than in-forest chipping, but not necessarily a lower total cost. Integrated harvesting systems which harvest biomass in conjunction with conventional logging appear to be most effective, and work best in clearfell situations. Given the problems that many of the observed operations had in keeping the fuel wood processor working, comminution at point of use or a central site would appear to be worthy of consideration. This decision is dependent on being able to achieve suitable truck payloads with uncomminuted logging debris. A major problem is that comminuted wood is difficult to store for long periods without degrade occurring (heat build up, microbial activity, smell). Storage in the forest in unchipped form, covered, with 'just in time' chipping, appears to be the best solution. For logging residue collected from landings, hogs (or tub grinders) rather than chippers are likely to be a better option as they are less susceptible to damage from contaminants such as rock and metal.

The study tour highlighted the strong potential for electricity generation from forestry residue. Based on the information gathered during the tour, a New Zealand example of a wood fuel power plant using the BIOFLOW system was developed. The generation cost of electric power would be $0.12 to $0.14 per kilowatt hour (assuming no sales of waste heat). This is similar to other estimates for the cost of electricity produced from biomass gasification systems ($0.08 to $0.10 per kilowatt hour). The indications are that biomass-fuelled electricity generation in New Zealand will be economically unattractive in the short term, unless the fuel has a zero or negative value. This may change in the future as demand for electricity rises, the number of rivers available and suitable for hydro dams drops, and we are faced with reducing our greenhouse gas emissions.

Note: This article is a summary of LIRO Special Report No. 18 1995, Harvesting and Utilisation of Logging Residues. Copies of which can be obtained from LIRO. The proceedings of the Wood Fuels into Practice Conference is also available on loan from the LIRO library.

NEW INFORMATION

Forest valuation standards

The New Zealand Institute of Forestry has just released its Exposure Draft of Forest Valuation Standards. This is a substantial revision of an earlier Discussion Draft released in August 1994. The revision has taken into account the submissions received on the earlier document together with discussion with a wide range of interested parties.

The document has been prepared by the NZIF Forest Valuation Working Party whose membership consists of: Bruce Manley (Convenor), Alan Barnes, Peter Berg, Peter Casey, Peter Clark, Steve Croskery, Jeremy Fleming, Peter Gorman, Tanya Lieven and Bill Liley.

The Exposure Draft follows from terms of reference to develop guidelines for forest valuation, primarily for members of the NZIF engaged in the physical and financial description, and the valuation of a forest resource for internal or external reporting. It applies to a range of purposes of forest valuation including prospectus promotion.

The format of the Exposure Draft consists of five parts. It includes, in Part A, a discussion of the background issues, including the purposes of forest valuation (there are many), the nature of value (market value is the subject of the Exposure Draft), the methods of forest valuation (five basic approaches are explained), and finally and extensively, discount rate. Standards for describing and valuing a forest are presented in Part B in a format similar to Accounting Reporting Standards with stated standards followed by guidance notes and discussion. Part C deals with presentation issues. Part D contains a "Valuation Checklist" and the final Part E contains glossaries of Forestry Terms and Forestry Economic Terms.

The working party states a preference for values based on forest transaction evidence but notes that the evidence necessary to construct the value of the subject forest from reported forest sales is generally very thinly available and subject to practical interpretation difficulties. In the absence of forest market sales evidence, calculation of the market value of the trees as the "Crop Expectation Value" (CEV) is required. CEV is "the present value of cashflows arising from the crop". In this calculation the cost of the underlying land is to be included by a notional rent based on the "Land Expectation Value" (LEV), the economic value of the land in a forestry use. Some complexity is introduced into the concepts because the LEV is not necessarily the current land market value as calculated by a land valuer. The standards point out that any difference between these land value measures should be separately reported as it represents (when the LEV is higher) an indicated value not yet represented in the land market, or conversely, a forest (possibly inappropriately) placed on highly-valued land.

All the ingredients for the CEV calculation are explicitly described. The approach is essentially descriptive, with emphasis placed on disclosure of assumptions and leading factors in the valuation. The discount rate chosen is of course crucial to the level of value reported and accordingly the choice of discount rate and its application to cashflows receives detailed attention. However, no standard discount rate is prescribed.

Those readers expecting a mandatory "recipe book" approach to forest valuation with fixed major parameters (like discount rate and log prices) will therefore probably be disappointed. The typical managed forest is subject to wide variations in composition. This complexity suggests that a simple recipe is an unreasonable expectation and every valuer will need to inject judgement and experience to an often complex set of facts.

Copies of the Exposure Draft are available from the NZIF Secretariat, PO Box 19-840, Christchurch at a price of $30 to members and $60 to non-members. It is intended that the Exposure Draft will remain current for at least the next 12 months to enable practitioners to apply it. At this stage submissions will be called before a final set of Forest Valuation Standards is produced.

Meanwhile the task of the Working Party continues, as it considers means of implementing the Standards (such as training and providing worked examples) and the possibility of the collection and publication of commonly-applied valuation inputs. The Working Party is aware that although the Ministry of Forestry publishes the results of a quarterly survey on log prices there is limited information available on discount rates. It is currently looking at opportunities for information to be provided.

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Valuation Working Group