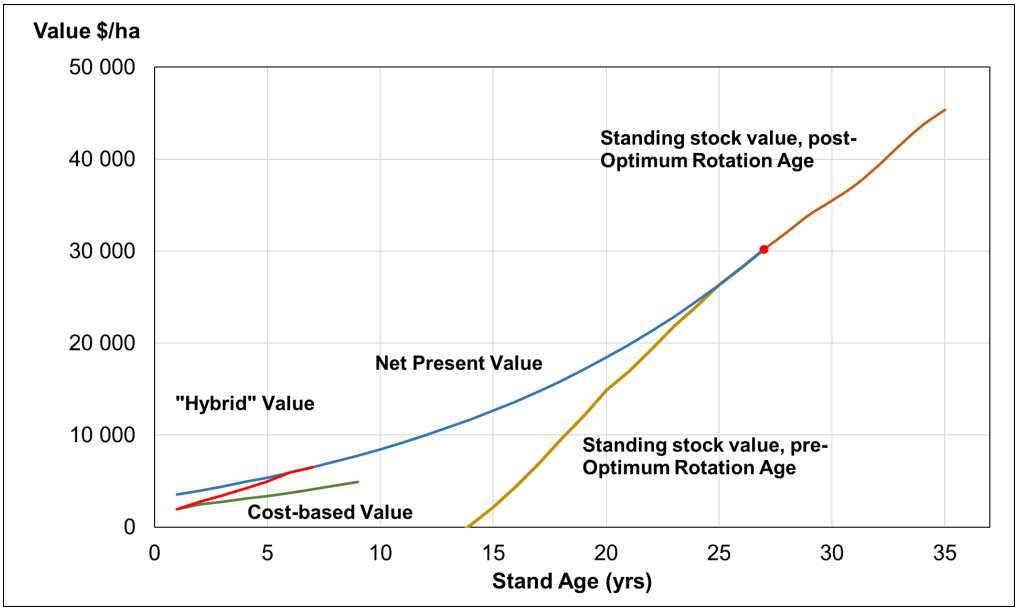
1 November 2011

Prepared by Dean Armstrong, Bill Liley, Mike Marren and Bruce Manley (Convenor)

The critical reception….?

Over time, the NZ forestry sector came to be dealing with a large number of investment groups based in North America – the largest and most active timberland investment in the world.

How did our approach align with theirs?



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How have the standards survived stress -testing?

It is noteworthy that for their first 20 years, the FVS remained comparatively unchanged while very many things changed around them:

- The status of forest investment
- The nature of forest owners
- A substantial reduction in debt funding
- Forest management practice
- Forest description technology
- Changes to the regulatory environment
- Changes to financial reporting standards

How have the standards survived stress -testing?

The combined extent of the changes has been substantial, and this might have been the prompt for some structural overhaul.

Instead, we have found that the structure has largely remained appropriate and adaptable.

One demonstration of this has been with the activities of New Zealand valuers offshore. The approaches represented in the standards have proven readily transportable

In 2019, the Council of the NZIF provided an updated set of instructions to the Working Party:

- To review and revise the NZIF Forest Valuation Standards to ensure that they remain relevant to the valuation of plantations in New Zealand
- To extend the NZIF Forest Valuation Standards to ensure that they are comprehensive in the coverage of valuation issues.

Adjustments in 2019

Adjustments included

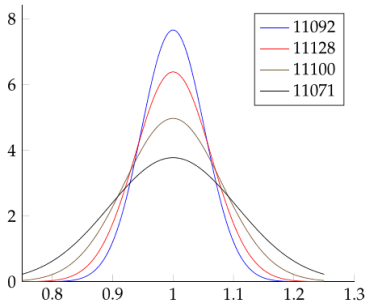
- A revision to Standard B12 (Forest Valuation Method) to require that the valuer to considered the sales comparison approach, the income approach and the cost approach. The Standard is no longer prescriptive about giving precedence to a particular approach.
- The addition of a section in the Guidance Notes addressing the contribution from subsequent rotations.
- Requiring in Standard B1 (Description of Land) a declaration of the status of the land in the New Zealand Emissions Trading Scheme (ETS), the Permanent Forest Sink Initiative (PFSI) and the Afforestation Grant Scheme (AGS)
- Requiring in Standard B10 (Discount rates) a more explicit disclosure of the cashflows to which the discount rates apply, including capital structure assumptions, timespan of cashflows, terminal value assumptions and treatment of risk
- Changing Standard B11 (Taxation effects) from a standard approach that adopted post-tax cashflows to expressing no preference about the inclusion or exclusion of tax.

A Launch from a Summit…?

- The geographic metaphor is intriguing, given that it may be safest to descend to the shore first.
- If we accept the spirit though, it does suggest we check what lies ahead. From the NZIF FVWP's perspectives, there is still rather a lot to be done.

A shortlist includes:

- Carbon
- A comprehensive treatment of durable assets
- A home for NPV_{2R+}
- More suggestions on modelling the implications of catastrophic loss
- The role for multiple discount rates
- More acknowledgement of operating leverage
- Providing examples of more comprehensive financial modelling
- Getting input from wider professional disciplines
- More insightful use of statistics to convey imprecision
- Supporting the accreditation of forest valuers



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A launch from a summit…?

From such a list one is tempted to reprise Churchill's summation in the aftermath of El Alamein

"*Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning"*

If 25 years seems like a long development period, then it is only one radiata pine rotation.

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