ANU FORESTRY

Carbon credit markets

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Primarily for small scale forest growers

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• In association with Australian Forest Growers

Trade in carbon credits has the potential to make forestry more profitable, and enhance the environment at the same time. It has therefore attracted considerable attention of the likely buyers of credits, producers (ie forest growers), and others. However, it is difficult to stay fully informed about carbon credits because of the complexity and the pace of developments on the subject. This market report looks at the current situation on carbon credit markets and trade from the viewpoint of small scale growers. It also gives stumpage prices recently received by growers in Australia.

Forests that qualify for carbon credit

It is widely accepted that if the concentrations of greenhouse gases (eg carbon dioxide and methane) continue to increase in the atmosphere, it will bring about major changes to the global climate. This, in turn, will seriously threaten human welfare worldwide. A global problem of this kind requires a global solution. So under the auspices of the United Nations, all developed countries agreed in 1997 in Kyoto, Japan, to reduce or limit emissions of their greenhouse gases. The agreement is called the Kyoto Protocol. The protocol recognises forests as carbon sinks and provides for carbon trading as a means of offsetting emissions of greenhouse gases and meeting the Kyoto targets.

Before the protocol can come in to force, it must be ratified by at least 55 countries, including the developed countries representing 55 per cent or more of the 1990 greenhouse gas emissions from that group. But at the time of writing (in April 2000) neither Australia nor any other developed country has ratified it. Nor has the Australian government taken any decision on carbon credit trading. However, for the purpose of this report, it is assumed that the protocol will be ratified and come in to force, and that a carbon credit trade will commence.

Under the protocol, carbon sequestered in trees (ie carbon credit) must come from 'Kyoto forests', which are new forests:

- planted on land, which historically has not been covered by forest (ie afforestation);
- planted on land which historically has contained forest but which has been used for another purpose since last being covered by forests (ie reforestation); and
- additional to those that would otherwise have been planted.

The Kyoto forests must arise from a change in land-use, and planted not before 1990. Growers must have evidence to prove their forests meet these qualifications. Note also that carbon sequestered by the forests during 2008–2012 alone is tradeable. Decision is pending about the period after 2012.

Decision is also pending on the definition of the term 'forest'. The ambiguity on the meaning of 'forest' had led to the suggestion that certain forest types (eg windbreaks) may not qualify as Kyoto forests. It shows that many of the issues central to carbon credit markets and trade are yet to be clarified.

The costs

A first step in selling the sequestered carbon is to measure its quantity in trees. A range of simple to complex techniques is available for the purpose. In general, the techniques are more reliable for plantations of species such as radiata pine and certain eucalypts, but less so for plantations of other species or of mixed ages and mixed species. Other things remaining the same, measurements of carbon with a higher statistical accuracy will result in a higher cost for the grower.

The next series of steps in selling the carbon involve: aggregation of individual growers' carbon in to a sizeable pool; verification of the pool; issuance of carbon credit certificates by an independent agent; registration of the certificates and their lodgement with an authorised market clearing house (eg the Sydney Futures Exchange) for sale; and exchange of the certificates and the monies. Besides the costs of the afore-mentioned steps, growers may also incur some other costs. An example is the cost of extra insurance against the loss of trees through fire, windstorm, and the like.

The costs of services and transactions associated with selling carbon are subject to economies of scale. Hence, small scale growers will pay a higher cost per unit of carbon. People designing the trading mechanism are very conscious of the problem, and are trying hard to find ways and means to keep the costs low for growers. However, growers themselves could also take steps to reduce their costs by joining or forming growers' cooperatives or groups that offer economies of scale.

Growers need to be aware of one more major 'cost'. If a grower, who has sold carbon credits from his/her forest, but then goes on to harvest the forest, he/she will incur carbon debits. The quantity of debits will be at least equal to the quantity of carbon credits sold. In this situation the grower will be required to fully offset the debits by buying carbon credits in the market place; or having additional Kyoto forests; or using a mix of both.

What is the total of all the costs a grower is likely to pay for producing certified carbon credits suitable for trade? It is a very important question. So, it is especially disappointing to say that reliable information on the costs is unavailable, and therefore the question is unanswerable. It would be most helpful to growers if reliable information on the costs were readily available to them.

Carbon credit prices

A few studies have attempted to estimate the prices of carbon credit under various hypothetical scenarios. Their

estimates of the price range from $10 to $700 per tonne of carbon. Some indication of the market prices will, however, be available when the Sydney Futures Exchange starts forward trading in carbon credits later this year. (Forward trading involves trade in contracts to buy or to sell a commodity at a specified future date and a fixed price. It differs from the much more common spot trade, in which a commodity is bought and sold with immediate effect.)

Summing up

So, is it worthwhile for small scale growers to undertake production of carbon credits for trading? Despite the vast number of studies on various aspects of carbon credits, the economics of carbon credits for small scale growers has not yet been adequately investigated. However, a few studies have commented on the issue. They include: *Kyoto forests: Prospective providers of carbon-sequestration services?* by Neil Byron and Andrew Coleman, March 1999; *Greenhouse, carbon trading and land management* by Hassall & Associates, November 1999; and *Is carbon farming worthwhile?* by Chris Borough, March 2000. A general thrust of these studies is that, under the current rules, many small scale growers may not find carbon credit trade sufficiently rewarding. This is because of the relatively high total cost per unit of carbon credit, and the enormous technical, financial and institutional risks and uncertainties.

To capture the potential benefits of carbon credit trade, growers should monitor the forward trade prices of carbon credits; seek more information; stay informed on the changes in the Kyoto rules and the government policy; keep records of their own forestry operations; and take other actions to reduce the costs, risks and uncertainties. Future issues of this market report will also try to inform growers on the latest developments on carbon credit trade.

Stumpage prices

ANU Forestry has collected information on actual stumpage recently received by small scale growers. As the collected information was insufficient for deriving averages and trends, it is presented in case study format in the following table. Users should exercise due care in using it for assessing stumpage for a particular situation.

Stumpage case studies

State/ Region	Period	Log type	Stumpage	Comments
	1999			
NSW, Tumut region	August to October	Pine sawlogs	$26.19/t	3,800 cu. m, mostly 4.8 m; 60 km to mill
	October to December	Pine:		55 km to mill or to exporter:
		Sawlogs	$37/t	150 cu. m
		Preservation logs	$6.50/t	213 cu. m
		Pulplogs	$nil	344 t
		Other softwood:		
		K	$7/t	21 t
		KI	$2/t	17 t
		KM	$nil	506 t
	November to December	Pine sawlogs	$22.84/t	1,726 cu. m, mostly 4.8 m; 60 km to mill
		Other softwood:		
		Sawlogs	$5/t	65 cu. m, 300 km to mill (trial run into Sydney)
Western Australia, S-W	November to December	Pine:		Extraction cost $16.50/cu.m or t:
		Sawlogs	$43/cu. m *	129 cu. m, transport cost $4.33/cu. m
		Pulplogs	$35/t *	39 t, transport cost $4.03/t
		Case logs	$49/t *	17 t, transport cost $4.33/t
	December	Pine:		
		Sawlogs	$62.95 *	623 cu. m, 94 km to mill, extraction cost $15.50/cu. m
		Pulplogs	$35/t *	107 t, 94 km to mill, extraction cost $16/t
		Case logs	$50/t *	74 t, 10 km to mill, extraction cost $15.50/t–$18.50/t
	2000			
Western Australia, S-W	February	Pine:		Extraction cost: $15.50/cu. m and $15.50/t–$16/t:
		Sawlogs	$70/cu. m *	1,078 cu. m, 94.5 km to mill
		Pulplogs	$35/t *	304 t, 94 km to mill
		Case logs	$50/t *	165 t, 10 km to mill
Tasmania N-E	January	Pine:		Age 20, 3rd thinning:
		Sawlogs	$36/t	117 t, clearwood, SED 20 cm, 12 km to mill, $59/cu. m *
		Pulplogs	$10/t	30 t, 270 km to mill
		Other softwood:		Age 20, 3rd thinning:
		Case logs	$16/t	30 t, clearwood, SED 15 cm, 36 km to mill, $40/t *

* Mill door price. SED, Small end diameter of logs.

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