The Reforest Trust: addressing the issues of carbon forestry in New Zealand

Howard B. Moore[1]

Abstract

In September 2007 the NZ Government introduced the Emissions Trading Scheme which regulates the creation, issuing and surrendering of NZ Emissions Units. Under the scheme, and for industries other than forestry, the Government will issue free Units to emitters while requiring them to surrender back annually a number of Units based on their level of GHG emissions. Allocations of free Units to industry are intended to fall linearly over 12 years (2018-2030) from 100% to 0% of starting emissions. This will create a rising cost pressure for emitters, who will either have to buy increasing numbers of Units to surrender, or improve their processes and technologies to reduce their emissions, or adopt a mixture of strategies.

The government will issue Units to landowners for the growth of post-1989 forests after 1 January 2008. As an Emissions Unit is a tradable form of carbon credit, landowners may seek to plant forests to generate Units to sell. However this is a limited opportunity. Each forest will take up carbon only once, the available land for forestry is finite and the landowner is left with a liability for the issued Units. Other commercial barriers to carbon forestry include legal hurdles, the timeframe for growing forests, a paucity of information about suitable management regimes, levels of expected return and managing the investor-landowner relationship.

Despite the problems businesses have been established to create carbon forests. A new business model is described for such a business in New Zealand, addressing land availability, legal agreements, security of the investor's rights and returns to the landowner and investor.

The catchment problem

It is useful to approach the issue of carbon forests from a wider environmental perspective. In this case, consider them as protection forests for erosion control.

In every major watershed the headwaters erode, particularly if they have been deforested. This damages the hills and builds the floor of the river causing it to overflow and dump silt on downstream properties, scour out roads, bridges and electricity lines and cause general mayhem. Farmers upstream lose pasture, local authorities lose infrastructure, downstream property owners are flooded, central government loses economic growth and all New Zealanders bear higher insurance premiums to cover the losses of the insurance companies. Climate change is expected to bring more intense storm events, which will cause more of this damage and loss.

Although all of the causes and most of the effects of this damage happen within the community defined by the catchment, no-one has yet invented a fair way of transferring costs and benefits within that community to allow it to solve its own economic problems. The solution should happen within the catchment but it does not. Using the capitalist model of privately owned land there is no easy way to fairly transfer costs and benefits across and within a region.

If we could reforest the denuded hills to control erosion we could reduce the damage and loss and solve the catchment problem. Of course we cannot easily pay for the forests, but this would convert the catchment problem to a simpler *funding* problem.

From experience we know that neither the community nor the taxpayer will fund protection forests on private land. To solve the funding problem we have to bring in someone from outside the catchment willing to pay for the benefits the forests provide. The obvious one today is someone who wants to earn carbon credits. Unfortunately forests do not earn carbon credits until they are grown and they cannot be grown without money. However, by selling carbon credits we can convert the funding problem into a *timing* problem.

Under the Emissions Trading Scheme emitters will have to surrender NZ Units to the government every year forever. We can sell them carbon credits in advance and deliver them in 25 years' time. The emitter, who wants the credits in 25 years, might buy them now at a low cost to eliminate the supply and pricing risk of buying them later. He will effectively swap that risk for a credit risk on the forest grower, who has promised to deliver the credits on schedule in 25 years' time. Using forward sales we can convert the timing problem into a *credit* problem.

The pricing risk of course is very uncertain, but the credit risk is totally within our control. It is possible to set up an organisation sufficiently clean, dedicated and transparent to reduce the credit risk to a manageable size.

There are many issues remaining, but they are solvable. For example, what is the price we would have to pay for the land on which to plant these forests? And arising from that, what is the price at which we would have to sell NZ Units forward in $ / tonne, in order to afford the land and

[1] *Howard Moore is a business consultant, a director of Sinclair Robertson Associates and a member of the NZIF and the Farm Forestry Association.*

grow the forests? We can answer these questions. I believe we can fund protection forests much more easily this way than by inventing new mechanisms for community cost-benefit transfers.

The carbon future side-effect

In passing, you will see that the mechanism described allows us to create carbon futures. If an emitter buys a contract from a forest grower under which the grower is bound to deliver 100,000 NZ Units in year 2030, he can sell that contract again the next day on the secondary market without affecting the grower at all. Since he has been paid in advance, the grower can plant and manage his forests with no concern for who holds the contract. He just has to keep a register of all of the secondary transfers to see who he should deliver the credits to when the forests are mature.

The resulting package

In summary, we have invented a liquid instrument that will fund the creation of protection forests to control erosion and deliver environmental and community benefits, while eliminating pricing and supply risks for GHG emitters buying NZ Emissions Units.

Of course we have had to design a futures contract because no-one in the world is doing this yet, and then we have to sell the carbon futures. But both of these are manageable.

Land availability - price

In the broader debate on climate change, figures have been published about how much eroding hill country land could be retired into carbon forests (800,000 ha was noted by the Flexible Land Use Alliance)[2]. However none of the authors seem to have been hill country landowners and there are no mechanisms that can oblige landowners to retire pasture. Land availability is therefore a matter of market forces.

A study of forest land values undertaken since the introduction of the Emissions Trading Scheme in September 2007 suggests that when its use is restricted to forestry, accessible flat land in the central North Island otherwise convertible to dairy farms is valued at around $1,500 per ha. This implies that the value of generally inaccessible eroding hill country for forestry should be less than $1,000 per ha, which is consistent with sheep and beef returns over the last three years. These have not exceeded $50 per ha pre-tax for central North Island properties since 2004/5[3].

Of course farmers may be disinclined to sell eroding hills at less than $1,000 per ha despite their current poor returns, but there will be a price at which they are inclined. Alternatively, offering them a cash income of more than $50 per ha per year through a joint venture on their worst land might be acceptable.

We can calculate a forward sale price for carbon that is sufficient to grow the forests and provide funding for land purchase or joint venture.

Land availability - area

Assuming each ha of forest would sequester 500 saleable tonnes of carbon,[4] 2,000 ha would be needed for every million tonnes of NZ Units sold. Even if local industries find technologies that allow them to hold their emissions at today's levels and thereby offset the effects of growth, by 2030 they will still require 15 million NZ Units a year (the present excess above Kyoto)[5]. If these Units cannot be provided locally, industry will have to buy equivalent carbon credits on international markets.

To deliver 15 million Units a year from 2030 we would have to plant 30,000 ha of forests every year from now until the land ran out. The 800,000 ha of eroding hill country possibly available would therefore last us about 26 years, or until around 2035.

Clearly carbon forests are not the answer to controlling emissions in the long term. Our goal however is to plant protection forests for erosion control, and 800,000 ha would generate significant environmental benefits.

Legal agreements

There are two key legal agreements necessary for the business model above: a carbon futures contract and a Forestry Right. In addition, in order to minimise the credit risk perceived by the emitter, it would be useful for the forest grower to be a charitable trust rather than a company. Profit motives simply increase the credit risk and hence the price of NZ Units.

Forestry Rights have been around for 25 years and are well understood, if not always well drafted. Precedents abound. However a survey indicates that no-one in the world has prepared a futures contract for the physical delivery of carbon credits using growing forests as carbon sinks. It has been necessary for us to design that document using other international contracts as precedents. We now have the contract.

---

[2] *"The Case for a Forestry Offset Scheme", Flexible Land Use Alliance, submission to the Government February 2008.*

[3] *"Pastoral Monitoring Report 2007", Section 20 p127; MAF Policy, Hastings, 2007.*

[4] *"Indicative Forest Sequestration Tables", Scion, Rotorua, 24 January 2008.*

[5] *"Projected Balance of Emissions Units During the First Commitment Period of the Kyoto Protocol", MFE September 2007. http://www.climatechange.govt.nz/files/net-position-report-2007.pdf*

Security of the investor's rights

The security of the investor's rights can be protected both in law and through risk management.

The emitter will buy a contract for the future delivery of carbon credits, enforceable in law against the forest grower whose assets will include the carbon forests (and the land on which they grow if he bought it). If the grower is a charitable trust all money paid into the trust should be spent on developing the forests. As no money could be withdrawn other than operating expenses, the trust should efficiently convert cash into forest values. Further, the trust will be subject to independent monitoring and audit to inform emitters on the growth, size and well-being of the forests as they mature. Provided the forests yield the correct number of NZ Units on time, the futures contracts should be secure.

There is of course the risk that the government will withdraw or alter the Emissions Trading Scheme or not issue NZ Units to forest growers in the future. This "sovereign risk" would be assessed by the emitter before he committed to the futures contract. The trust would undertake to deliver other carbon credits equivalent to NZ Units if they were available. There are also risks that the forests will not grow fast enough to meet their commitments, or might falter through fire, wind throw or disease. These are normal industry risks that can be managed with good forestry practice and (in some cases) insured against.

Security of the landowner's rights

The landowner's rights can be protected in law through the Forestry Right that contains the joint venture with the forest grower. He can also be protected through sound working relationships with the forest grower, whose interests are largely aligned with his in terms of sustainable land use, good working practices and the desire to manage natural risks.

Returns to the landowner and investor

The trust's intent is to sell the emitter a carbon future at a price high enough to cover a return to the landowner (or purchase of the land), all of the forward costs of growing and managing a carbon forest for 90 years, and a margin for risk. The price per tonne is not a simple discount of a future carbon price. Firstly, no-one is willing to say what a carbon credit will sell for in 2030 or how you should discount it. Secondly, in order to secure a carbon credit now for future use, you only have to go to the market and buy one, then put it away in a drawer for 25 years. That eliminates price risk, supply risk and credit risk altogether.

Accordingly an emitter would pay a price today based on the credit risk he perceived, and the current cost of carbon credits (allowing for the volume he required, i.e. $15-30 per tonne). The return the emitter would get would be the margin between the price of carbon futures through the trust, and the risk free price of carbon credits (i.e. buying them now and putting them aside for future use). The return to the landowner would be determined through negotiation over the joint venture. It would logically involve a margin above the return he might expect from continuing to graze the land (allowing of course for the costs of repairing it after storm events).

Summary of the business model

We have incorporated a charitable trust (the Reforest Trust) with the primary aim of planting erosion-prone hill country to mitigate the effects of climate change. The forests will act as carbon sinks and qualify to earn NZ Units under the government's Emissions Trading Scheme. The trust will sell these Units forward to industry emitters. They may buy Units with a single payment at a fixed price, to eliminate the risks of future scarcity and price escalation. The delivery contract may be traded as a futures contract. The Trust's structure is designed to provide the necessary long-term security for the future delivery of the Units against an agreed contract schedule. Commitments made under the forward contracts will confirm on the passing of the Climate Change Bill which is establishing the Emissions Trading Scheme.

The trust will secure land for carbon forests through purchase or under registered Forestry Rights, and plant it using single-purpose subsidiary companies:

- The trust will meet all of the costs of establishing and managing the forests over the term of the Right. Every forest will be debt-free.
- The trust will establish part of the land in sustainable production forests to generate earnings into the future to provide a return and meet the ongoing costs of forest management.
- Over the term of the Right the trust will own the forests and be responsible for all revenues, costs and deforestation liabilities. On termination the landowner will assume ownership and responsibility.
- Because the organisation is a charitable trust, accounts are fully transparent and no profits are withdrawn. Any surpluses will be applied to the community benefits listed in the Trust Deed.
- For the protection of all parties the obligations of the trust are controlled through independent monitoring by a corporate trustee.

The trust will plan and manage its forests in such a way that the total NZ Units received will be sufficient to meet its forward contract obligations, provide a share to landowners and a margin for risk. On maturity it is expected that 70-90% of the forests will be retained indefinitely as carbon forests, with the balance sustainably managed for income. This will be sufficient to manage the carbon forests, meet the costs of carbon monitoring under the Emissions Trading Scheme, and provide returns to the landowners into the future.