Report

54A10006
14 March 2008
Final

Sino Forest Corporation

Valuation of China Forest Assets
As at 31 December 2007

Competence. Service. Solutions.

PREFACE

This report is issued by Pöyry Forest Industry Ltd (**Pöyry**) to Sino-Forest Corporation (**Sino-Forest**) for its own use. No responsibility is accepted for any other use.

The report contains the opinion of Pöyry as to the **Value of Sino-Forest's Plantation Forest Assets as at 31 December 2007**. Nothing in the report is, or should be relied upon, as a promise by Pöyry as to the future growth, yields, costs or returns of the forests. Actual results may be different from the opinion contained in this report, as anticipated events may not occur as expected and the variation may be significant. Pöyry has no responsibility to update this report for events and circumstances occurring after the date of this report.

Andy Fyfe
PRESIDENT

David Nicoll
SENIOR CONSULTANT

Contact:

Andy Fyfe
2 Battery Road #21-01
Maybank Tower
Singapore 049907
Tel. +65 6733 3331
Fax +65 6734 6198
E-mail: andy.fyfe@poyry.com

Pöyry Forest Industry Pte Ltd

CERTIFICATION

Pöyry certifies to the following statements to the best of our knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and they are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- Pöyry has no present or prospective interest in the subject property, and no personal interest or bias with respect to the parties involved.
- Pöyry's compensation for completing this assignment is not contingent upon:
  1. the development or reporting of a predetermined value or direction in value that favours the cause of the client,
  2. the amount of the value opinion,
  3. the attainment of a stipulated result, or
  4. the occurrence of a subsequent event directly related to the intended use of this appraisal
- Previous high level inspections have been associated with valuations carried out by Pöyry in 2000, 2001, 2003, 2004, 2005 and 2006.
- Qualitative inspections were made of a sample of Sino-Forest areas in Gengma County, Lincang City Prefecture, Yunnan Province over the period 16-20 January 2008 and in Hezhou City Prefecture, Guangxi Zhuang Autonomous Region during the period 21-25 January 2008.
- The report has been prepared by staff consultants, retained consultants and office support personnel of Pöyry.

Pöyry is a global consulting and engineering firm focusing on the energy, forest industry and infrastructure & environment sectors. Pöyry employs 6000 experts, and Pöyry Plc is listed on the OMX Nordic Stock Exchange.

Management Consulting is one of the key practice areas of the Pöyry Forest Industry Group. The Management Consulting segment of this group maintains permanent offices in 11 countries. This includes offices in Vantaa, Stockholm, Moscow, Munich, London, New York, Montreal, Singapore, Shanghai, Auckland and Melbourne. Pöyry's Auckland office currently values some USD4 billion worth of forest assets annually, located in all parts of the world.

Our clients include a range of forest sector participants; forest owners, managers, institutional investors and financiers. Forest valuations are prepared for a variety of purposes:

- Financial reporting
- Insurance
- Taxation
- Compensation
- Acquisition/divestment/restructuring

Clients cover a wide spectrum including governments, commercial and private sector owners and investors. Changing international accounting standards are increasingly emphasizing the concept of “fair-market value” as the basis for asset reporting. This requires careful attention to transaction evidence for which Pöyry’s global presence is invaluable.

ASSUMPTIONS AND LIMITING CONDITIONS

This report was prepared at the request of and for the exclusive use of the client, Sino-Forest Corporation. This report may not be used for any purpose other than the purpose for which it was prepared. Its use is restricted to consideration of its entire contents. This valuation represents an update of Pöyry's 31 December 2006 forest valuation that was presented in Report 38A08032: *Valuation of China Forest Assets as at 31 December 2006*.

Details concerning the location and basic physical characteristics of the subject property were taken from data provided by Sino-Forest.

Pöyry has not been provided opportunity to view any of the contracts relating to forest cutting rights or forest asset purchases. Legal matters are beyond the scope of this report and the valuation is prepared on the assumption that titles to the forest assets are according to the data provided by Sino-Forest. Maps, diagrams and pictures presented in this report are intended merely to assist the reader.

Pöyry has undertaken a limited visual inspection of the forest resource from the ground in January 2008. No aerial survey work was carried out. Satellite image analysis is being carried out for the forests assets in Yunnan only. On-ground inspections of various parts of the Sino-Forest plantation assets were undertaken in association with previous valuations carried out by Pöyry in 2000, 2001, 2003, 2004, 2005 and 2006.

This appraisal assumes that the plantation sites visited by Pöyry in Guangxi and Yunnan during the January 2008 field inspection represent the full range of conditions present. The planted forest inspection process has been limited to a high-level review.

The inspection of recently acquired secondary-growth natural forest assets in Yunnan includes a qualitative survey of five different forest locations supplemented by limited inventory sample measurements to assist derivation of wood yield estimates.

Legal matters are beyond the scope of this report, and any existing liens and encumbrances have been disregarded, and the forest resource has been appraised as though free and clear under responsible ownership and competent management.

Unless otherwise stated in this report, the existence of hazardous materials or other adverse environmental conditions, which may or may not be present on the property, were neither called to the attention of Pöyry, nor did the consultants become aware of such during the inspection.

Pöyry recognizes the possibility that any valuation can eventually become the subject of audit or court testimony. If such audit or testimony becomes necessary as a result of this valuation, it will be a new assignment subject to fees then in effect. Pöyry has no responsibility to update this report for events and circumstances occurring after the date of this report.

Any liability on the part of Pöyry is limited to the amount of fee actually collected for work conducted by Pöyry. Nothing in the report is, or should be relied upon, as a promise by Pöyry as to the future growth, yields, costs or returns of the forests. Actual results may be different from the opinion contained in this report, as anticipated events may not occur as expected and the variation may be significant.

SUMMARY

Valuation

Pöyry has determined the valuation of the Sino-Forest assets as at 31 December 2007 to be **USD 1 245.3 million**. This is the result of a valuation of the existing planted area and uses an 11.5% discount rate applied to real, pre-tax cash flows.

Pöyry has also prepared an existing forest valuation that **includes** the revenues and costs of re-establishing and maintaining the plantation forests for a 60 – year period (perpetual valuation). However, to date Sino-Forest only has an option to lease the land under the purchased trees for future rotations, the terms of which have yet to be agreed. Sino-Forest is embarking on a 750 000 ha expansion of its estate in Hunan, Yunnan and Guangxi Provinces. Pöyry has determined the valuation of the Sino-Forest forest assets based on a perpetual rotation (including the planned expansion in Hunan, Yunnan and Guangxi) using a real pre-tax discount rate of 11.5% to be **USD3 205.2 million** as at 31 December 2007[1].

The following table presents the results of the valuation of the Sino-Forest estate. The results are shown at real discount rates of 10.5%, 11.5% and 12.5% applied to real pre-tax cash flows.

Table S1:
USD Valuation as at 31 December 2007

Forest Component	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	USD million		
Existing forest estate of 311 616.5 ha, current rotation only	1 290.651	**1 245.284**	1 202.664
Existing Forest Estate Plus Prospective Acquisitions	3 495.585	**3 205.216**	2 961.420

Value Change

The change in appraised value between 31 December 2006 and 31 December 2007 is attributable to the following key factors:

- The net decline of total forest asset area (but coupled with an increase in maturity within the estate, and a change to the age-class distribution and species mix).
- The revision of current and future log price estimates.
- The revision of management and production cost estimates.
- A change to the USD:RMB exchange rate.

[1] This perpetual value estimate is based on the assumptions made with respect to the species composition and age-class structure of the assets yet to be acquired. This value is indicative and should not be relied upon as a promise of future value. Should definitive information describing the species and age-class structure of potential acquisitions become available, this value should be reevaluated.

- Revised wood flow strategy.

Table S2 itemises the components of the overall value change.

Table S2:
Components of Value Change – USD millions

Value Change Component	Incremental Forest Value	Contribution to Change in Value	Contribution to Change
	USD Millions		Percent
Value as at 31 December 2006	**919.0**		
Change to forest area	813.5	(112.7)	(12.3%)
Changes in Log Prices	1 063.2	249.7	27.2%
Changes in Costs	1 014.2	(49.0)	(5.3%)
Changes in Exchange Rate	873.2	63.3	6.9%
Residual Attributable to Harvest Profile, Yield Tables, Resource Structure and Other Changes	1 245.3	372.1	40.5%
Value as at 31 December 2007	**1 245.3**	**326.3**	**35.5%**

Discount Rate

As part of the valuation of Sino-Forest's assets, Pöyry commissioned Dr Alastair Marsden of Auckland UniServices Limited to prepare a report on the cost of capital for a generic forest investment located in China.

Dr Marsden's report concluded that depending on the modelling assumptions a range of discount rates might be proposed for a forest-owning venture in China. His derived ranges of rates are shown in **Table S3**.

Table S3:
Estimate of Post-tax WACC by Marsden

Lower Bound	Average Estimate	Upper Bound
5.7%	**6.9%**	8.1%

The formulation of WACC employed by Dr Marsden was associated with post-tax cash flows and includes the cost of debt. Dr Marsden also converted his estimate of nominal post-tax WACC to an 'equivalent" real pre-tax WACC through a simple transformation with appropriate qualification. The average estimate of WACC to apply to real pre-tax cash flows is 10.25% (**Table S4**).

Table S4:
Estimate of Real Pre-tax WACC

Lower Bound	Average Estimate	Upper Bound
8.5%	**10.25%**	12.0%

Implied Discount Rates

In common with other valuers of Southern Hemisphere planted forests, Pöyry maintains a register of significant forest transactions. The available evidence is then analysed in an effort to derive the discount rate implied by each transaction. The process involves preparing a credible representation of the forest's future potential cash flows and then relating these to the transaction price.

From this type of exercise conducted in Australia and New Zealand, Pöyry has observed derived discount rates for recent transactions to generally fall within the range of 8-10%. These are real rates, applied to post-tax cash flows.

Pöyry has little implied discount rate data for Southern China. As the commercial plantation forest industry develops and forests are transacted, empirical evidence from which to derive implied discount rates is expected to arise.

Two significant Sino-Forest share transactions were conducted during 2007. Pöyry has completed preliminary implied discount rate analysis on these transactions, but notes the difficulty in deriving appropriate implied discount rates given the cash flow assumptions associated with the greater Sino-Forest business, that is Sino-Panels.

The capacity to utilise implied discount rates in this valuation is limited to considering how the forest investment in China compares with such investment in other locations.

Commercial forestry in Southern China is still its infancy and faces some challenges, these include:

- The reliability of forest descriptions
- The accuracy of yield prediction
- Achieving high growth rates in a consistent manner.

It is Pöyry's opinion that for many forest investors, investing in plantation forestry in China would be considered a riskier proposition than investing in the industry in Australia or New Zealand, for instance.

Incorporating Risk in the Discount Rate

If forest investment in China is at present perceived to be a more risky proposition than like activity in other international counterparts, the issue then becomes how to quantify this difference. The textbook treatments of the subject make it clear that the discount rate cannot be regarded as a simple catch-all for any and all forms of perceived risk. Because the discount rate may be a very blunt instrument in such a role it is preferable instead to attempt to acknowledge risk in the development of the cash flows to which the discount rate is applied. However, despite this principle, there is an inclination by potential purchasers to load the discount rate where they feel uneasy.

Pöyry has considered the risk and uncertainty associated with area statements, forest yield tables and the potential for losses associated with recent storms in selecting a discount rate for the 31 December 2007 valuation.

The Discount Rate Applied in Valuing the Sino-Forest Resource

Given the complexities in identifying what margin above other implied discount rates that forestry in Southern China should attract, Pöyry is disinclined to place weight on an implied discount rate derivation for this resource. This is consistent with the position taken by Pöyry in its 2006 valuation. The range of rates suggested by the alternative approach - the WACC/CAPM - is very broad.

Ultimately we have exercised our professional judgement in selecting a rate at the upper end of the WACC/CAPM range. This is a real rate of 11.5%. In selecting such a rate we have been inclined to recognise that investors in forestry in Southern China will inherently be taking a long term view, and do have grounds for optimism on the forest industry's future there. The fundamental factors that affect forestry performance are favourable. Importantly too, the definition of market value for the forests requires that there be not just willing buyers, but also willing sellers. If the only purchase offers to be extended involved very high discount rates we would expect that forests would not be willingly sold.

In the current market, Pöyry considers that 10.5% to 12.5% is representative of the range of real pre-tax discount rates that might be expected in forest transactions in Southern China. A discount rate of 11.5% has been selected and applied to pre-tax cash flows. It is Pöyry's perception that with a carefully timed and managed sale, other buyers could be attracted who would be willing to accept a similar pre-tax discount rate.

Log Prices

Sino-Forest generally sells the plantations on a standing basis and therefore does not sell logs direct to the market. However, current forecast mill gate log prices have been assumed for the purposes of the plantation cash flow forecasts and are presented below in **Table S5**.

Table S5:
Pulpwood and Sawlog Forecast Prices, 2006 – 2011

Pulpwood & Sawlog Grade	2006*	2007	2008	2009	2010	2011	2012+
	RMB per m^3						
Acacia Pulp	300	345	348	352	355	359	363
Acacia Bark	200	200	202	204	206	208	210
Poplar <8 cm	300	330	333	337	340	343	347
Poplar 8-12cm	355	445	453	460	468	476	484
Poplar 12-20cm	417	560	570	579	589	599	609
Poplar >20cm	485	670	681	693	705	717	729
C.Fir 6-14cm	541	600	610	621	631	642	653
C.Fir 14-20cm	782	800	814	827	841	856	870
C.Fir >20cm	951	980	997	1 014	1 031	1 048	1 066
Pine <8 cm	391	400	404	408	412	416	420
Pine 8-14 cm	482	600	610	621	631	642	653
Pine14-20 cm	582	700	712	724	736	749	762
Pine>20 cm	682	800	814	827	841	856	870
Euc <8 cm	303	345	348	352	355	359	363
Euc 8-14 cm	390	500	509	517	526	535	544
Euc 14-20 cm	440	600	610	621	631	642	653
Euc >20 cm	580	700	712	724	736	749	762
Broadleaf <8cm		345	348	352	355	359	363
Broadleaf 8-14cm		500	509	517	526	535	544
Broadleaf 14-20cm		600	610	621	631	642	653
Broadleaf >20cm		700	712	724	736	749	762

Pöyry's analysis suggests domestic sawlog prices are likely to increase at an average rate of 1.7% per year over the next five years. Pulplog prices are expected to increase at an average rate of 1% per year over the same period.

Change in Area through Forest Sales and Acquisitions

The data provided by Sino-Forest details that during the 2007 calendar year, a forest sales exceeded forest purchases by around 40 393.5 ha. However, as the trees in the area sold in 2007 were, on average, four years younger than the trees in the area purchased, the overall volume within the forest estate increased.

As apparent from **Table S6**, while numerous purchases and sales have taken place throughout 2007, the two key drivers of area change have been Sino-Forest's withdrawal from forests in Heyuan (Guangdong) and Jiangxi, and expansion in Hunan and Guangxi.

Table S6:
Summary of the Existing Sino-Forest Plantation Forest Area

Province	City	Type	Area under trees (ha)		Change in Area (ha)
			31-Dec-06	31-Dec-07	
Fujian		Planted (WOFE)♥	335.0	372.0	37.0
		Purchased	0.0	128.4	128.4
Guangdong	Gaoyao	Planted (CJV)♣	4 883.6	0.0	(4 883.6)
		Planted (WOFE)	0.0	5 266.3	5 266.3
		Purchased	17 166.9	6 747.6	(10 419.3)
	Heyuan	Planted (CJV)	7 168.4	0.0	(7 168.4)
		Planted (WOFE)	25 334.9	30 139.3	4 804.4
		Purchased	32 130.8	3 535.0	(28 595.8)
	Raoping	Purchased	0.0	609.7	609.7
Guangxi		Planted (CJV)	13 187.6	0.0	(13 187.6)
		Planted (WOFE)		11 243.5	11 243.5
		Purchased	75 335.9	141 089.0	66 753.1
Hunan		Purchased	69 571.2	96 078.9	26 507.7
Jiangxi		Planted (CJV)	7 544.8	0.0	(7 544.8)
		Planted (WOFE)	0.0	6 687.9	6 687.9
		Purchased	99 351.1	0.0	(99 351.1)
Yunnan		Purchased	0.0	9 719.1	9 719.1
Sub-Total		Planted (CJV)	32 784.4	0.0	(32 784.4)
		Planted (WOFE)	25 669.9	53 709.0	28 039.1
		Purchased	293 555.9	257 907.7	(35 648.2)
Grand Total			**352 010.2**	**311 616.7**	**(40 393.5)**

♥ – WOFE – Wholly Owned Foreign Enterprise

♣ – CJV – Cooperative Joint Venture

CONTENTS

APPENDICES

1 INTRODUCTION

Pöyry Forest Industry Ltd (**Pöyry**) has been requested by Sino-Forest Corporation (**Sino-Forest**) to prepare a valuation of its existing and prospective forest assets in Southern China. Pöyry has previously conducted forest valuations for specific areas within the forest estate in 2000, 2001, 2003, 2004, 2005 and 2006.

This valuation presents an update of Pöyry's 31 December 2006 forest valuation that was incorporated in Report 38A08032.

Forest description data for this valuation has been provided by Sino-Forest.

Since Pöyry's December 2006 valuation, two significant changes to shareholdings have occurred:

- On March 23 2007, Sino-Forest issued a press release[2] announcing that it had agreed to sell approximately 26 million, or 16% of its total diluted shares to several institutional investors including Temasek Holdings and United Capital Investments Group for CDN9.15/share (approximately CDN238 Million); and
- On June 12 2007, Sino-Forest issued a press release[2] announcing that it had completed a public offering of 15.9 million common shares for CDN12.65/share, or ~CDN201 Million. The offer was underwritten by a syndicate led by Dundee Securities Corporation and included CIBC World Markets Inc., Credit Suisse Securities (Canada) Inc., Merrill Lynch Canada, Inc., UBS Securities Canada Inc. and Haywood Securities Inc.

Significant efforts to acquire new forests and expand Sino-Forest's holdings in China have also continued throughout 2007. In addition to the master agreement signed in 2006: to acquire 400 000 ha in China's Hunan Province over a 14 year period[3], Sino-Forest has indicated that it has signed additional agreements in 2007 including:

- An agreement signed in March 2007 to acquire approximately 200 000 ha of non-state owned standing timber (predominantly mature species of pine, oak, birch and other broadleaved trees) in Lincang City, Yunnan Province over a 10 year period and, more recently
- An agreement signed in December 2007 to acquire 150 000 ha of Chinese fir and pine trees in Guangxi Province over a five-year period.

Pöyry is aware of Sino-Forest's recent acquisition activities in Yunnan Province as a function of the above agreement, and has inspected a sample of these forests as part of this valuation engagement. Additional inspections have been conducted within this valuation in Guangxi Province.

[2] Available from – http://www.sinoforest.com/companyreleases.asp

[3] On 28 September 2006 Sino-Forest issued a news release announcing its entering into a master agreement to acquire approximately 100 000 ha of pine and fir plantations in Hunan Province. On 7 December 2006, a further news release was issued detailing the signing of an agreement to acquire an additional 300 000 ha in Hunan, thus bringing the total area of planned acquisitions to 400 000 ha

The field inspection reports are presented in **Appendix 2 and 3**. As noted in previous reports, it is Pöyry's intention to visit other regions in a process of rolling inspections so that all of Sino-Forest's operations are visited within the annual valuation update process over time.

2 PURPOSE AND SCOPE

2.1 Purpose of the Valuation Update

The purpose of the valuation is to estimate the market value of the forests for asset reporting purposes; "market value" is defined as:

> *"the most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming that the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:*
>
> - *The buyer and seller are typically motivated.*
> - *Both parties are well informed or well advised, and acting in what they consider their own best interests.*
> - *A reasonable time is allowed for exposure in the open market.*
> - *The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale"*[4].

The market value of the assets is estimated as at **31st December 2007**.

2.2 Scope of the Valuation Update

The valuation update employs an income expectation approach based on projected wood flows (Section 3). Asset value has been estimated using pre-tax cash flows and a discount rate expressed in real terms.

As a valuation update, the exercise has specifically addressed the following:

- Material changes to the land base between 31 December 2006 and 31 December 2007.
- Acknowledgement of recent inventory data and their impacts on regional yield estimates.
- Acknowledgement of prevailing log prices.
- Acknowledgement of expectations for future log prices.
- Acknowledgement of new evidence of market perception of forest value demonstrated in recent transaction announcements.
- Acknowledgement of WACC estimates as provided by UniServices Auckland Limited.

[4] Uniform Standards of Professional Appraisal Practice, The Appraisal Institute (www.appraisalinstitute.org).

- Recognition that the forest estate is now twelve months further along the cash flow stream that was projected in the course of the 31 December 2006 valuation.

3 VALUATION METHODOLOGY

3.1 Outline of Valuation Methods

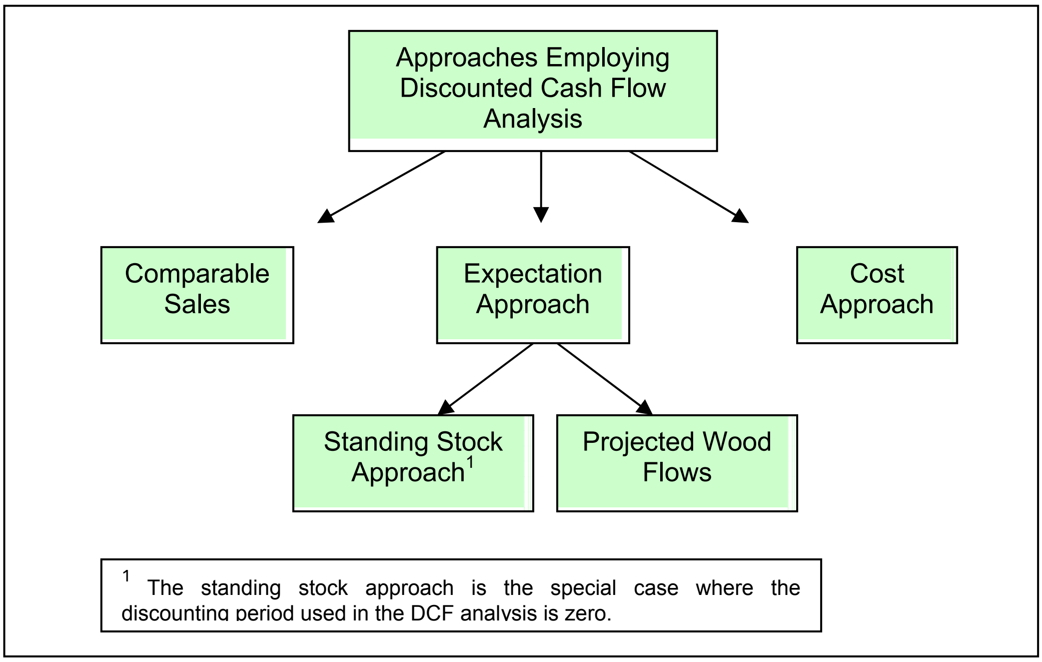
Accompanying the global expansion in planted forests has been ongoing refinement of the processes employed in forest appraisal.

Three main methods of appraisal are commonly distinguished. These are:

1. Comparable sales
2. Expectation value
3. Cost

If these methods are to be effectively utilised within forest valuation then all three of them generally require a discounted cash-flow (DCF) framework. A schematic representation of the relationship between the methods is illustrated in Figure 3-1 below.

Figure 3-1:
Valuation Approaches



3.2 Comparable Sales

In principle, the most satisfactory basis for valuing forests is to turn to the evidence provided by sales transactions.

It is necessary to select the most effective form of expression of the comparable evidence. Comparisons can be conducted at the levels of:

- Forest to forest
- Dollars per hectare
- Dollars per cubic metre of production
- Implied discount rate on forecast cash flow

In reviewing the potential role of each parameter, it is necessary to consider what factors influence the value of planted forests. Important factors may include:

- Forest maturity
- Species composition
- Site productivity
- Proximity to market
- Forest terrain (and thereby harvesting system)
- Silvicultural history
- Land value

Each of these factors may have a profound effect on forest value. Other factors are also recognised. Examples include the standard of roading infrastructure in the forest, and risk characteristics associated with climatic and pathogenic factors. Forest size can have an influence, although there may not be a consistent trend with changing forest area.

When comparing forests and the prices paid for them it is also necessary to consider the time at which an example sale took place. In the first instance the timing is reflected in perceptions of log prices. These involve not just the current prices, but also expectations of future price development.

Given the range of factors affecting forest value, it is statistically unlikely that forests can be found that are closely similar to a subject forest being valued. This is especially the case given that forest estate transactions in China have not to date been particularly frequent. Achieving a forest-to-forest match is extremely unlikely, as it would require finding forests alike in all respects, including size.

Forest appraisers have generally come to accept that the one distillable parameter that can be most usefully extracted from transactions involving heterogeneous forest resources is the Implied Discount Rate (IDR). Derivation of the IDR involves developing a credible projection of anticipated wood flows and then cash flows for each transacted forest, using the best information the analyst can obtain. This is then juxtaposed with the price actually paid for each resource. The discount rate at which the discounted cash flows match the purchase price is the IDR.

The IDR offers a device by which differences in size, timing, markets, location, age-class, volume, operability and other relevant factors are recognised. Further, the approach also recognises that a useful method of arriving at a market comparable result is to employ the same means that market participants utilise in deriving and supporting their negotiating positions. For Southern Hemisphere forest resources, the most common method of negotiating transaction values involves DCF constructions.

Given the lack of available comparable sales data for China, combined with the complexities in identifying what margin above other implied discount rates that forestry in Southern China should attract, Pöyry's preference was to not employ this method in valuing the Sino-Forest assets.

3.3 Expectation Approach

The Expectation approach provides the Net Present Value of the future net revenue stream. It is variously referred to as the "NPV", "PV", or "Income" approach[5]. As the terminology implies, the NPV approach involves projecting the anticipated future net income stream, and then "discounting" this, at a suitable cost of capital, in order to acknowledge the lower economic value of delayed receipts.

- The NPV approach generally involves adopting the standpoint of a potential forest purchaser. To this individual or entity, funds previously invested in the forest are irrelevant – the exclusive focus is on the forest's future earning capability.
- A crucial parameter within the NPV analysis is the "discount rate". The longer the period before income realisation, and the greater the discount rate, the greater the reduction in NPV. Forest investments are generally of a long term and their value is especially sensitive to the discount rate.
- Provided that the eventual revenues are as good as or better than the valuation assumes, an investor purchasing the forest at the derived value is assured of a rate of return on investment at least equivalent to the discount rate.

For the so-called Expectation approach it is common practice to derive a Weighted Average Cost of Capital. This distinguishes the distinct costs of debt and equity. A well-recognised procedure for deriving the cost of equity is through application of the Capital Asset Pricing Model. Pöyry engages the services of an external expert, Associate Professor Alastair Marsden of Auckland University, to prepare a WACC-based derivation of discount rate. Institutional investors are mindful that forestry represents just one opportunity within the full range of capital markets. A thorough consideration of WACC/CAPM evidence has become an increasingly important component of forest valuation.

The manner in which the Comparable Sales and Expectation approaches are applied appears at first impression to be similar. Both employ a DCF formulation and refer to estimates of future cash flows. This does not imply that they should be coalesced into one single method. There is sufficient difference between them that they can potentially lead to quite different results.

3.3.1 Realisation Value of Current Standing Stock

This method warrants some distinct discussion because it has had some historical application. It recognises the potential net realisation value of the current timber content of the forest if it were cut down immediately. A value is based on the merchantable content (or "standing stock") at the time of the valuation. It is therefore a special case within the Expectation approach. As the forest is harvested

[5] The list is not exhaustive. Other acronyms that may appear include PNW (Present Net Worth) and PW (Present Worth). In some jurisdictions, Net Present Value may include the costs of bringing the valued entity to sale. However in referring to NPV in this document we have used the term in its popular if inexact role, and treated it as providing equivalent results to the income approach.

immediately, the cash flow modelling is confined to a single period. No discounting is required to recognise the cost of capital.

This value is both tangible and comparatively straightforward to calculate. It does however have obvious limitations:

- For plantation forests, the timber realisation value of the stand may be very low for most of the rotation length. Despite this, the vendor will be mindful of the funds invested in each stand and can be expected to seek some reimbursement.
- By the final years of the characteristic rotation, the marginal rate of value growth of the standing stock becomes considerable. An informed and rational owner will recognise the economic opportunity associated with holding the growing trees rather than selling them. Only if the purchaser's offer matches the vendor's perception of economic opportunity cost can the vendor be indifferent as to whether to hold or sell. Inherently therefore, the vendor's perspective is based not on the current timber content but instead on the future anticipated revenue.
- For forest resources of significant size (e.g. Sino-Forest), it is unlikely that the market could absorb all of the forest wood content at once without log prices being depressed. Furthermore, Annual Allowable Cut (AAC) constraints prevent such harvesting strategies from being employed operationally.

The first effect leads to an unduly conservative valuation while the third can lead to an overly optimistic result. It is plausible but unlikely, that the two effects might offset one another. Pöyry's preference in valuing forests is to avoid this method altogether, as it has no rational basis for emulating expected investor behaviour.

3.4 Compounding of Costs

This method takes the costs involved in acquiring or establishing and maintaining the forest and accumulates these with compound interest from the inception of the investment to the current point in time. This forest value is therefore the price that forest owners would have to receive if they were to obtain a satisfactory rate of return on their investment to date. The method is equivalent to the accountants' concept of "capitalising" establishment/acquisition costs plus interest, although the forest valuer is more inclined to adopt assumed costs which are "standard" and current at the time of the valuation.

By using costs that are current, along with a "real" (inflation-corrected) compounding rate, the valuation is updated for inflation. The use of "industry standard" costs ensures that only costs consistent with efficient practice are recognised. Forest valuers are wary of the compounding approach, and likewise capitalisation. In the market place a "high cost" forest does not necessarily prove to be a "high value" forest[6] and yet this is what the method can imply.

[6] Davy, A. (1987) Accounting for forestry activities in New Zealand. New Zealand Society of Accountants Research Bulletin R117.

3.5 Valuation Methods Applied in Valuing the Sino-Forest Assets

Within this valuation Pöyry has valued the forests using an expectation approach based on a projected wood flow profile. Cash flows attributable to both the existing rotations and planned future rotations of the forest have been included. The forest estate has been modelled on a perpetual basis for both the existing and succeeding rotations, thereby recognising the expected long-term management intentions and continued sustainability of the estate. The valuation is based on real pre-tax cash flows.

3.6 Valuation Process

The process employed in valuing the Sino-Forest estate can be summarised under the following key steps:

i) Data assembly and updating of the forest description.

ii) Execution of a field inspection.

iii) Recognition of field inspection findings into the resource description if required.

iv) Review of harvest reconciliations and yield tables (total recoverable volume and volume by product).

v) Identification of land value and costs and how these are to be incorporated in the forest valuation.

vi) Review and updating of relevant direct and indirect costs.

vii) Updating of log price data and log price allocation.

viii) Construction of the forest estate model and projection of the future wood flows by log grade.

ix) Derivation of cost and revenue flows.

x) Selection of the appropriate compounding and discounting rates, including analysis of:

   a) Implied discount rates from transaction evidence (if applicable)

   b) Discount rates derived from WACC/CAPM formulations.

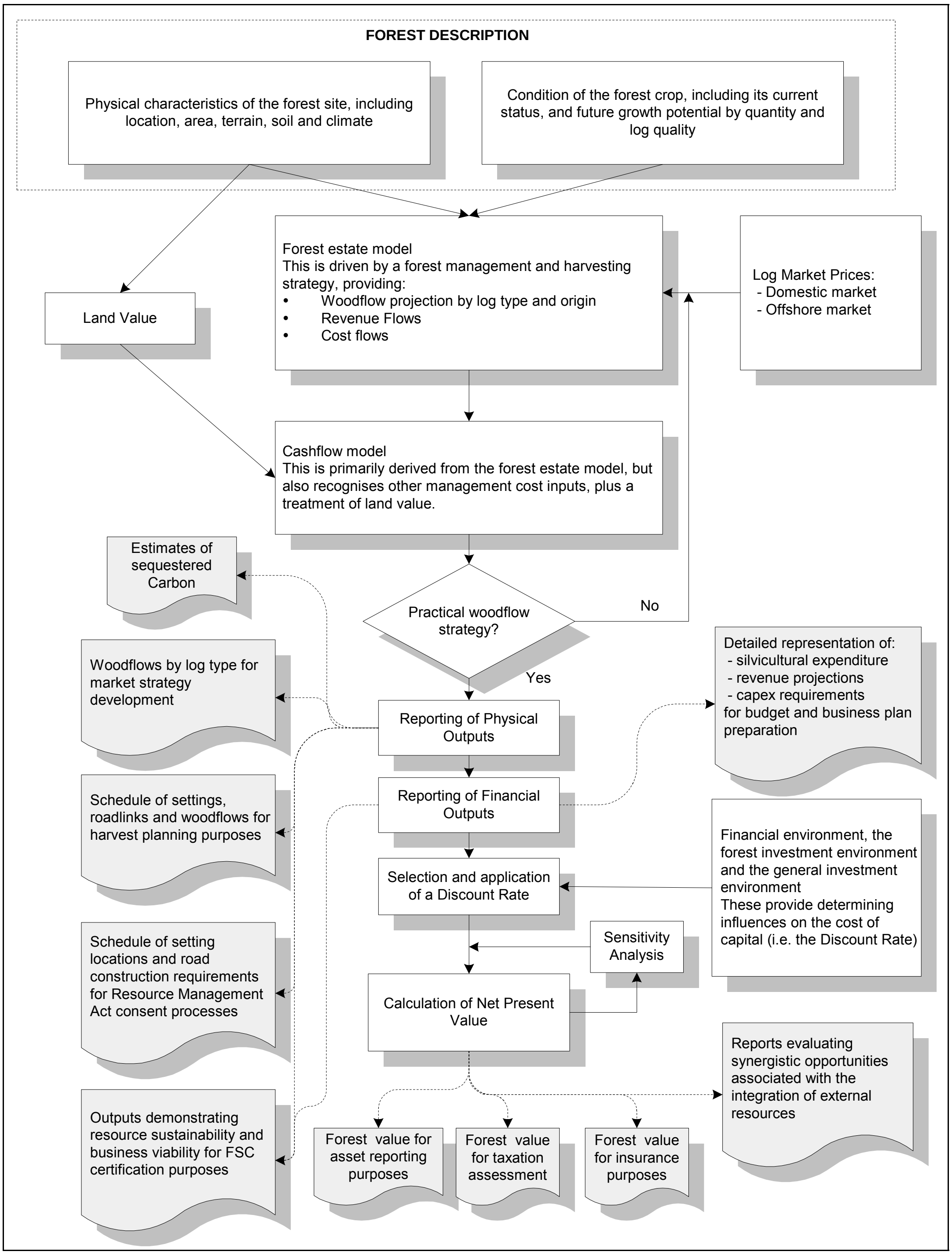
xi) Estimation of the value of the forest and tree crop.

xii) Sensitivity analysis.

xiii) Value change analysis.

The above process is illustrated in Figure 3-2.

Figure 3-2:
Schematic Outline of the Valuation Process



3.7 Other Aspects of Applying the Expectation Approach

In applying the expectation approach, the following aspects also require consideration:

- Analysis of pre-tax or post-tax cash flows
- The period of analysis

3.7.1 Analysis of Pre-tax or Post-tax Cash Flows

Both approaches have been demonstrated in valuing planted forests. For cash flows derived on a pre-tax basis a pre-tax discount rate is applied. Consistent with Pöyry's 31 December 2006 valuation, the valuation has been completed on a pre-tax basis, using cash flows (and discount rate) expressed in real-terms.

3.7.2 The Period of Analysis

Wood flows and associated cash flows may be modelled on a perpetual basis or they may be confined to the current rotation.

Pöyry has observed ongoing changes in forest valuation practices. These have been particularly evident as the level of transaction activity has increased.

Forest estate models have come to be an integral part of the forest valuation process, being applied to identify the forest's long-term supply capability. Despite this extended wood flow-modelling horizon, there has been a general tendency to confine the scope of the financial analysis to those cash flows solely associated with the tree crop that currently exists. This includes all parts of the present forest from the oldest stands to those just established. It excludes however, trees that are yet to be planted as these are considered to be part of a new investment cycle.

Wider business appraisal practice encourages the confinement of the scope of analysis to the current investment cycle. There are arguments that forest valuation should be no different. The practice of considering the performance of the existing tree crop alone lies with the general preference for avoiding unnecessary conjecture associated with costs, yields, anticipated revenues and the future discount rate.

As generally applied, the current rotation model is not to be confused with the "standing-stock approach". Instead, the harvesting strategy for the current tree crop is assumed to be consistent with a long-term sustainable management policy, and although there will be future rotations, they will not contribute to the net present value calculation, i.e. they are "NPV neutral". In effect, all funds invested in them are assumed to earn such proceeds that the investment generates exactly the discount rate.

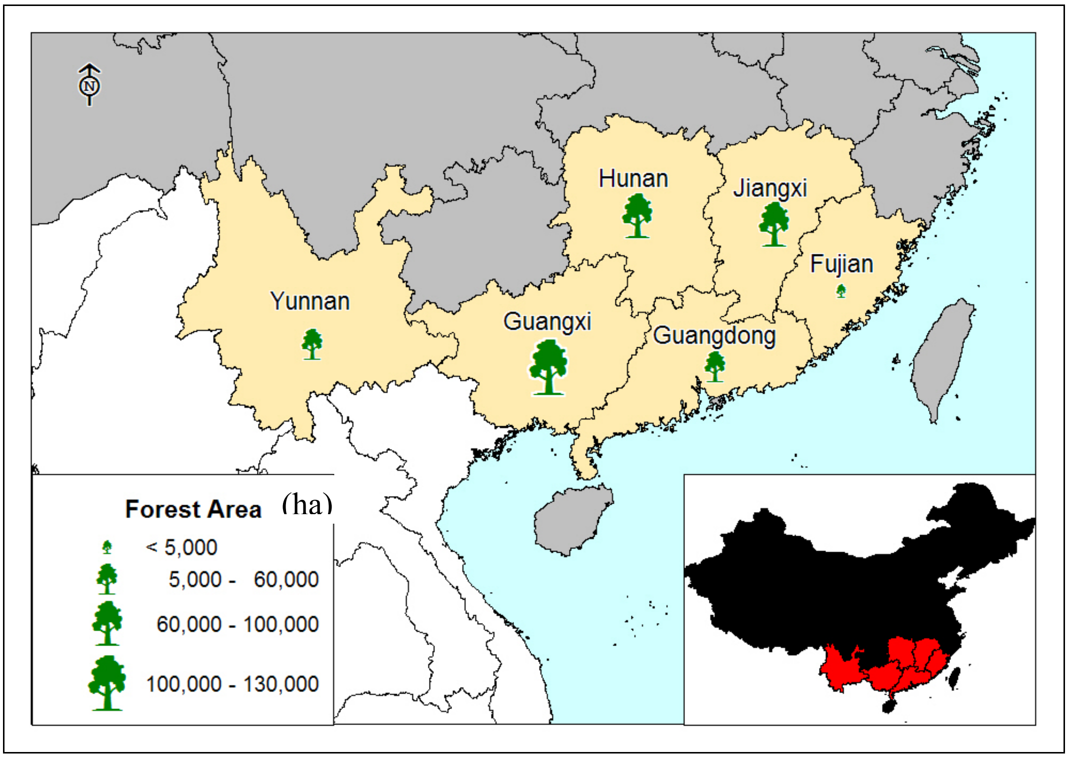
The current rotation model effectively assumes that through adaptive management the forest owners will seek to secure at least NPV neutrality on their reinvestment in succeeding rotations. Within the valuation of the Sino-Forest assets, Pöyry has modelled the resource over multiple rotations in order to reflect the long-term management outlook of the estate. The current valuation assumes however that second and subsequent rotations will be NPV neutral. The analysis is therefore effectively confined to the cash flows associated with the current rotation.

4 RESOURCE AREA DESCRIPTION

4.1 Resource Location

The location of Sino-Forest's existing forest resource as at 31 December 2007 is presented in Figure 4-1.

Figure 4-1:
Location of Forest Assets



Source: Pöyry

4.2 Resource Area

Consistent with previous valuation updates, Sino-Forest has provided Pöyry with a list of plantation sales and purchases for the 2007 calendar year. This list details plantation sales and purchases by location, species and age-group class, and has been used to adjust the area statement prepared by Pöyry for its 31 December 2007 valuation of Sino-Forest's resources.

Pöyry has verified the derived area statement directly with Sino-Forest and has been advised that the areas are representative of the Company's plantation resources as at 31 December 2007.

4.2.1 Productive Forest Area as at 31 December 2007

Sino-Forest's plantation assets as at 31 December 2007 are summarised in Table 4-1 by Location and Ownership-Type.

Table 4-1:
Summary of the Existing Sino-Forest Forest Area

Province	City	Type	Area under trees (ha)		Change in Area (ha)
			31-Dec-06	31-Dec-07	
Fujian		Planted (WOFE)♥ Purchased	335.0 0.0	372.0 128.4	37.0 128.4
Guangdong	Gaoyao	Planted (CJV)♣ Planted (WOFE) Purchased	4 883.6 0.0 17 166.9	0.0 5 266.3 6 747.6	(4 883.6) 5 266.3 (10 419.3)
	Heyuan	Planted (CJV) Planted (WOFE) Purchased	7 168.4 25 334.9 32 130.8	0.0 30 139.3 3 535.0	(7 168.4) 4 804.4 (28 595.8)
	Raoping	Purchased	0.0	609.7	609.7
Guangxi		Planted (CJV) Planted (WOFE) Purchased	13 187.6 75 335.9	0.0 11 243.5 141 089.0	(13 187.6) 11 243.5 66 753.1
Hunan		Purchased	69 571.2	96 078.9	26 507.7
Jiangxi		Planted (CJV) Planted (WOFE) Purchased	7 544.8 0.0 99 351.1	0.0 6 687.9 0.0	(7 544.8) 6 687.9 (99 351.1)
Yunnan		Purchased	0.0	9 719.1	9 719.1
Sub-Total		Planted (CJV) Planted (WOFE) Purchased	32 784.4 25 669.9 293 555.9	0.0 53 709.0 257 907.7	(32 784.4) 28 039.1 (35 648.2)
Grand Total			**352 010.2**	**311 616.7**	**(40 393.5)**

♥ – WOFE – Wholly Owned Foreign Enterprise
♣ – CJV – Cooperative Joint Venture

Purchases, Sales and Adjustments

The data provided by Sino-Forest details that during the 2007 calendar year, a forest sales exceeded forest purchases by around 40 393.5 ha. However, as the trees in the area sold in 2007 were on average four years younger than the trees in the area purchased, the overall volume within the forest estate increased.

Pöyry has conducted satellite image and GIS analysis of the areas recently acquired in Yunnan, and identified that the resource area overlaps with the Nangunhe Nature Reserve. The area of overlap is 718.6 ha. Sino-Forest states that it is aware of the resource overlap and has already sought remedy from the counter-party for replacement forest lands of similar quality and status. Sino-Forest advised Pöyry that surveys are underway however the land replacement would be finalised later in 2008. Pöyry has excluded the overlapping area from the productive forest area for this asset valuation. The purchased area statement has therefore been reduced accordingly.

In addition, Sino-Forest has provided Pöyry with an updated area statement for its planted forests. This data demonstrated that as a function of additions (new plantings) and removals, its planted forest estate was estimated to comprise 53 709 ha as at 31 December 2007. This represents a 4 745 ha decrease from the 58 454 ha reported as at 31 December 2006.

As at 31 December 2006, Sino-Forest planted forest estate was reported to consist of 32 784 ha of Cooperative Joint Ventures (CJV), and 25 670 ha of Wholly Owned Foreign Enterprises (WOFE). Pöyry has been advised by Sino-Forest that Sino-Forest (through a series of subsidiary companies) has acquired full ownership of the CJV forests by acquiring the respective proportions of interest from its previous joint venture partners. All planted forests as at 31 December 2007 have thus been categorised as WOFE.

Derived Resource Description

Since Pöyry's 31 December 2006 valuation update, Sino-Forest's total plantation assets have decreased from 352 010.2 ha to 311 616.5 ha. This represents a net decrease of 40 393.5 ha (11.5%). Data provided by Sino-Forest indicates that the net decrease is the cumulative effect of:

a) A decrease in planted forest areas under cutting rights agreements

b) The purchase of plantations in Fujian, Guangdong, Guangxi, and Hunan

c) The purchase of natural secondary forest assets in Yunnan

d) The sale of plantations in Guangdong, Hunan and Jiangxi.

As apparent from Table 4-1, while numerous purchases and sales have taken place throughout 2007, the key drivers of area change have been Sino-Forest's significant disposal of forests in Guangdong and Jiangxi, and its acquisition of forests in Guangxi, Hunan and Yunnan.

The age-class structure of the Sino-Forest plantation resource is uneven. Area age-class distributions by province and ownership-type are presented in Figure 4-2 and Figure 4-3 respectively. Age-class data for Yunnan forests is nominally presented as about 30 years. The age of these secondary-growth natural forest stands is variable, ranging from 15 years to more than 50 years old.

Sino-Forest now consists of two classes of plantation forest: those areas planted and classified as WOFE companies, and those areas of existing plantation for which the cutting rights have been purchased. The areas classified as WOFEs are primarily fast growing *Eucalyptus urophylla* x *Eucalyptus grandis* hybrids with smaller areas of poplar species (mainly in Jiangxi Province).

Forests previously classified as CJV are now classified as WOFE. Sino-Forest has informed Pöyry that during 2007 it purchased the shareholding of its JV partners in these plantations. Purchase documents have been presented to Pöyry. These documents represent that transactions have occurred – defining plantation location, transaction date and purchase amounts - but do not define the plantation areas associated with these transactions. Area statements were provided by Sino-Forest separately within updated plantation area statements. The area statements appear to reconcile with the transactions.

The existing planted forests for which the cutting rights have been purchased comprise a number of species including:

- Masson pine
- Slash pine
- Chinese fir
- Eucalyptus species
- Poplar species
- Acacia species

Data historically provided by Sino-Forest has not differentiated between the areas established under Masson and slash/foreign pine. Consistent with previous valuations, areas planted under Masson or slash/foreign pine have been aggregated by Sino-Forest and reported as pine. An area age-class distribution by species is presented in Figure 4-4.

The tree species in the Yunnan secondary-growth natural forests are generally described as mixed broadleaf hardwoods for marketing purposes. The species mix is diverse, including oak, alder, and *Schima spp*.

Figure 4-2:
Area Age-class Distribution x Province

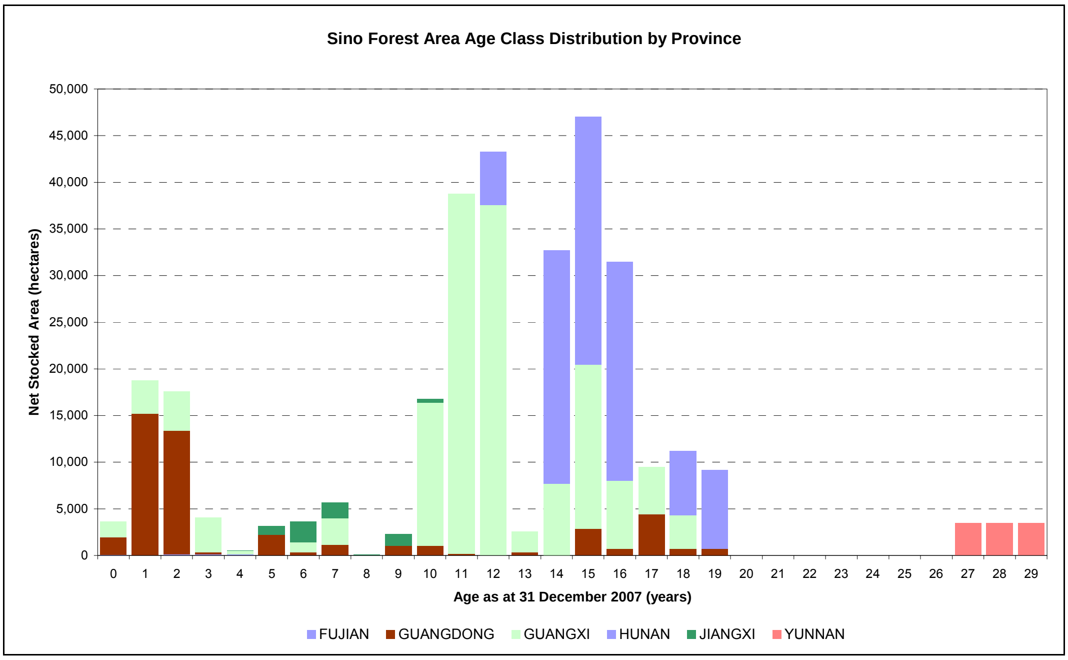


Figure 4-3:
Area Age-class Distribution x Ownership-Type

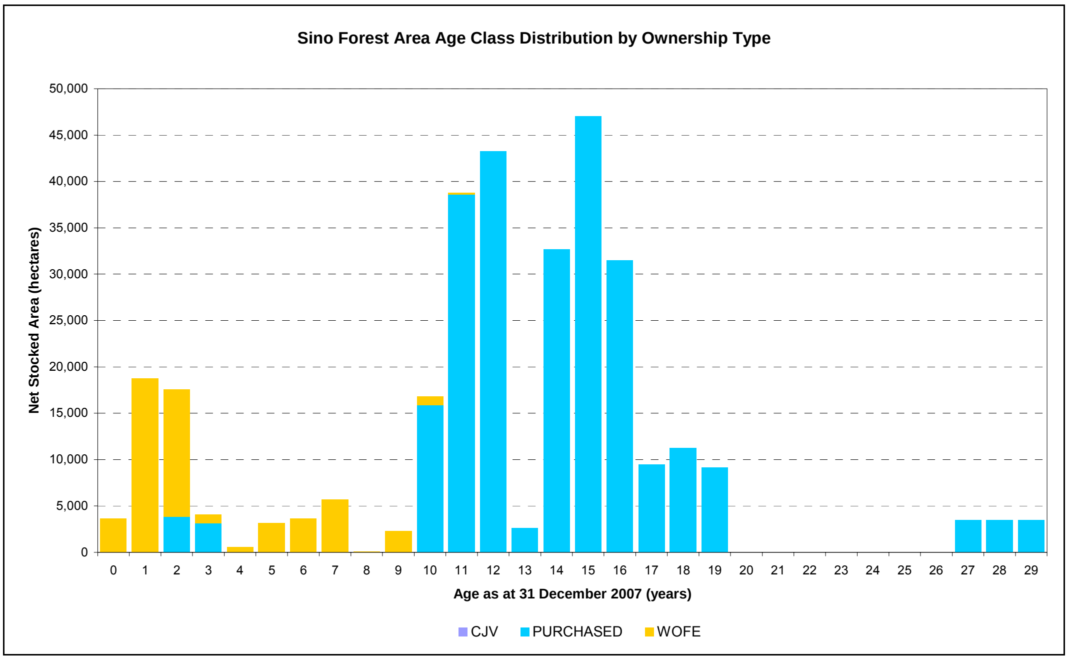
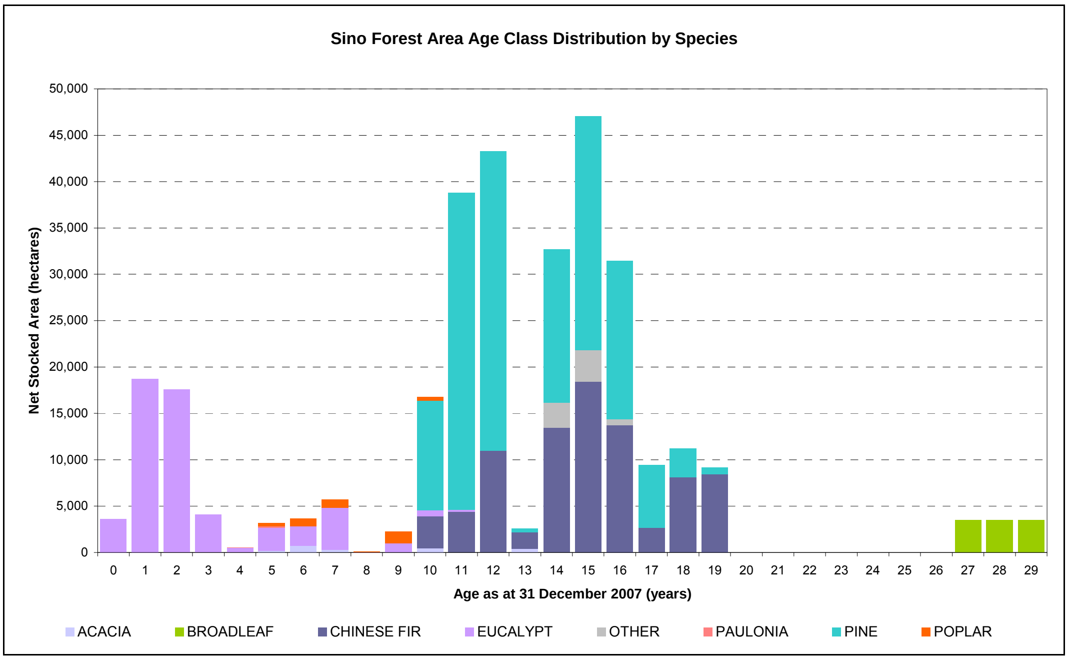


Figure 4-4:
Area Age-class Distribution x Species



4.2.2 Area Revisions and Updates

As part of previous comprehensive valuation exercises, Pöyry has allocated extensive time to the "ground-up" development of up-to-date resource descriptions. This "ground-up" development has involved the compilation of an area statement based on Sino-Forest's latest plantation asset records.

As detailed previously, as part of the valuation update process Sino-Forest has provided Pöyry with a list of plantation sales and purchases which have been used to update the December 2006 area description.

The base area, sales and purchase data provided by Sino-Forest is often aggregated and may not differentiate areas associated with different species (e.g. Masson versus slash pine), or the particular areas associated with plantations established over two to three years. In an effort to generate realistic resource descriptions, Pöyry has used its experience, field inspection results and professional judgement in applying assumptions to the area data provided.

As also noted in the December 2006 valuation report, Pöyry recommends that subsequent valuation exercises incorporate a comprehensive and thorough development of a detailed resource area description. This would involve compilation of Sino-Forest's plantation area asset data rather than year-on-year modification to asset descriptions applied under previous valuation exercises.

Consistent with previous analyses and valuation qualifications, Pöyry recommends that Sino-Forest undertake to develop and maintain a Forest Management Information System (FMIS). The implementation of an FMIS would allow for efficient tracking of plantation-related asset information and management of Sino-forest's changing resource base.

4.2.3 Field Inspection - Area Analysis

In previous field inspections associated with valuations of the Sino-Forest plantation assets, Pöyry has routinely undertaken a sample of GPS boundary checks. The GPS boundary survey allows Pöyry to precisely measure the net stocked areas of stands, which may then be compared with the stand area statements provided by Sino-Forest. Pöyry was unable to carry out boundary verification surveys for this valuation, limiting its inspection to inventory sample plots at each stand it inspected.

Pöyry holds a cumulative dataset of previously sampled areas in Sino-Forest plantations. The historical results from these surveys during 2001 – 2007 indicate some variance is apparent at the individual stand level, but the overall variation is about 1.1%. While this has never been an exhaustive sample of Sino-Forest's plantation assets, field inspection boundary checks suggested that the areas provided by Sino-Forest are reasonable and precise. Based on our cumulative observations, Pöyry has made no adjustment to the plantation area statements provided by Sino-Forest.

Stands in Yunnan range from 20 ha to 1000 ha. A GPS survey of such large boundaries is not practically possible. Instead Pöyry has turned to remote sensing analysis to verify mapped boundaries and area statements. The process is explained in Appendix 5. The analysis indicates that the gross boundaries as mapped and presented by Sino-Forest are very precise. The variation between Pöyry prepared maps and Sino-Forest maps is less than 1% across the whole resource.

4.2.4 Plantation Asset Development

In Pöyry's 31 December 2005 valuation of the Sino-Forest assets, it was reported that Sino-Forest was embarking on a 200 000 ha expansion of its estate in Heyuan City. This reflected Sino-Forest's management and development intent at that time.

On 28 September 2006 Sino-Forest issued a news release announcing its entering into a master agreement to acquire approximately 100 000 ha of pine and fir plantations in Hunan Province. On 7 December 2006, a further news release was issued detailing the signing of an agreement to acquire an additional 300 000 ha in Hunan, thus bringing the total area of planned acquisitions to 400 000 ha.

On 23 March 2007, Sino-Forest's subsidiary company Sino-Panel issued a news release announcing that it had entered into an agreement to acquire approximately 200 000 ha of non-state owned commercial forests[7] in Lincang, and surrounding cities in Yunnan Province over a 10-year period. A further agreement was signed on 10 December 2007 under which Sino-Panel would acquire 150 000 ha of plantation pine and fir trees in Guangxi over a 5-year period.

While most of these acquisitions have yet to occur and do not contribute to the current crop and valuation result, Sino-Forest has requested Pöyry to prepare additional wood flow and valuation model scenarios which incorporate these

[7] These commercial forests are reported as comprising mature species of pine, oak, birch and other broadleaf trees.

planned acquisitions. These valuation models are further discussed and reported in subsequent sections of the report.

5 GROWTH AND YIELD

5.1 History of Plantation Yield Table Development

In July 2003, Sino-Forest and its CJVs provided Pöyry with basic data relating to the growth and yield of the existing plantations. Pöyry combined these with information gathered from its field measurements and from other third party sources available at that time. The aggregated dataset was used to generate growth and yield curves for existing and future proposed forest plantations in the south China region.

The development of yield tables usually begins at the time a stand is planted, when an area is assigned to a yield table projection based on a number of factors including soil type, location, productivity of surrounding stands and genetic composition.

Tree measurement data collected from inventories undertaken during the 2003 field inspection were used to generate standing tree and stand volume estimates, as described in Section 5.1.1. Volume estimates were then used to generate a suite of yield tables which have been employed in the Sino-Forest valuations to date.

5.1.1 Tree Volume Calculations

Using diameter (D) and height (H) as variables, individual tree volumes were estimated. The tree volume equations used by Pöyry have been as follows:

Eucalyptus

$V (m^3) = 0.01774597 - 0.00429255D + 0.0002008136D^2 + 0.000494599DH + 0.00001125969D^2H - 0.001782894H$

North American

$V (m^3) = 0.19328321((D/100)2)H) + (0.007734354(D/100)H + (0.82141915 (D/100)2)$

Chinese fir

$V (m^3) = 0.000037 D^2H$

Slash pine

$V (m^3) = 0.0001155362D(1.9788108856-0.005574216(D+2*H)) \times H(0.5034278471+0.008969134(D+2*H))$

Both D (diameter at breast height) and H (tree height) are expressed in metres.

By multiplying the average tree volumes with the measured stockings, a measure of individual stand yields is produced.

5.1.2 Existing Yield Table Formulation

A growth curve for each species was formulated using the following non-linear equation:

Equation (1) $\ln(V) = \alpha + \beta / T^{2} + \gamma / TN$

where:

V = volume per hectare (m^3/ha)

T = age (in years)

N = stocking (stems per hectare)

α is the intercept

β and γ are the x variable parameters.

To replicate observed natural mortality, original stockings were reduced by 5%.

Processing the field data using Equation (1), the following yield curves for each species were produced.

Figure 5-1:
Eucalyptus Growth Curve

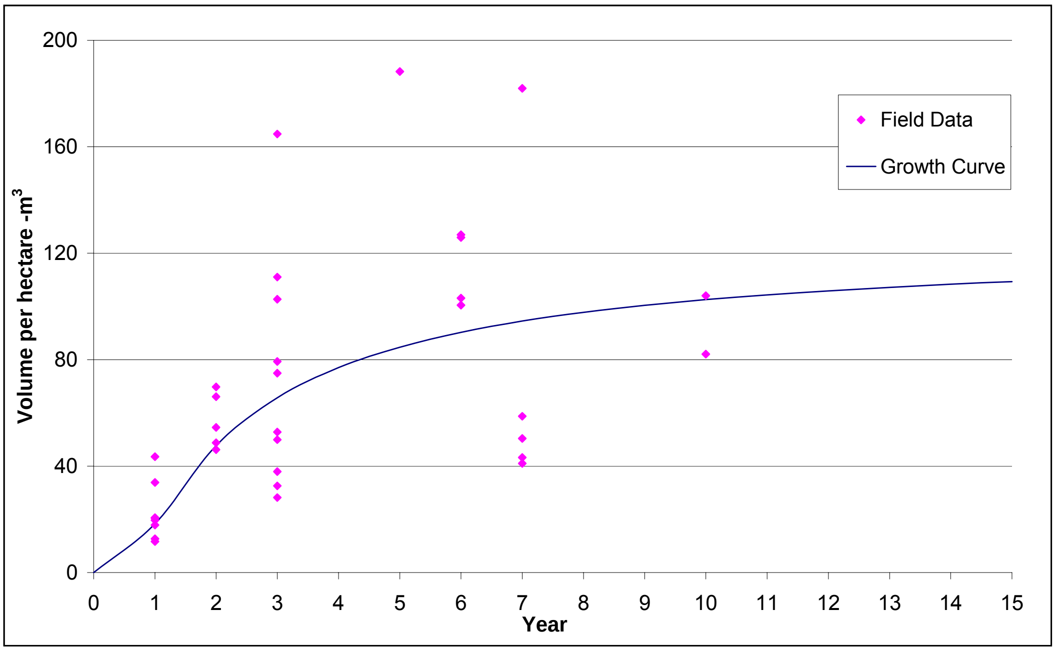


Figure 5-2:
Pine Growth Curve

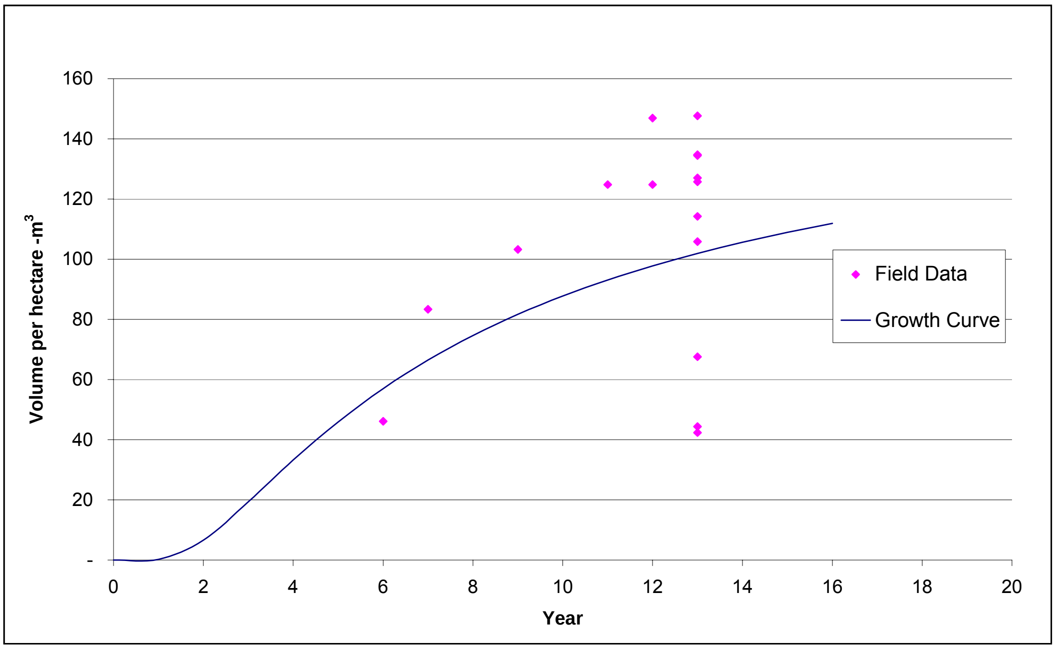
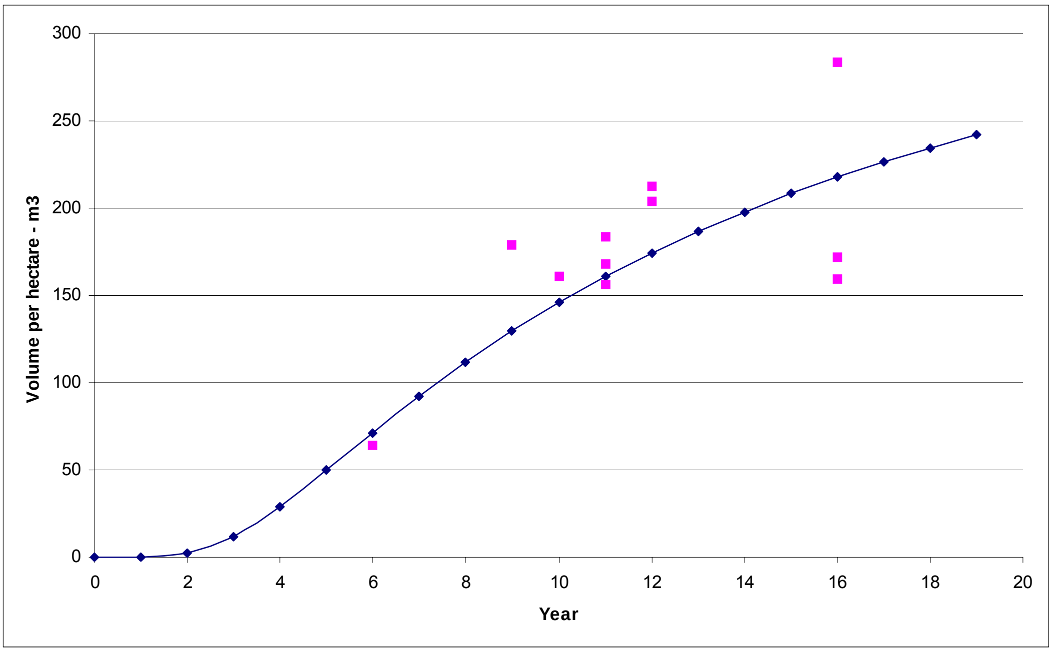


Figure 5-3:
Chinese Fir Growth Curve



The above curves were used to establish and apply a set of yield tables in previous valuations of the Sino-Forest resource.

Poplar forests represent a small component of the Sino-Forest resource, and the field data collected for poplar species has typically been insufficient to construct an authoritative yield curve.

Data from available sources at the time of initial yield table development were aggregated, and an average mean annual increment (MAI) calculated to determine the recoverable volume estimates to be used as part of the forest valuation. A recoverable volume MAI of 8.9m^3/ha/yr has historically been assumed.

5.2 Inventory Data and Yield Table Revisions

It is Pöyry's preference that estimates of current and future yields for individual forest assets are periodically refined as more data are collected from sample plots and ongoing inventory activities. Through the ongoing capture of data, the precision of growth and yield estimates are progressively improved. As part of its 31 December 2005 valuation of Sino-Forest's assets, Pöyry recommended that a more effective and accurate inventory program be designed and implemented to better capture the information required to generate reliable yield tables.

Pöyry's field inspections of forests in China commonly include high level inventories from which indicative yield tables can be derived. These inventory initiatives include the measurement of a range of age-classes to provide a basis for estimating current standing volumes and expected rates of growth.

In addition to inspections of the Sino-Forest resources as part of its annual valuations, Pöyry has completed a number of projects in China over recent years that have involved the collection of growth and yield data for the same set of species in the same regions. These data provide a suitable basis for benchmarking yield table assumptions applied in the Sino-Forest valuation.

Due to the high annual turnover of forests through purchases and sales, the original forest measurement data (c. 2003) upon which yield estimates were based may not necessarily apply to the current resource. Where more appropriate data has been collated via data acquisition and field inspections, yield table assumptions have been updated.

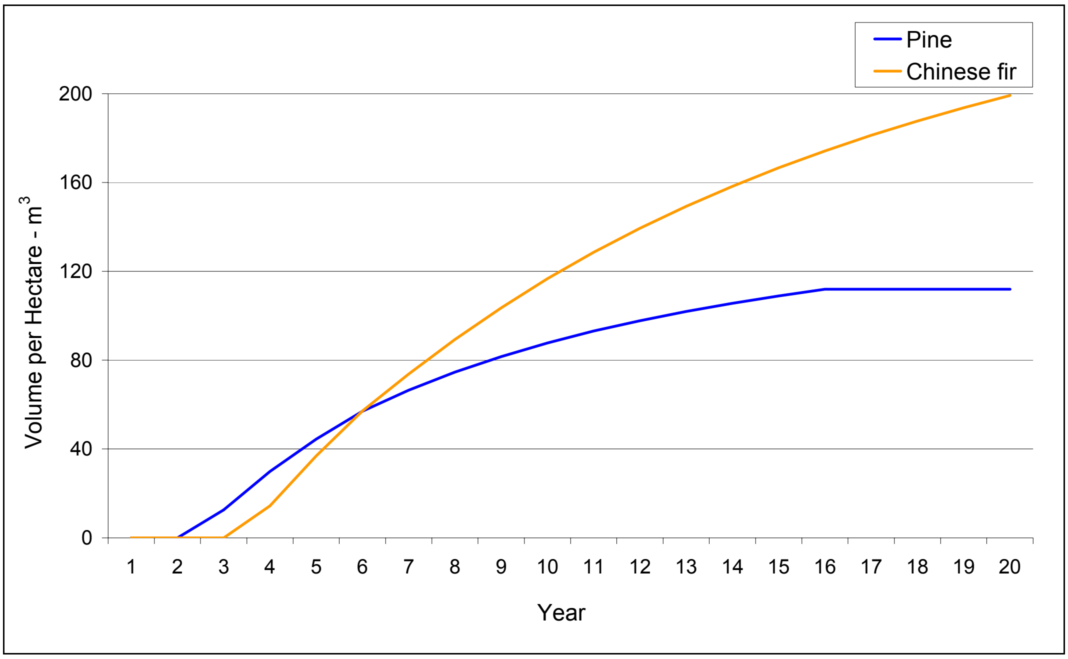
5.3 New Yield Assumptions in the December 2007 Sino-Forest Valuation

Sino-Forest's forest assets span a number of provinces (Figure 4-1). It is not feasible to inspect all of these regions with each annual valuation; hence it has been Pöyry's intention to visit different areas across the resource with each annual valuation. Hezhou City in Guangxi Province has been selected as one of two locations for the field inspection associated with this valuation. The Guangxi location is selected on the basis that Sino-Forest's softwood plantation expansion initiatives have been focused here in 2007. A second inspection location was selected in Gengma County, Yunnan Province. Sino-Forest purchased secondary-growth natural forest resources in this location during 2007. The mixed broadleaf secondary-growth natural forest is new to the Sino-Forest asset mix.

The observations from field inspections in Guangxi initially provided no particular reasons for Pöyry to adjust its yield estimates for those pine plantations. However, during statistical analysis we were mindful that the age-class of recent purchases are generally much higher than Pöyry has previously visited. Pöyry's pine yields are based on field data measurements of stand aged 6 – 13 years, with most of those sample measures carried out in stands aged 12 – 13 years.

In contrast, Sino-Forest's recent plantation purchases are aged 15 years on average. About 60% of new purchase areas are aged 14 – 19 years old, of which pine and Chinese fir hold an almost equal share. Consequently, for the plantations purchased in 2007 only, Pöyry has used Sino-Forest inventory data for development of new yield curves. These yield curves are specific to newly purchased Chinese fir and pine plantations in Hunan and Guangxi Province (Figure 5-4).

Figure 5-4:
Yield Curves for Older Pine and Chinese fir Stands Purchased in 2007



The secondary-growth natural forests in Yunnan are a new type of resource for Sino-Forest and hence Pöyry has developed new yield estimates based on survey data from 44 sample inventory plots.

Guangxi Plantations

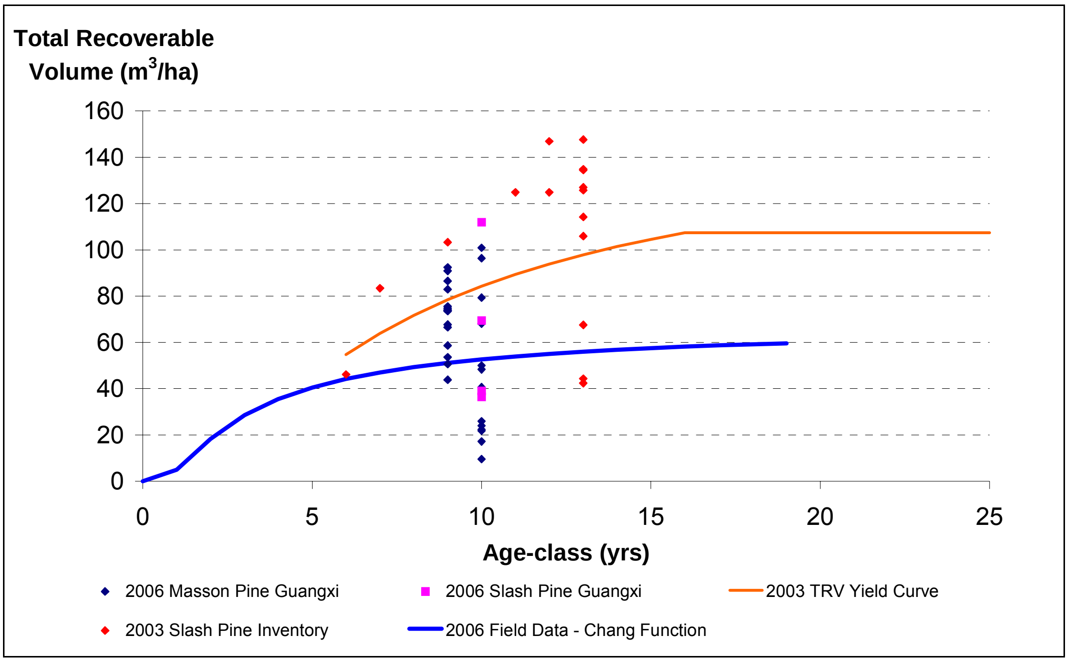
The majority of the forests inspected as part of the 2007 Guangxi field inspection were purchased pine plantations. The inspected stands are aged 11 – 16 years. Pöyry was provided with stand level statistics; these indicated that Current Total Standing Volumes (TSV) for the resource averaged about 106 m^3/ha with a Total Recoverable Volume (TRV) of around 72 m^3/ha. Pöyry notes that there is a conversion between standing volume and recoverable volume estimates of 33%. While Sino-Forest did not elaborate on its yield estimation methods, Pöyry assumes that recoverable volume is net of stump volume, crown volume and allows for breakage and losses in harvesting / extraction processes. Overall this appears to be a high loss and wastage factor.

Inventory analysis carried out by Pöyry in the 2006 valuation indicates the expected TRV for pine aged 11 – 16 years would be 53 – 60 m^3/ha (Figure 5-5).

Pöyry's observations during the recent site inspection do not support a change to the previous yield assumptions.

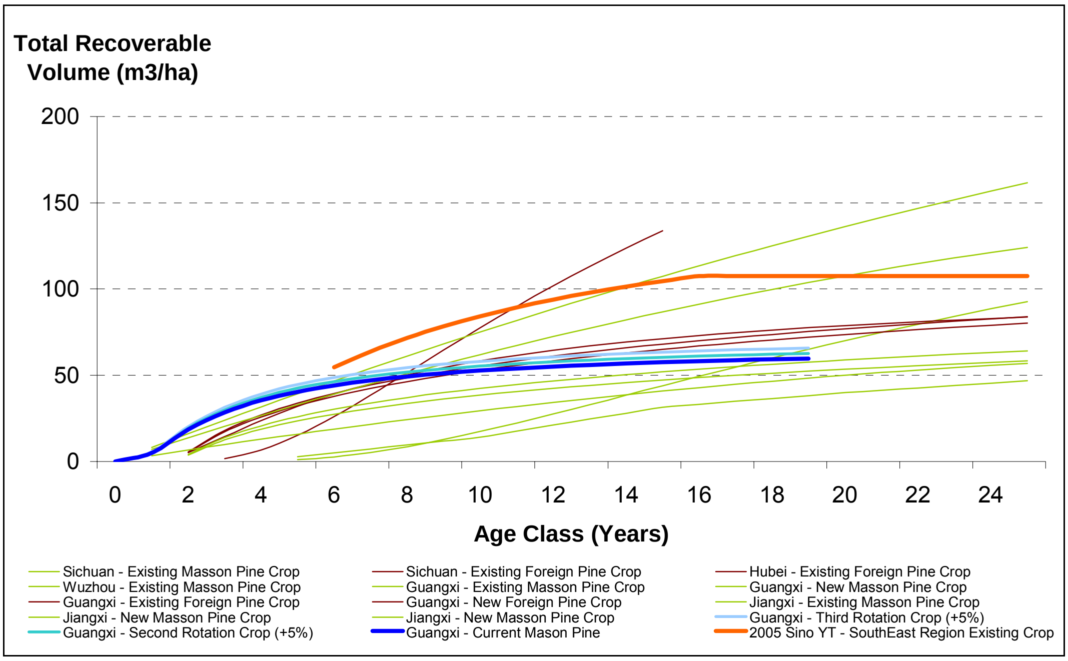
Likewise, assumptions for diameter class frequency and relative grade proportions for the purpose of assigning log-grade out-turn are unchanged since the 2006 valuation.

Figure 5-5:
Guangxi Pine Yield Analysis



As noted in the valuation report for the year ending 31 December 2006, the calculated yields appear to fall within the volume range Pöyry has observed elsewhere in China (Figure 5-6).

Figure 5-6:
Guangxi Pine Yield Benchmarking



Yunnan Secondary-Growth Natural Forest

Pöyry was provided with company stand records and maps representing the current Yunnan secondary-growth natural forest resource. During the site inspection Pöyry conducted a low sample intensity inventory of the secondary-growth natural forest areas. The inventory was conducted to check and verify the reported yield estimates. A total of 44 sample plots were measured in five locations.

Pöyry's sample is not large enough to cover the full range of natural variability across the Yunnan forest resource. However, there is currently no information that allows Pöyry to attribute any greater veracity to the existing stand records.

As a point of difference, Pöyry notes that the local standard inventory practice is to measure the height of 3 – 5 'average' trees for determination of the average height in each sample plot. Statistically this approach is more applicable to homogenous forest stands, such as even-aged natural regeneration and plantations. In comparison, Pöyry has measured the height of every tree in each plot, thereby excluding error and potential bias in selection of 'average' trees for height measurement. Pöyry has also measured the length of the merchantable stem for every tree, whereas the standard practice does not measure merchantable length. Pöyry has developed yield estimates based on the merchantable height measurement, which we believe is the more precise method in secondary-growth natural forests, and commonly applied in other secondary-growth natural forest resources.

The area weighted average growing stock derived from Pöyry inventory data is calculated to be 181 m^3/ha. The growing stock in different coupes sampled by

Pöyry ranged from 90 m^3/ha in Coupe #122 to 249 m^3/ha in Coupe #033. The key results from the Pöyry survey are presented in Table 5-1.

Table 5-1:
Pöyry Survey Results for Yunnan Stands

Data Source	Coupe No.	Coupe Area (ha)	Stocking (sph)	Av. DBH (cm sob)	Av. Tree Height (m)	Av. Tree Vol. (m^3)	Growing Stock (m^3/ha)
Pöyry	33	531.9	600	26.4	15.7	0.431	249
Pöyry	34	342.9	570	23.3	15.0	0.379	173
Pöyry	51	368.3	670	23.4	17.1	0.497	220
Pöyry	62	466.2	929	18.5	11.7	0.182	115
Pöyry	122	187.6	325	18.7	9.9	0.279	90
Total & Average	All	1 709.3	662	23.5	15.0	0.274	181

The growing stock represents the merchantable yield if the forest was totally cleared. However, it is understood that the China Forestry Bureau regulations permit only sustainable cutting operations in secondary-growth natural forest areas. To this extent, Pöyry has assumed Sino-Forest must carry out a selective harvest regime. Under a selective harvesting regime, Pöyry assumes that tree removals would equate to 50% of the available growing stock. The yield at each harvesting event is therefore 90.5 m^3/ha.

Silvicultural trials will be required to determine the best selective thinning regime for the Yunnan secondary-growth natural forest resource. Based only on the observations during the site inspection, Pöyry believes the condition of the resource is largely modified by previous 'high-grade' cutting.

Some undisturbed areas still exist within the resource, which would provide a substantially higher than average yield, but should be respected as benchmarks for future silvicultural practices.

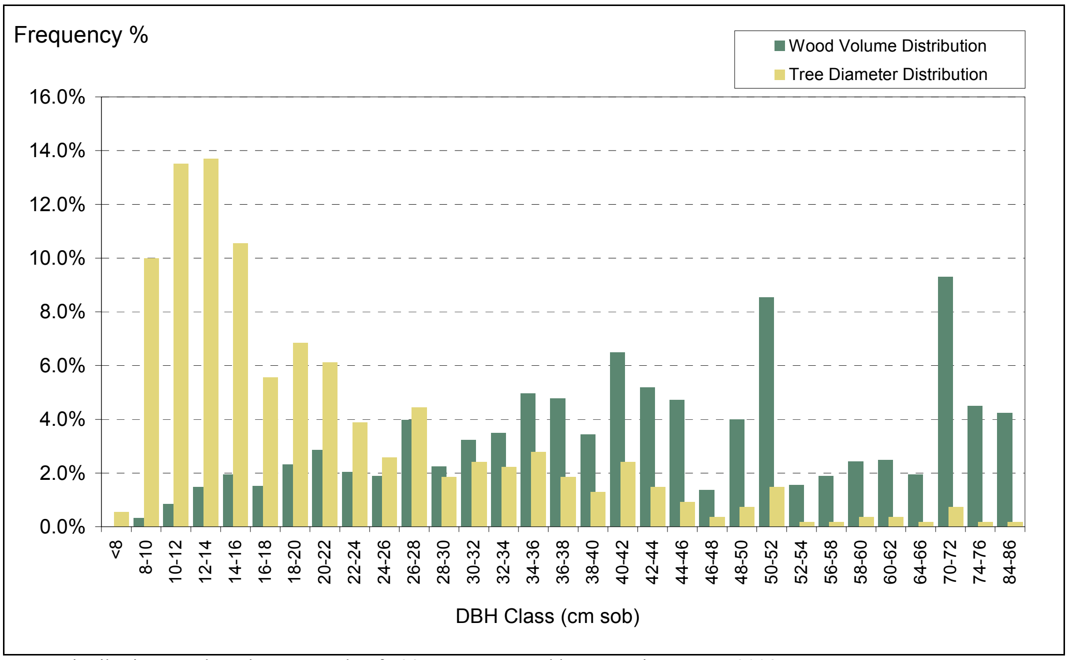
In subsequent valuations Pöyry will have the opportunity to sample an increasing extent and range of the Yunnan forest, which will provide more certainty about the yield assessment year-on-year.

The prices paid for mixed broadleaf logs increases with diameter class. To estimate the proportion of the wood supply in each log size category, Pöyry has analysed the sample plot data. Logs with small-end diameter greater than 20 cm account for 74% of the volume of all stems measured (Table 5-2). The diameter distribution indicates a relatively even frequency distribution in these classes, however because the log size classes are not even, the true distribution is illustrated in Figure 5-7.

Table 5-2:
Percentage of Volume by Diameter Class

Diameter Class (cm sedob)	Measured Volume (m^3)	Diameter Distribution %	Volume Distribution %
0-8	7.34	1	4
8-14	18.10	37	10
14-20	21.45	23	12
20+	134.10	39	74

Figure 5-7:
Diameter Distribution for Mixed Broadleaf Species in Yunnan Resource



Note: Distributions are based on a sample of 538 trees measured by Pöyry in January 2008

5.3.1 Regeneration and Future Yield Profiles

In previous valuation exercises, it has been assumed that all plantations (with the exception of poplar) will be re-established into fast growing eucalyptus plantations following harvesting. It has been assumed that poplar plantations are re-established to poplar.

The choice of species for re-establishment of areas following harvest will depend on the forest manager's site specific assessment of a range of factors including, but not restricted to, the physical (e.g. soil types) and climatic (e.g. altitude, temperature and rainfall) characteristics of the sites.

Pöyry has again reviewed the re-establishment rules applied on a species and provincial basis. New purchases of secondary-growth natural forests in Yunnan have required particular consideration. The regeneration strategy reported in Table 5-3 is considered to be representative for the current Sino-Forest plantations and secondary-growth natural forests. The strategy has considered feedback from Sino-Forest staff and Pöyry's experience with other forestry asset managers in China.

Table 5-3:
Regeneration Strategy Summary for 31 December 2007 Valuation

Province	Species	Regeneration Strategy
Fujian	Eucalypt	Regenerate to Eucalypt
Guangdong	Acacia Broadleaves Eucalypt Chinese Fir Pine	Regenerate to Eucalypt Regenerate to Eucalypt Regenerate to Eucalypt Regenerate to Pine Regenerate to Pine
Guangxi	Eucalypt Pine	Regenerate to Eucalypt Regenerate 40% to Eucalypt and 60% to Pine
Hunan	Chinese Fir	Regenerate 50% to Chinese Fir and 50% to Pine
Yunnan	Mixed Broadleaf Secondary-growth natural forests	Sustained selective logging cycle at 50% volume retention
Jiangxi	Acacia Eucalypt Paulownia Pine Poplar	Regenerate to Eucalypt Regenerate to Eucalypt Regenerate to Poplar Regenerate 30% to Eucalypt and 70% to Pine Regenerate to Poplar

An improvement in the yield from subsequent rotations is feasible through establishment of improved genetic stock and silvicultural management. Consistent with previous valuations, Pöyry has assumed that a 5% increase in recoverable volume will be achieved in each of the second and third rotation crops re-established.

6 RISKS TO FOREST ASSETS

In addition to risks relating to the cash flow assumptions there are other risks associated with establishing a biological resource. In the Sino-Forest plantations the key identifiable risks include:

- Fire
- Snow/Frost
- Pest and Disease
- Storms and Typhoons

6.1 Fire

Fire has historically not been a major threat in South China plantation forests. However, with the increase in eucalyptus plantation area there is a correspondingly greater fire risk. This risk can be mitigated by the implementation of fire prevention techniques such as the construction of firebreaks inside plantations, the development of human resources trained in fire fighting and supported by physical infrastructure such as portable fire fighting equipment. Given that the resource is geographically fragmented and comprises discreet forest blocks that are generally less than 500 ha in size, the opportunity for a singular catastrophic event is remote.

It is evident from field visits in some regions that farmers have used burning as a land preparation tool in the past. Sino-Forest has previously used fire to prepare land for planting but is moving away from this practice to mitigate the loss of soil fertility when organic matter is volatilised and lost to the atmosphere.

Recently established and young stands are at greatest risk to fire damage as they are more likely to suffer crown damage that compromises their growth. In older stands close to harvest age, the impact of fire may be less significant as much of the timber affected is able to be recovered and marketed with little discount.

Pöyry is advised by Sino-Forest that it holds fire insurance cover but has not viewed the policies.

6.2 Frost & Snow Damage

Frost damage is a risk on high altitude inland sites and was responsible for the poor yield seen in much of the 1996 eucalyptus plantings. The risk of frost damage is mitigated by careful attention to site selection in order to avoid frost prone sites, and by monitoring weather predictions in order to schedule planting according to optimal weather conditions.

Snow damage in southern provinces of China is expected to be a rare occurrence. However a timely example of the extreme climate variations that are possible occurred in January 2008. Snow falls in southern regions of China occurred resulting in forest damage across nineteen southern provinces. Pöyry did not observe any snow damage in the Sino-Forest stands it inspected in Guangxi.

Provinces in which losses were reported by government agencies include Hunan, Hubei, Anhui, Guangxi, Jiangxi, Guizhou, Henan, Yunnan, Sichuan, Chongqing, Qinghai, Shaanxi, Gansu, Xinjiang, Zhejiang, Jiangsu, Fujian, Guangdong and Hainan[8].

6.3 Pests and Disease

As the area of single species plantations increases so does the potential risk of pest and disease problems. To date there appears to have been no serious pest or disease outbreaks in Sino-Forest's or any other plantations. In the case of eucalyptus plantations, this risk is mitigated by the large research and development effort assigned to eucalyptus development.

Most of the pest and disease problems have so far occurred in the poplar plantations. Two pathogens impact the growth and quality of the poplar hybrid resource. Borer impacts on the quality of logs and has the effect of increasing the pulpwood supply by making the butt log unsuitable for veneer where an attack is severe. The caterpillar of the 'Yangzhou Moth' predates the leaves and can compromise growth if an attack is left unchecked. Adult borer is controlled by the application of a biological pesticide. Larvae are controlled by inserting a 'poisonous stick' into the hole in the stem that represents the entry point of the larvae.

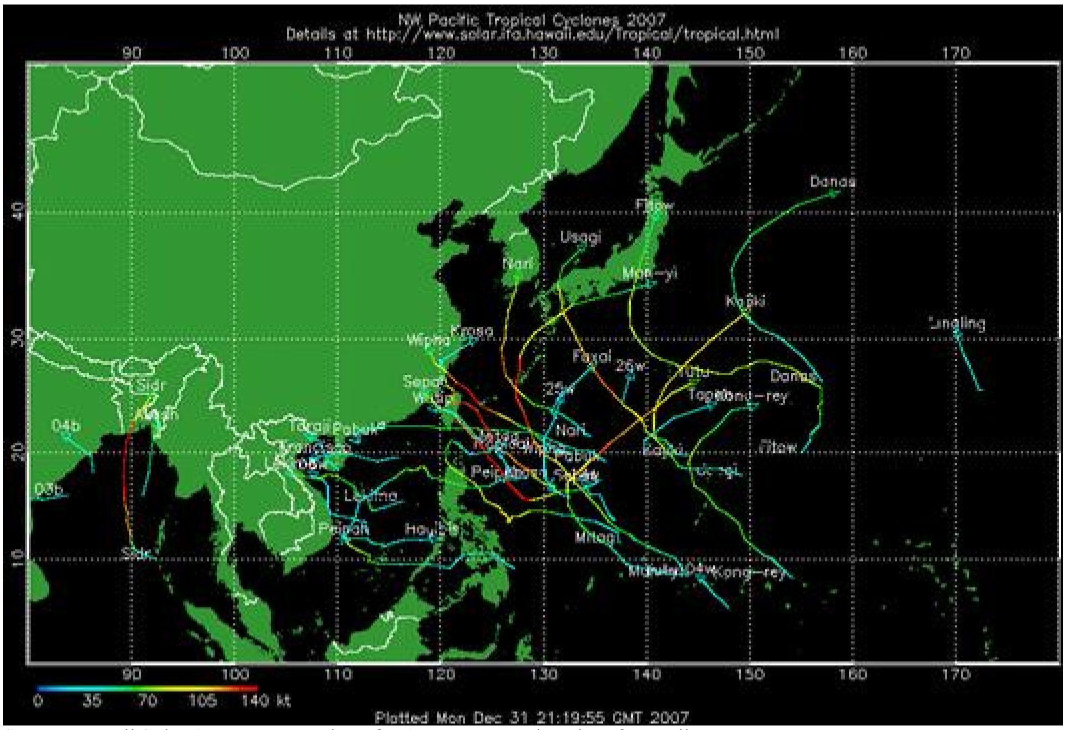
Leaf eating caterpillars are controlled by the application of pesticide if levels of infestation are such that 30% of the crown is affected. Poplar plantations are currently inoculated against these problem pests and disease as a routine part of plantation establishment and maintenance. Local Forest Bureaus maintain disease control stations and provide forecasts on pathogen levels and the need for control. In keeping with good forest practices, Sino-Forest plants trees produced from a number of different clones; this reduces the risk of a weakness in any one clone being propagated throughout the plantations and provides genetic diversity. The clones that have been planted to date have been assessed for resistance against disease.

6.4 Typhoons

On average the coastal areas of Southern China suffer a number of typhoons each season during July to September. While in general the forest damage is localised and confined to young age-classes, every 20 years or so a typhoon is likely to cause significant damage. The inland coastal strip that is most affected is in the region of up to 200 km from the coast. The risk of typhoons for Sino-Forest's plantations is generally limited to some areas in Guangxi. This risk is reduced by the high stocking rates and short rotations of the eucalyptus plantations.

[8] http://english.peopledaily.com.cn/90001/90776/90882/6353740.html

Figure 6-1:
Tropical Cyclone Activity in Northwest Pacific in 2007



Source: Hawaii Solar Astronomy, Institute for Astronomy, University of Hawaii

7 COSTS

7.1 Operational Costs

Pöyry has developed and maintained a detailed forest cost database which includes data recorded and acquired during the course of various China based projects. This allows for the range of individual cost operations to be calculated, against which the costs associated with the December 2007 Sino-Forest valuation can be easily benchmarked. Sino-Forest's operational costs all tend to fall within the ranges contained in Pöyry's database, and therefore are assumed to be appropriate for application as part of the December 2007 valuation.

As China's economy develops, cost structures will change and as such, operational costs will continue to be the subject of attention in future valuations.

Eucalyptus Species

The following tables provide the operation costs for establishing *Eucalyptus spp.* plantations in Southern China. Costs vary slightly from district to district but for the purposes of this valuation, Pöyry has applied averaged costs for each region (Table 7-1) except for Heyuan District.

Table 7-1:
Operation Costs for Eucalyptus Planted Rotation (RMB per ha)

Operations	Planted Forest (R1)						
	Year						
	0	1	2	3	4	5	6
Planning	12	0	0	0	0	0	0
Operations design	9	0	0	0	0	0	0
Site preparation	450	0	0	0	0	0	0
Terracing	1395	0	0	0	0	0	0
Fertiliser	975	975	975	0	0	0	0
Planting (incl. seedling cost)	570	0	0	0	0	0	0
Thinning	0	0	0	0	0	0	0
Tending	0	345	345	0	0	0	0
Protection	0	75	58	58	57	57	57
R&D	0	120	30	30	7	7	7
FB Service Charge	0	493	141	9	6	6	6
Overheads	150	150	150	150	150	150	150
Lease	150	150	150	150	150	150	150
Total	3711	2308	1849	397	371	371	371
Total RMB per ha							**9378**

The largest individual cost is terracing. Terraces are manually formed on the contour prior to planting. Sino-Forest employs this technique in the belief that it facilitates soil conservation through preventing erosion that might otherwise occur in heavy rain events. This is similar in approach to contour mounding that is practised, for example, in Australia and New Zealand.

The operational decision to choose either coppice or seedlings for re-establishment is made on a case-by-case basis. It is anticipated that the second-rotation will be established largely by way of coppice. Operational costs associated with coppicing are mostly lower than those associated with establishment by seedling as there is no site preparation or terracing required. The significant cost with coppicing is in the thinning operation. The growing costs associated with the coppiced rotation are approximately two-thirds that of the first rotation crop (Table 7-2).

Table 7-2:
Operation Costs for Eucalyptus Coppice Rotation (RMB per ha)

Operations	Coppiced Plantation Forest (R2)				
	Year				
	7	8	9	10	11
Planning	0	0	0	0	0
Operations design	9	0	0	0	0
Site preparation	0	0	0	0	0
Terracing	0	0	0	0	0
Fertiliser	900	600	0	0	0
Planting (incl. seedling cost)	0	0	0	0	0
Thinning	900	0	0	0	0
Tending	345	345	345	0	0
Protection	75	58	58	57	57
R&D	120	30	30	7	7
FB Service Charge	235	103	43	6	6
Overheads	150	150	150	150	150
Lease	150	150	150	150	150
Total	2884	1436	776	371	371
Total RMB per ha					**5838**

The total cost associated with the first two rotations is given in Table 7-3.

Table 7-3:
Total Operation Costs for First and Second Rotation

Total Operation Cost	Planted Crop (Rotation 1)	First Coppiced Crop (Rotation 2)	Total Cost
Total RMB per ha	9378	5838	15216

First rotation establishment costs associated with the acquisition areas in Heyuan City are detailed in Table 7-4. The total cost for the first rotation in the acquisition areas is greater than the cost assumed for Sino-Forest's other operations. Much of the increase is associated with fertiliser costs with four fertiliser operations specified in the costing presented to Pöyry.

Table 7-4:
Operation Costs for Eucalyptus Planted Rotation (RMB per ha)

Operations	Planted Forest (R1 - Heyuan)						
	Year						
	0	1	2	3	4	5	6
Operations Design	12	0	0	0	0	0	0
Site preparation	359	0	0	0	0	0	0
Fire Break	45	0	0	0	0	0	0
Roading	180	0	0	0	0	0	0
Planting (incl. seedling, hole digging etc)	1753	0	0	0	0	0	0
Fertiliser	2554	1018	1018	0	0	0	0
Tending	390	0	0	0	0	0	0
Supervision	180	30	30	0	0	0	0
Maintenance	45	45	45	45	45	45	45
Protection	45	90	57	57	57	57	57
R&D	0	120	30	30	7	7	7
Contingency	45	15	15	15	15	15	15
Overheads	210	150	150	150	150	150	150
Lease	225	225	225	225	225	225	225
Total	6043	1693	1571	522	500	500	500
Total RMB per ha	**11329**						

Figure 7-1 compares the operational costs associated with the Sino-Forest eucalypt resource to the range of costs found within Pöyry's wider database. While there is an apparent degree of variation between the average values from the database figures and the valuation figures, the Sino-Forest costs tend to fall within the maximum and minimum recorded estimates.

Some of the variation may result from the way in which some costs are categorised. The total operational cost (over a five year period) is more closely aligned. Figure 7-2 shows the year-on-year total costs associated with the eucalypt resource. There appears to be a closer alignment between the database averages and the Sino-Forest valuation figures. The one exception is the Heyuan eucalypt resource, which requires a greater level of fertiliser application during the first year of operation.

Figure 7-1:
Benchmarking Eucalyptus Individual Operation Costs (to fourth year of operation)

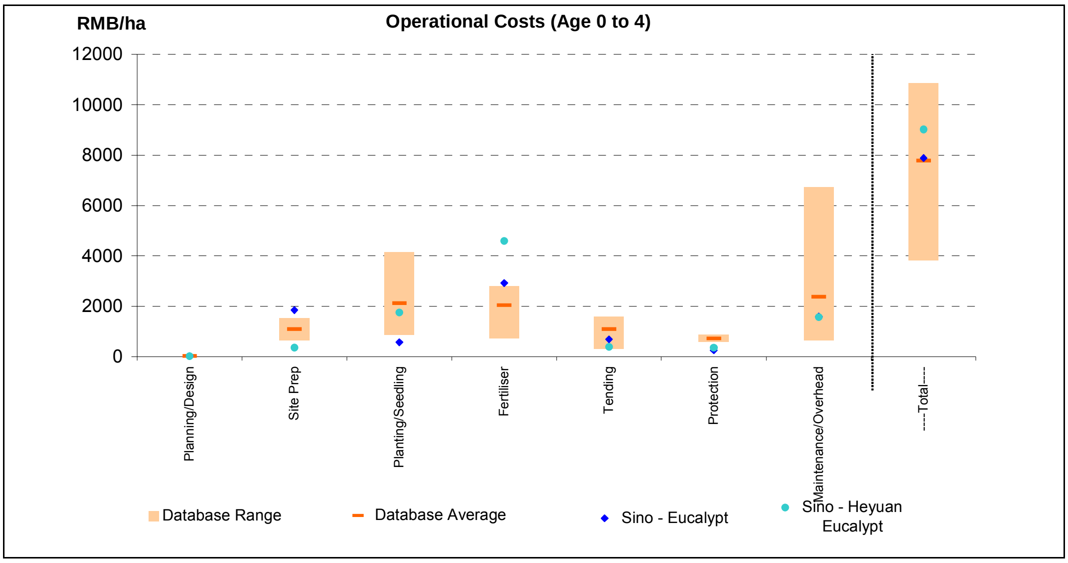
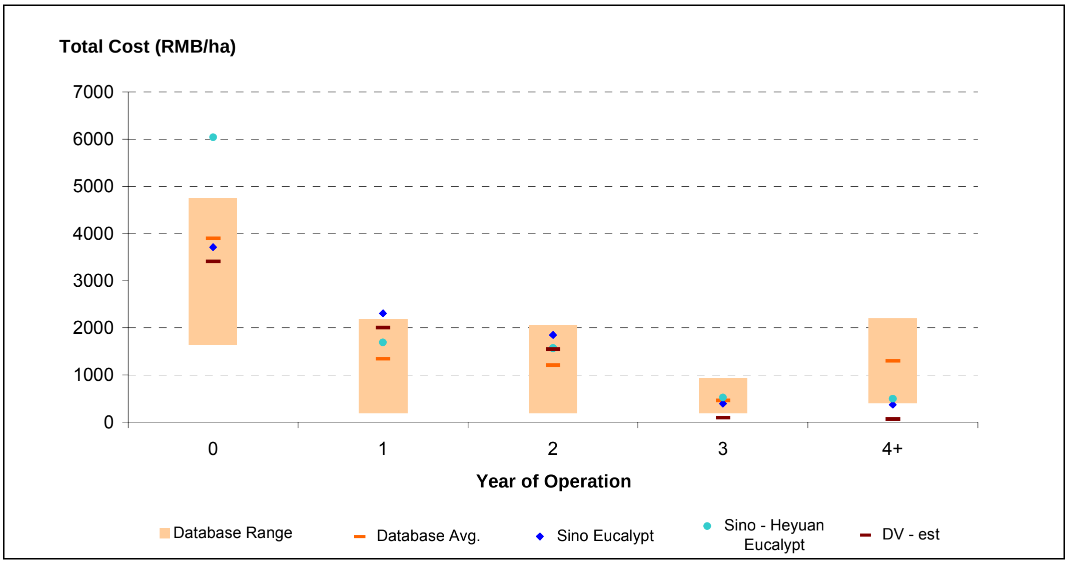


Figure 7-2:
Benchmarking Eucalyptus Operation Costs by Year



Chinese fir and Pine

The operation costs associated with the Chinese fir and pine species are assumed to be the same as those applied to the eucalypt resource **(**Table 7-5). Due to the generally older age-class structure of the Chinese-fir and pine resource, operational costs will have already been incurred and will not affect the December 2006 Valuation result.

Table 7-5:
Operation Costs for Eucalyptus Planted Rotation (RMB per ha)

Operations	**Planted Forest (R1)**						
	Year						
	0	**1**	**2**	**3**	**4**	**5**	**6**
Planning	12	0	0	0	0	0	0
Operations design	9	0	0	0	0	0	0
Site preparation	450	0	0	0	0	0	0
Terracing	1395	0	0	0	0	0	0
Fertiliser	975	975	975	0	0	0	0
Planting (incl. seedling cost)	570	0	0	0	0	0	0
Thinning	0	0	0	0	0	0	0
Tending	0	345	345	0	0	0	0
Protection	0	75	58	58	57	57	57
R&D	0	120	30	30	7	7	7
FB Service Charge	0	493	141	9	6	6	6
Overheads	150	150	150	150	150	150	150
Lease	150	150	150	150	150	150	150
Total	3711	2308	1849	397	371	371	371
Total RMB per ha							**9378**

Figure 7-3 and Figure 7-4 detail the benchmarking analysis of the Chinese fir and pine costs respectively. Overall, the total operational costs are at the higher end of the database ranges.

Figure 7-3:
Benchmarking Chinese fir Individual Operation Costs (to fourth year of operation)

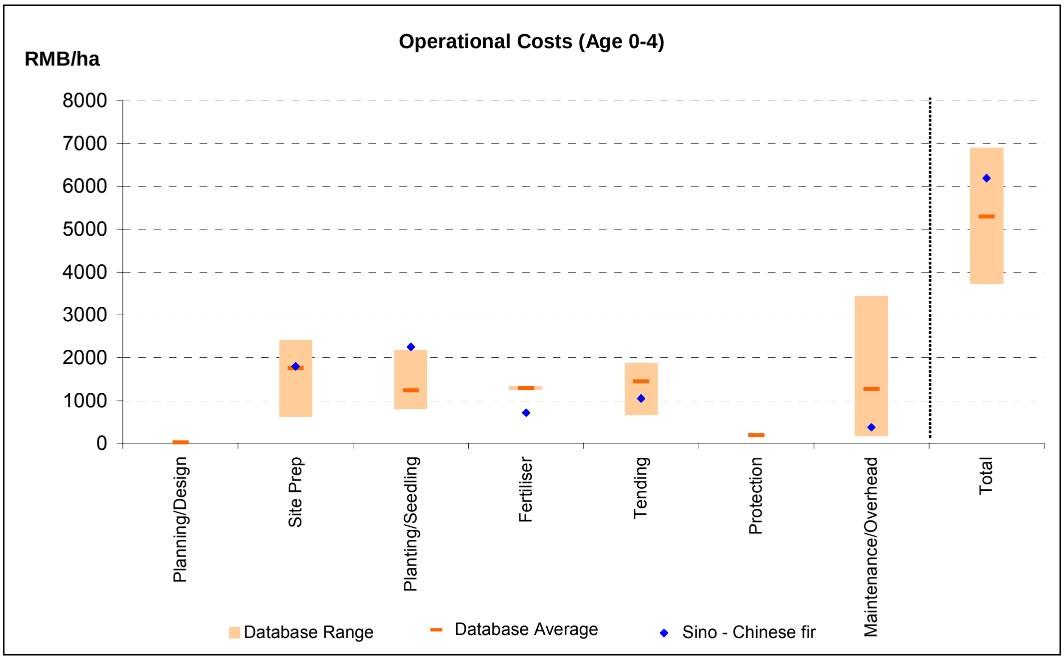
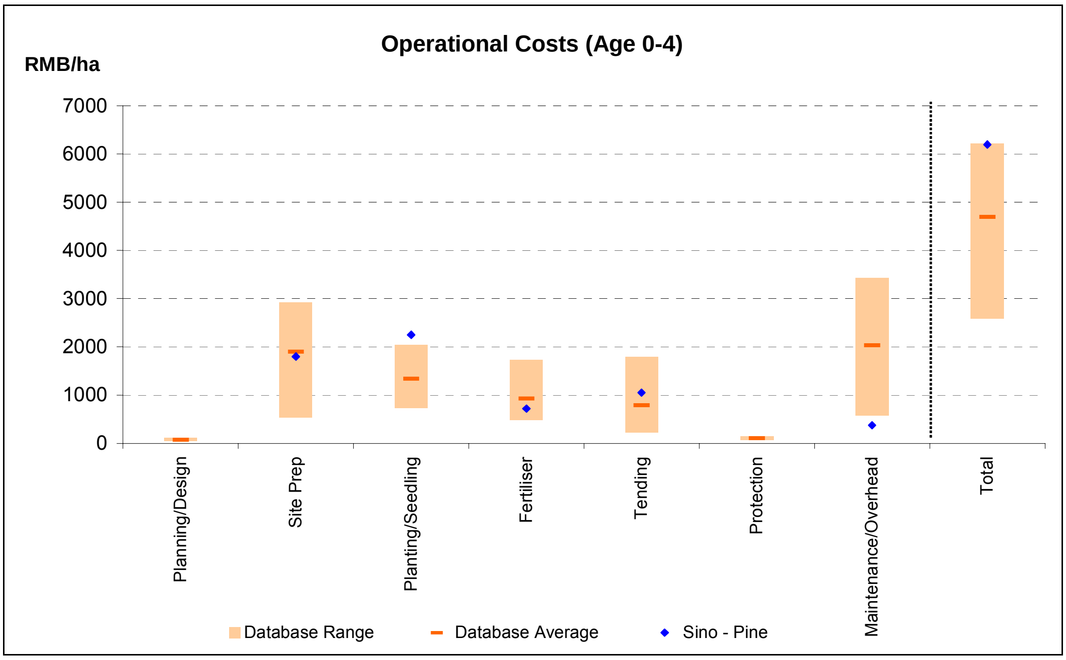


Figure 7-4:
Benchmarking Pine Individual Operation Costs (to fourth year of operation)



7.2 Costs of Production

7.2.1 Harvesting Costs

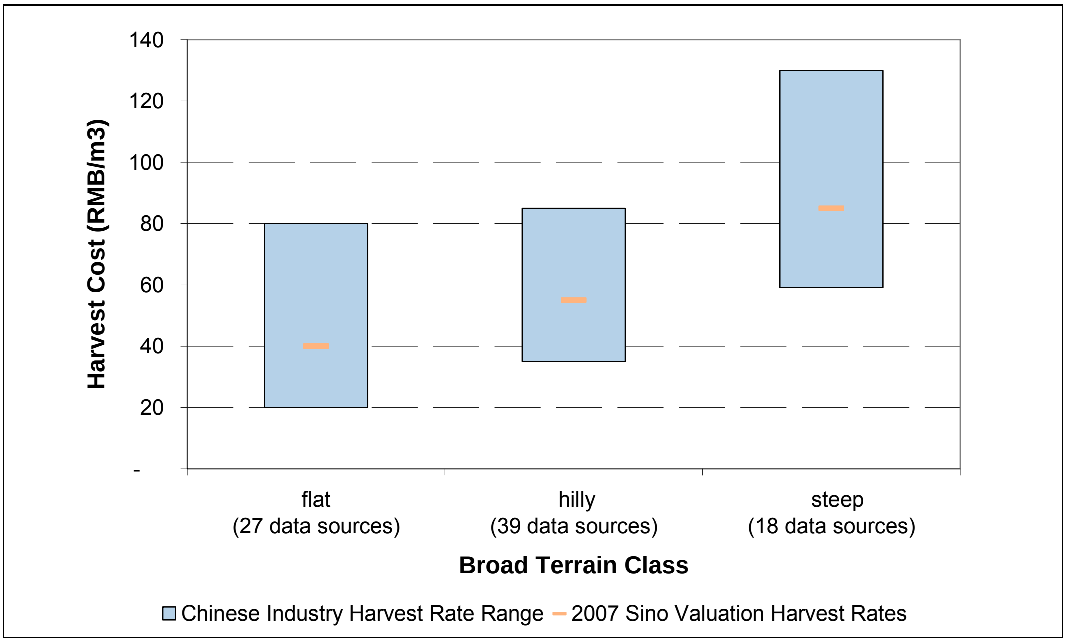
The harvesting costs applied in the December 2007 valuation take into consideration the broader terrain characteristics in Sino-Forest's plantations in each province (Table 7-6). Terrain is classified into flat (0-15 degrees), hilly (15-30 degrees) and steep (>30 degrees).

Table 7-6:
Harvesting Costs by Province

Province	Terrain	Harvest Rate (RMB/m^3)
Fujian	Flat	40
Guangdong	Hilly	55
Guangxi	Hilly	55
Hunan	Steep	85
Jiangxi	Hilly	55
Yunnan	Steep	85

Average harvesting costs have been derived from an analysis of wider Chinese industry data collated by Pöyry (Figure 7-5). Harvesting methods in all six provinces were generally manual based with little or no mechanical assistance.

Figure 7-5:
Harvest Rates used in the Valuation Compared with Wider Chinese Industry Data

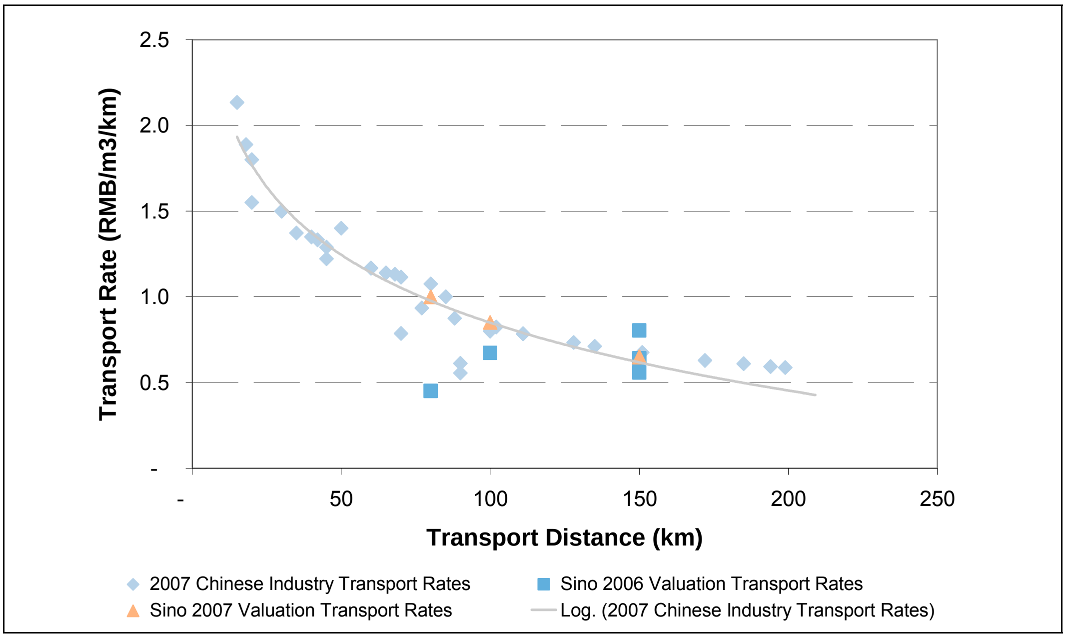


Pöyry has identified that the key factors influencing manual harvesting costs include labour cost, tree size, log length and topography.

7.2.2 Transport Costs

Distance based transport rates for each province have been derived from an analysis of wider Chinese industry data collated by Pöyry in 2007 (Figure 7-6).

Figure 7-6:
Derivation of Distance Based Transport Rates



The transport rates are inclusive of loading, unloading and road tolls. Average rates are based on distances to major mills and have been limited to 150 km, as it is assumed that longer haul distances will be avoided by marketing volume to smaller local mills closer to the resource.

Table 7-7:
Transport Costs Inclusive of Loading and Unloading by Province

Province	Transport Unit Rate RMB/m^3/km	Average Distance (km)	Average Total Cost (RMB/m^3)
Guangxi	0.65	150	97.5
Fujian	0.85	100	85.0
Guangdong	1.11	80	88.75
Heyuan City	0.65	150	97.5
Jiangxi	0.65	150	97.5
Hunan	0.65	150	97.5
Yunnan	0.65	150	97.5

When Sino-Forest sells its standing timber to wood-traders, both the harvest and transport costs are accounted for by the wood-trader at the time of purchase.

7.3 Taxes at Harvest

According to State Forestry Administration generally 15% of the sales revenue (delivered prices) should be returned to the local Forestry Bureau. The 15% is comprised of 10% harvest tax and 5% regeneration tax. With re-establishment of plantations the 5% regeneration tax will be returned by the Forest Bureau to the forest owner. Therefore the effective tax for ongoing forestry operations is the 10% harvesting tax.

A summary of the taxes used in the valuation is presented in the following table.

Table 7-8:
Harvesting Tax Used by Species and Log Grade in the Forest Valuation

Pulpwood & Sawlog Grade	Delivered Log Price (RMB/m^3)	Harvest Fee (10%)
Acacia Pulp	300	30
Acacia Bark	200	20
Poplar <8 cm	330	33
Poplar 8-12cm	445	44.5
Poplar 12-20cm	560	56
Poplar >20cm	670	67
C.Fir 6-14cm	570	57
C.Fir 14-20cm	730	73
C.Fir >20cm	870	87
Pine <8 cm	391	39.1
Pine 8-14 cm	500	50
Pine14-20 cm	610	61
Pine>20 cm	700	70
Euc <8 cm	345	34.5
Euc 8-14 cm	475	47.5
Euc 14-20 cm	575	57.5
Euc >20 cm	630	63
Broadleaf <8cm	345	34.5
Broadleaf 8-14cm	435	43.5
Broadleaf 14-20cm	500	50
Broadleaf >20cm	555	55.5

7.4 Overhead Costs

The cost of the direct supervision required for plantation establishment and management has been identified as 10% of the direct operational costs.

The overhead costs associated with CJV companies and with the management of Purchased Plantations have been identified by the companies as RMB150/ha/year. As with the previous valuations in 2005 and 2006, Sino-Forest has not identified any corporate overhead costs related to running this business. Pöyry has allocated a further RMB150/ha/yr for corporate overheads.

In 2007, Sino-Forest acquired all the PRC shares of the CJV companies, effectively transforming these companies to Wholly Owned Forest Enterprises (WOFE). Pöyry has attributed overhead costs to CJV plantation areas only until the date at which the transaction occurred. Pöyry has viewed copies of the transactions which indicate these occurred variously between March and August 2007.

7.5 Co-operative Joint Ventures

Until part-way through 2007, the forest area originally planted by Sino-Forest has been managed under a Cooperative Joint Venture (CJV) set up between Sino-Forest and PRC incorporated forestry trading companies (the commercial arms of government forestry bureaus).

In 2007, Sino-Forest acquired all existing PRC shares of the CJV companies, effectively transforming these companies to Wholly Owned Forest Enterprises (WOFE). Pöyry has viewed copies of the transactions which indicate these occurred variously between March and August 2007.

The transformation from CJV to WOFE status has some significance for the valuation of these plantations.

- Under CJV the forestry trading company provides the land for the plantation forests; under WOFE it is assumed land rental is payable to the PRC.
- Under WOFE Sino-Forest will continue to pay all the plantation establishment and maintenance costs.
- Under CJV the harvest revenue is shared 30% to the forestry trading company and 70% to Sino-Forest; under WOFE 100% of harvest revenues are attributed to Sino-Forest.

7.6 Land Rental

In previous valuations, it has been assumed that the existing purchased forest areas will be harvested and replanted in fast growing eucalyptus hybrids and that the underlying land will be leased and an annual rental paid.

Sino-Forest has advised that it expects to pay an annual land rental of RMB10/mu/year. The land rental associated with the recent acquisitions in Heyuan is reported to be RMB15/mu/year. These levels of land rental are common in Southern China for land designated for forestry where rates are observed to be RMB8/mu/year – RMB20/mu/year. These rentals are associated with hill country that it is generally used for forestry as it is less suitable for agricultural cropping uses. Without specific data for each province, Pöyry has applied a land rental at RMB150/mu/year for all locations in line with Sino-Forest's stated expectations.

Table 7-9:
Land Rental Rates Applied in the Valuation

Province	Land rental (RMB/ha/year)
Fujian	150.00
Guangdong	150.00
Guangxi	150.00
Hunan	150.00
Jiangxi	150.00
Yunnan	150.00

7.7 Log Traders Margin

Sino-Forest currently sells most of its logs to log traders on the stump (that is standing in the forest). Pöyry has calculated the stumpage price as the delivered to mill gate log price minus the cost of transport and harvest which the log trader must pay. However, in addition to the harvest and transport costs the log traders' margin must also be deducted from the stumpage price paid for the logs. Pöyry has assumed the log traders margin to be 5% of the gross delivered price.

8 LOG MARKETS AND PRICING

8.1 Delivered Log Price Benchmarks

In reviewing the delivered log prices employed in the end-December 2007 valuation, Pöyry has examined log prices associated with wider industry data that we have collated from recent projects in 2007 within Southern China as well as data supplied by Sino-Forest. Pöyry's price data covers the full range of tree species and the full range of log size classes traded by Sino-Forest.

Pöyry has also given consideration to updated price estimates acquired from Sino-Forest during the field inspection process.

Log prices for each of the main species are discussed below. The log prices applied for this valuation are tabled in Section 8.2. Based on the results of these reviews, Pöyry has revised prices for almost all log grades.

All log prices are at a 'delivered' price point, which is the sum of the stumpage, harvesting cost, extraction cost, loading cost, transport cost, unloading cost, plus any taxes and charges. Sino-Forest tends to conduct almost all its sale transactions on a standing basis[9], which is a stumpage price point. Pöyry has chosen however to carry-out the valuation using delivered log prices, with associated deductions of all supply-chain costs. The level of comparable transaction evidence for stumpage sales is negligible. Sales at a delivered price point are the norm, and consequently transaction evidence is more widely available and more transparent.

8.1.1 Eucalyptus Log Prices

Eucalyptus log price benchmarks are compared in Figure 8-1. It has been observed that prices have increased since the December 2006 valuation reflecting the strengthening domestic log market. Ongoing demand for eucalyptus in Southern China has caused prices to rise. *Eucalyptus* logs have achieved wide acceptance for the full range of processing types – medium density fibreboard, particleboard, veneer and sawn timber production. Logs as small as 8cm small end diameter (SED) are now used for veneer production contributing to significant log price increases for small diameter logs. The eucalyptus log prices employed have increased on average by around 25% since the end-December 2006 valuation.

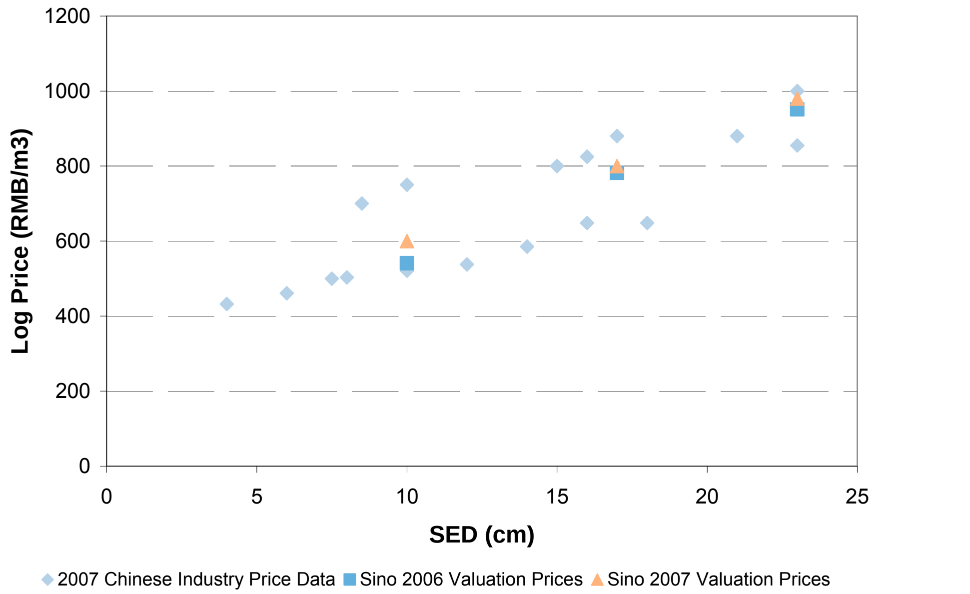
[9] The trees are still alive and standing in the forest, hence 'standing basis'.

Figure 8-1:
Eucalyptus Log Price Benchmarking

8.1.2 Chinese Fir Log Prices

Figure 8-2 illustrates the log price ranges observed by Pöyry during 2007 which are considered to be representative of the wider China industry, including data provided by Sino-Forest. The log prices used for the 2007 valuation are within the range of these observed prices. The fir prices employed have increased on average by around 5% since the end-December 2006 valuation.

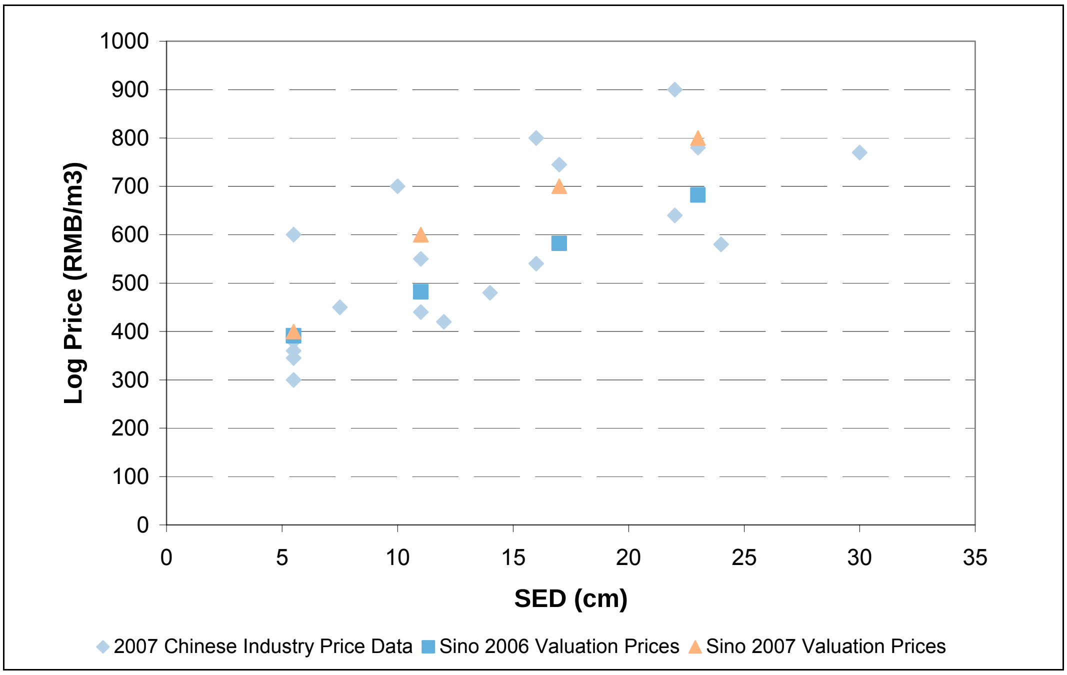
Figure 8-2:
Chinese fir Log Price Benchmarking



8.1.3 Pine Species Log Prices

Figure 8-3 illustrates the range of log prices observed by Pöyry during 2007 in Southern China, including data provided by Sino-Forest. The pine prices employed have increased on average by around 16% since the end-December 2006 valuation.

Figure 8-3:
Pine Log Price Benchmarking

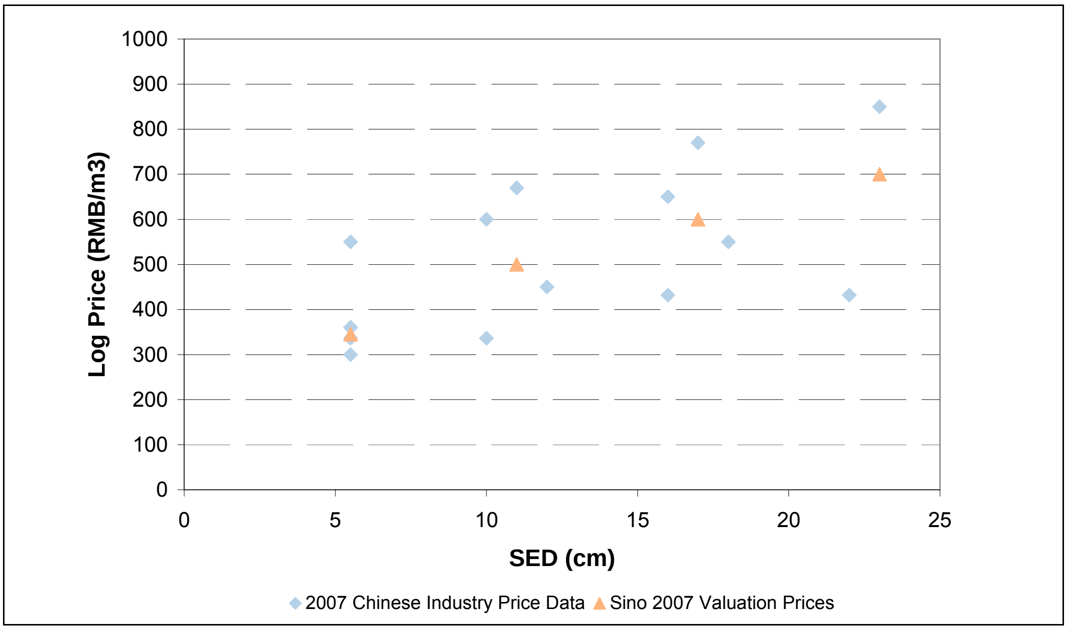


8.1.4 Broadleaf Species

In 2007 Sino-Forest purchased an area of mixed broadleaf forest in Yunnan Province. Broadleaf log prices in Yunnan were not available to Pöyry for this valuation. To date, Sino-Forest has not transacted any log sales in Yunnan but provided some price data. Pöyry has derived appropriate broadleaf log prices from the observed range of prices in Southern China **(**Figure 8-4).

In the absence of further information it has not been possible to apply a more refined approach.

Figure 8-4:
Broadleaf Log Price Benchmarking



8.2 Logs Prices Applied in the end-December 2007 Valuation

Sino-Forest generally sells its forest assets on a standing basis and therefore does not sell logs directly to the market. However, current forecast delivered log prices have been assumed for the purposes of the plantation cash flow forecasts and are presented below in Table 8-1.

Table 8-1:
Pulpwood and Sawlog Real Log Prices Forecast (2007 base)

Pulpwood & Sawlog Grade	2006*	2007	2008	2009	2010	2011	2012+
	RMB per m^3						
Acacia Pulp	300	345	348	352	355	359	363
Acacia Bark	200	200	202	204	206	208	210
Poplar <8 cm	300	330	333	337	340	343	347
Poplar 8-12cm	355	445	453	460	468	476	484
Poplar 12-20cm	417	560	570	579	589	599	609
Poplar >20cm	485	670	681	693	705	717	729
C.Fir 6-14cm	541	600	610	621	631	642	653
C.Fir 14-20cm	782	800	814	827	841	856	870
C.Fir >20cm	951	980	997	1 014	1 031	1 048	1066
Pine <8 cm	391	400	404	408	412	416	420
Pine 8-14 cm	482	600	610	621	631	642	653
Pine14-20 cm	582	700	712	724	736	749	762
Pine>20 cm	682	800	814	827	841	856	870
Euc <8 cm	303	345	348	352	355	359	363
Euc 8-14 cm	390	500	509	517	526	535	544
Euc 14-20 cm	440	600	610	621	631	642	653
Euc >20 cm	580	700	712	724	736	749	762
Broadleaf <8cm		345	348	352	355	359	363
Broadleaf 8-14cm		500	509	517	526	535	544
Broadleaf 14-20cm		600	610	621	631	642	653
Broadleaf >20cm		700	712	724	736	749	762

* Price applied for the end-December 2006 valuation

8.3 Markets Analysis

Pöyry has included its analysis and forecasts for the various China forest products markets in Appendix 1. The analysis has provided the basis for the review and formation of the log price forecast shown in Table 8-1 above. According to Pöyry’s analysis, domestic sawlog prices are expected to increase at an average rate of 1.7% per year over the next five years. Pulplog prices are expected to increase at an average rate of 1% per year over the same period.

9 WOOD FLOW AND ALLOCATION MODEL

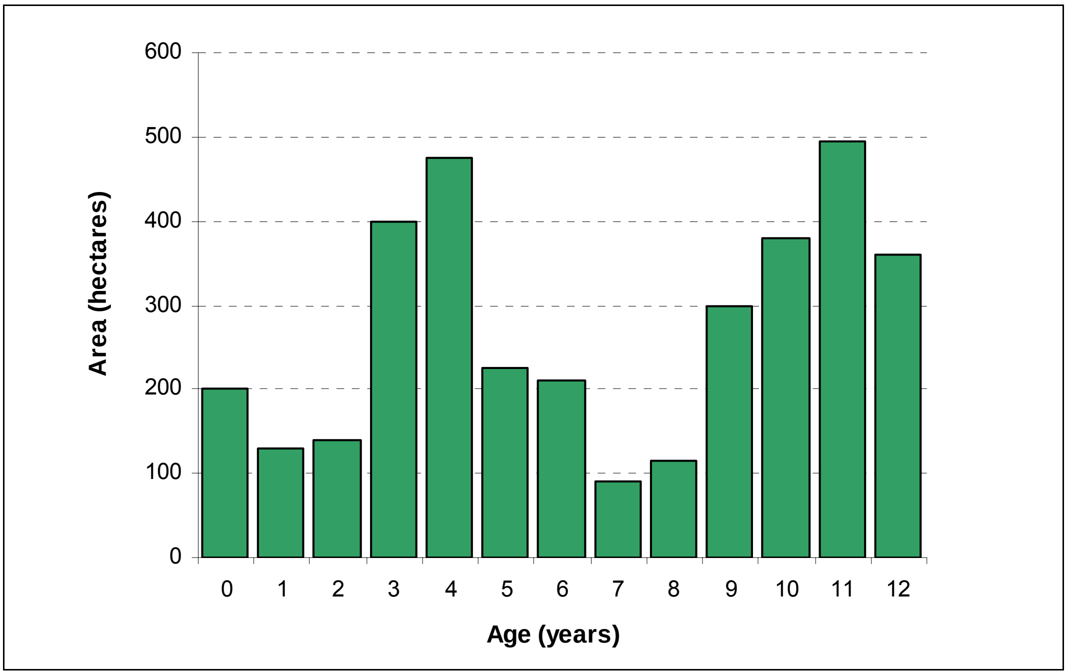
9.1 Overview

For any forest, but particularly forests of significant size, there is an important choice in how the forest's future management is modelled. The alternatives are:

- A stand-based (bottom-up) approach. Individual stands within the forest are effectively considered in isolation. Once their yield potential at a certain target age is identified, data are accumulated to provide a result for the forest as a whole.
- A forest estate (top-down) approach. All stands are modelled collectively to achieve some desired result from the total forest resource.

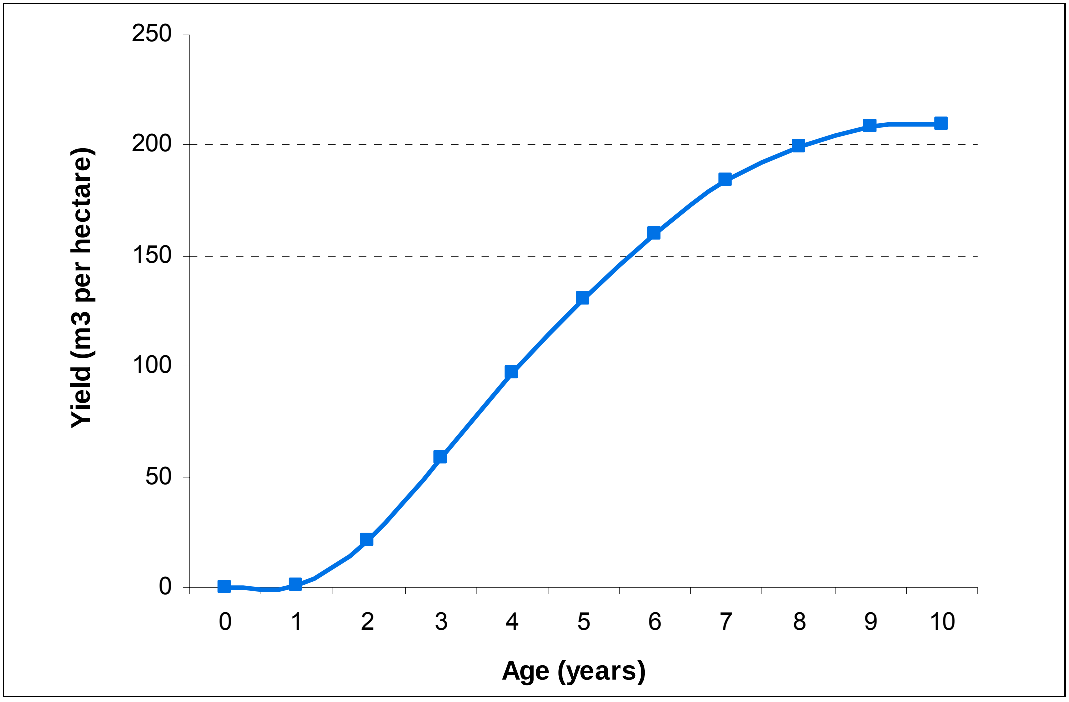
The most common manifestation of the distinction is in the production profile of the resource. The age-class distribution of an example forest is shown below. Characteristically, most plantation forests have an irregular age distribution and Figure 9-1 illustrates this feature.

Figure 9-1:
Example Forest Estate Age-class Distribution



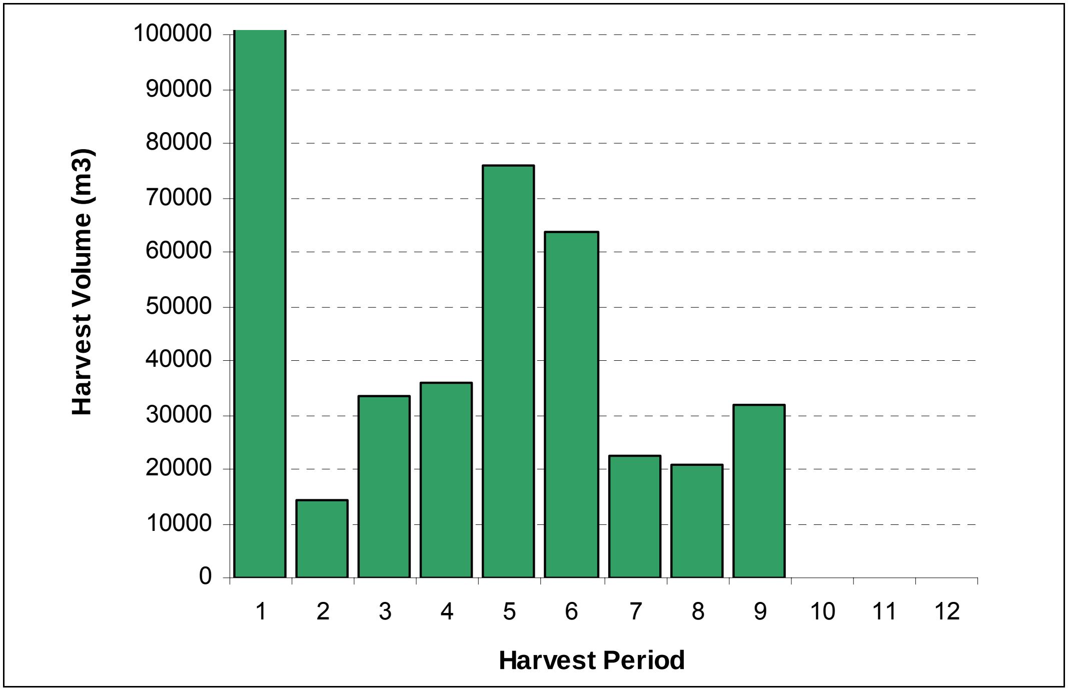
Assume, for convenience that all stands share the same yield table as illustrated by Figure 9-2.

Figure 9-2:
Example Forest Estate Yield Table



Were the forest to be managed on the stand-based approach, each stand might be cut at some externally determined target age. A commonly applied concept is that of the optimum economic rotation age. Accumulating the results gives an irregular wood production, as shown below. The harvest profile effectively becomes the mirror image[10], with a scaling factor, of the age-class distribution (Figure 9-3).

Figure 9-3:
Example Harvest at Fixed Rotation Age



[10] Note that the full extent of the harvest in the first period is not shown as all ages >9 years are assumed harvested.

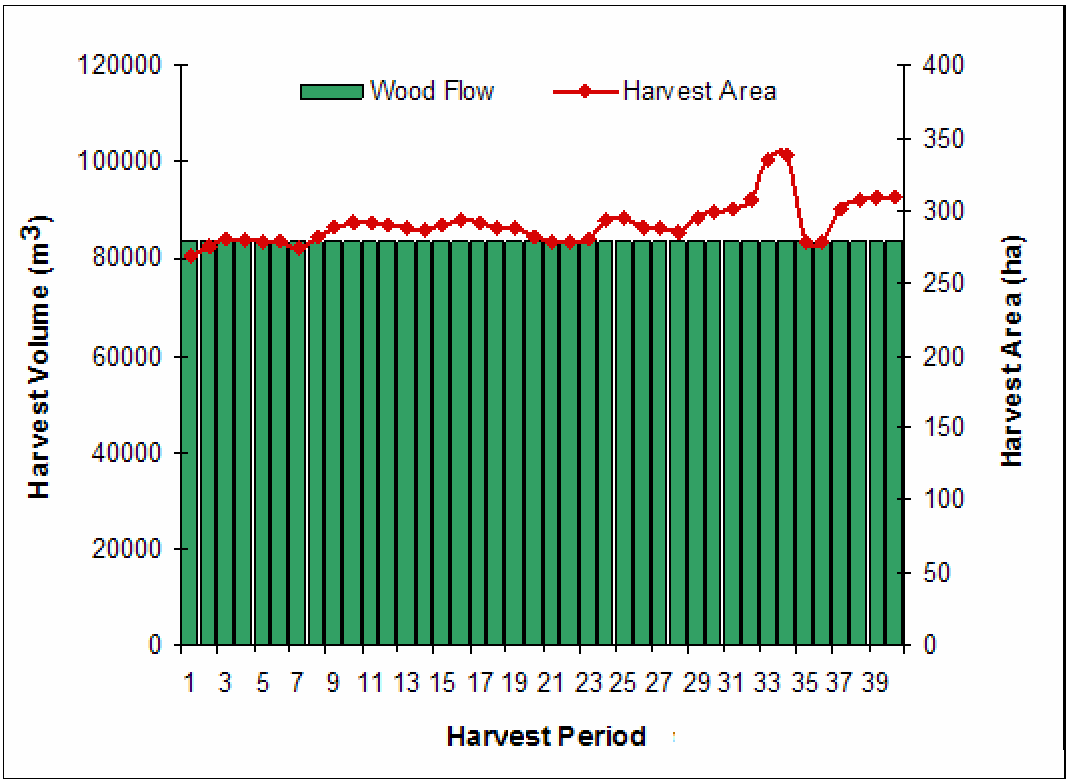
In practice, it may be unrealistic to harvest all stands at a fixed rotation age. Most plantation forest estates have, through various circumstances, an uneven age-class distribution. A harvesting strategy that employs a fixed rotation age will lead to a wood flow profile that reflects the age-class distribution as illustrated in Figure 9-3 previously.

An irregular wood flow may be inappropriate for various reasons:

- Marketing - an irregular supply may prejudice market confidence.
- Logistical considerations of harvesting and transport.
- Supply commitments to associated processing plants.
- Regularity of cash flow from which to fund ongoing forest management.

To meet these considerations other harvesting strategies are likely to be preferred. A forest estate modelling approach can therefore be used to smooth the harvest rate, achieving this by manipulating both the age and area of harvest[11] (Figure 9-4).

Figure 9-4:
Example Smoothed Forest Harvest



The choice of modelling method has a bearing on the results of a forest valuation. For each stand, examined in isolation, it is possible to identify an optimum economic rotation age. At this rotation length, the NPV of the stand is maximised. If the optimum economic rotation is employed as the target clearfelling age in a stand-based model, this will produce the highest theoretical value for the forest.

However, if a forest estate modelling approach is employed, this invariably involves some departure from the optimum economic rotation age and results in a lower value for the forest. The extent of difference between the modelling

[11] Note that the chart series for the average age of harvest is not shown. It does however vary over time.

approaches depends on the degree to which the harvest age varies from the theoretical optimum.

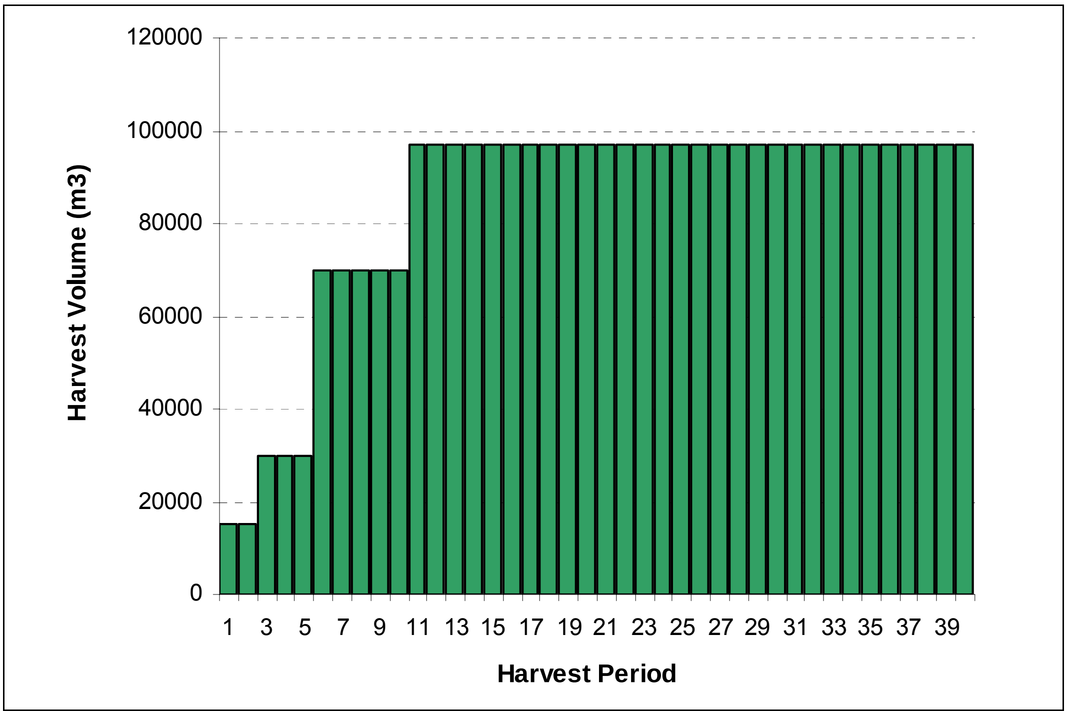
9.2 Observed Practice in Wood Flow Modelling

It is Pöyry's observation that wood flow modelling for valuation purposes invariably involves smoothing of wood flows. For large resources (in excess of a few hundred hectares) a non-declining yield is the most common default representation. To a large extent the degree of smoothing implemented is determined by the resource's age-class distribution.

The modelling profile adopted in forest valuations is guided by two factors:

- What the forest valuer believes is a credible and pragmatic profile, and
- What the market evidently assumes in determining what forest purchase value it is prepared to pay.

Figure 9-5:
Example Non-Declining Yield Profile



Pöyry has profound misgivings with production profiles for any particular forest that involve large fluctuations in wood flow. They may lead to real inefficiencies in start-up and withdrawal of harvesting operations, a less than enthusiastic participation by market partners, and forest financial flows that are most inefficient to manage.

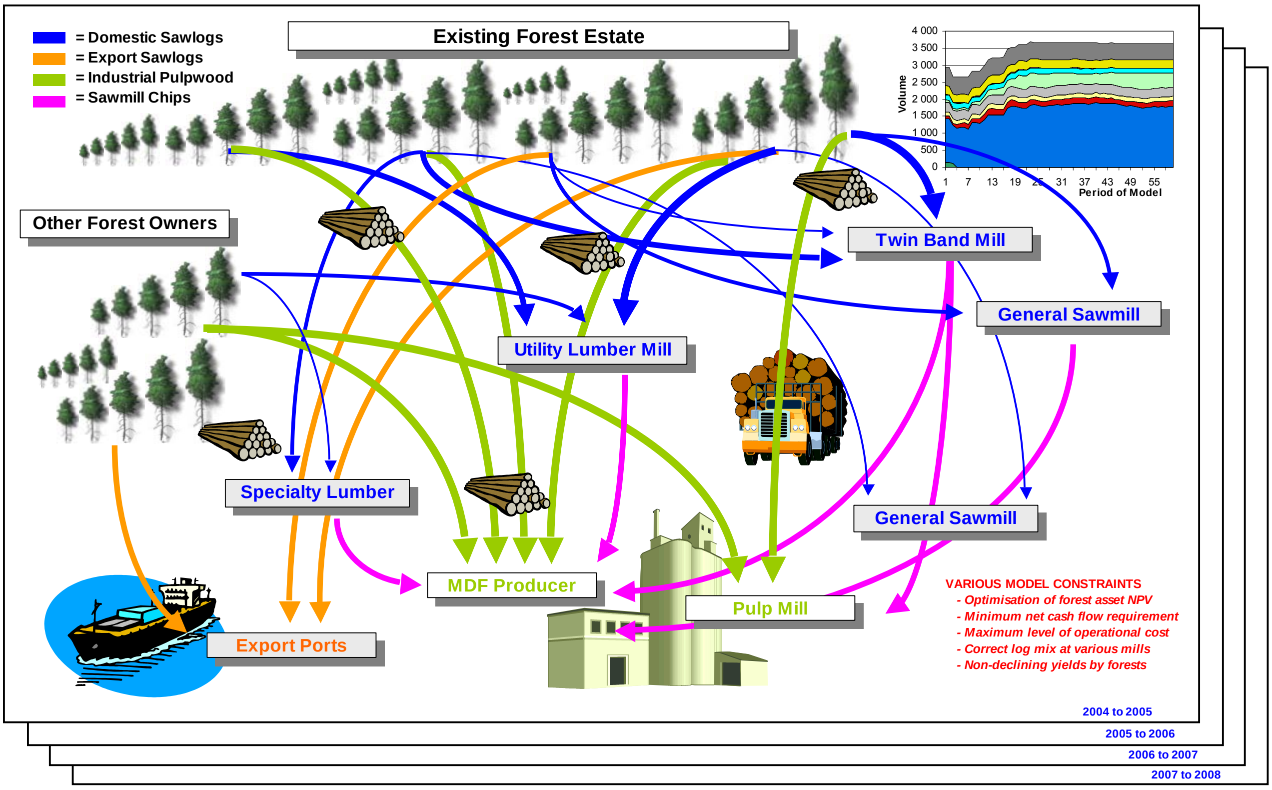
Pöyry's perception of the market for forests is that most investors prefer valuations based on pragmatic wood flow profiles. Pöyry has consistently been engaged in preparing and evaluating managed wood flow profiles for intending forest investors.

9.3 Modelling Supply and Demand

Forest estate modelling provides the means to manage the collective output of the estate to best effect, managing supply chain optimisation by matching production by log type to the various markets. These include; local sawmills, panel mills and pulpmills, local and distant forest product users, and export ports.

A schematic outline of the entire forest estate modelling concept used to project future wood flows as well as projected costs and revenue by destination is shown below.

Figure 9-6:
Schematic Illustration of the Forest Estate Model



As illustrated, the model maintains the identity of the forest units within the collective resource. Each has a distinct age-class distribution. The linear programming model operates on a year-by-year basis, with each year being unique in respect to clearfell age, location of harvest and the quantities delivered to various destinations.

9.4 Croptype Allocation

Forest estate modelling has conventionally taken the approach of allocating each stand in the forest to a croptype. Croptype definition is initially productivity-based, with all stands within a croptype expected to share the same yield table. Factors affecting yields include the species, site characteristics and silvicultural regimes of the stands - thus croptypes are normally distinct with respect to these attributes. With increasing sophistication in the modelling process, other criteria for differentiation may also apply. Forest location, slope classification, soil type and tenure are also commonly distinguished.

The practice of aggregating stands into croptypes has largely been driven by limits on the computational capacity of available computers. With processing speeds continuing to increase rapidly, the requirements for aggregation are diminishing. It is increasingly practicable to construct models in which each stand is a croptype in its own right. The improved modelling resolution that this offers is attractive, although greater automation of model construction also becomes necessary. The forest estate model that has been constructed to describe the Sino-Forest estate employs a substantial measure of aggregation, but retains a high degree of resolution inasmuch as geographical identities are maintained and the coppicing of future stands is modelled.

9.5 Model Constraints

The linear programming based framework allows the specification of a variety of constraints. The following types of constraint are included within both the wood flow model and the supply chain optimisation model:

- Lower and upper harvest age limits.
- Overall objective of optimising the NPV of future cash flows.
- Croptype allocation for replanting/regeneration of future crops, with an accompanying variety of replanting constraints and limits.
- Harvest constraints, which in turn include a range of further options such as non-declining yields and product smoothing capabilities.
- Cash flow and budgeting constraints, such as maximum expenditure and minimum cash flow requirements on an annual basis.
- Supply chain management such as the delivery of required product mixes to specific destinations over a managed time horizon.

9.5.1 Clearfell Age Constraints

In order to provide variations in the mix and volume of the products available from each stand at clearfell, the age at which harvest can occur is allowed to vary. The linear programming model determines the year of harvest and is constrained to a range of ages that are realistic industry standards. The minimum and maximum clearfell ages for each species are shown in Table 9-1.

Table 9-1:
Clearfell Age Restrictions

Period	Species	Minimum Clearfell Age	Maximum Clearfell Age
1..5	Acacia	6	60
1..5	Broadleaf	15	99
1..5	Broadleaf (Yunnan Acquisitions)	1	99
1..5	Chinese fir	15	60
1..5	Pine	10	60
1..5	Poplar	6	60
1..5	Eucalypt (existing crop)	5	60
1..5	Eucalypt (new crop)	6	60
1..5	Eucalypt (coppice)	5	60
6..50	Acacia	6	10
6..50	Broadleaf	15	99
6..50	Broadleaf (Yunnan Acquisitions)	1	99
6..50	Chinese fir	15	25
6..50	Pine	10	25
6..50	Poplar	6	12
6..50	Eucalypt (existing crop)	5	12
6..50	Eucalypt (new crop)	6	8
6..50	Eucalypt (coppice)	5	6

After an initial period when croptypes are allowed a wide range of clearfelling ages, the maximum harvest age is reduced so that a more tightly defined clearfell range exists. The reasons for doing this are threefold:

- At the start of the modelling process there are some stands containing old trees, and the model must acknowledge these exist.
- Lowering the maximum clearfell age after a period of time prevents the model from deferring the harvest age unduly in so-called end-play effects.
- A narrower band of possible harvest ages enhances the model's processing speed.

Broadleaf forests already acquired in Yunnan are all mature. Whilst a clearfell range of 1..99 is reported above, the harvesting of areas is regulated through a series of cutting constraints discussed in the following sections. The specification of these ranges is for model execution and do not represent biological or silvicultural management.

9.5.2 Wood Flow and Allocation Constraints

It is possible to specify periods within which the harvest of a class of products may increase at any time but cannot subsequently decline. As the concept suggests, this is commonly referred to as a non-declining yield (NDY) constraint.

The forest estate model has used both NDY constraints and smoothing constraints to allow the harvest of any mix of log products from various forest origins to be smoothed between annual periods. Table 9-2 below details the NDY constraints applied to the December 2007 model.

Table 9-2:
Non-Declining Yield Constraints

Period		Attribute	Products
From	To		
1	10	Current Managed Forest	Total Clearfell Volume

Table 9-3 details the nature of the smoothing constraints. The main objective of the smoothing constraints is to limit the year-on-year fluctuation of harvest levels at a consolidated and provincial level.

Table 9-3:
Smoothing Constraints

Period		Attribute	Products	Maximum	
From	To			% Increase	% Decrease
10	60	Current Managed Forest	Total Clearfell Volume	5	5
10	60	Forest yet to be Acquired	Total Clearfell Volume	5	5
5	10	All Forests	Total Clearfell Volume	0	25
10	60	Fujian Forests	Total Clearfell Volume	15	15
1	5	Hunan Forests	Total Clearfell Volume	15	85
5	10	Hunan Forests	Total Clearfell Volume	15	50
10	60	Hunan Forests	Total Clearfell Volume	15	15
1	5	Guangxi Forests	Total Clearfell Volume	15	85
5	10	Guangxi Forests	Total Clearfell Volume	15	50
10	60	Guangxi Forests	Total Clearfell Volume	15	15
5	10	Jiangxi Forests	Total Clearfell Volume	15	15
10	60	Jiangxi Forests	Total Clearfell Volume	15	15
2	61	Acquired Yunnan Forests	Total Clearfell Volume	0	0

The final constraint detailed above in the smoothing table refers to areas acquired in Yunnan. Discussions with Sino Forests (and as further discussed in the Yields Section) broadleaf forests in Yunnan are assumed to be harvested over two 50% thinning removal operations. Regulations stipulate that a thinning operation cannot occur within 30 years of the previous thinning.

For model execution, and to generate a wood flow consistent with accounting standards (i.e. that values the current crop), Pöyry has regulated the harvesting of forests acquired in Yunnan to represent actual management constraints. Pöyry has applied the above smoothing constraints as well as the following harvesting constraints to regulate harvesting in Yunnan.

The additional volume constraint on all forests ensures has been included as the first valuation model period represents a half-year.

Table 9-4:
Harvesting Constraints

Period		Attribute	Products	Eq	Value
From	To				
1	1	All Forests	Total Clearfell Volume	<	2 125 000 m^3
1	1	Acquired Yunnan Forests	Total Clearfell Volume	=	83.0 ha
2	60	Acquired Yunnan Forests	Total Clearfell Volume	>	9 718.0 ha

It is anticipated that the future replanting operations will target faster growing and higher yielding species where possible. The ratio by which each species will be replanted is detailed in Table 9-5 below.

Table 9-5:
Replant Constraints

Period		Origin	Current Species	Replant Species	% Replanted
From	To				
1	50	Guangdong	All	Eucalypt	100
1	50	Hunan	Chinese fir	Chinese fir	50
1	50	Hunan	Chinese fir	Pine	50
1	50	Hunan	Chinese fir	Chinese fir	50
1	50	Hunan	Chinese fir	Pine	50
1	50	Jiangxi	Pine	Pine	70
1	50	Jiangxi	Pine	Eucalypt	30
1	50	Jiangxi	Pine	Pine	70
1	50	Jiangxi	Pine	Eucalypt	30
1	50	Jiangxi	Hardwoods	Eucalypt	100
1	50	Guangxi	Pine	Pine	60
1	50	Guangxi	Pine	Eucalypt	40
1	50	Guangxi	Pine	Pine	60
1	50	Guangxi	Pine	Eucalypt	40
1	50	Guangxi	Pine	Pine	60
1	50	Guangxi	Pine	Eucalypt	40
1	50	Yunnan	Broadleaf	Broadleaf	100
1	50	Future Purchase	Pine	Pine	100
1	50	Future Purchase	Chinese Fir	Chinese Fir	100
1	50	Future Purchase	Broadleaf	Broadleaf	100

9.6 Wood Flow and Allocation Model Results

In the 2006 valuation report, Pöyry included future acquisitions as part of itsr consolidated wood-flow model. Given the increasing complexity of planned acquisitions and the number of assumptions made, the valuation model is based on a wood flow model excluding prospective acquisitions. Despite this, a similar series of constraints have been applied in deriving both models.

Consistent with the December 2006 valuation, a +/- 5% smoothing constraint has been placed on total volume production beyond period 10. It is anticipated that future acquisitions will allow for greater resource flexibility, and thus a flat wood-flow profile has not been assumed in the model excluding acquisitions.

Wood flow profiles including acquisitions are presented in Section 14.

The wood flow profiles derived for the current managed Sino-Forest resource over a 60-year period are presented in the figures below. These wood flows have been adopted as the basis for Pöyry's December 2007 valuation model.

Figure 9-7:
Wood Flow by Province and Product Group (m^3/year)

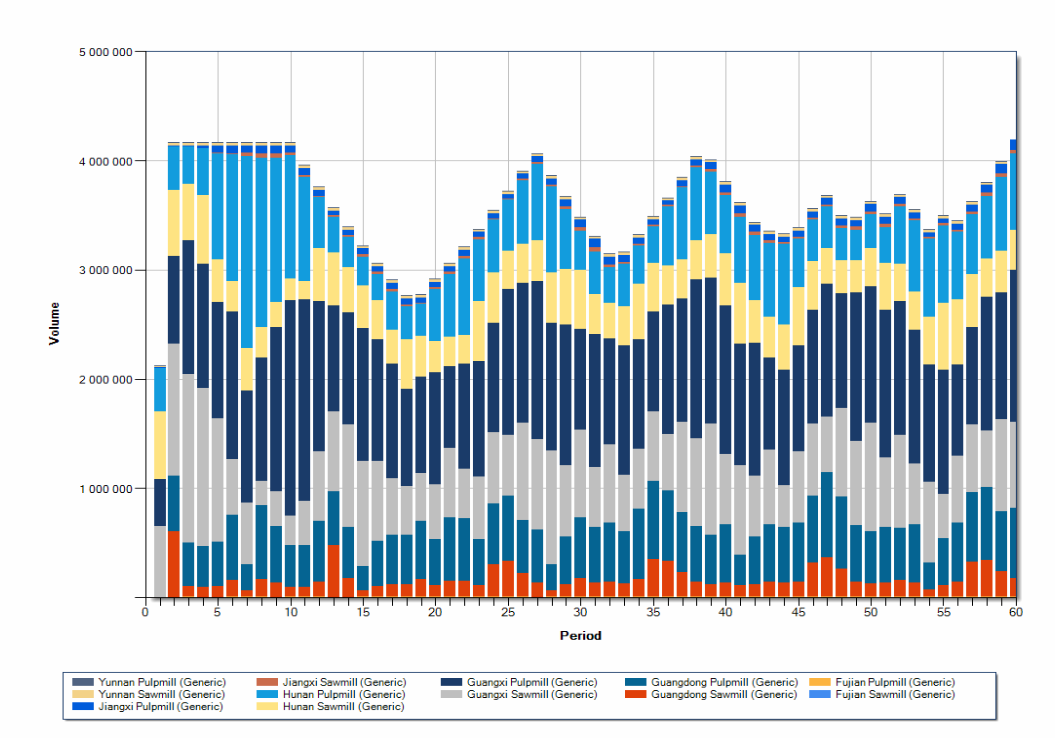


Figure 9-8:
Wood Flow by Province and Ownership Status (m^3/year)

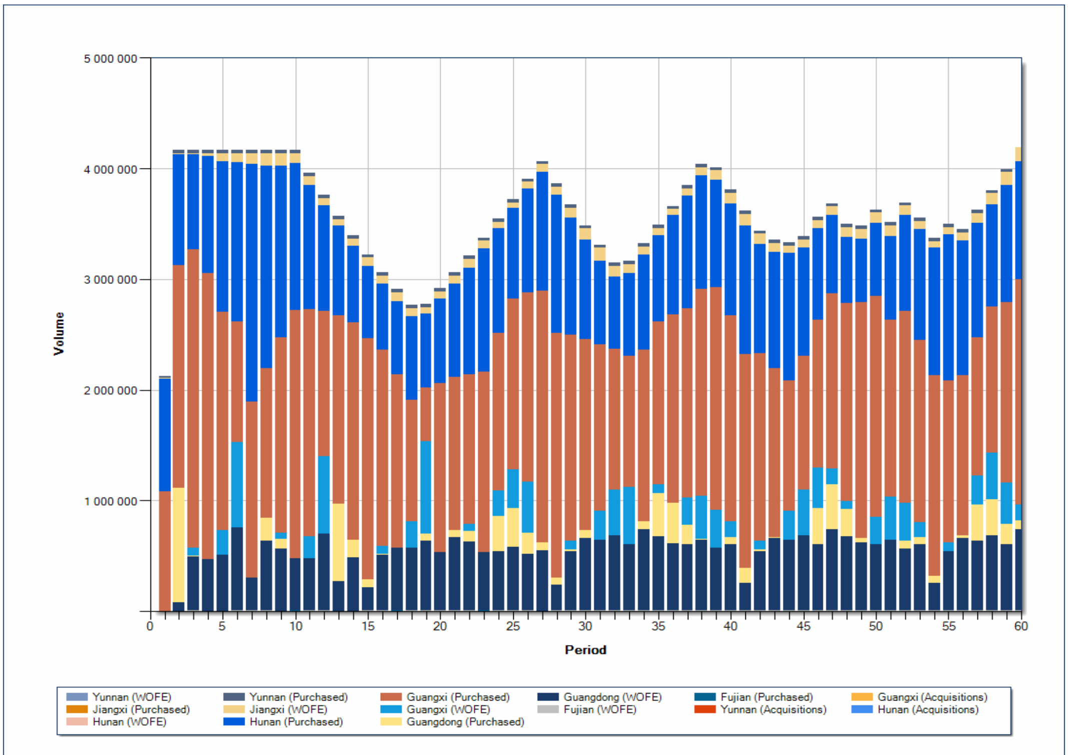


Figure 9-9:
Wood Flow by Species (m^3/year)

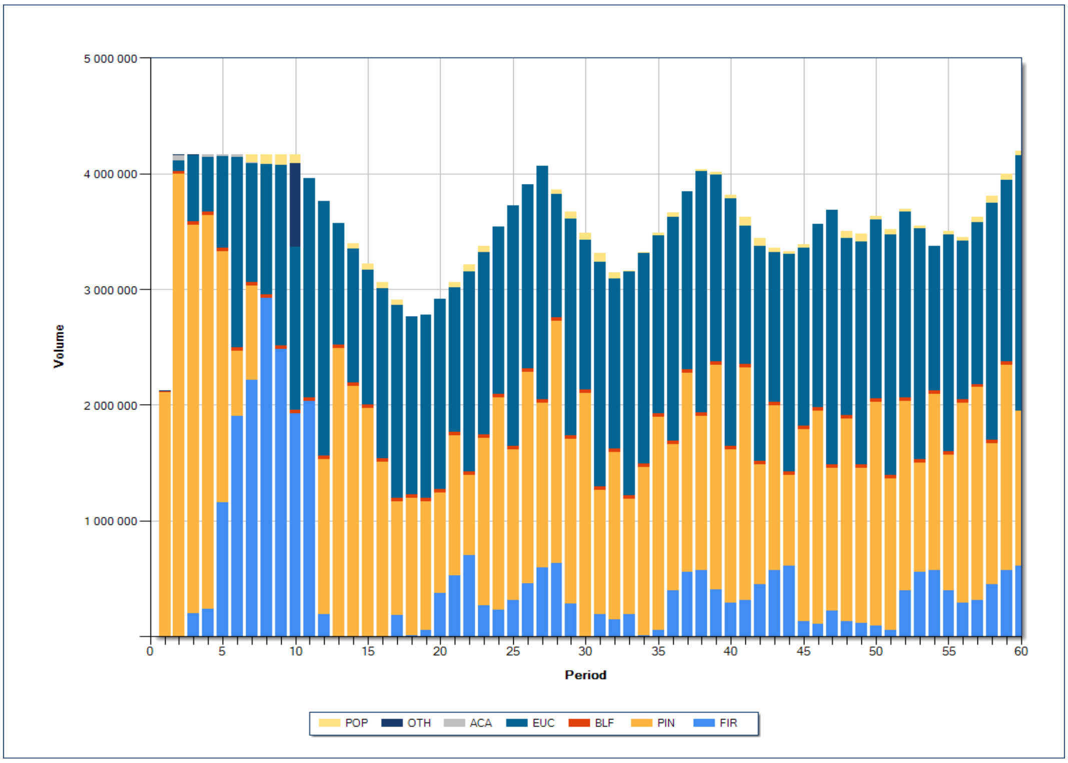
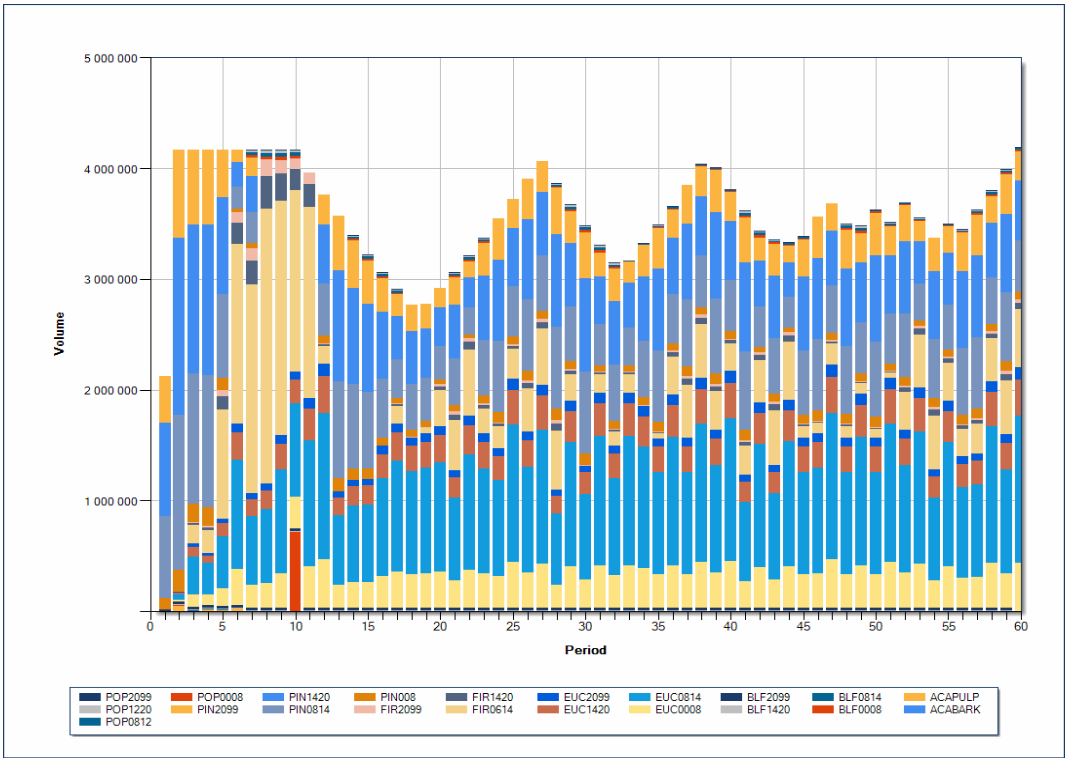


Figure 9-10:
Wood Flow by Log Product (m^3/year)



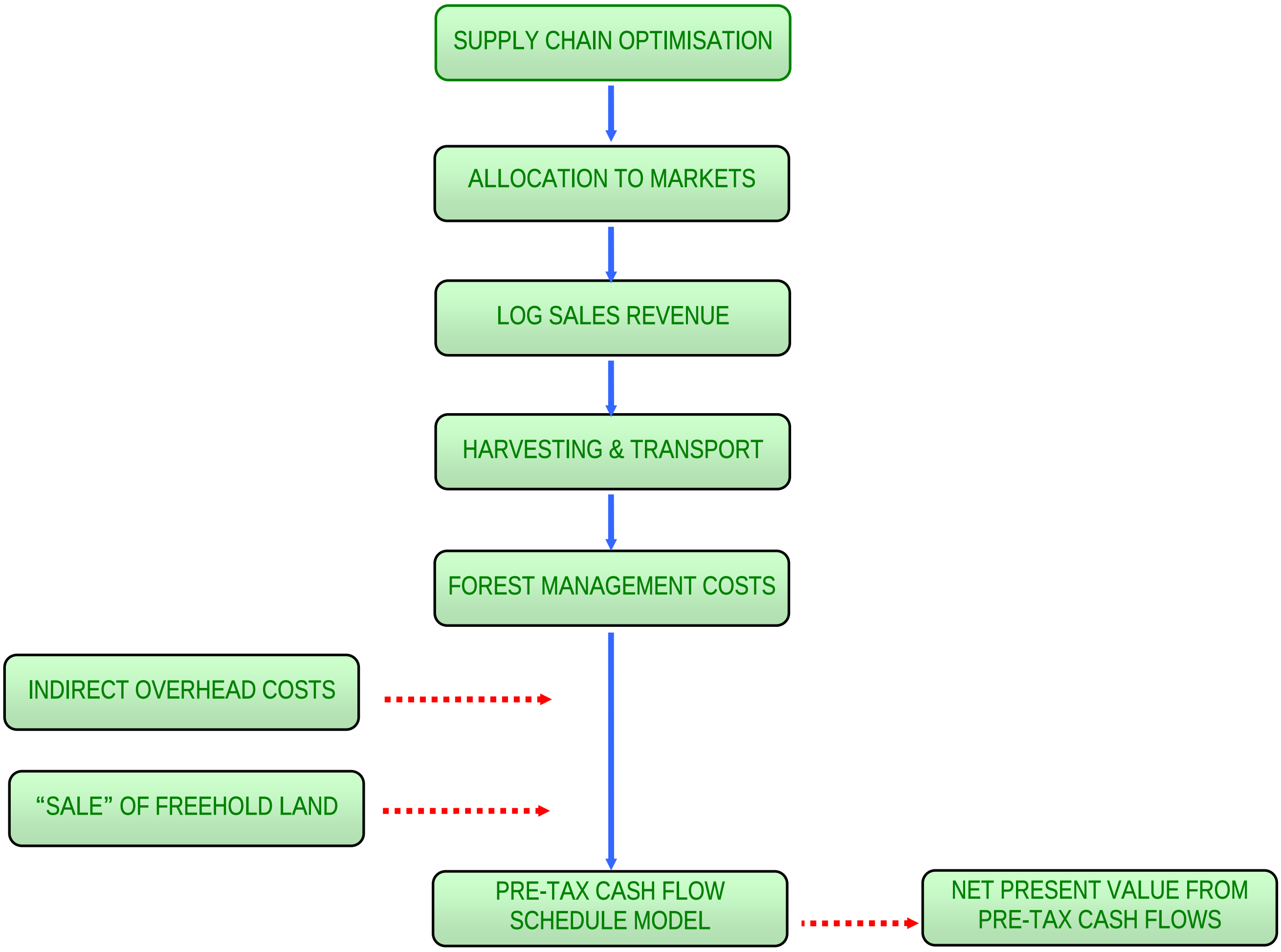
10 DISCOUNTED CASH FLOW VALUATION

10.1 Overview

The diagram below illustrates the structure of the valuation model. Generation of the initial inputs (the wood flows) has been described in the previous section. These wood flows are then optimised in their delivery throughout the supply chain to the various end-use markets. Revenue is generated at each destination, the price point being delivered at mill gate (AMG) or at wharf gate (AWG). Harvesting and transport costs, annual forest management costs, indirect overhead costs and the net cost of land are deducted from this revenue to give an operating margin.

The linear programming model generates all of these costs streams, since their profile depends on the harvesting strategy and age-class structure of the forest.

Figure 10-1:
Schematic Illustration of the Forest Valuation Process



10.2 Treatment of Taxation

Astute forest investors are expected to prepare valuations on the basis of post-tax cash flows. However, in general the accessible information with which to interpret transaction evidence almost always excludes any evidence of the buyer's taxation position. Accordingly, when forest valuers have sought to derive implied discount rates, these have largely been based on pre-tax cash flows. This valuation has been based on real pre-tax cash flows.

10.3 Scope of the Analysis

In this context, scope refers to the time span of the analysis. The forest estate modelling process can provide projections of cash flows far into the future. Providing the existing forest is replanted into productive croptypes, it would be possible to run the analysis indefinitely. Two alternatives are demonstrated in forest valuation:

- **Perpetual cash flows** - the forest is modelled as an ongoing business, where stands are replanted as they are felled. All revenue and costs associated with the sustained venture are modelled in perpetuity. In practice, the model is extended to the point where, after the discounting process, incremental cash flows are effectively immaterial. A figure in the order of sixty years is not uncommon when modelling a large plantation resource.

- **Current rotation analysis** - only the revenue and costs associated with the existing tree crop are included in the analysis.

In general, Pöyry prefers to confine the analysis to the current rotation. The justification for this approach is that future rotations, which include a degree of conjecture, are excluded from the analysis. The current rotation approach is especially compelling when future rotations appear either spectacularly profitable, or especially unprofitable. In either case it could be anticipated that some modifying influence would prevail.

If subsequent rotations are unprofitable, the forest owner will look to contain costs and increase log prices. If there is no prospect of either, a rational investor will quit forest ownership.

If subsequent rotations appear super-profitable, it can be anticipated that there will be competition for the underlying land and its price will increase. When charged with a higher land price, the profitability of the tree crop, and hence its value, will decline.

The approach is consistent with wider business appraisal that generally seeks to confine the analysis to the current investment cycle, and thereby avoid unnecessary conjecture. However, a disadvantage of the current rotation approach is the requirement to identify any terminal value associated with the investment. In forest valuations, the obvious candidate for the terminal value is the value of the land. Application of the current rotation approach assumes that the freehold land is either actually or notionally sold as the current crop is harvested.

10.4 Timing of Cash Flows

Tree planting within the Sino-Forest estate most commonly takes place over the months, February to April. By convention, stands are generally assumed to have been fully established by 30 June. The yield estimation process has generated yields that are projected to apply on the full anniversary of planting. Thus, for example, trees planted in 1975 were aged 23 full years on 30 June 1998 and the yields corresponding to 23 years of age were assumed to be available at that date.

With large forests that are subject to continuous harvesting, it would be impractical to fell all stands just as they turn their nominated target age. Instead, in a valuation model of the type represented here, they are expected to be felled across the span of a year. Commonly applied financial modelling procedures would suggest that the assumption that revenues arise at year-beginning would seem unduly aggressive. Seemingly, a more realistic approach would be to assume that cash flows arise no sooner than mid-year.

However, between the exact anniversary of planting and the felling operations, the tree crop will have grown. If the harvest age is near to the optimal economic rotation age, the marginal rate of value growth will be close to the discount rate.

Treating the revenue flow as a point event at the planting anniversary is therefore an acceptable assumption. In principle, cost flows should be treated differently – it would appear more realistic to consider them as occurring at mid-year. For convenience they, like revenues, have been treated as coinciding with the stand anniversary. This approach results in them being discounted less, and therefore represents conservatism in the valuation process.

10.5 Date of Valuation

The date of the valuation is **31 December 2007**. Pöyry uses proprietary software that allows the isolation of both the cash flows arising from the current rotation and all future rotations at any point in the valuation horizon. The cash flows contributing to the Sino-Forest valuation arise during the 60-year period beginning 1 January 2008 and ending 30 June 2057.

11 DISCOUNT RATE

A valuation based on an NPV approach requires the identification of an appropriate discount rate. In selecting the rates there are two broad approaches:

- Deriving the discount rate from first principles. The most common expression of this approach turns first to the Weighted Average Cost of Capital (WACC). This recognises the costs of both debt and equity. The cost of equity may be derived using a Capital Asset Pricing Model (CAPM) method.
- A second approach is to derive implied discount rates from transaction evidence.

11.1 Discount Rate Derived from WACC/CAPM

As part of the 31 December 2007 valuation of Sino-Forest's assets, Pöyry commissioned Dr Alastair Marsden of Auckland UniServices Limited to prepare a report on the cost of capital for a generic forest investment located in China. Dr Marsden's full report is at Appendix 4.

Dr Marsden's December 2007 report concluded that depending on the modelling assumptions a range of discount rates might be proposed for a forest-owning venture in China. His derived ranges of rates are shown in Table 11-1.

Table 11-1:
Estimate of Post-tax WACC by Marsden (33% corporate tax rate)

Lower bound	Average estimate	Upper bound
5.7%	**6.9%**	8.1%

The formulation of WACC employed by Dr Marsden was associated with post-tax cash flows and includes the cost of debt. Dr Marsden also converted his estimate of nominal post-tax WACC to an 'equivalent" real pre-tax WACC through a simple transformation with appropriate qualification. The middle of the WACC range that Marsden derives for real pre-tax cash flows is 10.25% (Table 11-2).

Table 11-2:
Estimate of Real Pre-tax WACC by Marsden (33% corporate tax rate)

Lower bound	Average estimate	Upper bound
8.5%	**10.25%**	12.0%

11.2 Implied Discount Rates

In common with other valuers of Southern Hemisphere planted forests, Pöyry maintains a register of significant forest transactions. The available evidence is then analysed in an effort to derive the discount rate implied by each transaction. The process involves preparing a credible representation of the forest's future potential cash flows and then relating these to the transaction price.

From this type of exercise conducted in Australia and New Zealand, Pöyry has observed derived discount rates for recent transactions to generally fall within the range of 8-10%. These are real rates, applied to post-tax cash flows.

Pöyry has little implied discount rate data for Southern China. As the commercial plantation forest industry develops and forests are transacted, empirical evidence from which to derive implied discount rates is expected to arise.

As discussed in Section 1, two significant Sino-Forest share transactions were conducted during 2007. Pöyry has completed preliminary implied discount rate analysis on these transactions, but notes the difficulty in deriving appropriate implied discount rates given the cash flow assumptions associated with the greater Sino-Forest business, that is Sino-Panels.

The capacity to utilise implied discount rates in this valuation is limited to considering how the forest investment in China compares with such investment in other locations.

Commercial forestry in Southern China is still its infancy and faces some challenges, these include:

- The reliability of forest descriptions
- The accuracy of yield prediction
- Achieving high growth rates in a consistent manner.

It is Pöyry's opinion that for many forest investors, investing in plantation forestry in China would be considered a riskier proposition than investing in the industry in Australia or New Zealand, for instance.

11.3 Incorporating Risk in the Discount Rate

If forest investment in China is at present perceived to be a more risky proposition than like activity in other international counterparts, the issue then becomes how to quantify this difference. The textbook treatments of the subject make it clear that the discount rate cannot be regarded as a simple catch-all for any and all forms of perceived risk. As the discount rate may be a very blunt instrument in such a role, it is preferable instead to attempt to acknowledge risk in the development of the cash flows to which the discount rate is applied. However, despite this principle, there is an inclination by potential purchasers to load the discount rate where they feel uneasy.

As detailed in Section 5.2, Pöyry has detailed the need for more extensive analysis of inventory and yield related data. The yield tables employed in the valuation are based on limited sample measurements without opportunity for yield reconciliation with actual harvest production data. While the continued sale and purchase of forests by Sino-Forests makes the long-term monitoring of forest growth more challenging, analysis of inventory data collected by Pöyry over recent years warrants further consideration and application in the yield tables assigned to the Sino-Forest assets.

Pöyry also notes that the methods by which area statements have been derived year-on-year are subject to assumptions, and that the preparation of an area statement from base data would increase Pöyry's confidence in the resource description and subsequent wood and cash flows.

Recent storms throughout China have received much publicity, and although no analysis has been completed on the quantitative impact of these storms on Sino-Forests assets, Pöyry has given some consideration to the potential impacts on Sino-Forests resources in derivation of the discount rate.

In summary, Pöyry has considered the risk and uncertainty associated with area statements, forest yield tables and the potential for losses associated with recent storms in selecting a discount rate for the 31 December 2007 valuation.

11.4 Discount Rate Applied in Valuing the Sino-Forest Resource

Given the complexities in identifying what margin above other implied discount rates that forestry in Southern China should attract, Pöyry is disinclined to place weight on an implied discount rate derivation for this resource. This is consistent with the position taken by Pöyry in its 2006 valuation. The range of rates suggested by the alternative approach - the WACC/CAPM - is very broad.

Ultimately we have exercised our professional judgement in selecting a rate at the upper end of the WACC/CAPM range. This is a real rate of 11.5%. In selecting such a rate we have been inclined to recognise that investors in forestry in Southern China will inherently be taking a long term view, and do have grounds for optimism on the forest industry's future there. The fundamental factors that affect forestry performance are favourable. Importantly too, the definition of market value for the forests requires that there be not just willing buyers, but also willing sellers. If the only purchase offers to be extended involved very high discount rates we would expect that forests would not be willingly sold.

In the current market, Pöyry considers that 10.5% to 12.5% is representative of the range of real pre-tax discount rates that might be expected in forest transactions in Southern China. A discount rate of 11.5% has been selected and applied to pre-tax cash flows. It is Pöyry's perception that with a carefully timed and managed sale, other buyers could be attracted who would be willing to accept a similar pre-tax discount rate.

12 VALUATION RESULTS

12.1 Exchange Rate

The cost and price data applied in the valuation is in Chinese Renminbi (RMB). The resulting cash flows generated from the forest estate wood flow and allocation model are also in RMB.

For reporting, Pöyry has assumed an US dollar to RMB (USD: RMB) exchange rate of 7.3046[12]. This is the published rate for 31 December 2007.

12.2 Valuation as at 31 December 2007

Pöyry has determined the valuation of the Sino-Forest assets as at 31 December 2007 to be **USD1 245.284 million**. This is the result of a valuation of the existing planted area and uses an 11.5% discount rate applied to real, pre-tax cash flows.

Pöyry has also prepared an existing forest valuation that **includes** the revenues and costs of re-establishing and maintaining the plantation forests for a 60 – year period (perpetual valuation). However, to date Sino-Forest only has an option to lease the land under the purchased trees for future rotations, the terms of which have yet to be agreed.

The following table presents the results of the valuation of the Sino-Forest estate. The results are shown at real discount rates of 10.5%, 11.5% and 12.5% applied to real pre-tax cash flows.

Table 12-1:
USD Valuation as at 31 December 2007

Forest Component	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	USD million		
Existing forest estate of 311 616.5 ha, current rotation only	1 290.651	**1 245.284**	1 202.664

Sino-Forest is embarking on a series of forest acquisitions/expansion efforts in Hunan, Yunnan and Guangxi. These future prospective acquisitions are not part of the existing estate and thus do not contribute to an estimate of value as at 31 December 2007.

Prospective perpetual valuations incorporating proposed acquisition areas are further evaluated in Section 14.

[12] Source: XE.com Interactive Currency Table (http://www.xe.com/ict/)

12.3 Merchantable Volume

Table 12-2 outlines the merchantable standing volume of the existing Sino-Forest plantations. Merchantable standing volume has been calculated from the planted areas that are at least four full years of age as at 31 December 2007. Thus 44 602 ha aged less than 4 years are not included.

Table 12-2:
Merchantable Standing Volume as at 31 December 2007

Planting Year	Planted Area (ha)	Average Standing Volume (m^3 per ha)	Total Volume (m3)
1978	3 239.7	181	586 383
1979	3 239.7	181	586 383
1980	3 239.7	181	586 383
1988	9 136.0	151	1 378 842
1989	11 218.4	126	1 414 335
1990	9 446.1	113	1 066 942
1991	31 457.5	134	4 226 802
1992	47 019.8	126	5 901 274
1993	32 678.9	126	4 133 696
1994	2 581.0	126	324 273
1995	43 259.0	105	4 563 164
1996	38 786.7	97	3 769 173
1997	16 809.7	94	1 573 013
1998	2 279.6	86	196 145
1999	90.4	75	6 818
2000	5 702.5	88	502 296
2001	3 650.6	77	282 062
2002	3 179.3	71	225 796
2003	563.9	-	-
2004	4 077.2	-	-
2005	17 580.6	-	-
2006	18 743.2	-	-
2007	3 637.2	-	-
TOTAL	**311 616.5**	**100.5**	**31 323 782**

13 SENSITIVITY ANALYSIS

A sensitivity analysis has been conducted that addresses the main drivers of value within the current rotation valuation model. These are:

- Discount rate and log price changes (in combination)
- Changes in the level of fixed overhead costs
- Changes in the costs of production (logging and loading, transport etc).

Table 13-1:
USD Current Rotation Valuation Only – Log Price Sensitivity

Scenario	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	Current Rotation Value (USD million)		
5% Real Price Increase	1 396.467	1 347.400	1 301.306
No Real Price Increase (Base)	1 290.651	**1 245.284**	1 202.664
5% Real Price Decrease	1 184.834	1 143.168	1 104.023

Table 13-2:
USD Current Rotation Valuation Only – Overhead Cost Sensitivity

Scenario	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	Current Rotation Value (USD million)		
RMB400 fixed cost per ha/year	1 280.915	1 235.763	1 193.348
RMB300 fixed cost per ha/year	1 290.651	**1 245.284**	1 202.664
RMB200 fixed cost per ha/year	1 300.386	1 254.805	1 211.980

Table 13-3:
USD Current Rotation Valuation Only – Harvest Cost Sensitivity

Scenario	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	Current Rotation Value (USD million)		
10% Harvest Cost Increase	1 248.841	1 204.981	1 163.774
Base Harvest Cost	1 290.651	**1 245.284**	1 202.664
10% Harvest Cost Decrease	1 332.461	1 285.587	1 241.554

14 PROSPECTIVE ACQUISITIONS

14.1 Background

As noted in Section 1, Sino-Forest has focussed significant efforts over recent years towards acquiring new forests and expanding its asset holdings throughout China. As at 31 December 2007, the following three efforts have been announced by Sino-Forest:

- Master agreements signed in September and December 2006: to acquire 400 000 ha of Chinese fir and pine trees in Hunan Province over a 14 year period.
- An agreement signed in March 2007 to acquire approximately 200 000 ha of non-state owned standing timber (predominantly mature species of pine, oak, birch and other broadleaved shaw) in Lincang City, Yunnan Province over a 10 year period; and more recently.
- An agreement signed in December 2007 to acquire 150 000 ha of Chinese fir and pine trees in Guangxi Province over a five-year period.

Sino-Forest has requested Pöyry to evaluate these acquisitions, through the construction of a wood flow and valuation model.

14.2 Prospective Wood Flow Model

14.2.1 Model Constraints and Assumptions

Pöyry has used the valuation model presented in previous sections as the basis for a wood flow model including acquisitions. In order to integrate prospective acquisitions into the model, additional areas were included, and a series of wood flow constraints were added. These are detailed as follows:

Areas

Sino-Forest informed Pöyry that as at 31 December 2007, some areas had been acquired, but that the following balance of areas was yet to be acquired:

- Hunan – 339 229 ha of pine and fir
- Yunnan – 189 562 ha of broadleaf forest
- Guangxi – 150 000 ha of pine and fir.

Pöyry understands that Sino-Forest intends to purchase established forest, but has not been provided with an expected age-class profile for these prospective acquisitions. In order to construct the model, Pöyry has assumed that prospective acquisitions will be the same age as current existing purchased forests by province. Specifically, years in Hunan, years in Yunnan and years in Guangxi.

Pine and fir acquisitions within Hunan and Guangxi have been assumed to be at a ratio of 50:50. Acquisitions are assumed to occur at a regular rate for the remaining acquisition period within each province.

Constraints

A series of constraints have been applied to ensure that increases in managed area generate manageable wood flows. Constraints included in the model including prospective acquisitions were as follows:

- A +/- 5% smoothing constraint on all acquisitions from periods 2 to 60;
- A non-declining-yield constraint on all volume (current plus prospective acquisitions) for the full length of the model
- A maximum allowable year-on-year volume production increase of 5% from Hunan acquisitions between periods 2 and 12
- A maximum allowable year-on-year volume production increase of 5% from Guangxi acquisitions between periods 2 and 5
- A +/- 5% smoothing constraint on Hunan acquisitions from after the last acquisition is completed to the end of the model
- A +/- 5% smoothing constraint on Guangxi acquisitions from after the last acquisition is completed to the end of the model
- A series of period-specific cutting constraints which regulate the harvesting of prospective Yunnan acquisitions in a manner consistent with the principles described previously.

14.2.2 Model Results

Wood flow model results for the Sino-Forest estate including prospective acquisitions are presented below.

Figure 14-1:
Wood Flow by Province and Product Group (m^3/year)

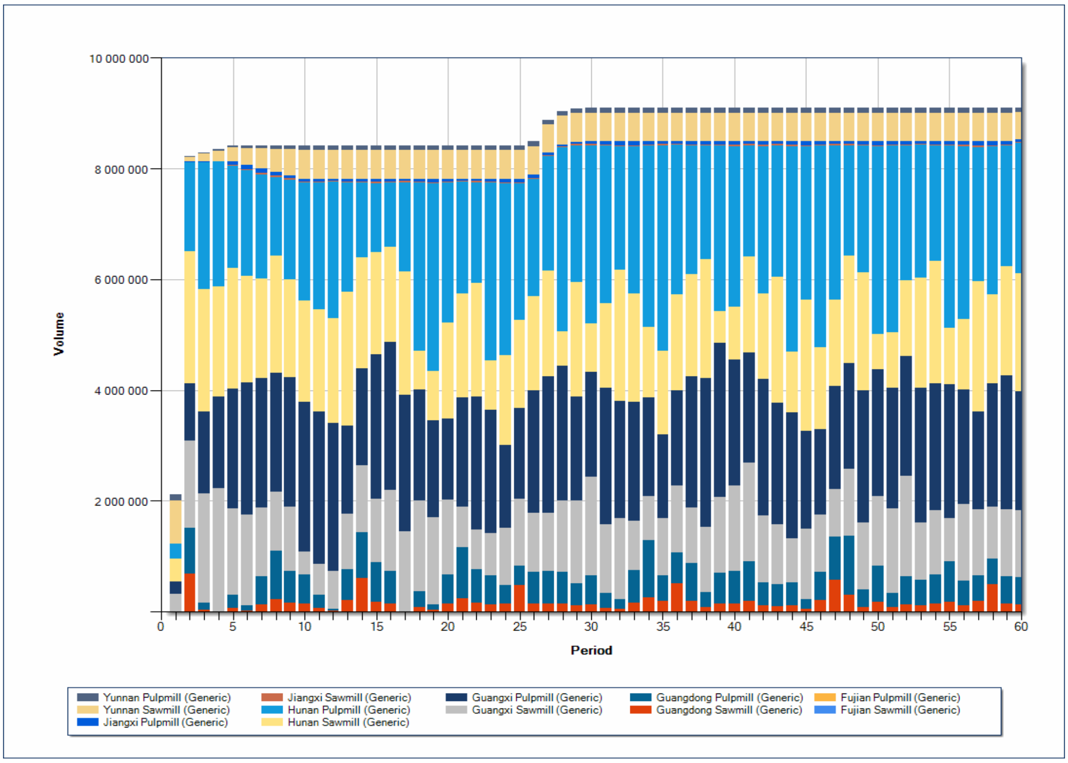


Figure 14-2:
Wood Flow by Province and Ownership Status (m^3/year)

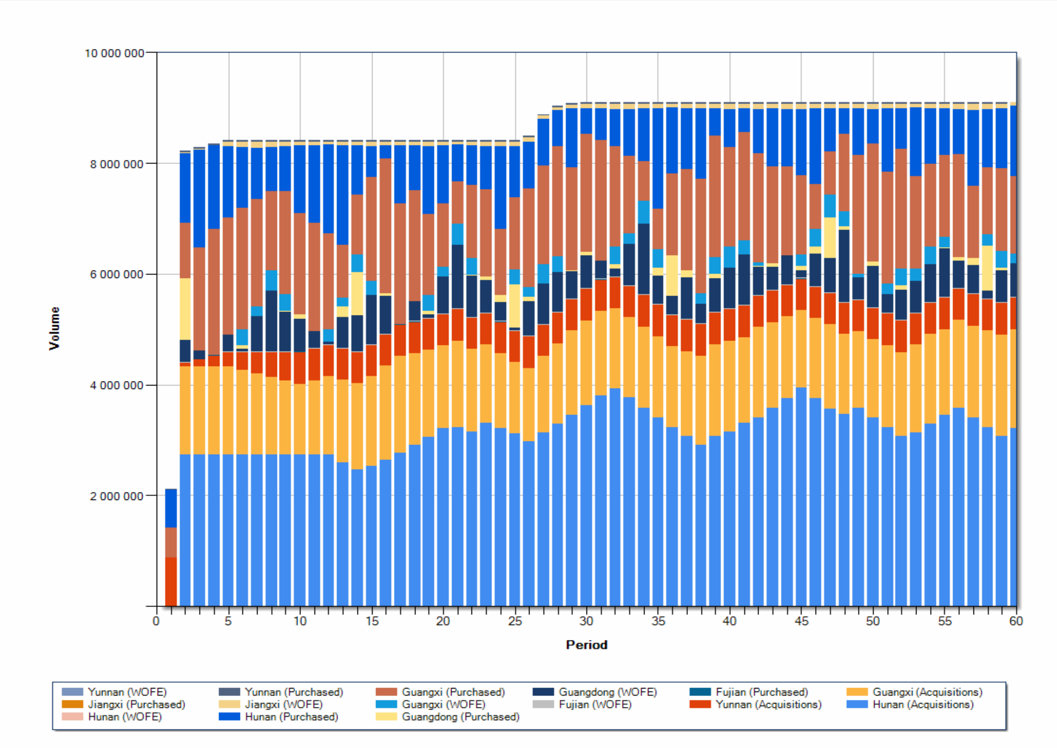


Figure 14-3:
Wood Flow by Species (m^3/year)

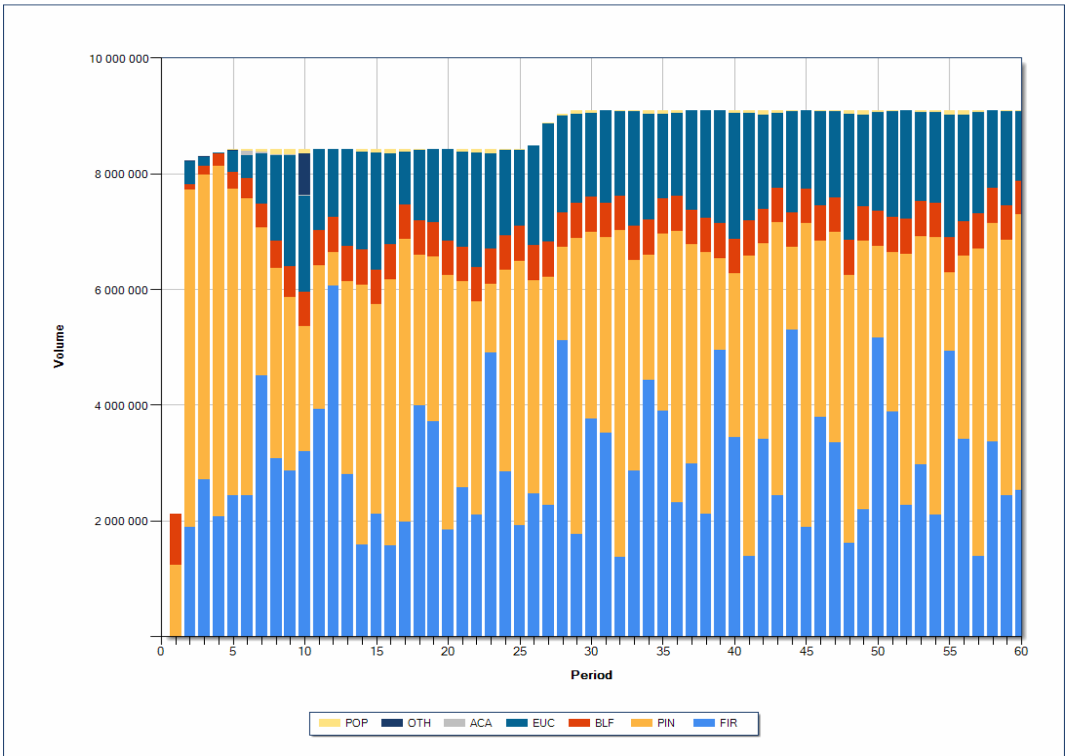
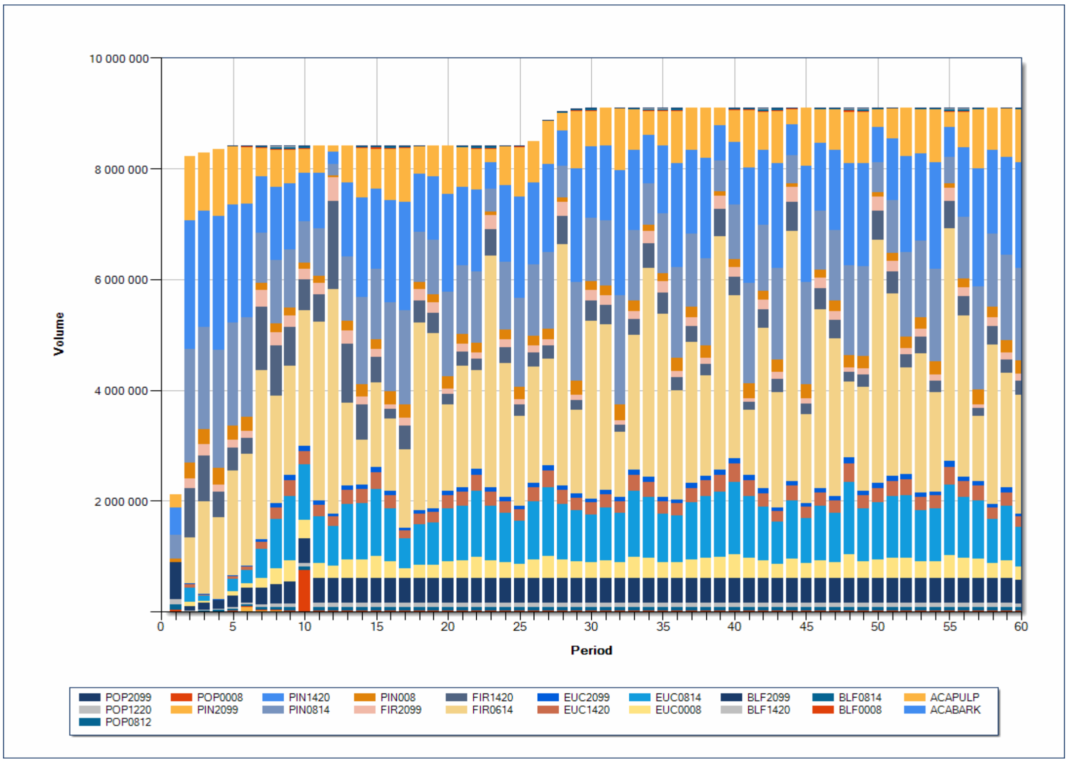


Figure 14-4:
Wood Flow by Log Product (m^3/year)



14.3 Prospective Perpetual Valuation Model Results

Pöyry has estimated the **perpetual** value of the Sino-Forest assets including prospective acquisitions as at 31 December 2007 to be **USD3 205.216 Million**. This is the result of a 60-year perpetual valuation of the existing planted areas plus assumed acquisitions, and uses an 11.5% discount rate applied to real, pre-tax cash flows.

This result **does not include** any costs associated with acquiring these prospective forests.

Table 14-1:
USD Perpetual Valuation as at 31 December 2007

Forest Component	Real Discount Rate Applied to Pre-tax Cash Flows		
	10.5%	11.5%	12.5%
	USD million		
Existing Forest Estate Plus Prospective Acquisitions	3 495.585	**3 205.216**	2 961.420

15 VALUE CHANGE ANALYSIS

The change in appraised value between 31 December 2006 and 31 December 2007 is attributable to the following key factors:

- The net decline of total forest asset area (but coupled with an increase in maturity within the estate, and a change to the age class distribution and species mix).
- The revision of current and future log price estimates.
- The revision of management and production cost estimates.
- A change to the USD:RMB exchange rate.
- Revised wood flow strategy.

Table 15-1 provides estimates of the components and relative influence of these key factors on overall value change.

Table 15-1:
Estimated Components of and Relative Influence on Value Change

Value Change Component	Incremental Forest Value	Contribution to Change in Value	Contribution to Change
	USD Millions		Percent
Value as at 31 December 2006	**919.0**		
Change to forest area	813.5	(112.7)	(12.3%)
Changes in Log Prices	1 063.2	249.7	27.2%
Changes in Costs	1 014.2	(49.0)	(5.3%)
Changes in Exchange Rate	873.2	63.3	6.9%
Residual Attributable to Harvest Profile, Yield Tables, Resource Structure and Other Changes	1 245.3	372.1	40.5%
Value as at 31 December 2007	**1 245.3**	**326.3**	**35.5%**

APPENDIX 1

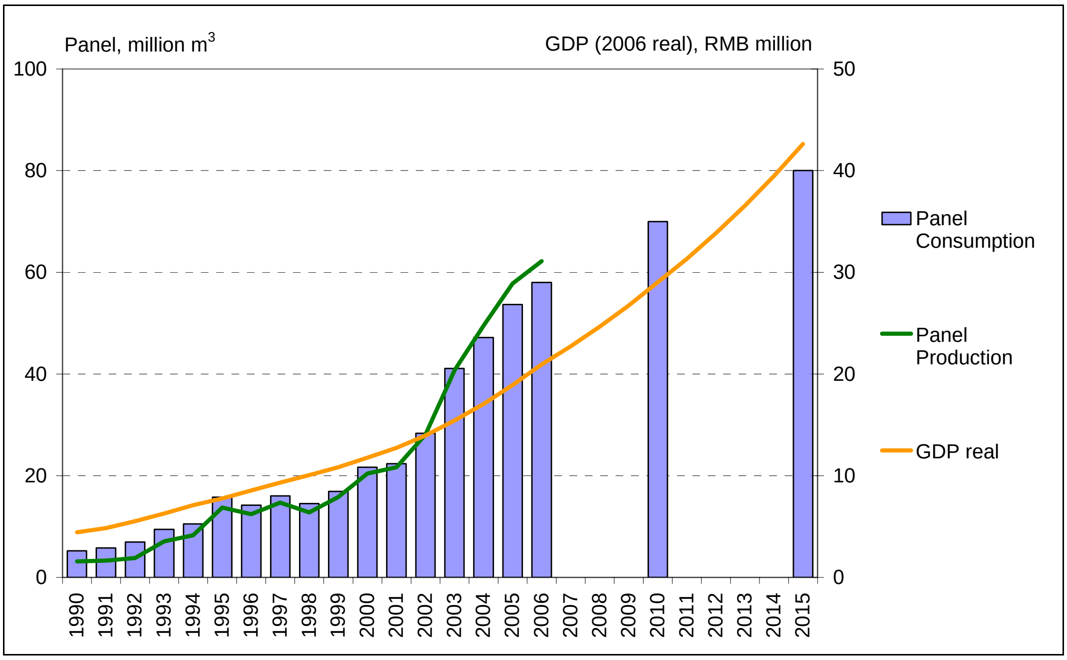
China Market Overview

WOOD CONSUMING INDUSTRIES

Wood Based Panels

Only a few years after becoming the largest producer and consumer of wood-based panels in the Asia-Pacific region in the late 1990s, China is now the largest wood-based panel producer and the second largest consumer in the world. The Chinese wood-based panel sector has developed rapidly following a similar trend to the paper industry. The period of strongest growth occurred during the early 2000s and the industry is forecast to continue growing steadily.

Figure 1:
Wood-based Panels Supply and Demand in China



During the 1990s, the government's investment in the forestry industry was mainly focused in the panel industry. Foreign capital, advanced technology, and modern equipment have also contributed to the increased production capacity and new products, such as MDF. As the technology and materials for surfacing improved, panel end-uses increased dramatically in the 1990s.

Wood-based panel production in China has increased substantially at an average growth rate of 17%/a over the last decade. Production exceeded 62 million m^3 in 2006 and is forecast to reach 65 million m^3 by 2010. The future increase is primarily generated from growth in reconstituted panel products.

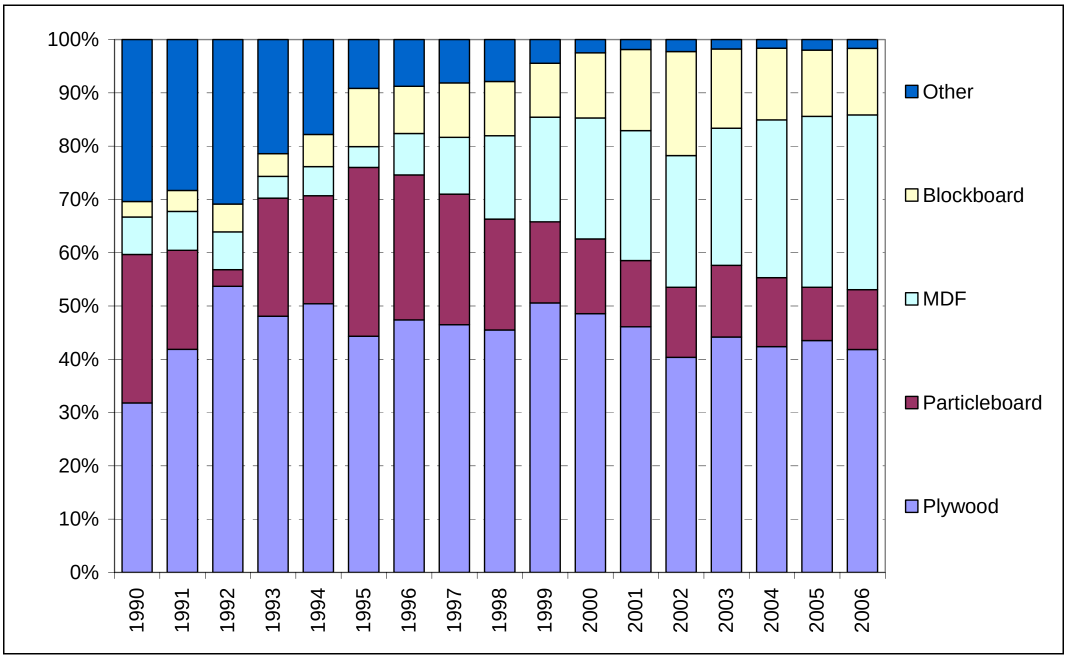
MDF has been the most significant contributor to the growth in China's wood-based panel production and represented 33% of the total in 2006, while particleboard, another expanding sector, accounted for 11%.

End-users of MDF in China are mainly manufacturers of furniture/interior-decoration and laminated flooring. The main demand drivers include strong economic growth, improving living standards and lifestyle changes, expansion of the furniture and interior decoration industries, and developments in the construction industry.

Particleboard is primarily used in the production of furniture, particularly kitchen and office furniture. To date, particleboard applications in construction end-uses have been limited because of the current dominance of plywood. However, some particleboard is used in partitions and sheathing applications where it provides a cost effective solution.

Plywood has traditionally been the most consumed wood-based panel type in Asia in a variety of end-use applications. Production of plywood in China has been relatively static in recent years due to product substitution threats from reconstituted panels, as well as shortages of quality peeler logs. It is foreseen that substitution from plywood to reconstituted panels and engineered wood products will continue taking place in many traditional end-use applications.

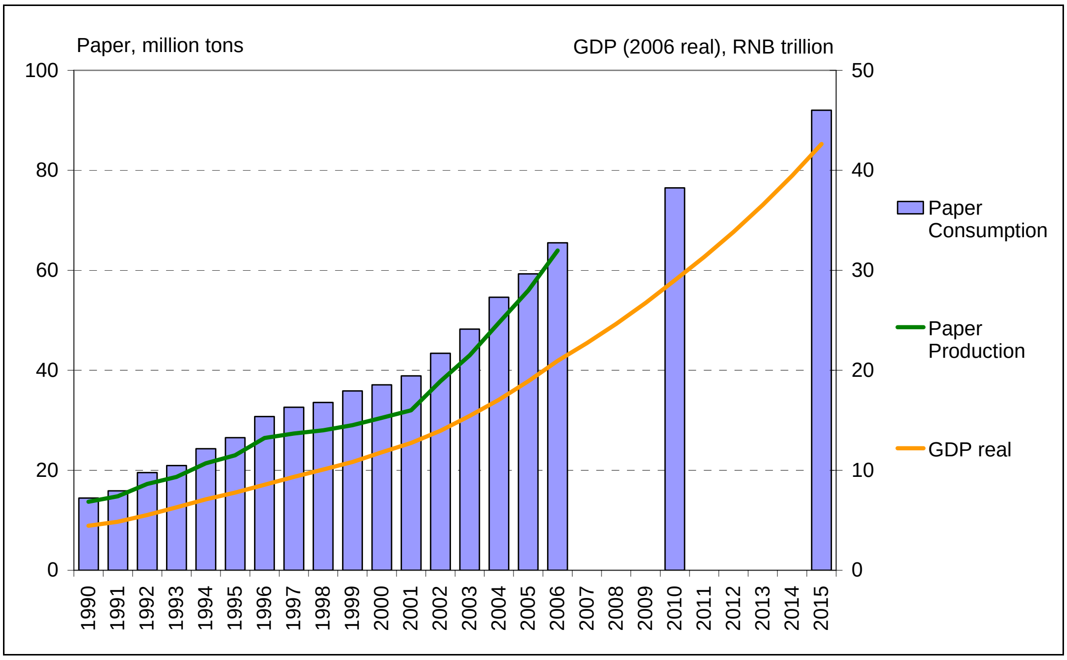
Figure 2:
Wood-based Panels Production Breakdown by Type



Pulp and Paper

In parallel to the strong economic growth, it is forecast that paper demand in China will increase from 66 million tonnes in 2006 to 107 million tonnes by 2020 and that paper production in China will increase from 64 million tonnes in 2006 to 101 million tonnes by 2020.

Figure 3:
Paper Products Supply and Demand in China



The Chinese pulp and paper industry has historically suffered from a lack of wood resource. The utilisation of wood in the production of pulp has remained low and non-wood pulp has played a notable role in the industry. For the past decade, a sharp increase in wood pulp demand has been observed. The share of wood pulp within the total consumption of papermaking fibres in China has grown from 16% in 1990 to over 20% in 2005.

By type of furnish composition in papermaking, the highest growth is expected to occur in bleached hardwood kraft pulp (BHKP) demand over the next fifteen years at 6.6%/a.

To date, the growing demand for wood pulp has been largely met through imports. The contribution of imports in China's wood pulp supply has risen from 25% in 1990 to 67% in 2005. China's domestic pulp industry manufactured 4.2 million tonnes of wood pulp in 2005, including 1.6 million tonnes of BHKP and 1 million tonnes of mechanical pulp that partly consumes hardwood pulpwood.

As illustrated below, by 2020 the domestic pulp industry is expected to be contributing about 12 million tonnes of wood pulp, including 6 million tonnes of BHKP and 4 million tonnes of mechanical pulp. This expansion in domestic pulp capacity will largely be based on hardwood fibre. Given that China is short of wood resources and that domestic pulping capacity is planned to grow significantly during the next decade, the government launched a special programme called the Integration Project of Forest and Paper for the period 2001-2010. The project aims to provide incentives for paper companies to make new plantation and pulpmill investments.

The Chinese paper industry will strike a balance between wood, non-wood and recycled materials on the one hand, and domestic and imported fibre on the other. The plans for establishing domestic, world-scale pulpmills have attracted considerable interest, despite the uncertainties relating to the availability and cost of domestic wood for the planned new capacity. The development of pulpmills in Southern China will certainly accelerate plantation development in the country, but part of this new pulping capacity may need to be based on imported wood.

Figure 4:
China Wood Pulp Production Development

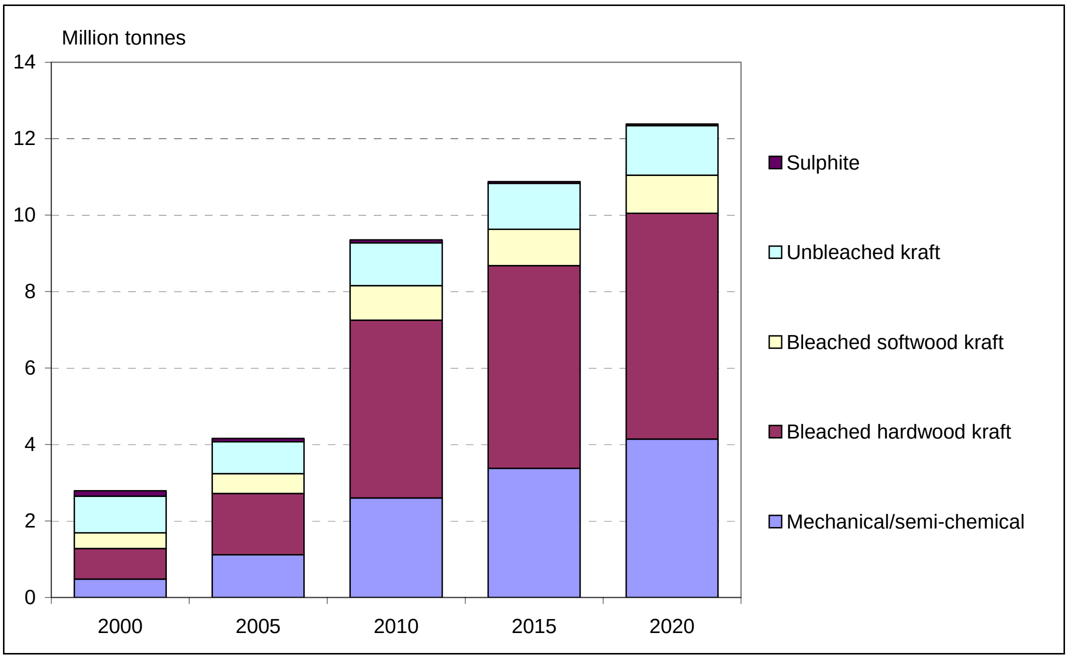
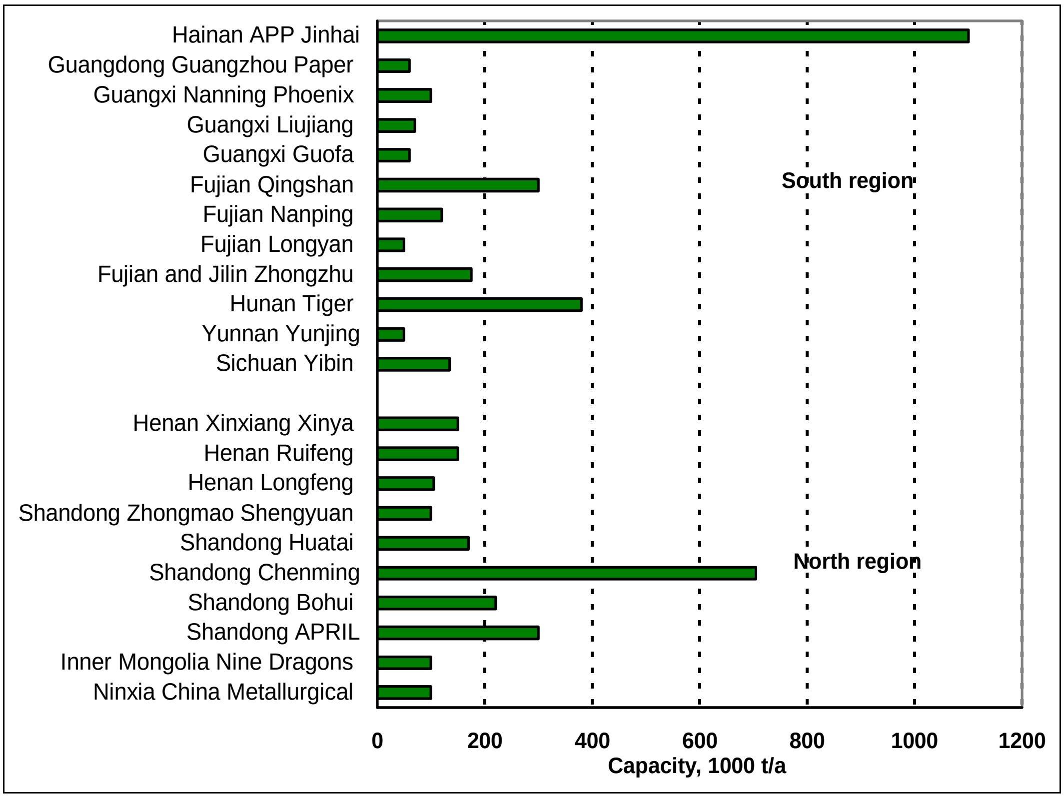


Figure 5:
Major Woodpulp Producers in China, 2007



Sawmilling

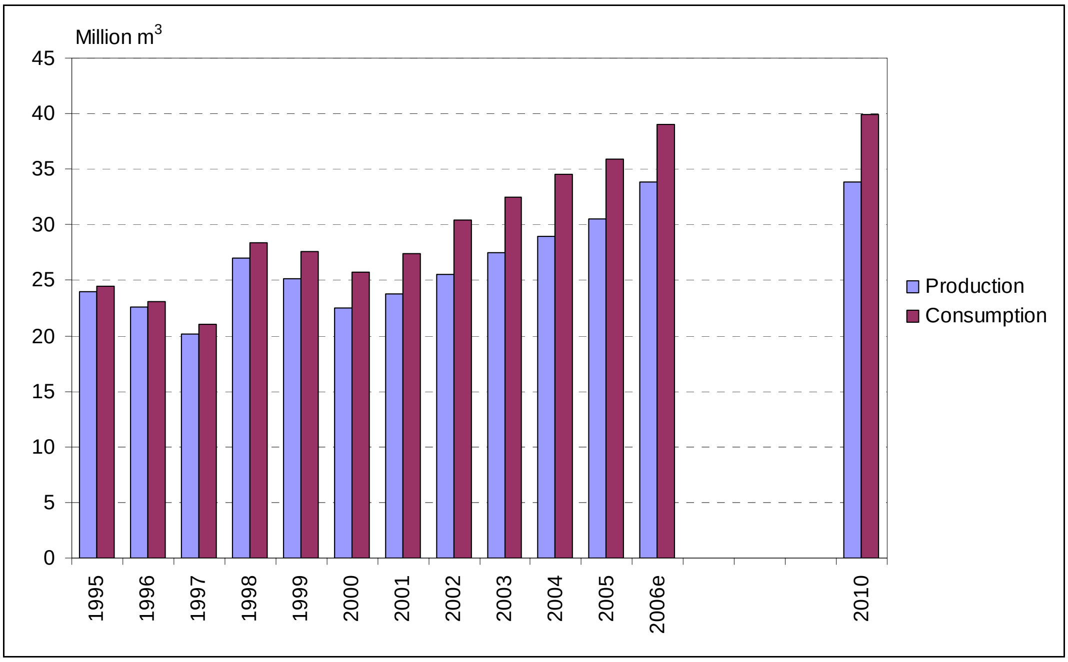
China's sawmilling industry has undergone transition since 1998 caused by efforts to protect national forests and an increased awareness of environmental problems in the country. The impact of the Natural Forest Protection Program's logging ban has been realised. China faces significant shortages in domestically produced sawlogs, and relies heavily on imported sawlogs for the production of domestic sawn timber.

Small to medium sized producers continue to dominate the sawn timber industry. There are a vast number of non-industrialised workshop operations across China. More recently, as log importing has increased, many individuals operating simple saw and carriage sawnwood businesses have located around major log import ports or cities such as Suifenhe in Heilongjiang, Zhangjiagang in Jiangsu, and Jiaxing in Zhejiang.

Given the very fragmented nature of China's sawmilling industry, the assessment of national production and consumption is challenging. Pöyry estimates that China produced some 34 million m^3 and consumed 39 million m^3 of sawn timber in 2006, having increased at an annual average of 4.1%/a and 5.4%/a respectively over the past decade. The sharp and steady growth from 2000 till now has been noteworthy.

It is forecast that demand will continue to grow at a more modest rate but production will remain relatively static during the rest of this decade. Thus, an increased quantity of lumber products imported is expected.

Figure 6:
Lumber Production and Consumption in China



China's main use for sawnwood is in the packaging and temporary construction segments. The Chinese government is currently undertaking initiatives that will result in housing and building increases of around 200 million m²/a. Temporary construction mainly uses local softwood lumber for concrete formwork, scaffolding, floor underlay and other urban construction activities. In rural areas, lumber is often used as beams and rafters for buildings. Although China's use of timber in construction has been declining because of substitutions with concrete and steel, it is still a major consumer of solid wood-based products.

The interior decoration, flooring and furniture segments account for around 47% of the total lumber consumed in China. Products used for interior decoration include solid wood and 3-ply parquet flooring, doors, window frames and mouldings.

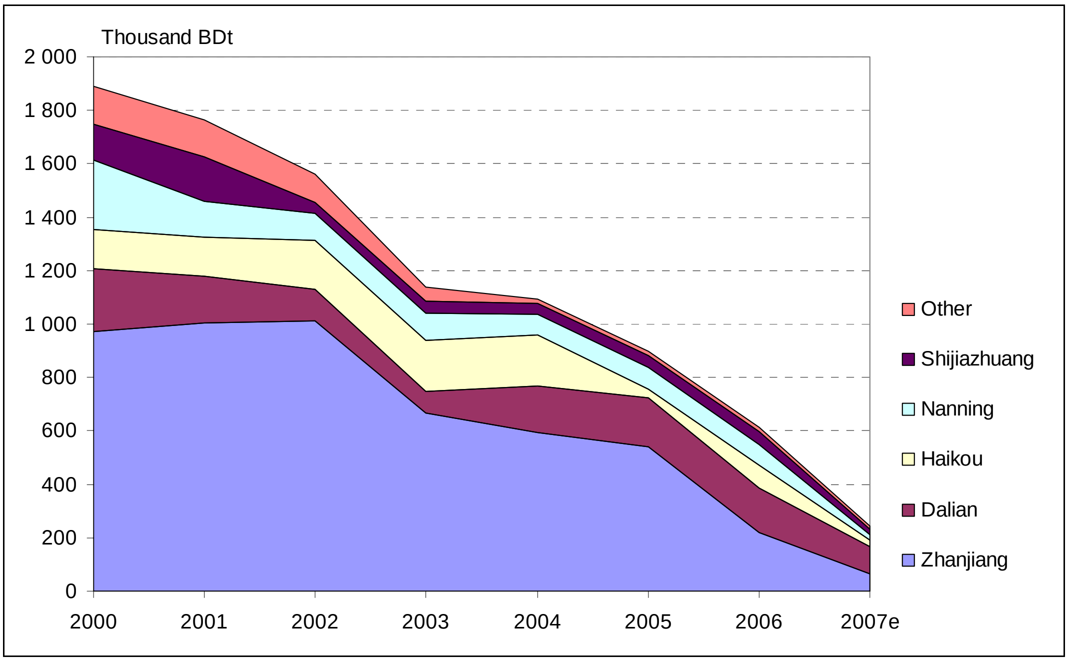
Woodchip Export

China has traditionally been a major hardwood woodchip exporter supplying into neighbouring countries such as Japan, South Korea and Taiwan. However, the export quantity has declined notably in recent years, due to increased domestic demand. In contrast woodchip imports into China have increased sharply.

As the domestic wood pulp making capacity is expected to grow at a substantial rate over the next decade, China's woodchip exports are forecast to continue declining, leading to the country becoming a more significant net importer of woodchip in the short to medium term.

Chipping operations in China have been small to medium scale and run by Forest Bureau offshoots and private companies. With the decline in volumes, many are now operating at well below capacity. Hardwood woodchip almost entirely represents the country's total woodchip export. Figure 7 presents the Chinese hardwood woodchip export volume by dispatch port.

Figure 7:
China Hardwood Woodchip Export by Port



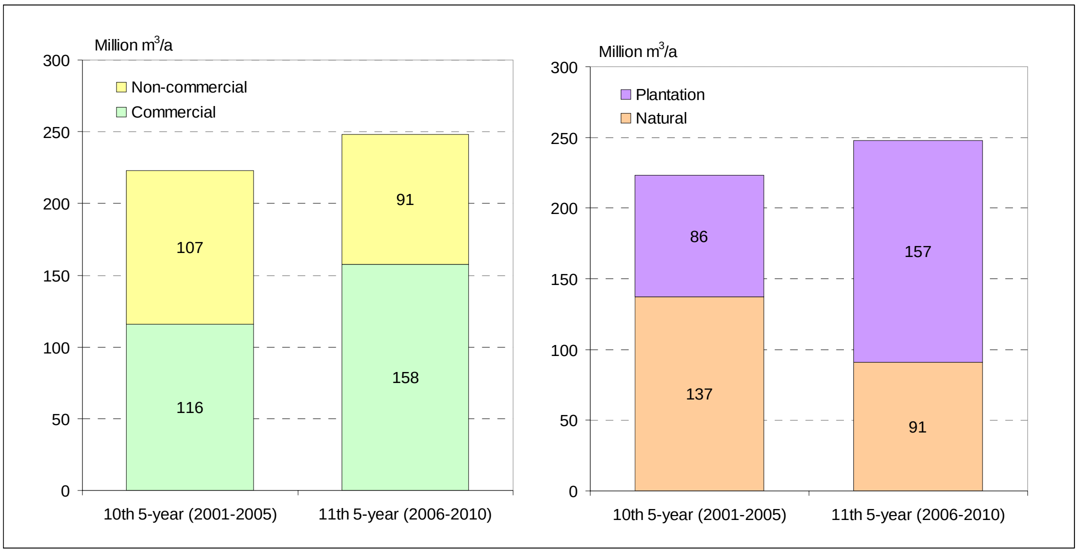
Fibre Supply and Demand

Fibre Supply

To find reliable statistics on China's domestic wood supply is problematic. Various statistics, sometimes conflicting, have been sighted. In this section, the State Forestry Administration (SFA) information and the Food and Agricultural Organisation (FAO) data are presented.

China controls its annual forest cut by means of annual allowable cut (AAC) quotas set by the SFA. The AAC quota was 223 million m^3/a for the 10th Five-Year Plan period (2001-2005) and is planned to increase to 248 million m^3/a during the 11th Five-Year Plan period (2006-2010). Harvest from plantation forests is to increase by 82%, from 86 million m^3/a to 157 million m^3/a, which significantly matches the volume allocated for commercial uses.

Figure 8:
China AAC Quotas



It should be noted that the AAC figures above include volumes used for non-industrial purposes. Official SFA statistics indicate China's industrial roundwood production has been in the order of 50 million m^3/a over the last decade, and that it reached 56 million m^3 in 2005. The actual number is believed to be appreciably greater than that implied by the SFA, as substantial volumes are harvested by farmers and other non-official sources.

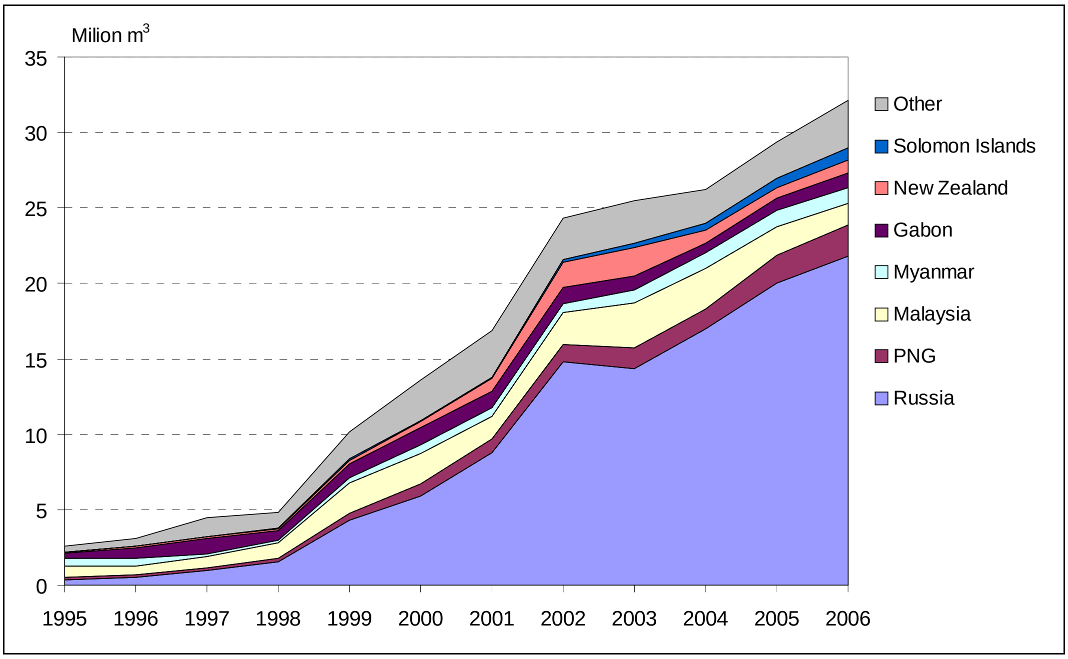
According to the FAO database, China's industrial roundwood removals have been consistent over the last five years, at around 95 million m^3/a. The removal had peaked in 1996 with 109 million m^3 and then decreased in the late 1990s, due to the government's harvesting ban on natural forests. The bans were triggered after disastrous flooding of the Yangtze and other major rivers and have had a considerable effect on China's approach towards commercial plantation development.

Log imports into China have increased remarkably during the last decade, at an average growth rate of 26%/a. The country has in fact become the largest log importer in the world during the period. In 2006, China imported 32 million m^3 of logs, consisting of 20 million m^3 of softwood logs and the balance of hardwood.

As presented in Figure 9, Russia has, by a significant margin, been the most important log exporter into China, representing 68% of China's total log imports in 2006. Furthermore, Russia supplied a dominant 92% of China's softwood log imports in 2006. Papua New Guinea (PNG), Malaysia, Myanmar and Gabon were positioned second to fifth in 2006, supplying mainly mixed tropical hardwood logs. New Zealand has been the second largest and the only other sizeable softwood log supplier after Russia.

Growth in China's log imports is anticipated to remain positive but at a slower rate in coming years. The Russian government's latest proposal for considerable log export tariff increases suggested to take place during this decade could be a critical force for change in Asia's current log trade dynamics, should it be pursued at announced levels.

Figure 9:
China Log Imports by Source



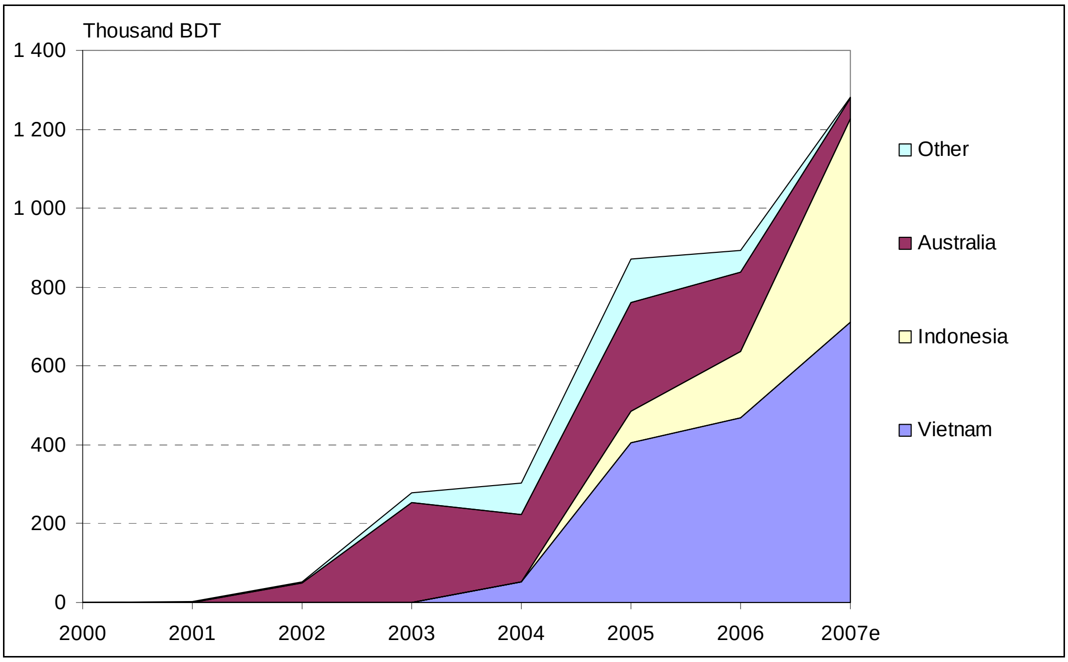
While China had traditionally been a major exporter of hardwood woodchips into neighbouring countries such as Japan, Taiwan and South Korea, the country became a net importer of the product for the first time in its history in 2006.

China imported 894 000 bone-dry tonnes (BDT) of hardwood woodchips, and exported 612 000 BDT in 2006. The imports nearly tripled from 2004, driven mostly by the start-up of APP Hainan Jinnan pulpmill in late 2004 and the upgrade of APRIL's Shandong Rizhao pulpmill in 2005/06. Furthermore, there are a number of domestic pulpmill projects confirmed or planned over the next decade, suggesting that China's woodchip imports will continue to increase in the short to medium term.

Vietnam became the largest supplier of hardwood woodchips into China during 2005 and further increased the quantity in 2006. This level of supply from Vietnam may not be sustained in the future, however.

Over the past three years, hardwood woodchip imports from Indonesia have shown notable increases in comparison to imports from Australia. Hardwood woodchip imports from Indonesia in 2006 recorded 169 000 BDT and more than tripled in the first ten months of 2007 compared to the same period 2006. China's softwood woodchip import volume has been negligible.

Figure 10:
China Hardwood Woodchip Import by Source



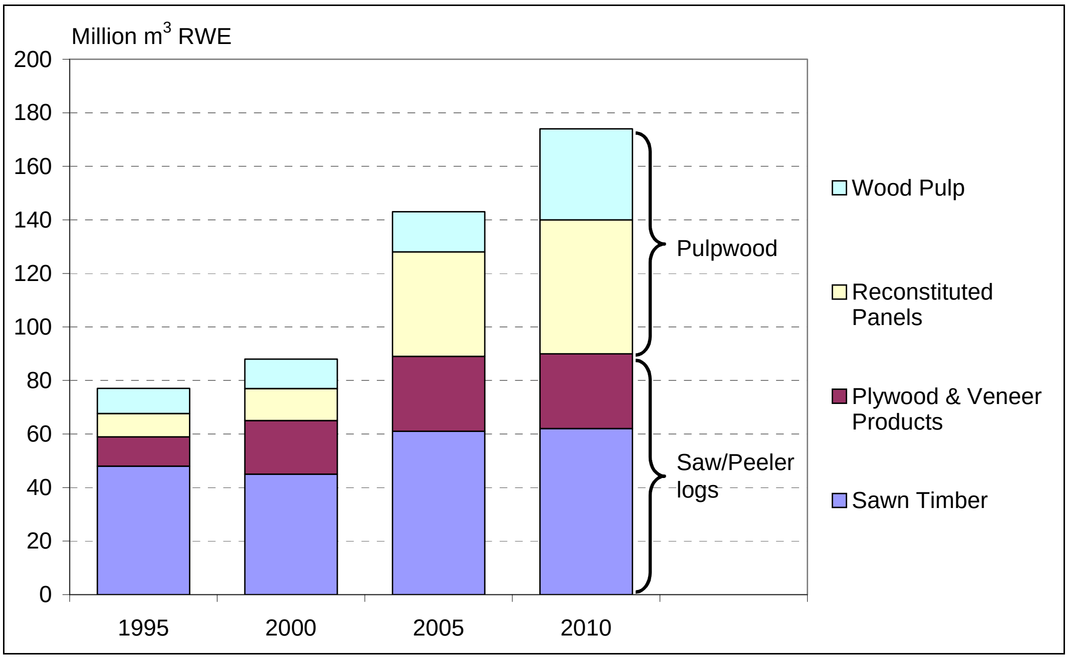
Fibre Demand

China's domestic fibre demand, including non-industrial applications such as rural housing, mining, agriculture and fuelwood is estimated to be 350-400 million m^3/a today. Industrial uses represent approximately one-third of the total.

As presented in Figure 11, it is estimated that China's industrial wood consumption as of 2005 was in the order of 140-150 million m^3, on a roundwood-equivalent (RWE) basis, having grown substantially over the last five years at an average rate of 10%/a. The lumber and reconstituted panel industries have been the major contributors to the considerable growth.

The demand is forecast to continue growing over the next five years, albeit at a slower rate, and the bulk of increases are expected to be generated from the development of domestic pulp and reconstituted panel manufacturing industries. In particular, demand from the pulp making industry is anticipated to expand significantly at 18%/a from 2005 to 2010.

Figure 11:
Indicative Industrial Fibre Demand in China



Pulpwood demand is contributed to by domestic production of wood pulp and reconstituted wood-based panel products such as particleboard and medium density fibreboard (MDF). Pulpmills typically enjoy better wood paying capability and utilise higher quality domestic pulpwood as well as imported woodchips, whereas reconstituted panel industries mostly rely upon a range of relatively low quality domestic fibre including minor species and residual materials, and also some non-industrial fibre.

Sawlog and peeler log demand is generated by domestic production of lumber and plywood/veneer products. China has faced significant shortages in domestically produced quality saw and peeler logs, especially after logging bans, and therefore depends heavily on imported logs.

Price Development – Historical Prices

Roundwood Logs

Log prices in China vary greatly depending on region, species and size. Log sales are either conducted by direct negotiation between seller and buyer or through large central log wholesale markets.

Average log prices for wholesale markets in Shanghai, Guangzhou and Fuzhou for red pine, larch, Chinese fr and Masson pine are shown in the table below. In 2006, prices for red pine, radiata pine increased significantly. Domestic log prices are broadly in line with the imported sawlog prices trend.

Between 2003 and 2007, prices of larch and red pine logs imported from Russia land in Manzhouli increased at an average rate of 9.6%/a and 8.0%/a respectively, while prices of radiata pine from New Zealand discharged in Shanghai and Xiamen ports also increased dramatically over the same period at 12.0%/a and 15.5%/a in the 2007 dollar terms. The main reason for the increase is higher freight and transportation costs with the rise in oil prices during the period. Also, deforestation of the economically accessible forest locations in Russia caused the logging operations to move to more distant locations, resulting in increased costs of production.

Figure 12:
Nominal Historical Log Prices in China

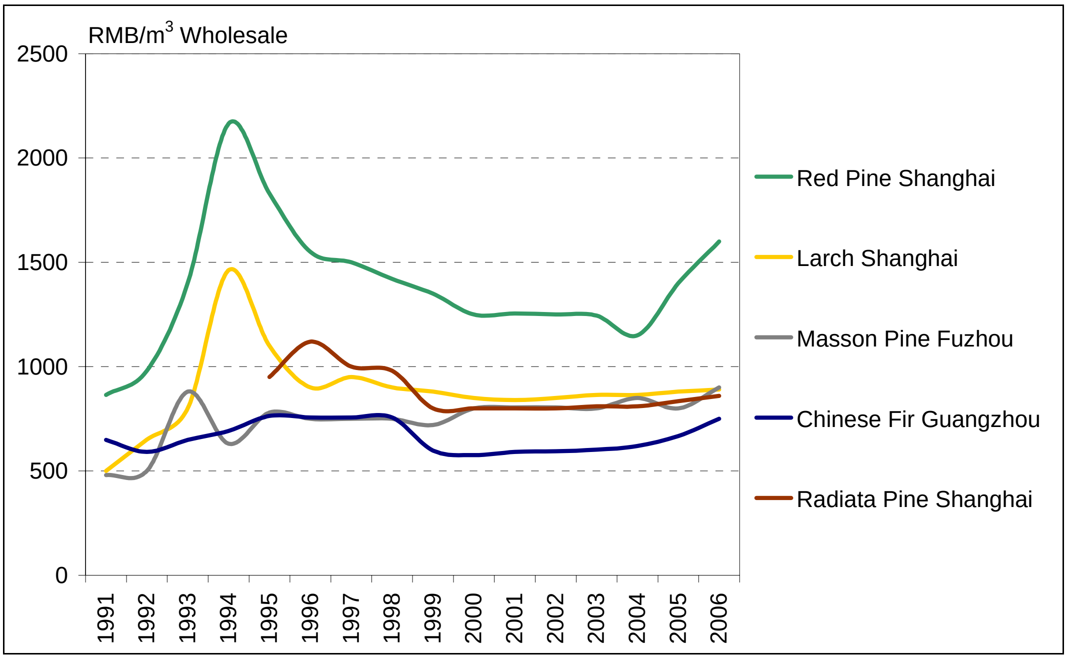
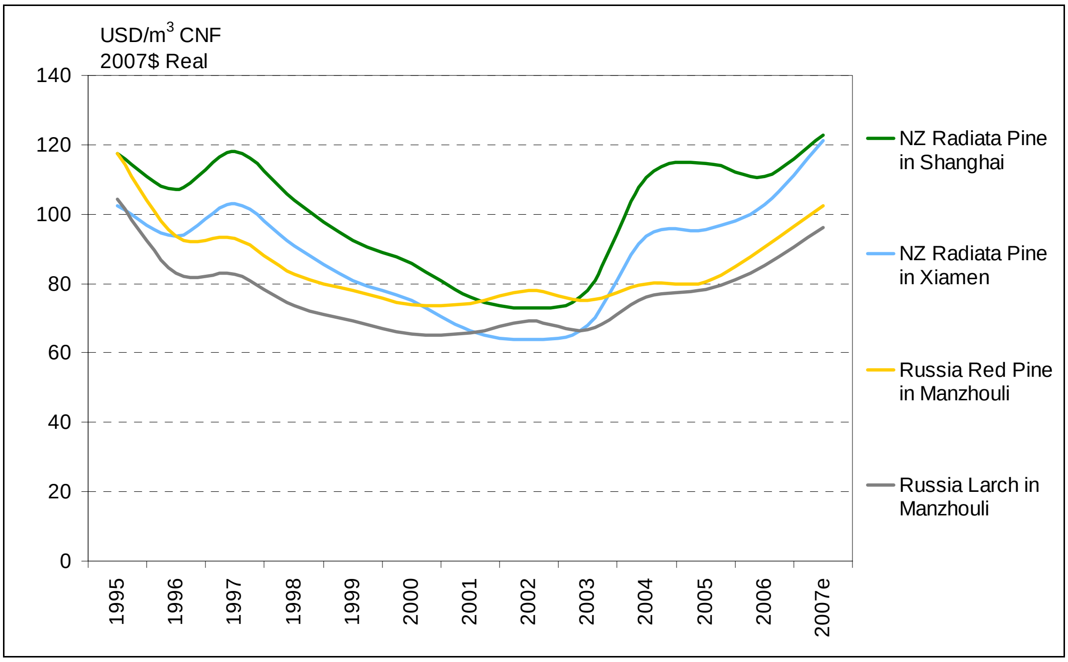


Figure 13:
China Imported Softwood Log Prices

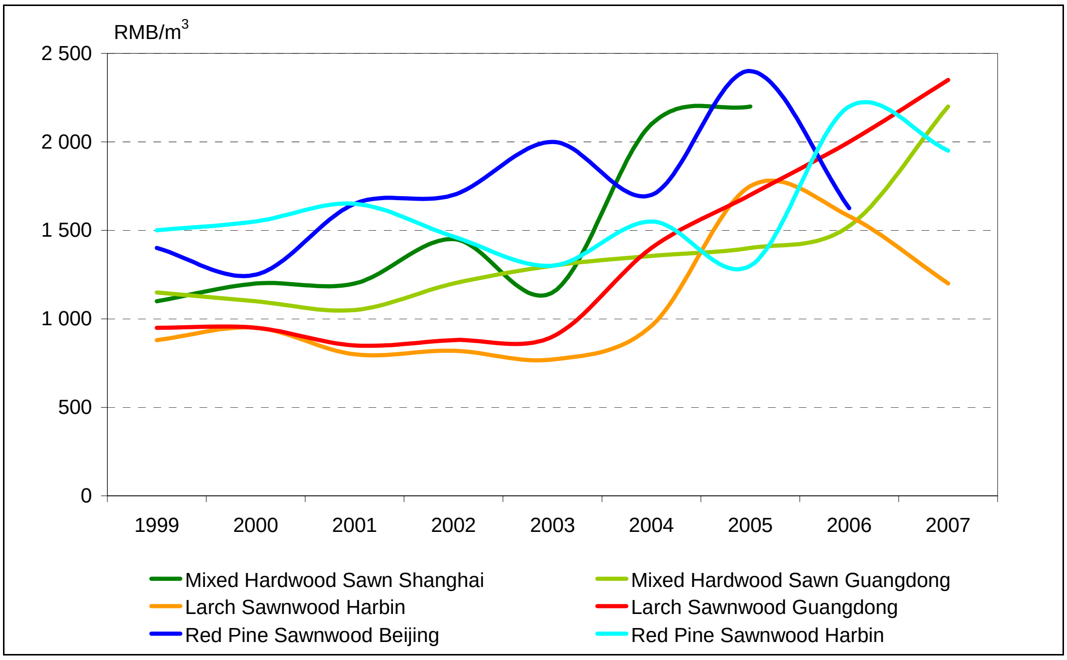


Sawn Timber

Softwood sawn timber prices have remained relatively static in China prior to 2003. Reflecting increases in log prices, sawn timber prices have also risen at an average rate of 14.3%/a. during 2003 and 2005.

The main reason for the increase in sawn timber prices is rapid rises in domestic transportation costs as well as the higher cost of logs. For example, red pine sawn timber prices in Harbin have remained relatively stable compared to the dramatic increase in Beijing prices. The same trend was shown for larch prices in Harbin and Guangdong. This implies the higher transportation costs caused prices of sawn timber sawn from Russian imported logs in south-eastern China to increase much more than the prices in northern China.

Figure 14:
Sawn Timber Prices in China



MDF and Particleboard

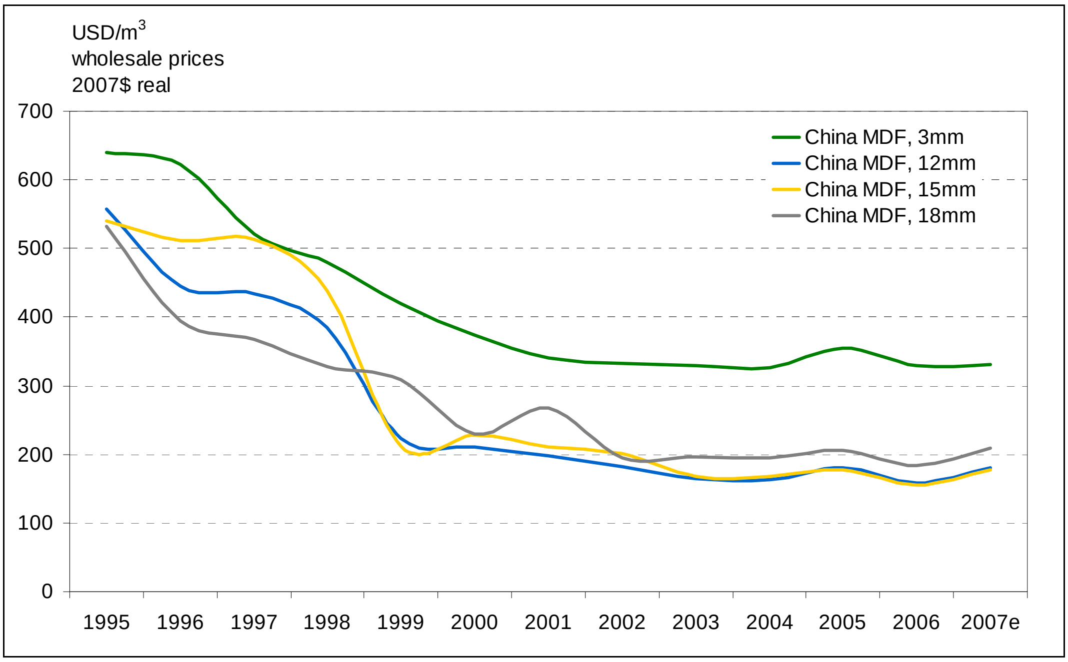
MDF prices in the region show a wide range, dependent largely on surface quality and suitability of overlay. China's average price for 12mm board is about USD180/m^3, and for 3mm is about USD331/m^3 in 2007. Quality premiums of up to USD15/m^3 can apply for higher quality MDF. Even though MDF quality has increased considerably in China over the past ten years, price levels for MDF have been under pressure because of strong competition.

China's MDF prices have moved towards import price parity following trade deregulations in the mid 1990s. This has influenced MDF prices between 1995 and 2000 to decrease at an average rate of -14.4%/a as shown in Figure 15.

MDF prices in the region have remained steady over the past five years. MDF capacity installation in the early 2000s has resulted in over-supply of MDF. This has led MDF prices to remain steady despite rising costs of production particularly and increased costs of raw material. During the period between 2002 and 2005, the cost of production almost doubled from USD95/m³ to USD183/m³. These factors combined to reduce the profit margin of the MDF producers with intense competition.

Wood based panels pricing in Asia has also been greatly influenced by developments in the regional and global plywood industry. It is expected that the dynamics in the wood based panels market in Asia will change considerably over the coming years, and as a result so will pricing.

Figure 15:
MDF Prices in China

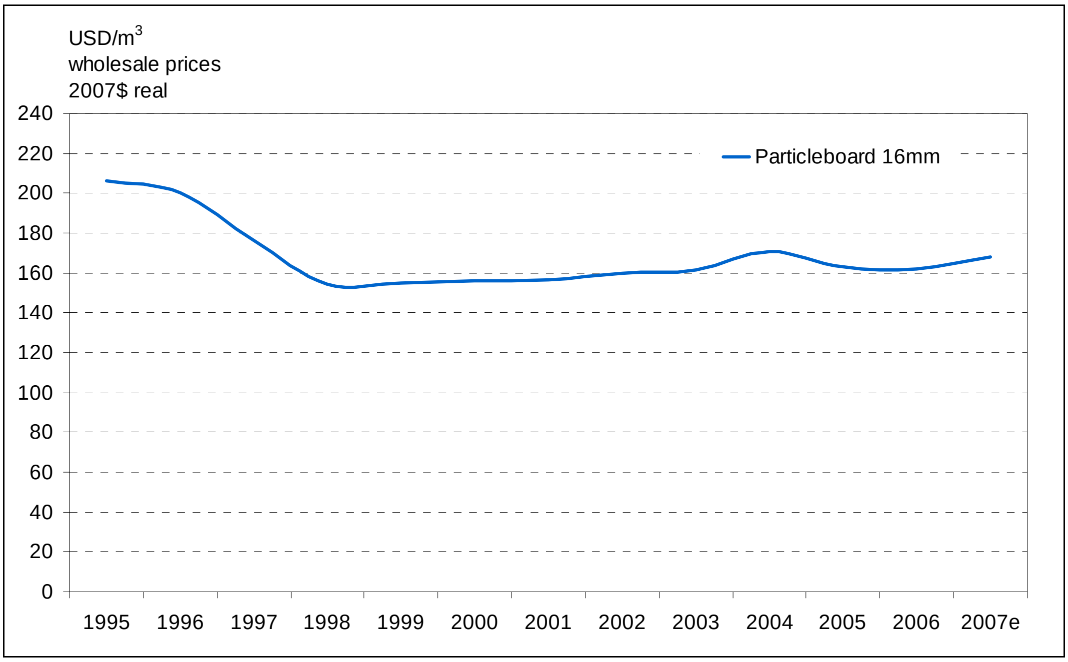


China's particleboard demand showed a negative trend from 1995 to 1999, driven primarily by substitution threats from MDF in several end-use applications. This impacted on the level of particleboard prices during the period, declining from USD152/m³ in 1995 to USD122/m³ in 1999.

Demand has bounced back however, particularly in the last four years as overall wood panel demand in China has continued to expand and the cost competitiveness of particleboard has again been recognised. Combined with intense competition in the particleboard industry, its prices have gradually increased over the past five years at an average rate of 1%/a.

Due to quality differences between regions, a wide range of particleboard prices exist in China. Although the recent trend in the market is a substitution of particleboard with MDF products, the market's price sensitivity supports particleboard's advantage over MDF.

Figure 16:
Particleboard Prices in China



Source: Industry Source, Pöyry

Log Price Outlook

Price Forecast Methodology

Pöyry Forest Industry's price forecasts are made using a combination of formal modelling techniques and informed judgement. Many factors affect prices, including the demand and supply balance, exchange rates, pulp prices, financial positions of buyers and sellers, price relativities between woodchips from different sources, and production costs.

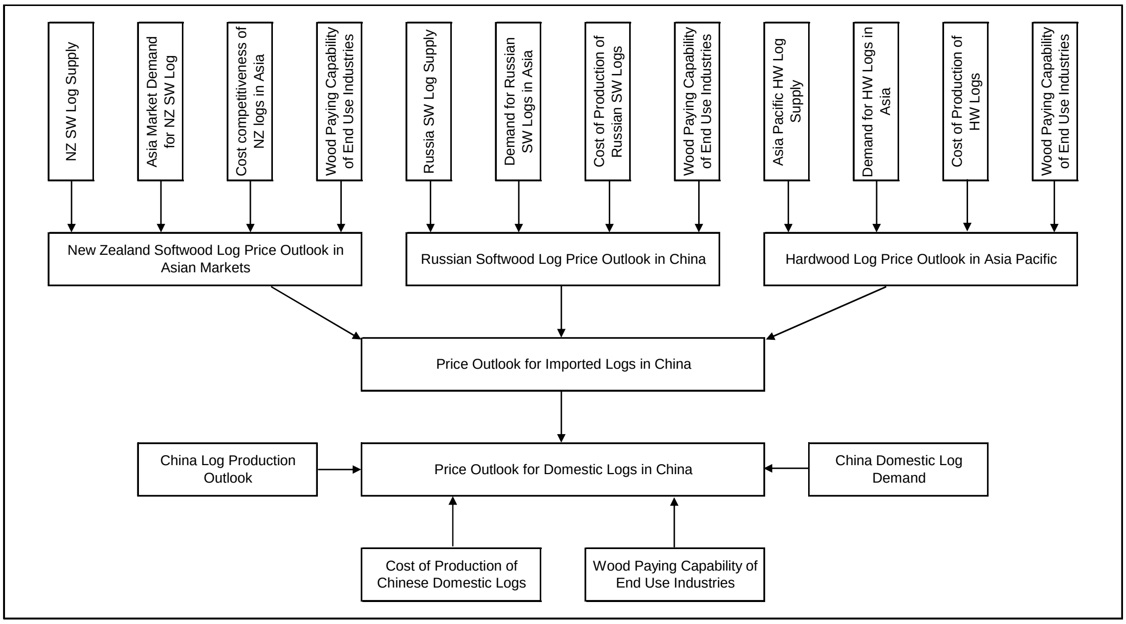
Pöyry forecasts China's domestic log prices based on medium term price trends formed by analysing both the regional log price outlook and China's domestic log price outlook. China domestic log price forecast methodology is described below.

- An opinion on the Asia Pacific region's hardwood and softwood log price outlooks is formed based on supplying and consuming countries' production and demand outlook and cost competitiveness.

- The regional log price outlook is taken into consideration on domestic log price trend analysis in addition to domestic log supply and demand outlook, and cost development and industry competitiveness.

Table 1 illustrates the multitude of factors influencing key log prices in the Asia Pacific region which then ultimately affect domestic log price trends in China.

Table 1:
China Log Price Forecast Methodology



Log Price Outlook

The outlook for key factors influencing China's domestic log prices is evaluated in this section. In summary, domestic sawlog prices in China are expected to increase at an average rate of 1.7%/a over the next five years while pulplog prices are expected to increase at an average rate of 1%/a. Overall log prices in China, including imported and domestic logs are expected to increase at an average rate of 2.9%/a over the next five years in 2007 dollar terms.

China's macroeconomics and wood consuming industries growth outlook suggests that future demand for wood products over the next five years will continue to expand. The boost in wood product demand will increase the fibre supply and demand gap and hence is expected to have a positive impact on log price development.

Domestic roundwood removals are under a quota of 248 million m^3/a from 2006 until 2010. Although this is an increase of 25 million m^3/a compared to the previous five-year quota, slight increases will not be sufficient to meet growing sawlog demands. Growth of imported industrial roundwood logs is anticipated to be positive to meet the growing need for the wood fibre but at a slower rate from this decade. Regulations on harvest levels in the South East Asian suppliers will suppress the amount of the tropical logs available in the next five years.

Russian imported logs production costs are expected to rise as logging locations shift to more distant forests and a further increase in export tariff on logs has been announced. Also, various measures and regulations for sustainable forestry in the tropical forest supplying countries will lead to higher production costs in Southeast Asian countries.

Rising costs of production are likely to result in sawlog price growth. Increases in imported sawlog prices will put upward pressure on domestic sawlog prices.

Whereas the price outlook for sawlogs is positive, the outlook on pulplog prices looks to be increasing only modestly.

Demand for pulpwood is likely to increase in the next five years as a number of large mill development plans are implemented, putting upward pressure on pulplog prices. But with internationalised pulplog and chip prices, lower imported pulplog/woodchip prices, such as from Southeast Asian suppliers, will offset the opportunity for domestic pulplog price increases.

Table 2 summarises factors influencing log prices for the next five years.

Table 2:
China Log Prices Outlook

Factors	Outlook	Influence on Log Prices	+/-
Domestic Supply	Domestic fibre supply is likely to be steady over the next five years as harvesting quota allows only 248 million m³ of log to be harvested per year.	Quota on domestic log supply will set upward pressure on log prices.	+
Domestic Demand	Fibre demand from pulpmills is likely to increase in the next five years with large mill development plans. Strong growth in construction and furniture industries will increase fibre demand.	Solid lumber and pulpwood demand will support firm log prices.	+
Cost of Production	Transport cost is likely to increase in the medium term as oil prices are expected to rise.	Increase in cost production is likely to influence log prices to rise marginally.	+
Imported Log Prices	Russian log prices are expected to increase with Russian government's policy on export tax on softwood logs. This is likely to affect the volume and the cost of imported logs from Russia.	Increased imported Russian log prices will set upward pressure on domestic log prices as well as overall log price levels.	+
	Hardwood log prices are expected to rise in the next five years as tropical hardwood supply is declining.	Imported hardwood log price increase will influence overall log prices in China to rise over the next five years.	+
Wood Paying Capability of Wood Processing Industries	Strong competition in the wood processing industries will limit wood paying capability of consuming industries.	Strong competition in the wood processing industries will reduce the consuming industries' profitability/margin, which will set downward pressure on log prices.	-
	Technological developments in engineered and reconstituted wood products will allow less volume of wood materials to produce end products.	Technological developments will limit significant real price growth for solid wood lumber products.	-

APPENDIX 2

Guangxi Province: Field Visit and Site Inspection

Two representatives from Pöyry undertook field inspections in Hezhou City in Guangxi Province during 21 to 25 January 2008. The field inspections were conducted with the kind assistance of Sino-Forest staff.

According to records provided by local Sino-Forest staff 30 797 ha of plantation area has been purchased in Hezhou City in Guangxi Province in 2007.

The field visit to Hezhou City in Guangxi Province focused on:

1. A qualitative review of a sample of the area purchased in 2007.

2. Gaining an understanding of the plantation, infrastructure and market environment in Hezhou City in Guangxi Province.

The following narrative and photo essay is intended to provide an understanding of the Sino-Forest business and its environment in Hezhou City, Guangxi Province.

Plantations

Pöyry's inspection route of Sino-Forest plantations in Hezhou City is shown in Figure 1. Hezhou City is located in Northeastern Guangxi and is bordered by Guangdong Province to the east and Hunan Province to the North. Hezhou city consists of 3 counties; Fuchuan, Zhaoping, Zhongshan and one district; Babu. The 2007 purchases were located in Zhaoping, Zhongshan and Babu. A summary of the purchases in Hezhou City in 2007 by species and county is shown in Table 1.

Table1:
Summary of 2007 Purchases in Hezhou City by Species Grouping and County

Species	County			Species Total (ha)
	Babu (ha)	Zhaoping (ha)	Zhongshan (ha)	
Chinese fir	842			842
Chinese fir and Broadleaf		816		816
Eucalyptus	6 209			6 209
Pine and Broadleaf	18 892	2 336	1 702	22 930
County Total	25 943	3 152	1 702	30 797

Figure 1:
Pöyry Inspection Route in Hezhou City

In Hezhou City, Sino-Forest has purchased a mix of pine, broadleaf, eucalyptus and Chinese fir plantations. The main species has been pine, with the majority being Masson Pine. The age of the purchased plantation is 11 – 16 years for the pine, broadleaf and Chinese fir; and 2 – 3 years for the eucalyptus. Pöyry was provided with stand level statistics of Sino-Forest's current resource: The average Total Standing Volume (TSV) for the resource is about 106 m^3/ha and the average Total Recoverable Volume (TRV) is about 72 m^3/ha. A summary of the TSV and TRV for each species group is tabled below (Table 2). A merchantable recovery rate of 65% is applied to derive TRV estimates for pine, broadleaf and Chinese fir and 80% is applied for eucalyptus.

Table 2:
Species and Volume Estimates from Purchases in Hezhou City in 2007

Species	Area (ha)	Total Standing Volume (m^3)	Total Standing Volume (m^3/ha)	Total Recoverable Volume (m^3/ha)
Chinese fir	842	123 745	147	96
Chinese fir and Broadleaf	816	138 060	169	110
Eucalyptus	6 209	581 807	94	75
Pine and Broadleaf	22 930	2 424 529	106	69
Grand Total	30 797	3 268 141	106	72

The impression from the plantations inspected and the few measurement plots undertaken by Pöyry was that the volume estimates were consistent with Sino-Forest’s records. An example of the pine, Chinese fir and eucalyptus stands visited are shown in the photos below.

Photo 1:
Masson pine stand in Zhaoping County, Fuluo Town, Huilong Village. Note the scars on the trees where they have been tapped by local farmers for resin production

Photo 2:
1995 Age-class Chinese fir in Babu District, Gonhui Town – Oingshui Village

Photo 3:
2004 age-class *Eucalyptus grandis x urophylla* clone in Babu district, Xindu Town, Zhidong Village.

The general terrain of Hezhou City in which Sino-Forest has purchased plantations can be classed as hilly to mountainous with moderate to steep slopes with some areas in excess of 30 degrees.

Photo 4:
Example of terrain in 1995 age-class Chinese fir in Babu District, Gonghui Town, Qingshui Village. Area was steep and mountainous with slopes in excess of 30 degrees.

Hezhou City sub-tropical monsoonal climate is considered suitable for commercial plantation development. Rainfall is highest in spring and summer with an average annual rainfall in the range of 1500-1900 mm. Average mean temperature is 20^{o}C with mean temperatures in January of 9^{o}C and in July of 28^{o}C. The average number of frost free days per year is 320.

Sino-Forest's purchased eucalyptus plantations are exhibiting vigorous growth. This shows the potential available to Sino-Forest to make large gains in yield when re-establishing following harvesting of its existing lower productive pine, broadleaf and Chinese fir plantations in the region.

Log Markets

Markets for harvested timber within Hezhou City and the surrounding region consist of around 25-30 smaller scale sawmills, veneer and plywood mills and finger-joint mills. Pöyry visited a number of these small processing facilities that included a veneer / plywood mill (Photo 5). While the facilities are individually small, collectively they consume a significant volume of logs annually. The annual allowable cut in Hezhou City is about 720 000 m^3 per annum with a large portion consumed by the wood processing industry within the region.

Photo 5:
Small veneer mill near Hezhou City. There were 7 mills at the site with a combined annual log intake of 50 000 to 75 000 m^3 of logs per annum.

APPENDIX 3

Yunnan Province: Field Visit and Site Inspection

Two representatives from Pöyry undertook field inspections in Gengma County, Yunnan Province during 16 to 20 January 2008. The field inspections were conducted with the kind assistance of Sino-Forest staff in Yunnan.

The Yunnan secondary-growth natural forest assets were acquired by Sino-Forest in 2007. A survey report prepared by Hanye Resources Inc. in September 2007 was made available by Sino-Forest for Pöyry's review.

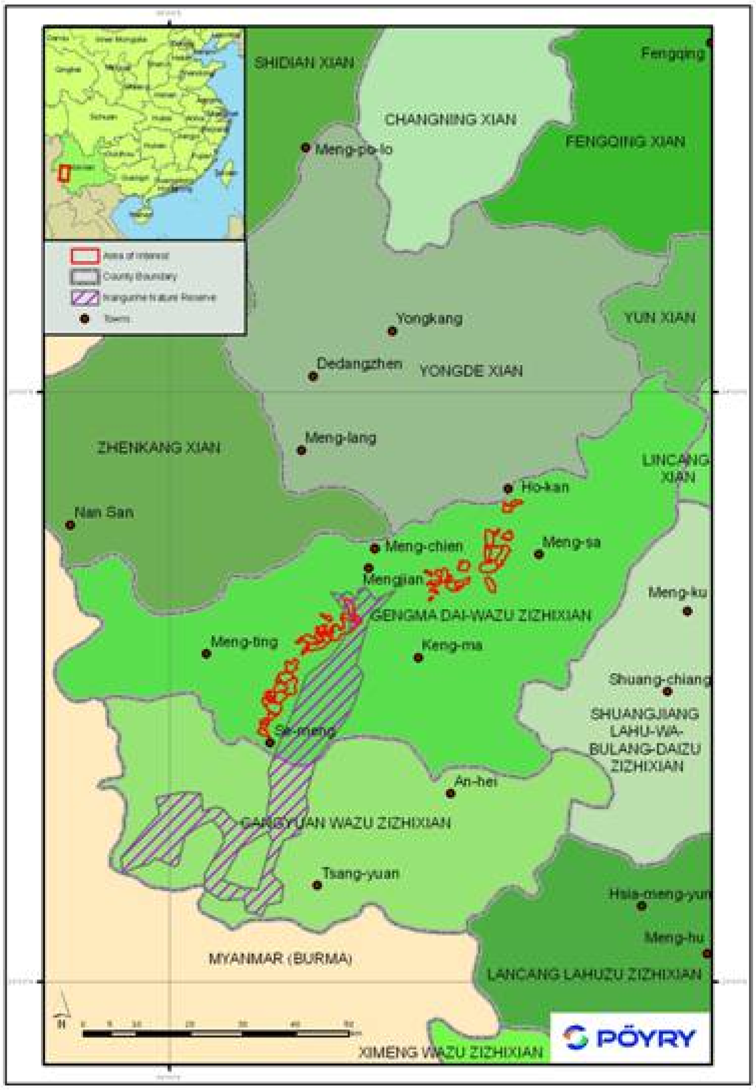
Resource Location

The Sino-Forest secondary-growth natural forest resource is located in Gengma County, Lincang City Prefecture, Yunnan Province of southwest China. At the closest point, the resource is 23 kilometres from the national border with Myanmar (Figure 1).

Figure 1:
Location of Sino-Forest Resource in Yunnan Province, China

The whole resource is located within Gengma County (Figure 2). During the post-inspection analysis, Pöyry determined that the Sino-Forest resource map overlaps with the Nangunhe Nature Reserve. Pöyry has advised Sino-Forest and agreed for this valuation to exclude overlap areas from the resource valuation. This amounted to about 720 ha. Sino-Forest is taking steps to remedy the situation with the counter-party.

Figure 2:
Location of Sino-Forest Resource in Gengma County



Gengma County Overview

Gengma County is located in the southeast Yunnan Province bordering Myanmar on the west. It covers an area of about 372 500 ha. Altitudes range between 450 – 3,300 metres above sea level (masl). The terrain is hilly to montane (Photo 1). The Nanpeng River lies to the west of the Sino-Forest resources, and a number of tributaries flow from the forest into the Nanpeng River (Figure 4). The Nanpeng is a tributary of the Mekong River.

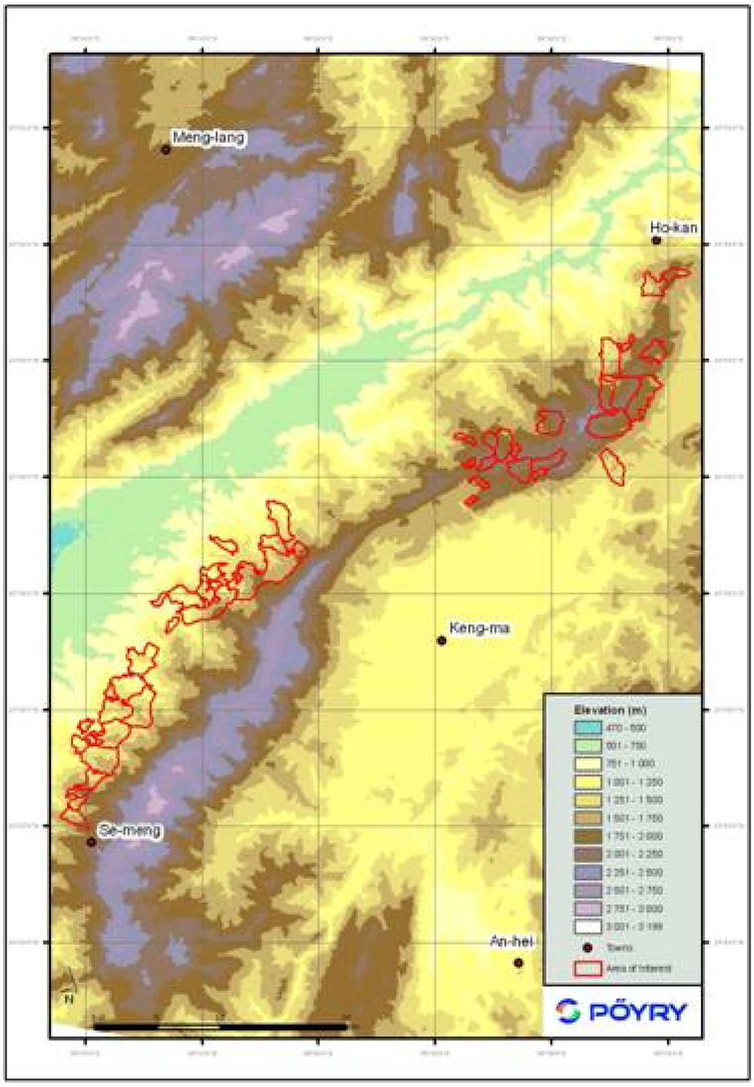
Photo 1:
Hills and Mountains in Gengma County

Compared to the Southern China locations where Sino-Forest plantations are located, Gengma County would seem remote and under-populated. There is however abundant rural populations engaged in prosperous agricultural activities. The main agricultural activities observed by Pöyry included rice (irrigated), banana, rubber (*Hevea brasiliensis*), sugarcane, tea and watermelon. The rubber plantations are widespread on terraced hillsides and by far the largest tree plantations observed. These are tapped for the natural latex. Small woodlots of teak (*Tectona grandis*) were also common.

Terrain

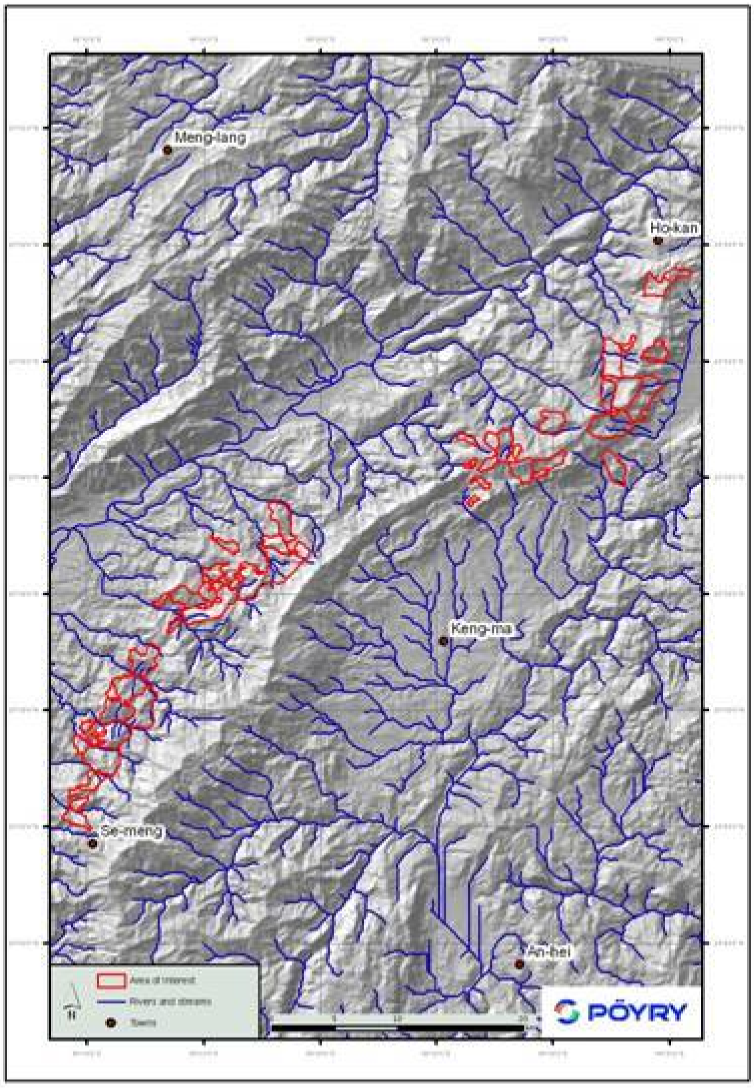
The Sino-Forest secondary-growth natural forests assets are located in the mid – upper elevations of Nushan Mountain range in Gengma county (Figure 3). The elevation range of forests observed during the Pöyry site inspection is 1 100 – 2 000 masl. The average slope measurement at the Pöyry plot points is 28 degrees. The slope range was from a moderate 10 degrees to a very steep 46 degrees.

Figure 3:
Elevation Profile in Gengma County



There are many small permanent streams flowing from these montane forests through agricultural lands at lower elevations into the Nanpeng River (Figure 4).

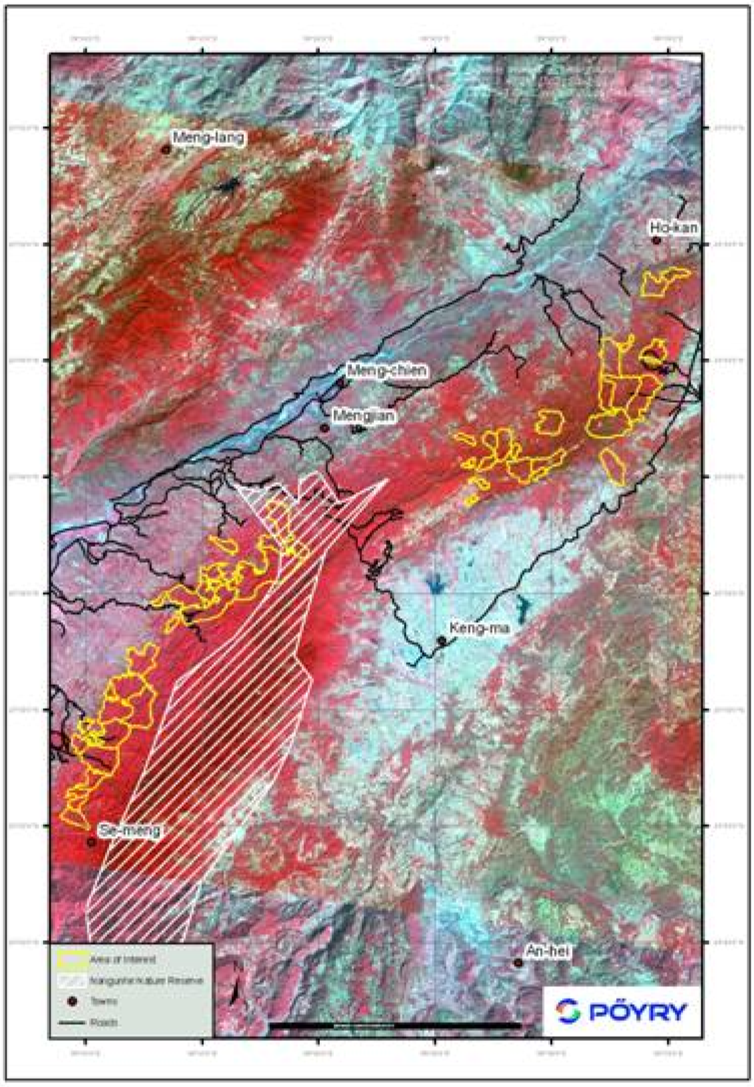
Figure 4:
Topography and Rivers in Gengma County



The satellite image in Figure 5 illustrates the general distribution of agriculture and forest lands in Gengma County. Red colours are forested lands. Pale colours are agricultural lands.

The major town in the county is located at the centre of the map (variously written as Dengma or Keng-ma). Sino-Forest operates from an office at Mengding town, which is located west of Se-Meng (southwest of the map).

Figure 5:
Towns, Roads and Nature Reserves in Gengma County



Climate

As in northern Myanmar and Laos, the climate of southwest Yunnan (including Gengma County) is strongly influenced by the south-west monsoon. The regional climate can be classified into two types:

- Sub-tropical semi-humid climate (represented by the hilly lands around Gengma town).
- North tropical semi-humid climate (represented by the valley in which Mengding).

The region experiences distinct dry and rain seasons, with focused rainfalls, high relative humidity and mild winds. Springs are warm and dry; autumns are cool and humid; winters are cool and dry; and summers are humid and hot.

- Annual average temperature = 18.8 °C

- Hottest months = April, May and June (36.4 °C)
- Coldest months = December and January (11 °C)
- Average frost days = 18 days.
- Average relative humidity = 78%
- Annual sunlight hours = 2 162 hours
- Average annual rainfall = 1 332 mm

Roads

Road quality is an important consideration as it has a significant impact on haulage costs. The main road from Lincang City to the forest resource area is a well-maintained bitumen sealed road (Photo 2).

Photo 2:
Main road in Lincang City Prefecture Yunnan Province

Secondary roads that lead from the main road to the forest areas have been in situ for many years. These roads were constructed for access between the market towns and the rural villages within surrounding agricultural lands. At the time of Pöyry's inspection, the roads appear to have benefited from recent upgrades, with evidence of road-widening and newly constructed bridges, culverts and drains. The work is performed by a mix of machine (excavator) and human labour. Many of these secondary roads are surfaced with broken rock which is hand-laid (Photo 3). The condition of these roads is variable with definite improvements in quality closer to the main roads where they service more rural villages. The very light trucks that are favoured for transport of agricultural produce in the region will readily pass over these roads (Photo 4).

Photo 3:
Secondary road (hand-laid rock surface) in rural Gengma County, Yunnan Province

Photo 4:
Very light trucks used for transporting agricultural produce and logs

To allow access for logging, these secondary roads have in the past been extended higher into the mountains into the forest resource. The main access roads into the forest resource are trafficable by 4WD vehicle. The old logging road formations are still in solid condition but will require clearing and some upgrades for access and future harvesting operations (Photo 5).

Photo 5:
Forest access road (natural surface), Gengma County Yunnan Province

Forest Description

The Sino-Forest assets in Yunnan are mixed broadleaf secondary-growth natural forests. Most of the forest areas inspected by Pöyry have been moderately to extensively cut-over in the past.

Stand records

The Sino-Forest stand records provide forest data for each of the coupe and/or sub-compartment management units. The records were provided to Pöyry in hardcopy format. Pöyry has converted the data to digital format for analysis and interrogation. The stand records database includes the following field for the various forest identifiers and key parameters:

Table 1:
Data Field in the Stand Records

Fields in the Stand Records	Information
Town	Administrative designation
Village	Administrative designation
Coupe number	Unique identifier for a large management unit; there are 49 coupes in the stand records.
Sub-compartment number	Unique identifier for a smaller unit within the coupe; sub-compartment units have not been recorded or where not included in all the data provided to Pöyry.
Area (mu)	The gross area statement; the method for estimation of the areas is not known, however it is likely to be GIS digital output from the Forestry Bureau.
Tree species	Mixed broadleaf is the designation given in all records; it is the only required name for log marketing; Local foresters can name 5 to 10 of the commercial species by local or taxonomic name but specific species knowledge appears to be unnecessary in the local context.
Planting year	A nominal age which Pöyry surmises is the period since the last recorded harvesting operations; The records indicate age is 28-30 years old; The Yunnan forests are actually mixed-aged, and according to local people harvesting operations have occurred as recently as 15 years ago in some places.
Site type	Not specified; 2 classes; Appears to be a high and low classification of forest potential or forest productivity.
Average tree height (m)	The average tree top height in the coupe or sub-compartment; the sample process and precision of estimates are not specified or described elsewhere.
Average DBH (cm)	The average Diameter at Breast Height over bark in the coupe or sub-compartment; the sample process and precision of estimates are not specified or described elsewhere.
Number of trees per hectare	Average number of trees (alive) in each hectare of the coupe or sub-compartment; the sample process and precision of estimates are not specified or described elsewhere.
Growing stock (m^3)	The total standing volume (TSV); the sample process and precision of estimates are not specified or described elsewhere.

The following photographs illustrate the forest variations observed during the site inspection (Photos 6-10).

Photo 6:
Coupe 33 (medium – large tree sizes, highest volume site)

Photo 7:
Coupe 34 (very mixed tree sizes, high volume sites mixed with regeneration)

Photo 8:
Coupe 51 (small – medium size trees, higher stocking levels, higher volumes)

Photo 9:
Coupe 62 (small trees; significant levels of logging damage, poor form)

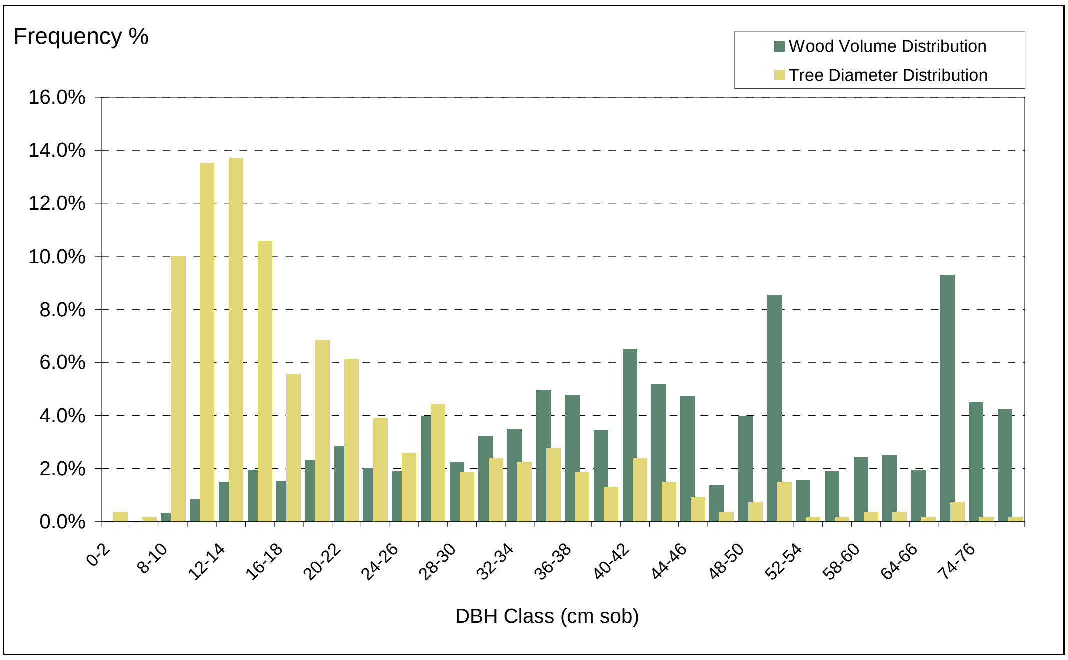
Photo 10:
Coupe 122 (small – medium size trees, low stocking levels, lowest volumes)

Tree sizes

The diameter frequency distribution in Figure 6 indicates there are many smaller trees. About 50% of the trees in Pöyry's randomly located sample plots were less than 20 cm DBH. This is indicative of a stand regeneration following logging at some point in the past. Pöyry is advised by local people that logging occurred variously 15 – 30 years ago. Evidence of broken tree stems and relatively even-aged regeneration on the ridges and spurs supports their recollections.

Remnant stands of older, larger trees were also found in patches across the resource. These stands appear to be original growth, or possibly are the regeneration from logging many years ago. Trees over 35 cm contribute almost 70% of the stand volume, which indicates that mechanical harvesting and loading might be required to handle larger and heavier logs.

Figure 6:
Diameter Distribution for Mixed Broadleaf Forest in Yunnan Resource

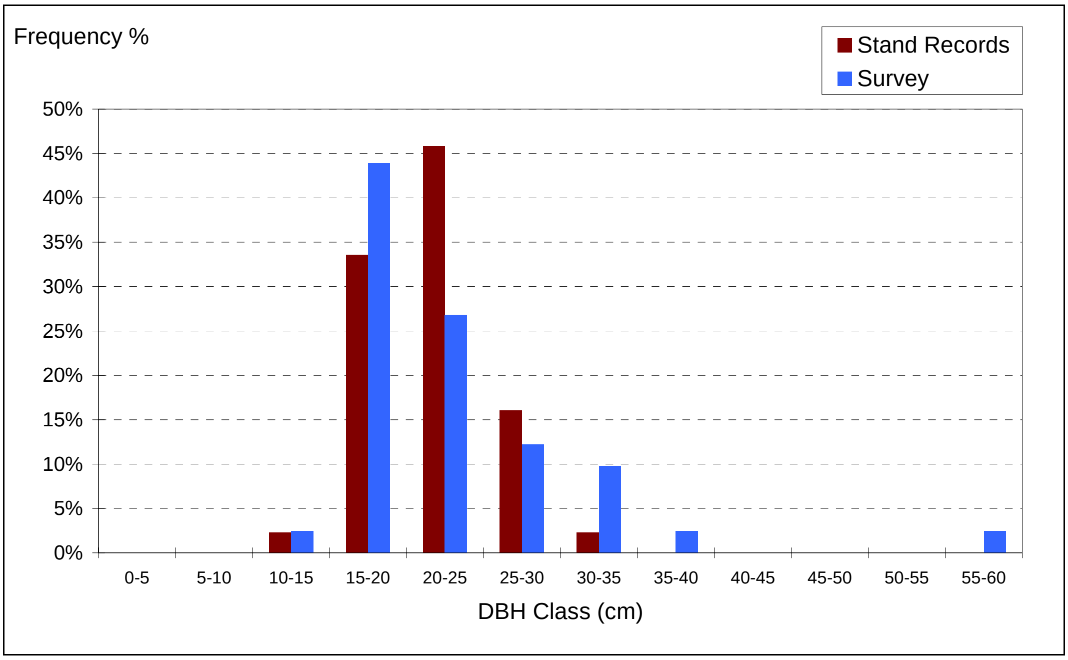


Note: Based on a sample of 538 trees measured by Pöyry in January 2008

On a comparative basis, Pöyry's sample inventory data defines a similar DBH range as appears on the Company stand records (Figure 7). Differences in the skew and range of the distributions occur because the stand records are sample averages from across larger areas, and presumably are derived from a larger sample population.

A comparison of the key parameters indicates there are some differences in height and stocking estimates. However volume differences are likely to be largely determined by very different methods for calculating volume. Pöyry believes its approach – direct measurement of merchantable logs and calculation of sectional log volumes – is more suitable for the forest type. Pöyry has measured trees 8 cm DBH and above, and log volume is calculated to an approximately 8 cm small-end diameter limit.

Figure 7:
Comparison of Diameter Distribution Records with Sample Inventory Results



Note: Based on an average DBH for each coupe and sub-compartment area as reported in the company stand records; and based on average DBH for plots in the Pöyry survey.

Table 2:
Sample Inventory Results Compared with Yunnan Stand Records

Data Source	Coupe No.	Coupe Area (ha)	Stocking (sph)	Av. DBH (cm sob)	Av. Tree Height (m)	Av. Tree Vol. (m^3)	Growing Stock (m^3/ha)
Pöyry	33	531.9	600	26.4	15.7	0.431	249
Pöyry	34	342.9	570	23.3	15.0	0.379	173
Pöyry	51	368.3	670	23.4	17.1	0.497	220
Pöyry	62	466.2	929	18.5	11.7	0.182	115
Pöyry	122	187.6	325	18.7	9.9	0.279	90
Total Pöyry	All	1 709.3	662	23.5	15.0	0.274	181

Area Statements

Pöyry verifies that the gross area statements for Yunnan reported by Sino-Forest are precise. Pöyry has registered the Sino-Forest raster maps and digitised the forest boundaries. These boundaries are digital traces and hence are subject to some copy error. The map boundaries were then checked against the common terrain features used for boundary marking. It was found that most boundaries very precisely correspond to streams and ridges as expected. Pöyry's gross area of 10 612 ha closely approximates the Sino-Forest stand records 10 438 ha.

Pöyry has undertaken a mapping and satellite image analysis exercise to carry out more detailed verification of these large forest areas. The Sino-Forest maps were well prepared at 1:50 000 scale and thereby afforded Pöyry the starting point to develop a very good spatial resource description. Such an approach would not be possible in the highly fragmented plantations of Southern China without great expense and time. In Yunnan, where the forest asset is contiguous and relatively well mapped, it lends itself very well to a satellite image analysis (see Appendix 5).

Land Use and Forest Types

A further objective of satellite image analysis was to describe the existing land use and the canopy structure of secondary-growth natural forest areas. At the most basic levels, the following maps at 1:60 000 scale illustrate that the majority of the land under management is covered by forest (i.e. shades of green) and that there are only very small areas of the resource that are already cleared or converted to agricultural cropping uses (i.e. pink and orange respectively). There are no major water bodies in the forests, however there are many permanent streams (i.e. blue) and finally that there are a number of very steep areas distributed across the resource (i.e., purple) (Figure 8 to Figure 10). Sino-Forest now holds a powerful management tool for long-range and annual harvest planning. A next stage will be to stratify the resource data into the three forest categories. This should provide more precise yield estimates.

Figure 8
Land Use and Forest-Type (Mengding South)

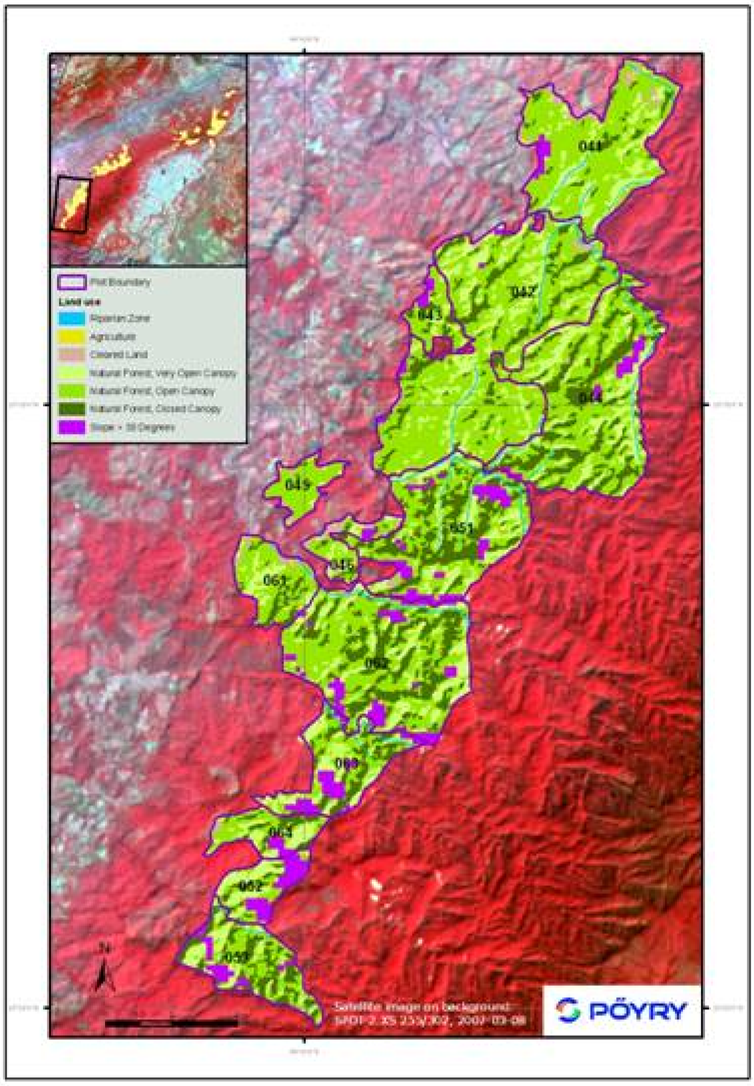


Figure 9:
Land Use and Forest-Type (Mengding North)

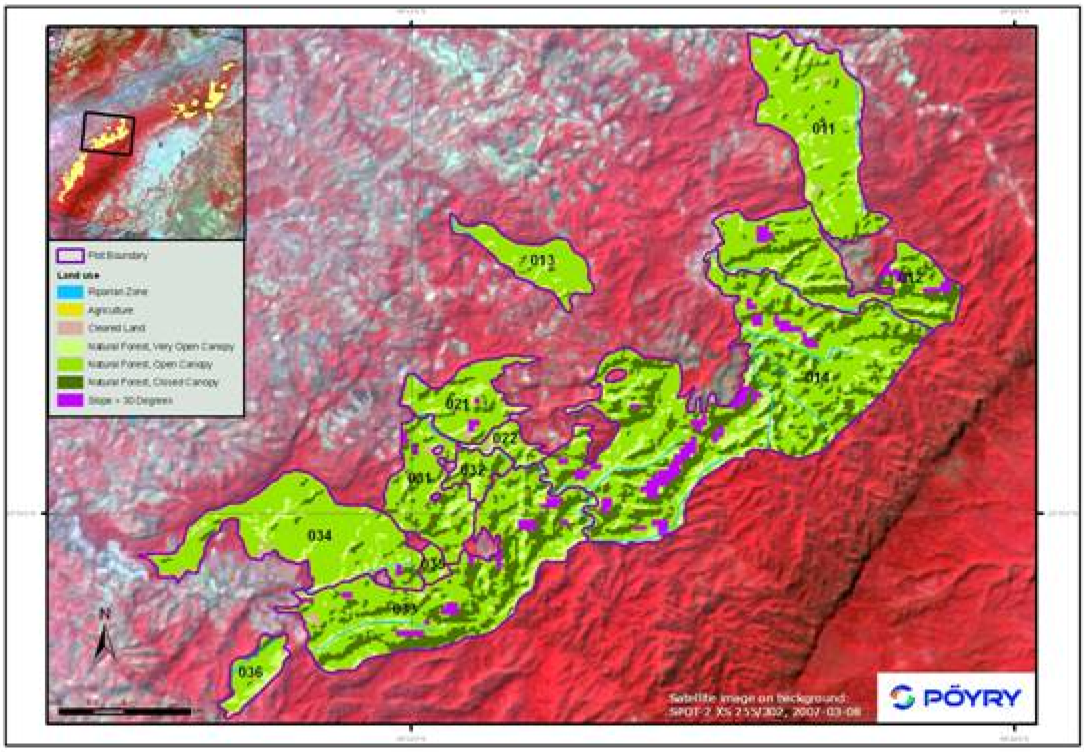


Figure 10:
Land Use and Forest-Type (Dengma South)

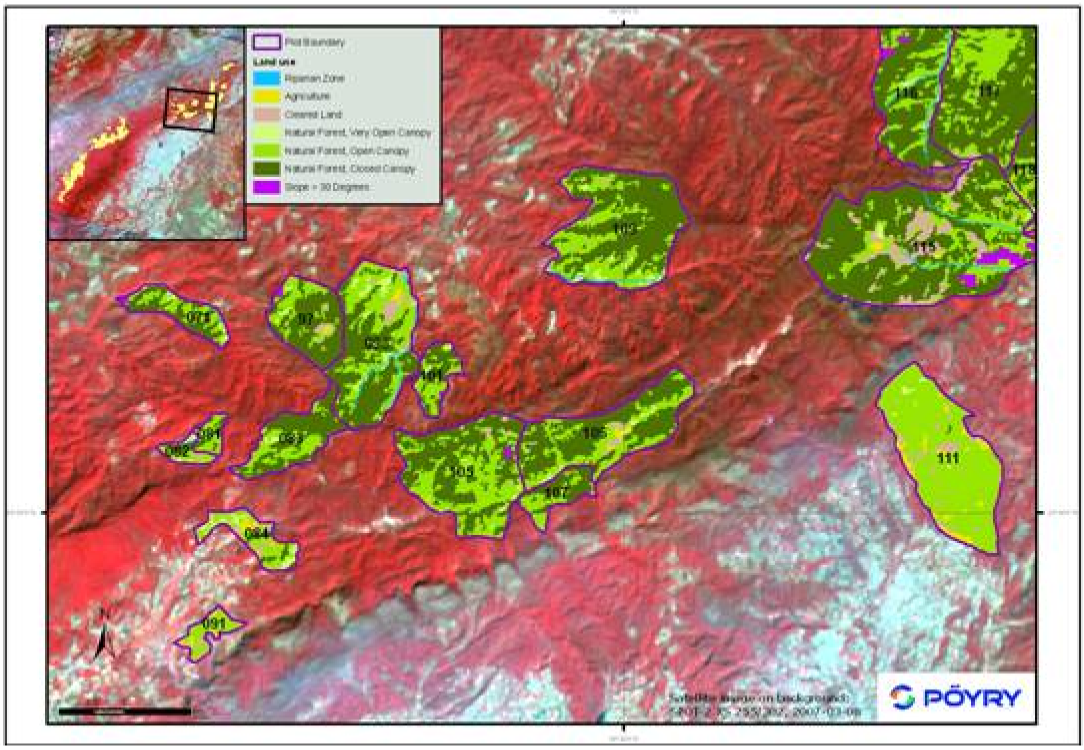
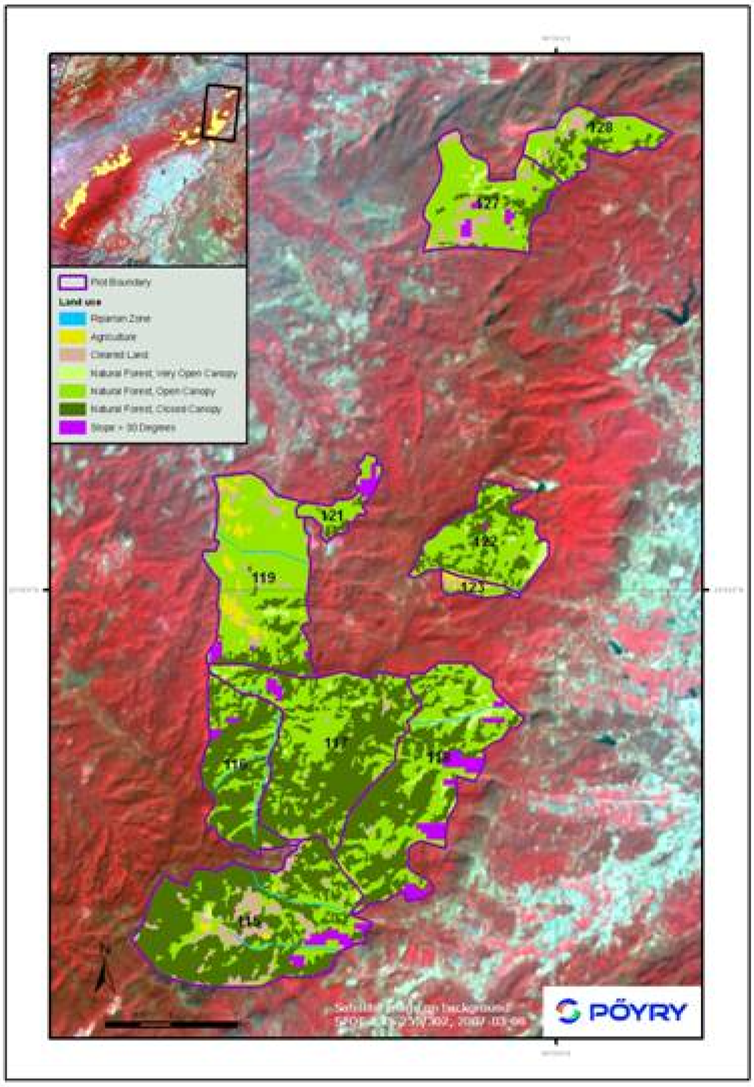


Figure 11:
Land Use and Forest-Type (Dengma North)



Site Inspection Conclusions

Pöyry's site inspection generally confirms that the stand records are a good and precise description for the Yunnan forests and may be relied upon for valuation of these assets (Figure 17). It is Pöyry's opinion that yield records are over-stating the standing volumes and these records have been amended for calculation of future woodflows. The apparent use of top height in yield prediction functions will be less accurate than well measured stem and stem section volumes in these secondary-growth natural forest stands. The gross area statements conform accurately to Pöyry's estimates and are applied for the forest asset valuation.

The future management intentions for these forests are not yet defined. Having recently purchased these forests, Sino-Forest has yet to prepare management plans. Consequently Pöyry has made assumptions regarding the wood flows from these forests that may not be followed in future. Pöyry has taken the principle that secondary-growth natural forests will be managed on a sustainable cut basis applying a selective logging regime, implying the secondary-growth natural forests will not be cleared and converted to plantation forests. Pöyry also assumes that the selective logging cycle will be over a 30-year period. In this case, the sustainable yield is approximately 90 m^3/ha.

APPENDIX 4

WACC for Forest Investment in China

UniServices
Auckland UniServices Limited

POSTAL ADDRESS
c/- The University of Auckland
Private Bag 92019, Auckland, New Zealand

STREET ADDRESS
Level 10, UniServices House
70 Symonds Street, Auckland

TEL +64 9 373 7522
FAX +64 9 373 7412
WEB www.uniservices.co.nz

Investment Appraisal for Forest Investment in China

AUCKLAND UNISERVICES LIMITED

a wholly owned company of

THE UNIVERSITY OF AUCKLAND

Prepared for:
Pöyry Forest Industry Limited
Level 5 (Box 22),
437 St. Kilda Road
MELBOURNE, VIC 3004, Australia

Consultant
Dr Alastair Marsden
Department of Accounting & Finance
School of Business & Economics
The University of Auckland

February 2008

UniServices
Auckland UniServices Limited

Reports and results from Auckland UniServices Limited should only be used for the purposes for which they were commissioned. If it is proposed to use a report prepared by Auckland UniServices for a different purpose or in a different context from that intended at the time of commissioning the work, then UniServices should be consulted to verify whether the report is being correctly interpreted. In particular it is requested that, where quoted, conclusions given in UniServices reports should be stated in full.

Investment Appraisal for Forest Investment in China

A. Background and brief executive summary

A.1 Introduction

You have requested Auckland UniServices Limited ("Auckland UniServices" or "we") to prepare a report on the weighted average cost of capital ("WACC") for a generic forest asset in the country of China.

In accordance with the terms of our engagement we use the capital asset pricing model ("CAPM") to determine the cost of equity capital.

The cost of capital is denominated in United States dollars ("USD") from the perspective of an international investor.

This report is subject to our declaration and restrictions on the use as set out in section B and Appendix 1.

A.2 Results

In summary we conclude under the different versions of the CAPM model that we apply:

- The estimates of the **real post-corporate tax** WACC denominated in **USD** for a generic forest asset in China is between **5.7%** and **8.2%.**

Table 1		
Chinese corporate tax rate	**"Low" estimate**	**"High" estimate**
Corporate tax rate = 33%	5.7%	8.1%
Corporate tax rate = 24%	5.8%	8.2%

- The estimates of the **real pre-corporate tax** WACC denominated in **USD** for a generic forest asset in China is between circa **7.6%** and **12.0%.**[1]

Table 2		
Chinese corporate tax rate	**"Low" estimate**	**"High" estimate**
Corporate tax rate = 33%	8.5%	12.0%
Corporate tax rate = 24%	7.6%	10.8%

It is important to note that our "low" and "high" estimates are not lower and upper bounds of the possible range of the WACCs but rather reflect a low and high range

[1] The conversion of a post-tax WACC to an "equivalent" post-tax WACC is based on a simple transformation formula. In practice, however, formal modelling of the entity's cashflows is required to determine an "equivalent" pre-tax WACC.

based on estimates of the parameter inputs under the difference versions of the CAPM we adopt. The lower and upper bounds for the WACC will be wider than the range of estimates provided in the tables above if we undertook additional sensitivity analysis based on different versions of the CAPM.

These cost of capital estimates apply as at 31 December 2007.

A.3 Limitations of the CAPM

The CAPM is a theoretical asset pricing model and we strongly recommend (to the extent such evidence is available) our estimates of the cost of capital for a Chinese forest entity be compared to implied discount rates or other evidence based on actual forest or forest related sales in the Chinese market.

We note the Chinese legal, institutional and bankruptcy laws differ to Western capital markets. In addition restrictions on the level of foreign ownership of forest assets may apply in China and in emerging markets the level of corporate governance may vary significantly between companies (see Klapper and Love, 2004, Chen et al., 2003).

Corporate governance is important as it provides mechanisms whereby outside investors can protect themselves against expropriation of assets by insiders. Corporate governance can impact on the risks that outside investors may face in respect of any expropriation of assets.

These factors together with size and other market frictions may warrant an adjustment to the cashflow expectations and/or an increment to the cost of capital for the forest if investors' property rights are not clearly defined. Where control is not obtained a minority discount and /or illiquidity discount may apply.

B. Declaration, recipients of our report, use of our advice and restrictions on the use of this report

This report has been prepared for Pöyry Forest Industry Limited ("Pöyry"). The report was written by Dr Alastair Marsden on behalf of Auckland UniServices and has been based primarily on information available up to 31 December 2007. The cost of capital estimates applies as at that date.

Because of its special nature, our report may not be suited for any purpose other than as described in this report. We will not be liable for any loss or damage to any party other than Pöyry who may rely on our report.

Our report is issued subject to the statement of independence, qualifications, declaration, disclaimer and restrictions on use as set out in Appendix 1.

C. Information Sources

In preparing this report we have relied on information received from:

- Data sourced from internet websites (as referenced);
- Other articles and sources (where referenced); and
- Discussions with yourself.

In accordance with the terms of our engagement letter we have not audited or independently verified any of the information sourced or provided to us.

D. Introduction to capital budgeting and cost of capital in developing markets:

An estimate of the cost of capital is critical to value any entity or investment project using discounted cash flow ("DCF") analysis.

Investments in developing markets are generally perceived to have higher risk compared to investments in countries with a stable political and economic environment. Risks of investing in developing markets include high inflation, capital controls, political instability, corruption, poor accounting and managerial controls, an uncertain legal framework and lack of protection of investor property rights.

The alternative conceptual approaches to recognise these "risks" using DCF analysis and to value an entity in a developing country are to:[2]

- Discount 'promised' cash flows at a cost of capital that includes a risk premium for country and other idiosyncratic factors. Under this approach an increment is added to the cost of capital to recognise risk that is not explicitly modelled into the cashflow expectations; or

- Discount 'expected' cash flows based on probability-weighted scenarios. Under this approach certain specific country risks will likely result in a downward adjustment in cash flow expectations compared to the alternative approach of adding an increment to the cost of capital.

To recognise the higher perceived risk of investing in developing markets, common practice is to adopt the first approach and adjust the discount rate by adding a premium to the cost of capital that incorporates an increment for country-risk premium factors (see Keck at al. (1998), Lessard (1996)).

James and Koller (2000) argue, however, that the better (alternative) approach to capital budgeting in markets is to recognise specific project or unique country risks in the expectations of cashflows. First, with increased global integration of capital markets investors can diversify away from many specific country risks. Second, many country risks may be unique or idiosyncratic to that country and may not apply equally to all industries in that country. Third, use of the credit risk of the country to determine the cost of capital for an entity may be a poor proxy for the entity's risk.

[2] See Chapter 19, Copeland, T., Koller, T. and J. Murrin, 2000.

We are not privy to the specific risks that Pöyry proposes to model in the cashflows to value the Chinese forest assets. However, the range of cost of capital estimates that we derive in this report incorporate a country risk premium.

E. Overview of the different CAPM models we apply to estimate the cost of equity for developing markets

E.1. Use of Capital Asset Pricing Model ("CAPM") in developing markets

The risks attributable to any investment can broadly be classified as:

- Systematic or non-diversifiable risk, e.g., world market risk, macro-economic risks associated with shocks to GNP, interest rates etc; and

- Non-systematic or unique projects risks. For developing markets these are often one-sided or asymmetric (and primarily of a 'downside nature').

Under the standard CAPM risk is measured by the beta of a project or investment. Beta only captures systematic or non-diversifiable risk in the firm or project.

We summarize below the global CAPM and the versions of the CAPM based on those proposed by Damodaran (2003) to estimate the cost of capital for an investment in emerging markets. We then apply Damodaran's versions of the CAPM to determine the cost of capital for a generic forest asset in China.[3]

E.2. Global CAPM

Under the global CAPM the expected return on equity, R_{ei}, for the company is given by:

$$R_{ei} = R_{f\,US} + \beta_{i\,US} * (R_{M\,US} - R_{f\,US})$$

In this version of the global CAPM the US market is assumed to proxy for a global integrated market and investors are assumed to hold a globally diversified portfolio. In this case, $R_{f\,US}$ is US risk-free rate and the term $(R_{M\,US} - R_{f\,US})$ represents the expected global market risk premium.

The beta of asset i ($\beta_{i\,US}$) is measured against a global market portfolio. Country risk is not accounted for in this model since it is assumed to be diversifiable.

E.3. Damodaran's Models

Under Damodaran's (2003) model the expected return on equity, R_{ei}, for the company is given by:

$$R_{ei} = R_{f\,US} + \beta_{i\,US} * (R_{M\,US} - R_{f\,US}) + \textit{Country risk premium}$$

[3] Also see Pereiro (2001) for an overview of some of the different cost of capital models that may be applied to emerging markets.

Damodaran (2003) suggests a number of ways to the estimate the *Country risk premium*. These are:

(i) the country risk premium is set equal to the *country bond default spread*;

(ii) the country risk premium equals the product of the global market risk premium and the ratio of local equity market volatility and US (global) market volatility ($\sigma_{Local\ Equity}/\sigma_{US}$); and

(iii) the country risk premium equals the product of the *country bond default spread* ($R_{Country\ Risk}$) and the ratio of local equity market volatility and country bond volatility ($\sigma_{Local\ Equity}/\sigma_{Country\ Bond}$).

Intuitively we may expect a country's equity risk premium to be larger than the country bond default spread. We use Damodaran's approach No. (iii) to determine the *Country risk premium* for emerging markets and the market of China.

The $\beta_{i\ US}$ is the equity beta for an equivalent or comparable US based project.

For individual projects, Damodaran's estimate of the *country risk premium* can be incorporated into the cost of equity in three different ways.

Model 1. The same *country risk premium* is assumed for all projects in the country:

$$R_{ei} = R_{f\ US} + \beta_{i\ US} * (R_{M\ US} - R_{f\ US}) + \textit{Country risk premium}$$

Model 2. The country equity risk premium is adjusted by the equity beta of the project:

$$R_{ei} = R_{f\ US} + \beta_{i\ US} * [R_{M\ US} - R_{f\ US} + \textit{Country risk premium}]$$

Model 3. The country equity risk premium is adjusted by a 'lambda' coefficient that measures the individual project's exposure to country risk:

$$R_{ei} = R_{f\ US} + \beta_{i\ US} * (R_{M\ US} - R_{f\ US}) + \lambda_i * \textit{Country risk premium}$$

F. Application of suggested approaches to estimate the weighted average cost of capital for a generic forest asset in China.

Damodaran's (2003) models discussed in the prior section above are used to estimate the cost of capital for the forestry sector in China.

F.1. Assumptions

Assumptions with respect to US / global risk parameters are presented in Table 3 below.

Table 3: Global risk parameters	
	US / Global
Asset beta of US forestry firms ($\beta_{i\ US}$)	0.60 -0.80
Risk-free rate - global ($R_{f\ US}$)	4.32%
Global Market risk premium ($R_{M\ US} - R_{f\ US}$)	5.00% – 6.00%
Expected US inflation	2.25%

F.1.1. Parameter estimates in Table 3

Risk free rate

The average yield as at 31 December 2007 on long-term (10 -20 yr) USD Government bonds was circa **4.32%**[4]**.** This is assumed to be a proxy for the global long-term risk free rate.

***Market risk premium* ($R_{M\ US} - R_{f\ US}$)**

The market risk premium ("*MRP")* can be estimated in a number of ways. These include simple historical averaging of the observed risk premium, forward-looking approaches, the methodology of Siegel (1992) and survey evidence.

In respect of historical averaging Dimson, Marsh and Staunton (2005, Table 11, p39) provide estimates of the historical arithmetic *MRP* for 17 developed countries over the period 1900 – 2004. The average historical *MRP* or market excess return relative to long-term bonds varies between 3.0% (Denmark) and 9.7% (Japan) with an average of 5.1%.[5]

Most forward-looking estimates of the *MRP* are lower than the historical estimates of the *MRP*. For example, Fama and French (2002) generate forward-looking estimates for the US standard market risk premium of 2.6%-4.3% over the period 1951-2000.

[4] Source: http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield.html

[5] The countries and historical arithmetic mean market risk premia estimates over the period 1900 – 2004 are Australia (7.8%), Belgium (4.2%), Canada (5.6%), Denmark (3.0%), France (5.8%), Germany (8.3%), Ireland (5.1%), Italy (7.7%), Japan (9.7%), Netherlands (5.8%), Norway (4.2%), South Africa (6.8%), Spain (4.1%), Sweden (7.3%), Switzerland (3.1%), United Kingdom (5.2%) and the United States (6.6%).

Similarly Claus and Thomas (2001) generate estimates of the *MRP* for a number of countries with a maximum of 3.0%.

Dimson, Marsh and Staunton (2005, 2006) argue a downward adjustment to the measured historical *MRP* is justified if there has been a long-term change in capital market conditions and investors' required rates of return in the future are expected to be lower than in the past.[6] Dimson et al. conclude a plausible estimate of the ex-ante arithmetic *MRP* measured relative to short-term bonds is around 5.0%. Relative to long term bonds the *MRP* would be circa 4.0%. However, Ibbotson and Chen (2003) argue based on a decomposition of historical equity returns into supply factors of inflation, earnings, dividends, the price to earnings ratio, dividend payout ratio, book value, return on equity and GDP that the forecast arithmetic *MRP* (relative to long-term bonds) is around 6.0% for the United States.[7]

In conclusion we assume the ex-ante global *MRP* to be **5.00%** to **6.00%.** While this is lower than historical estimates of the US market risk premium and the market risk premium for many developed countries, the assumption of full market integration under a global CAPM should lead to greater diversification of risk and hence lower the forward-looking market risk premium.

This estimate of the global MRP is 0.5% higher than the estimate in our prior report for Pöyry dated December 2005 on the cost of capital for a generic forest in China. This reflects our view that investor risk premiums will have increased with the recent sub-prime credit crisis in the US market.

Global Beta

As already noted beta is a measure of the systematic risk of a firm (i.e., non-diversifiable risk or that part of the risk of an asset that cannot be diversified away). Beta is a relative risk measure and measures the sensitivity of returns on a stock relative to market returns (e.g., in response to macroeconomic shocks to GDP, interest rates, taxes etc.). The beta of the market is one.

Estimation of beta almost invariably involves an element of judgement.

---

[6] Siegel (1992, 1999) argues that historical US estimates of the *MRP* have been biased upwards due to unexpectedly high inflation in the latter part of the 20th century.

[7] A review article by Mehra (2003) on the equity risk premium puzzle also concludes that the *MRP* is likely to be similar to what it has been in the past. The equity risk premium puzzle refers to the inability of standard economic models to explain why the *MRP* has been so high in many developed countries such as the United States.

Beta estimates that we calculated from data sourced from Damodaran (2008)[8] for US, European, Australian and Canadian companies are:

Table 4: OLS[9] asset betas			
Market	***Industry***	***Number of companies***	***Mean Asset Beta (OLS)***
United States	Paper/Forest Products	22	0.91
Australia / Canada	Forestry	12	0.95
Europe	Paper & Related Products	30	0.69

The sample shows an "average" range of OLS asset betas between 0.69 and 0.95.

US Betas - Data from Value Line

Table 5: US Betas - Data from Value Line[10]				
Industry classification	***Year***	***Number of Firms***	***Average Equity Beta***	***Unlevered Asset Beta***
Paper/Forest Products	2008	***39***	0.93	0.69
Paper/Forest Products	2007	40	0.84	0.60
Paper/Forest Products	2006	40	0.82	0.53
Paper/Forest Products	2005	39	0.86	0.57
	Average	**40**	**0.86**	**0.60**

The average US betas for paper and forest products firms is circa 0.60 (Value Line estimates).

Akers and Staub (2003), however, report higher asset beta estimates of between 0.67 and 0.76 for US timber assets measured relative to a global market portfolio.

In summary the US and other country asset beta estimates of Damodaran (2008) and Akers and Staub (2003) range between 0.60 and 0.95. Under the assumptions of the global CAPM and where beta should be measured relative to a global market portfolio, we assume an estimate for the asset beta of between **0.60** and **0.80** (weighted towards the lower end of the range).[11]

---

[8] Damodaran (2008). http://pages.stern.nyu.edu/~adamodar/New_Home_Page/. Beta estimates are as at Jan. 2008.

[9] Ordinary least squares.

[10] Damodaran (2008). http://pages.stern.nyu.edu/~adamodar/New_Home_Page/.

[11] To convert an equity beta to an asset beta (and vice-versa) we use the following formula.

$\beta_i = \beta_a [1+ D/E * (1-t_c)]$; where:

β_i = equity beta;

β_i = asset beta;

D / E = target or long-run ratio of debt to equity; and

t_c = corporate tax rate.

US inflation rate

The expected long-term US inflation rate is assumed to be circa 2.25%.[12] This rate is used to deflate the US nominal WACC to calculate the US real WACC.

F.1.2. Parameter estimates in Table 6

Assumptions specific to the Chinese market are summarised in Table 6.

Table 6: Parameters used for China		
	Low	**High**
Country bond default spread ($R_{Country\ Risk}$)	0.80%	1.20%
$\sigma_{Local\ Equity}/\sigma_{Country\ Bond}$	1.5	1.5
Sensitivity to country risk premium (λ_i)	0.80	1.20
Corporate tax	24.00%	33.00%
Debt margin	2.50%	2.50%
Debt ratio	15.00%	15.00%

Country bond default spread

The *country bond default spread* can be proxied by the difference between USD denominated bonds issued by a foreign country and USD Treasury bonds of similar maturity.

The 'risk-free' rates are obtained from the average traded yields on long-term US dollar sovereign bonds issued by the Chinese Government observed as at December 2007. Chinese bonds traded at yield spreads (premiums) of between circa 0.95% and 1.5% over US Treasury bonds. [13]

Table 7			
Bond maturity (yrs)	**Yield on USD Bonds issued by Chinese Government (as at 31 Dec 2007)**	**Yields on USD Treasury Bonds (as at 31 Dec 2007)**	**Spread over similar term USD Treasury bonds**
2 yrs	4.007%	3.050%	0.957%
6 yrs	4.628%	3.575%	1.053%
20 yrs	6.013%	4.500%	1.513%

[12] Based on an estimate of the 10-Year Inflation-Indexed Treasury yield spread – see Federal Reserve Bank of St Louis, January 2008.
[13] Source Bloomberg, January 2008.

The credit rating for China USD Bonds as at December 2007 was:[14]

Table 8		
Rating agency	**Rating**	**Comment**[15]
Moodys	A1	Upper-medium grade and subject to low credit risk
Standards & Poors	A	Strong capacity to meet financial commitments
Fitch	A+	High credit quality

Damodaran's (2008) estimate as at January 2008 of the country default spread for China was 0.7%.

For China we assume a *country bond default spread* of between **0.8%** and **1.2%.**

***Ratio of local equity market volatility and country bond volatility* ($\sigma_{Local\ Equity}/\sigma_{Country\ Bond}$)**

We do not have data to empirically measure this estimate. In the absence of any empirical evidence we assume the ratio of ($\sigma_{Local\ Equity}/\sigma_{Country\ Bond}$) is 1.5.[16]

Sensitivity to country risk premium (λ_i)

The term λ_i is the sensitivity of each project / company to country risk (Damodaran, 2003). The average value of λ_i is one.

We understand the timber in the Chinese forest will be sold almost entirely into the domestic market (i.e., no exports) and with prices set domestically. Similarly costs to harvest and produce the timber are exposed to Chinese country risk.

Recent evidence by Cavaglia, Brightman and Aked (2000) suggests that with increased worldwide market integration, industry risk factors are growing in relative importance to country risk factors. The study by Cavaglia, Brightman and Aked is, nevertheless, confined to developed markets. Evidence by Harvey (1995) finds returns in developing markets are still likely to be influenced by local (domestic) factors compared to market returns in more developed countries.

In summary we assume the value of λ_i for a forest company in a developing market of China is between **0.8** and **1.2** (i.e., average exposure to Chinese country risk).

Corporate tax rate

Based on information provided by Pöyry and discussions with you we assume the corporate tax rate is **33%** in China. However, we also provide our estimate of the real post-corporate and real post-corporate tax WACC using a corporate tax rate of **24**%.[17]

[14] Ibid.
[15] See the websites of Moodys, Standard & Poors and Fitch.
[16] See Damodaran (2008).
[17] The standard tax rate on enterprise income tax is 33%, but the tax rate could be reduced to 24% for enterprises located at the coastal cities or 15% for those located at the special economic development zone. Source: PriceWaterHouseCoopers Hong Kong (2008) http://www.pwchk.com/home/eng/prctax_corp_overview_taxation.html

We understand the corporate tax rate applies to the marginal cost of one dollar of additional interest expense on debt and hence is appropriate for use in the determination of the weighted average cost of capital. Other non-deductible taxes, certain payroll taxes and withholding payments may need to be modelled in the cashflows and are not accounted for in our estimate of the WACC.

In this respect we are not taxation experts and do not have a detailed knowledge of China's tax system.

We note the presence of any tax concessions in the Chinese market may lower the effective corporate tax rate. A lower effective corporate tax rate would raise our post-tax WACC estimate. The forest value may still, however, be greater due to higher expected after-corporate tax cashflows. In addition we note the presence of "tax holidays" (if any) and tax losses that can be carried forward potentially introduce considerable complexity into capital budgeting. A discussion of capital budgeting (and cost of capital) under time varying tax rates is outside the scope of this report.[18]

Debt margin and debt ratio

We do not have detailed information to accurately determine a debt margin for a forest project in the developing market of China. For the WACC calculated using the CAPM we assume a debt margin of **2.5%** over the US Government bond rate ($R_{f\,US}$).

To calculate the WACC we assume a debt to equity ratio of **0.15:0.85** for a long term investment in a forest asset.

F.2. Economic data

You have requested us not to provide any commentary on the economic outlook or political developments in China. We understand this may be covered in a separate report prepared for Pöyry.

[18] See Cheung and Marsden (2003) for a discussion of some of the complexities of capital budgeting in the presence of initial tax losses.

G. Results

Section E.3 sets out the three alternative models that we apply under Damodaran's (2003) approach.

G.1 Results for range of assumptions

We summarise in Table 9 the estimated WACC denominated in USD (both nominal and real) under Damodaran's (2003) Models 1, 2 and 3 assuming:

- Asset beta = 0.60 to 0.80;
- Market risk premium = 5.00% to 6.00%;
- Country bond default spread = 0.8% to 1.2%;
- Sensitivity to country risk premium *(λ_i)* = 0.8 to 1.2; and
- Corporate tax rate = 33%

Table 9: Weighted Average Cost of Capital Estimates from 3 Different Models for a generic forestry firm in China

Parameter assumptions	**Input value**	
	Lower end of range	**Higher end of range**
Asset beta	0.60	0.80
Market risk premium	5.00%	6.00%
Country bond default spread	0.80%	1.20%
Corporate tax rate	33%	33%
λ_i	0.80	1.20
Damodaran Models	**WACC (real - post tax)**	
Model 1. Same risk premium	5.8%	8.0%
Model 2. Beta adjusted premium	5.5%	7.9%
Model 3. Lambda adjusted premium	5.6%	8.3%
Average	**5.7%**	**8.1%**
Overall Average	**6.9%**	

These estimates are all *post-corporate* tax.

In Table 10 we summarise the estimated WACC denominated in USD (both nominal and real) under Damodaran's (2003) Models 1, 2 and 3 assuming:

- Asset beta = 0.60 to 0.80;
- Market risk premium = 5.00% to 6.00%;
- Country bond default spread = 0.8% to 1.2%;
- Sensitivity to country risk premium *(λ_i)* = 0.8 to 1.2; and
- Corporate tax rate = 24%

Table 10: Weighted Average Cost of Capital Estimates from 3 Different Models for a generic forestry firm in China

Parameter assumptions	**Input value**	
	Lower end of range	**Higher end of range**
Asset beta	0.60	0.80
Market risk premium	5.00%	6.00%
Lambda	0.80%	1.20%
Corporate tax rate	24%	24%
λ_i	0.80	1.20
Damodaran Models	**WACC (real - post tax)**	
Model 1. Same risk premium	6.0%	8.2%
Model 2. Beta adjusted premium	5.7%	8.0%
Model 3. Lambda adjusted premium	5.8%	8.5%
Average	**5.8%**	**8.2%**
Overall Average	**7.0%**	

The average **real post-corporate tax WACC** under the three alternative models is circa **5.7%** and **8.2%** as follows:

Table 11

Corporate tax rate	**Low estimate**	**High estimate**
Corporate tax rate = 33%	5.7%	8.1%
Corporate tax rate = 24%	5.8%	8.2%

It is important to note that our "low" and "high" estimates are not lower and upper bounds of the possible range of the WACCs but rather reflect a low and high range based on estimates of the parameter inputs under the difference versions of the CAPM we adopt. The lower and upper bounds for the WACC will be wider than the range of estimates provided in the tables above if we undertook additional sensitivity analysis based on different versions of the CAPM.

H. Comparison to our prior cost of capital estimates for a forest entity in China

We provide below a summary of our current estimates for the real after corporate tax WACC for a generic forest asset in China compared to the estimates in our prior reports as at December 2005

Table 12: Real after corporate tax WACC		
	Estimated range December 2005	**Estimated range December 2007**
China	5.0% - 8.2%	5.7% - 8.2%

Unlike our December 2005 report our range for the real after corporate tax WACC as at 31 December 2007 do not incorporate an estimate under a full global CAPM, where markets are assumed to be fully integrated. Hence our lower estimate as at December 2007 is higher than our lower estimate as at December 2005 that adopts the global CAPM.

Our estimates as at December 2007 also reflect a small increase in the market risk premium and debt risk premium. In our view investors' risk aversion will have increased with the events associated with the impact of the sub-prime credit crisis in the US. However, as at December 2007 yields on long term US Treasury bonds (proxy for the risk free rate) have fallen by circa 0.3% compared to yields as at December 2005 and China's credit rating according to Moodys, Standard & Poors and Fitch.

I. Summary and determination of a pre-corporate tax real WACC

Conversion to a real pre-tax WACC

There is no easy or simple method to transform a nominal post-corporate tax WACC to a real pre-corporate tax WACC. In this respect formal modelling of the entity's cashflows is required to determine an "equivalent" pre-tax WACC.

However, to an approximation we assume:[19]

Pre-tax WACC = (Post-corporate tax WACC) / (1- t_c)

Where t_c = corporate tax rate.

Based on this transformation our indicative estimate of the real pre-tax WACC (denominated in USD) is between circa **7.6%** and **12.0%**[20] as follows:

Table 13: Weighted Pre-corporate Tax Average WACC Estimates from 3 Different Models for a generic forestry firm in China

Corporate tax rate	Low estimate	High estimate
Corporate tax rate = 33%	8.5%	12.0%
Corporate tax rate = 24%	7.6%	10.8%

J. Size, liquidity and other premiums

Our cost of capital estimates are derived using different versions of the CAPM only.[21] In our determination of the cost of capital and WACC we have made no adjustment for factors such as size, control premiums, illiquidity premiums and other market frictions.

Making an ad-hoc adjustment to the "standard" CAPM model rate of return for size and liquidity measures is somewhat arbitrary. However, we understand from anecdotal evidence that many practitioners and forest valuers add an increment to the cost of capital to value small illiquid forests and/or where other significant market frictions may exist.

[19] In the case of forests where the timber is not expected to be harvested until some relatively long-time in the future, this transformation may overstate the "equivalent" pre-corporate tax WACC.
[20] As already noted, in view of the uncertainty of the parameter input estimates these low and high values should not be taken as absolute lower or upper bounds of the possible distribution of the WACC
[21] There are a number of shortcomings of the CAPM (e.g., see Fama and French, 1993, 1996). We would be happy to discuss some of the possible shortcomings of the CAPM in more detail if requested.

K. Conclusion on USD Cost of Capital

In conclusion under the different versions of Damodaran's (2003) CAPM we consider a **real post-corporate tax WACC** (denominated in USD) for a China forest entity will likely be in the range of between **5.7%** and **8.2%**. The corresponding **real pre-corporate tax WACC** (denominated in USD) is in the range between circa **7.6%** and **12.0%** (based on our simple transformation formula). The range of estimates assumes a corporate tax rate of between 24% and 33%.

Our cost of capital estimates are as at 31 December 2007 and all denominated in USD.

L. Other Factors Relevant to the estimation of the Cost of Capital

If significant corporate governance and agency cost issues between insiders and outside investors may arise (e.g., from lack of transparency, possible risk of expropriation of assets, restrictions on offshore remittance of profits or the likelihood of exchange rate controls), the use of a cost of capital at the upper end (or higher) of our range may be warranted.[22]

We also strongly recommend (to the extent such evidence is available) our estimates of the cost of capital for a Chinese forest entity be compared to implied discount rates based on transactional evidence for actual forest sales in the Chinese market.

In addition we note that the China's legal, institutional and bankruptcy laws likely differ to Western capital markets. Restrictions on the level of foreign ownership of forest assets may apply in China and the level of corporate governance may vary significantly between companies in emerging markets (see Klapper and Love, 2004, Chen et al., 2003).

Corporate governance is important as it provides mechanisms whereby outside investors can protect themselves against expropriation of assets by insiders.

These factors together with any size and liquidity premium may warrant an adjustment to the cashflow expectations or an increment to the cost of capital for a forest investment if investors' property rights are not clearly defined.

[22] See Stulz (2005).

Appendix I

This appendix forms part of and therefore should be read in conjunction with this valuation report and our engagement letter of 4 February 2008.

Independence

Auckland UniServices do not have any interest in the outcome of this valuation. The fee proposed by Auckland UniServices in our engagement letter for the preparation of this report is solely time based which are charged at normal professional rates plus disbursements.

Qualifications

Auckland UniServices is the consulting arm of The University of Auckland.

Recipients of the report and restrictions on use of this report

The report has been prepared for Pöyry Forest Industry Limited ("Pöyry") to assist in the valuation of forest assets located in the markets of China.

Because of its special nature, our report may not be suited for any purpose other than as described in this report and as such, will be restricted for use by Pöyry only for the purpose of assisting Pöyry determine the cost of capital for a generic forest asset in China.

Declaration

This report was prepared primarily based on information available up to 31 December 2007. The findings and opinions contained in this report are expressed as at that date, and also reflect our assessment of the information provided to us as at that date.

This exercise is based upon information that has been supplied to us and described in this report. Much of the information forms the basis of future projections and estimates. As the achievement of any prediction is dependent on future events, the outcome of which cannot be assured, the actual outcome achieved may vary materially from forecast. In the circumstances, no warranty of accuracy or reliability is given.

In preparing our valuation we have received and relied upon the information received from Pöyry and other sources. Therefore Auckland UniServices does not imply, and it should not be construed, that it has carried out any form of audit on the accounting or other records or information provided to us for the purposes of this report.

Auckland UniServices Ltd reserves the right, but will be under no obligation, to revise or amend our report and the opinions contained herein, if any additional information (which may or may not be in existence on the date of this report) subsequently comes to light.

Our liability in providing the services

We have agreed that in the event of any error or omission by us in performing any work under the terms of this letter, then our liability to Pöyry for any loss or damage of any type (including consequential loss) Pöyry may suffer directly or indirectly as a result of or in connection with our work (other than in the case of our gross negligence) will be limited to an amount of five times the fees charged by us for the work. We have agreed that this limitation of liability applies to us and all staff or persons employed by us in providing our services. This clause does not apply where our neglect giving rise to a claim is wilful or reckless.

In any event we will not be responsible or liable if information material to our task is withheld or concealed from us or wrongly represented to us.

It is a condition precedent to any liability of Auckland UniServices that any claim against Auckland UniServices must be made and notified to Auckland UniServices within two years of the date we complete the performance of the work specified in this agreement.

We will not be liable for any loss or damage to any other party that may rely on our report.

Additionally, we have no obligation to update our report or to revise the information contained therein because of events and transactions occurring subsequent to the date of the report.

References

Akers, K. and R. Staub, 2003, Regional investment allocations in a global timber market, The Journal of Alternative Investments, 73-87.

Cavaglia, S., Brightman, C. and M. Aked, 2000, The increasing importance of industry factors, Financial Analysts Journal 56, 41-54.

Cheung, J. and A. Marsden, 2003, "Valuation biases in projects with tax losses", JASSA 2, Winter, 15-20.

Chen, K.C.W., Chen, Z. and K.C. Wei, 2003, Disclosure, corporate governance, and the cost of equity capital: Evidence from Asia'a emerging markets, Working paper, Hong Kong University of Science and Technology.

Claus, J. and Thomas, J., 2001, Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets, Journal of Finance 56, 5, 1629-1666.

Copeland, T., Koller, T. and J. Murrin, 2000, Valuation: Measuring and managing the value of companies, 3rd edition, McKinsey and Company Inc.

Damodaran, A., 2003, Country risk and company exposure: Theory and practice, Journal of Applied Finance, Fall / Winter, 63-76.

Damodaran, A., 2008, Website:
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

Dimson, E., Marsh, M. and Staunton, M., 2005, Global Investment Returns Yearbook 2005, London Business School and Triumph of the Optimists: 101 Years of Global Investment Returns, Princeton University Press.

Dimson, E., Marsh, M. and Staunton, M., 2006, The worldwide equity premium: A smaller puzzle, London Business School,

Fama, E. and K. French, 1993, Common risk factors in the returns on stocks and bonds, Journal of Financial Economics 33, 3-56.

Fama, E. and K. French, 1996, Multifactor explanations of asset pricing anomalies, Journal of Finance 51, 55-84.

Fama, E. and K. French, 2002, The equity premium, Journal of Finance 57, 2, 637-659.

Harvey, C., 1995, Predictable risk and returns in emerging markets, Review of Financial Studies 8, 773-816.

Ibbotson, R. and P. Chen, 2003, Long-run stock returns: Participating in the real economy, Financial Analysts Journal Jan/Feb 59, 88-98.

James, M. and T. Koller, 2000, Valuation in emerging markets, The McKinsey Quarterly 4, 78-85.

Klapper, L. and I. Love, 2004, Corporate governance, insider protection, and performance in emerging markets, Journal of Corporate Finance 10, 703-728.

Keck, T., Levengood, E. and A. Longfield, 1998, Using discounted cash flow analysis in an international setting: a survey of issues in modelling the cost of capital, Journal of Applied Corporate Finance 11 (3).

Lessard, D., 1996, Incorporating country risk premium in the valuation of offshore projects, Journal of Applied Corporate Finance 9, 52-63.

Mehra, R., 2003, The equity premium: Why is it a puzzle?, Financial Analysts Journal Jan/Feb 59, 54-69.

Pereiro, L.,2001, The valuation of closely-held companies in Latin America, Emerging Markets Review 2, 330-370.

PriceWaterHouseCoopers Hong Kong (2008) http://www.pwchk.com/home/eng/prctax_corp_overview_taxation.html

Siegel, J., 1992, The Equity Premium: Stock and Bond Returns Since 1802, Financial Analysts Journal Jan-Feb, 28-38.

Siegel, J., 1999, The Shrinking Equity Premium, Journal of Portfolio Management 26, 1, 10-17.

Stulz, R., 2005, The limits of financial globalization, Working paper, Ohio State University.

APPENDIX 5

Remote Sensing Analysis

REMOTE SENSING ANALYSIS

Pöyry Environment (Finland) carried out remote sensing analysis for a secondary-growth natural forest resource in Yunnan Province, China. The secondary-growth natural forest resource is a part of the total assets that are subject of the Sino-Forest forest asset valuation for 2007. The objective of the analysis is to accurately locate and classify the secondary-growth natural forest assets.

The scope of remote sensing work carried out includes:

1. Acquisition of satellite images for a location in Yunnan China

2. Land-use classification and structural forest classification (i.e. forest canopy density)

3. Digitizing of forest boundaries and roads

4. Topographical and elevation classification

5. Preparation of data into GIS format and mapping

The resource area is about 10 500 ha of secondary-growth natural forests in Yunnan Province, Southwest China. The resource is located about 23 km from the national border with Myanmar (Burma).

Figure 1:
Location of Sino-Forest Assets in Yunnan Province, China

Acquisition of Satellite Images

The selection of appropriate digital satellite image/s for these tasks is influenced by three main factors. These are listed below in order of priority:

- Timing
- Resolution and bandwidths
- Coverage

The timing of the image is ideally within the past 18-months so that the image captures the current status of the forest as closely as possible. With specific regard to the Yunnan forest resource, there is also a preference that the image is captured in the March – September period.

This is because a number of tree species in these secondary-growth natural forests are deciduous, with leaf fall occurring over the autumn and winter months. A complete or partial absence of leaves from the forest canopy may appear to be cleared land or modified forests from the satellite image perspective. Full crown development is expected during the March – September period. The preference for cloud-free images is also considered by the seasonal timing of the image.

The image resolution (i.e. pixel resolution expressed in square metres) must be sufficient for reasonable differentiation between different classes of land-use (i.e. cleared land, cropping land, planted trees, secondary-growth natural forest, etc.) and forest-types (i.e. undisturbed forest, modified forest, heavily modified forest). The price of images is directly related to the resolution. Higher resolution products provide more accuracy. Commercially available products can provide resolution from 0.5 square metres pixel size (i.e. DigitalGlobe Worldview-1) to 5644 square metres pixel size (i.e. LandSat-1).

Digital satellite images can be acquired in various light bands or channels. Multispectral channels include red-blue-green (RBG) and near infra-red (NIR) channels. The range of channels that can be acquired includes:

- Blue, 450-520 nm wavelengths; used for atmospheric and deep water imaging
- Green, 520-600 nm wavelengths, used for imaging of vegetation and deep water structures
- Red, 600-690 nm wavelengths, used for imaging of man-made objects, shallow water features, soil, and vegetation
- Near infrared, 750-900 nm wavelengths, used primarily for imaging of vegetation
- Panchromatic (‘black & white’) is much higher resolution than the multi-spectral imagery from the same satellite

The spatial coverage of the image is ideally such that one satellite image can cover the entire resource area. It is possible to join two different images however this often requires significant adjustments. Image options that were considered are tabled below.

Table 1:
Satellite Image Options

Image Designation	Spatial Coverage (km)	Pixel Resolution (m)	Bandwidths
Landsat 5 TM	180x180 km	30 x 30 m	RGB + 4 NIR/SWIR
Spot-2 and Spot-4	60 x 60 km	20 x 20 m	RG + NIR
Spot 5	60 x 60 km	10 x 10 m	RG + NIR + SWIR
IRS-P6 MS	140 x 140 km	20 x 20 m	RGB + NIR
ASTER	60 x 60 km	15 x 15 m	RG + NIR + SWIR

The most appropriate selections were a Spot-2 image for primary reference and two ASTER images for secondary reference. The ASTER images are slightly older than our criteria (i.e. captured in January 2006) but ASTER images provide higher resolution than SPOT-2.

Figure 2:
SPOT-2 Multi-spectral Satellite Image (255-302) dated 8 March 2007

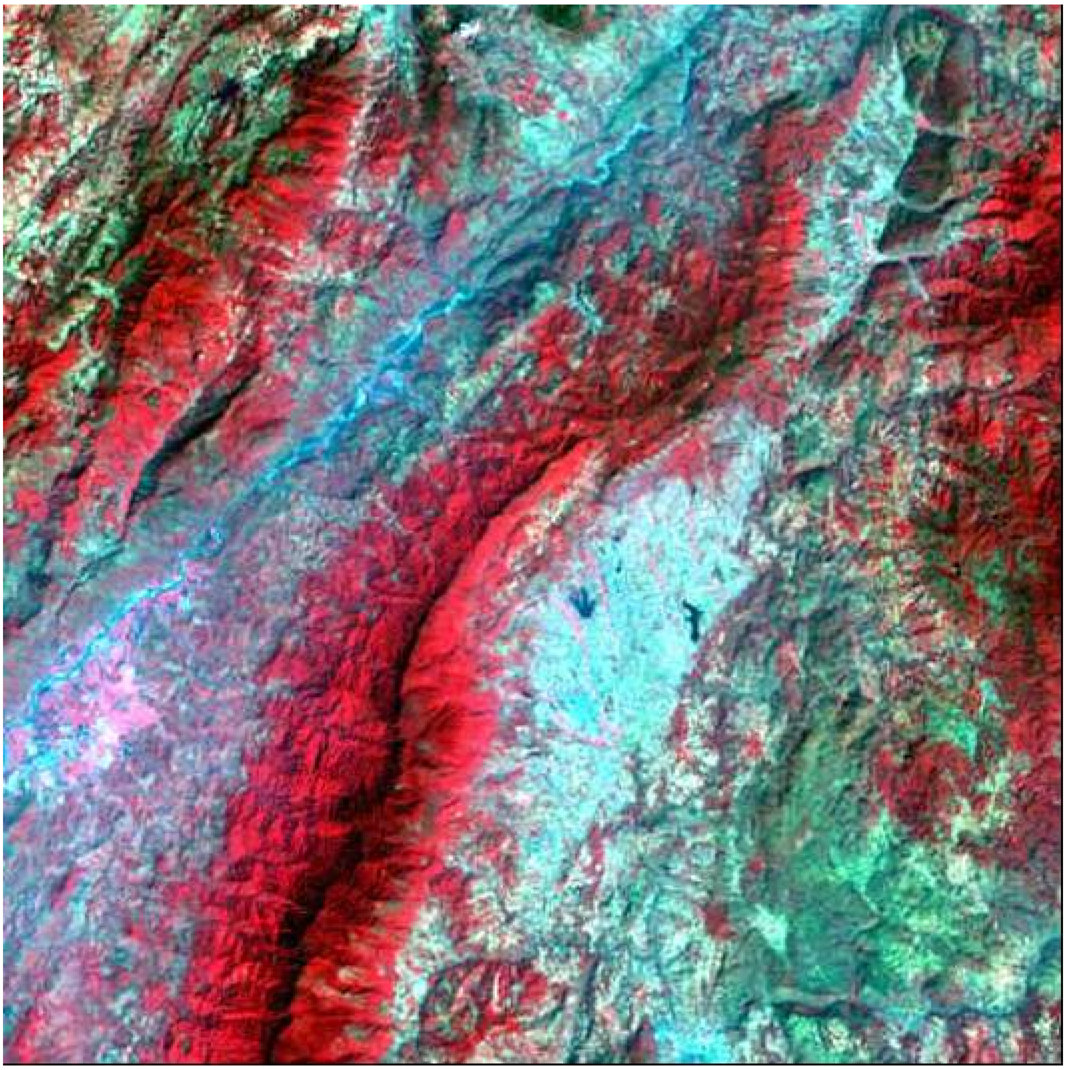
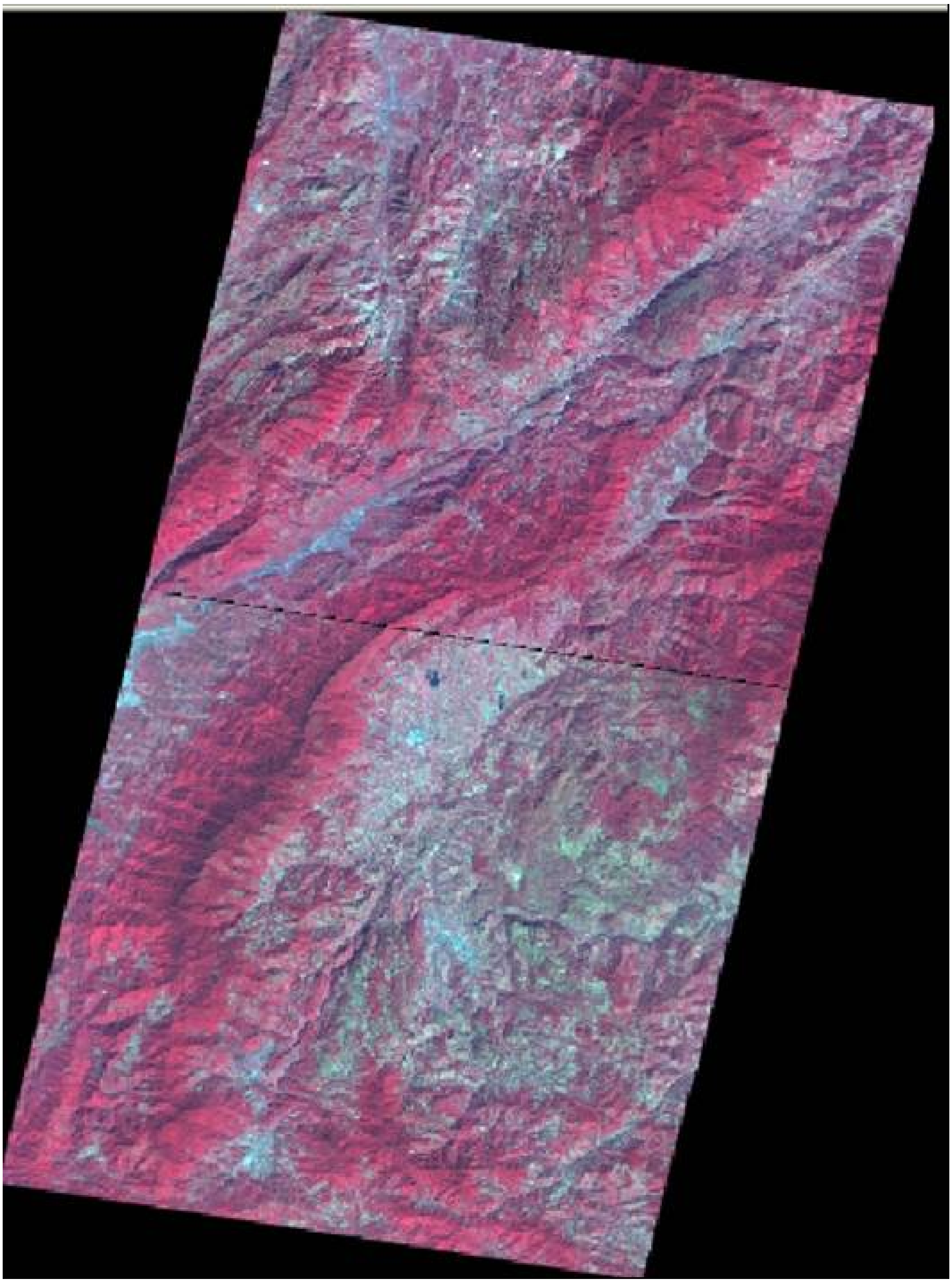


Figure 3:
ASTER Image Coverage (Scene Nos. 271/53 and 271/57)

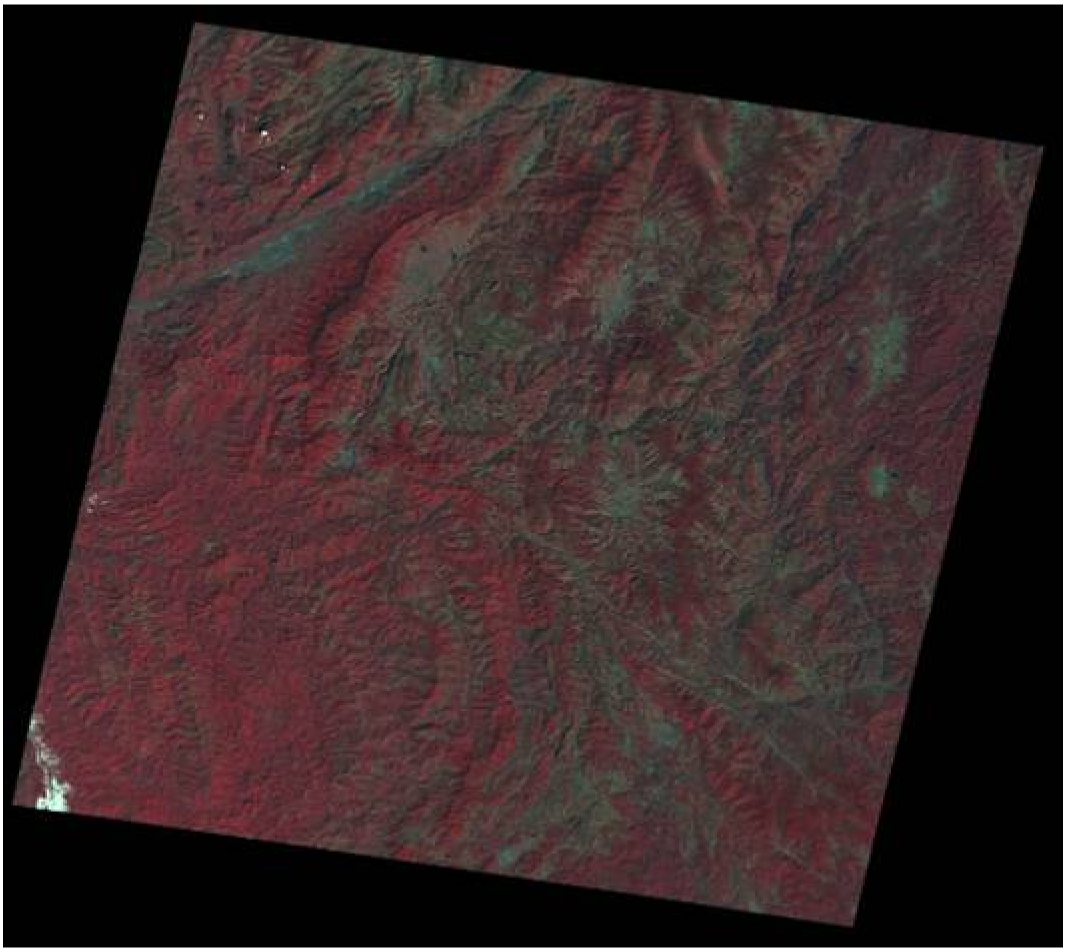


A Landsat GeoCover 2000 Mosaic was also acquired from GLCF[1] to provide a broader location base-reference. The GeoCover 2000 Mosaic is geo-rectified to the UTM WGS-84 projection as standard. The positional accuracy is known to be very

[1] Global Land Cover Facility; a NASA-funded member of the Earth Science Information Partnership at the University of Maryland

good. The LandSat image was required for the ortho-rectification[2], and the panchromatic channel (15x15 metre pixel size) was partially used for digitizing the existing roads in Gengma County.

Figure 4:
Landsat GeoCover 2000 Mosaic



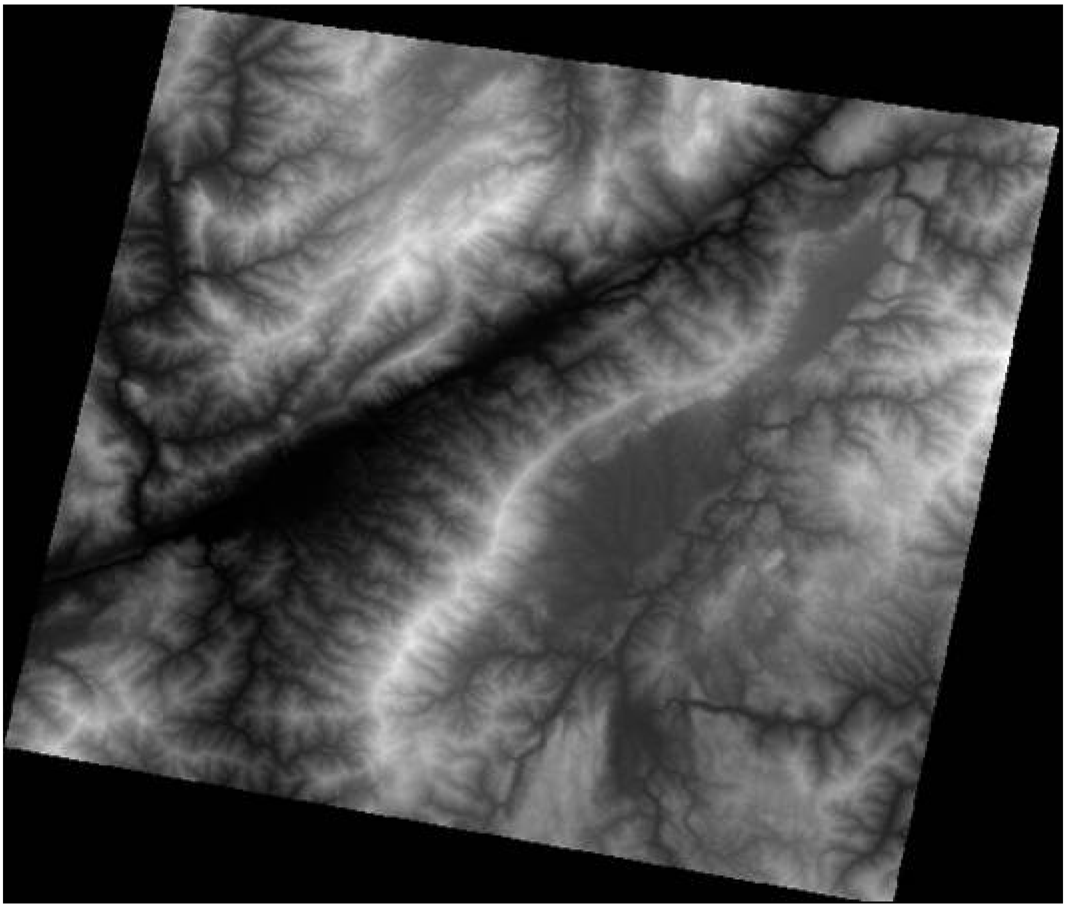
Acquisition of Digital Elevation Data

Digital elevation data is used to create terrain information such as topography and elevation. It can also used to define rivers and streams. The acquired data is designated SRTM DEM Version 3[3]. The data can be acquired from CGIAR-CSI[4]. Pöyry has acquired Scene #56-8 which provides full coverage over the Yunnan resource. The SRTM DEM has a pixel size of 85 x 85 metres, which is coarse

[2] Ortho-rectification is the process of geometrically correcting imagery for significant geometric inaccuracies which can be caused by topography, camera geometry, and sensor related errors. The output of ortho-rectification is a planimetrically true image.
[3] Shuttle Radar Topography Mission Digital Elevation Model Version 3
[4] Consultative Group on International Agricultural Research - Consortium for Spatial Information

relative the satellite image data, however it is considered suitable for the scale of this task and it is freely available[5].

Figure 5:
SRTM Digital Elevation Model Scene #56-8



Pre-processing of the Remote Sensing Data

Coordinate System

The coordinate system applied is *Geographic Lat/Lon*, using *WGS-84* datum and *decimal degrees* as map units.

SPOT-2

The SPOT2 image was geo-rectified using the Landsat GeoCover 2000-mosaic as XY reference, and the SRTM DEM as Z reference. Both references were transformed from UTM/WGS coordinate system to Geographic Lat/Lon coordinate system.

---

[5] ASTER DEM is also available for topographic analysis, but height data is relative (does not report absolute elevations above sea level) and positional accuracy is known to be lower in mountainous areas relative to SRTM DEM.

After geometric correction, the control point error for X-coordinate was 0.33, and for Y-coordinate was 0.30. The total RMSE[6] was 0.45. A total of 26 control points were measured evenly across the image.

Topographic correction (or normalisation) was required because the area of interest is situated in a mountain range. Without such correction, the 'sunny' aspects of mountain ranges would appear brighter and the shadow aspects would appear darker than actual. Pöyry Environment has applied its own proprietary topographic normalization "C-Factor" application for the normalisation process.

ASTER

The two ASTER scenes were geo-rectified using the rectified SPOT-2 image as a reference.

After geometric correction, scene 271/53 had 0.35 control point error for X-coordinate, 0.34 for Y-coordinate and RMSW was 0.48. Similarly, control point errors for scene 271/57 were 0.32, 0.31 and 0.44 respectively.

Satellite Image Analysis

Digitizing the Forest Boundaries and Road Network

Map data was received from Sino-Forest in the form of scanned image files. The maps show the location and boundaries of the Yunnan forest resource at 1:50,000 scale. Other data available for analysis including GPS tracks and waypoints that were acquired by Pöyry during the forest survey in January 2008.

The scanned maps were geo-rectified against the SPOT-2 image. Roads, rivers and other terrain features were used for accurate spatial alignment. The GPS data provided verification for spatial registration of the map files and satellite images. A total of ten resource maps from Sino-Forest were geo-rectified.

The forest boundaries were then manually digitized. Positional accuracy was visually inspected by overlaying the boundaries on top of the satellite image. The results were satisfactory.

Road networks were digitized using all available image data (i.e. SPOT, ASTER and LandSat) and from the GPS tracks recorded during the forest survey. The spatial resolution of these image data allows visual determination of major and secondary roads. There is insufficient contrast between road and surrounding features to locate and digitise the complete road network.

[6] Root Mean Squared Error

Land-use and Forest Classification of the SPOT Image

A high level land-use and forest classification was determined for the Yunnan secondary-growth natural forest resources. The ortho-rectified, topographically normalized SPOT-2 image was used for this process. Initially, a coarse land-use classification was created to differentiate forests from other land-uses and vegetation types. Subsequently, the forests were further classified according to canopy closure.

If a forest type is known the canopy closure may be correlated with approximate stocking levels across the forest. Precision is highest where the process is carried out in association with ground-based surveys.

The classification is as follows:

1. Waterways (including Riparian Buffer Zone) and Water bodies
2. Agriculture (Banana, Rice, Melon, Rubber Plantations)
3. Cleared Lands
4. Secondary-growth natural forest, Very Open Canopy
5. Secondary-growth natural forest, Open Canopy
6. Secondary-growth natural forest, Closed Canopy

Following an initial *unsupervised [automated] ISODATA classification* approach, it was noted that the classification was not able to distinguish between different levels of canopy closure, though all other land use types were reasonably well delineated.

A *supervised classification* of the secondary-growth natural forest areas. This method requires a series of benchmarks so that satellite image pixels can be assigned to a user-defined classification system. Digital colour photographs taken during the forest survey which had already previously been assigned a geo-location provided some 320 visual references of land forms, vegetation and roads that could be referred to during this classification process.

Inevitably there were some isolated pixels that did not fall within the classification bandwidths. To ensure a comprehensive and logical classification across the image, a routine was developed to identify the most appropriate classification for these based on the surrounding classifications and land features.

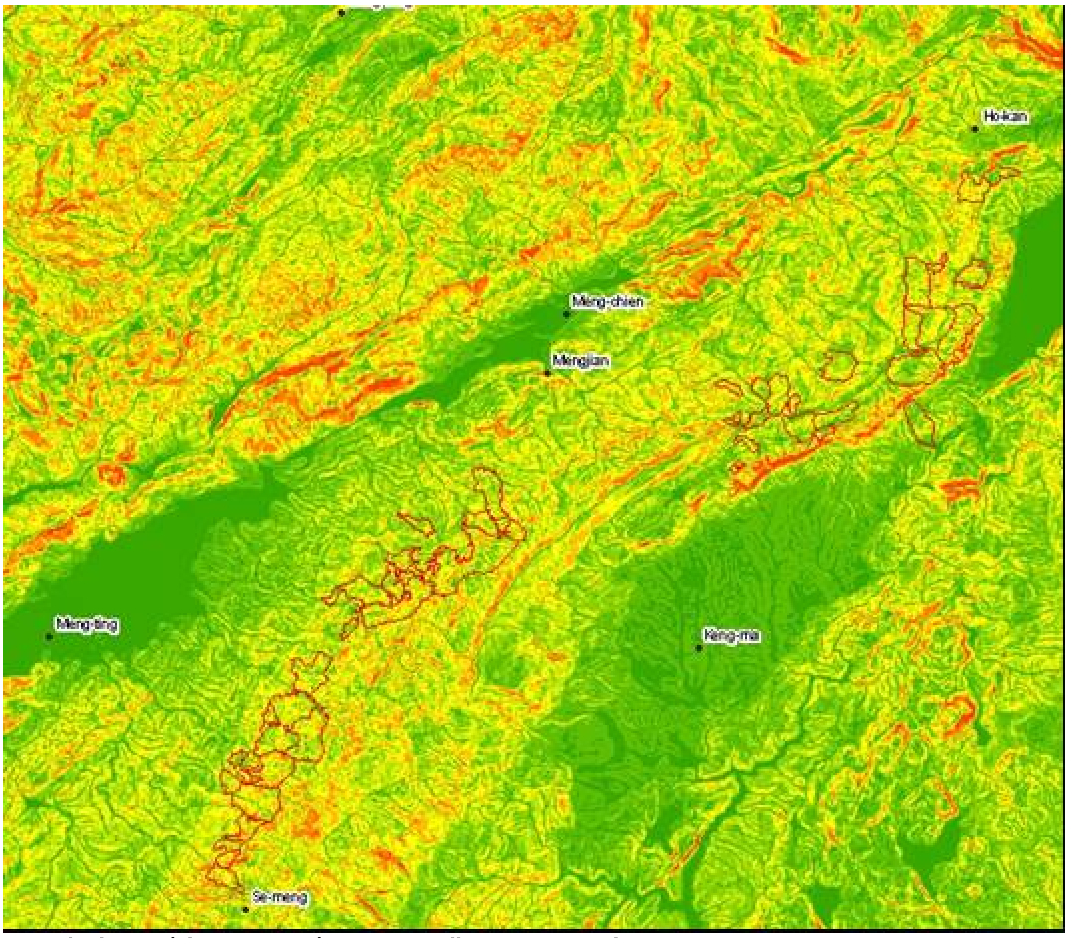
Finally, a raster-to-vector conversion was carried out so that quantitative measures such as area statements could be reported.

Slope Classification

It is common throughout the world to apply slope restrictions on harvesting activities for environmental protection and operational safety. Pöyry was not able to determine if the Chinese Forestry Bureau specifies such restrictions, though we understand that a Code of Harvesting Practices was last heard to be almost finalised in 2004. *The concept of setting up and management of buffer zones was proposed* in Chapter Four of the draft Code of Harvesting Practices[7]. Pöyry has not previously encountered mountainous terrain in China and hence has never needed to consider potential slope restrictions.

The exclusion of forest areas within potentially restricted areas will affect the total wood yield available, and hence would also impact on a valuation of the forest assets. In the absence of specific regulations or Code of Practices, Pöyry has assumed that a restriction would be in place for areas that exceed 30 degrees slope angle. This is consistent with world's best practices. Slope information was extrapolated from the SRTM DEM data (Figure 6).

Figure 6:
Slope Classification for Gengma County



Note: The degree of slope increases from green > yellow > orange > red.

Every spatial cell in the SRTM DEM data holds an elevation value. An automated slope function calculates the maximum rate of change in elevation between each cell and neighbouring cells. That is, the slope record for each cell will be recorded as the maximum change in elevation over the distance between a cell and eight

[7] http://www.rinya.maff.go.jp/code-h2003/PART_4/Songdan_Zhang_(China).pdf

neighbouring cells that surround it. A lower elevation difference implies flatter terrain. Conversely, higher slope values imply steeper terrain. The calculated slope output may be calculated as percent gradient or degrees of slope.

The slope data was then grouped into one of three user-defined classifications:

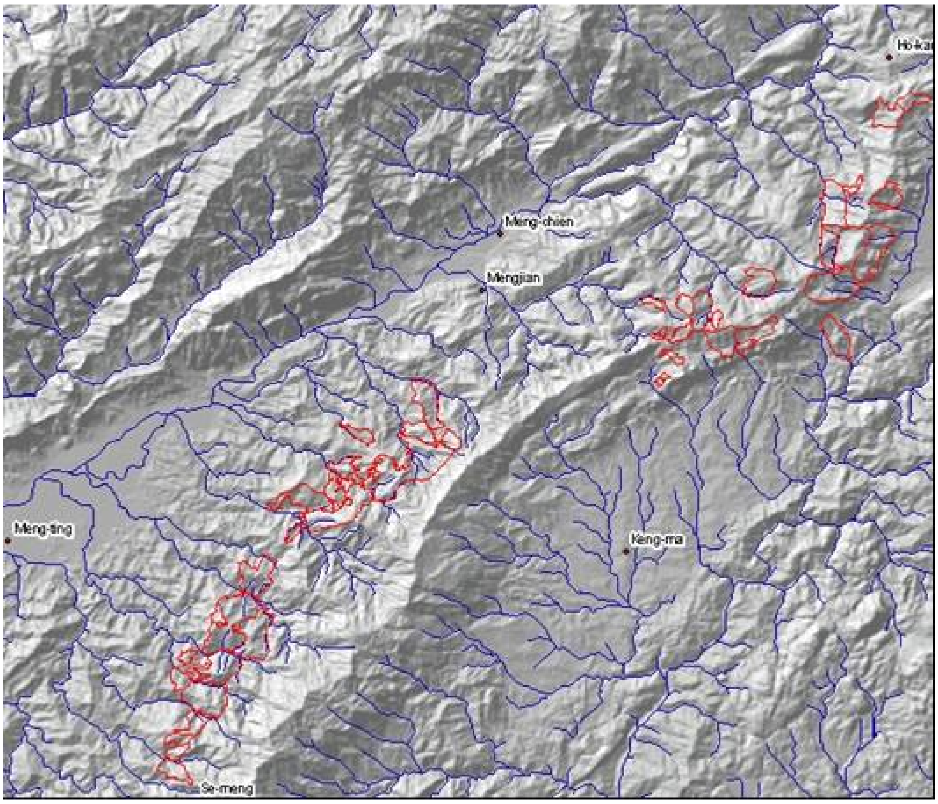
- Less than 30 degrees (suitable for conventional ground-based harvesting systems without operational restrictions)
- 30-40 degrees (suitable for cable logging or shovel logging systems in non-sensitive locations)
- More than 40 degrees (suitable for cable logging in non-sensitive locations)

Within the Sino-Forest resource only about 4% of the resource area is classified in the 30-40 degree slope class, and zero area is classified in the >40 degrees slope class.

Stream Network

Rivers and major stream lines may be extrapolated from the SRTM DEM data. Pöyry applied the ArcHydro Tools Version 9 toolset for watershed analysis for ArcGIS. The coarser spatial resolution of the SRTM DEM (i.e. 85x85 metres) is apparent and manual edits were required for the subsequent GIS analysis. In some locations the ArcHydro algorithm was unable to resolve smaller stream lines, so some supplementary visual digitizing was required.

Figure 7:
Rivers and Streams in Gengma County



Riparian Buffers

In the absence of specific Chinese Forestry Bureau regulations and Code of Harvesting Practices, Pöyry has assumed that riparian buffers would be required. Riparian buffers are designed to filter any turbid water flows resulting from harvesting activities, and to protect the water quality. The Sino-Forest resource is high in the water catchment area and local towns and villages are reliant upon river water for cropping and household uses. Consistent with basic harvesting practices Pöyry has assumed a 10-metre buffer on both side of the river or stream line. This buffer was included by GIS overlay analysis. The final classification was then "cut" with the riparian buffer, and the riparian buffer was incorporated into the classification.

Outputs

Mapping

Pöyry has prepared GIS layers for the Sino-Forest secondary-growth natural forest resource in Yunnan that covers all required spatial data to assist the inspection process.

The GIS map layers prepared by Pöyry include:

- Forest asset boundaries
- Land-use classification including net operational forest areas

- Secondary-growth natural forest structural classification (i.e. canopy density)
- Operational exclusions such as Nature Reserves, riparian buffers and steep slopes
- Land features such as roads, rivers and streams
- Elevation classification
- Slope classification