

**A Framework For Engagement Of Māori Landowners
In “Carbon Farming” Using Indigenous Forest
Regeneration**

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Contents

Summary	5
1. Introduction	6
2. Background.....	6
2.1 Carbon farming as an opportunity	6
2.2 Māori Land in New Zealand	8
2.3 Gisborne - East Cape region	10
3. Objectives	12
4. Methods	12
5. Results	14
6. Recommendations	20
7. Acknowledgements	21
8. References	21
9. Appendices	23
9.1 Outline for a sale agreement for five years	23
9.2 Outline for a rental agreement.	24

Summary

Project and Client

Opportunities for the use of Māori Land for storing CO₂ (carbon farming) were investigated by Landcare Research between October 2001 and June 2002. A framework for future involvement of Māori landowners in carbon farming was constructed using non-specific output funding (NSOF) from the Foundation for Research, Science and Technology.

Objectives

- To evaluate the opportunities for Māori to participate in the provision of “forest sink” credits through regeneration of indigenous forest, using the Gisborne - East Cape region as an example.
- To develop a framework for Māori participation in future CO₂ sequestration projects, in consultation with Ngā Whenua Rahui and Ngāti Porou representatives.

Recommendations

- The quantity and location of Māori-owned land that is potentially eligible as Kyoto forest either presently or under future conversion from marginal pasture should be ascertained as soon as possible.
- Any mechanism for inclusion of scrub in carbon trading should be developed with “grass-roots” participation from Māori communities and organisations.
- Land ownership and rangatiratanga (in this instance, management of land use) has to remain with the owner(s).
- Provision should be made for “customary use” of a specified area of forest or shrubland. An additional option may be continuous cover forestry where selected trees are harvested according to size class. Further research is required to verify the effect on CO₂ sequestration.
- Contracts and agreements between Māori landowners and buyers of CO₂ credits should be appropriate for both parties – advice could be sought from Ngā Whenua Rahui and EBEX21[®].

1. Introduction

Under Article 3.3 of the Kyoto Protocol, New Zealand will be able to claim credit for greenhouse gas removal by forest sinks through the process of “reforestation”. By definition “Kyoto forests” are those that did not exist at 31 December 1989 (i.e. the land was bare, in pasture or had low-density scattered scrub on it) and have arisen any time since. They will include stands of naturally regenerating forest (scrubland), as long as those stands meet the Kyoto Protocol’s “forest” definitions namely, they are at least 1 ha in area, have at least 30% tree crown cover, and have the potential to reach 5 m in height at maturity (Fig. 1).

In order to meet its emissions reduction targets for the first commitment period (2008 - 2012) of the Kyoto Protocol New Zealand will rely largely on production forest (i.e. *Pinus radiata*) that has been planted since December 1989. However, during that period, and particularly beyond 2012, regenerating indigenous forest could play a significant role in reducing New Zealand's net emissions. The land that could be sensibly used for the provision of CO₂ credits, or “carbon farming”, is that with limited productive capacity for agriculture, or currently undeveloped land. The land may be presently undeveloped for a number of complex reasons.

In its discussion document of April 2002, the Government makes specific reference to the encouragement of non-harvest forest sinks as a possible economic alternative for marginal Māori Land (Department of the Prime Minister and Cabinet, 2002). In this report we focus on the capacity of Māori landowners to participate in the provision of sink credits through regenerating indigenous forest. We then suggest a framework for Māori inclusion in domestic policy development on the mechanism for indigenous sink management.

2. Background

2.1 Carbon farming as an opportunity

It is estimated that Māori own about 15% of the land area of the North Island and 0.5% of the South Island (Table 1; Durie 1998, Ministry of Maori Development 1998). It is not known exactly how much of this Māori Land could satisfy requirements under the Protocol. Māori obviously have a huge interest in land, especially in terms of their cultural relationship (through whakapapa), but also as one means for developing a sustainable economic base for themselves, and exploring new opportunities as they arise. Carbon farming for Māori is a new opportunity that will be weighed up against a large range of other land-use options. It therefore needs to be seen in this context, and the issues, ramifications, and options fully discussed and debated. Māori landowners have large interests in forestry, pastoral farming, tourism, undeveloped or under utilised land, and other land uses which will, in some way, be affected by the signing of the Kyoto Protocol and the domestic policies that result from this. Domestic policies could potentially bring both benefits (e.g. CO₂ credits) and liabilities (e.g.

CO₂ taxes, levies) to landowners. It is timely, therefore, to discuss some of the options and models that may be available to Māori landowners in future.

Large areas of Māori Land in New Zealand have been classified as undeveloped, or uneconomic (Ministry of Māori Development 1998; Landcare Research 2000). Of these, many are covered in unevenly aged scrub and mixtures of pasture and scrub, and it is these areas that are most likely to provide landowners some opportunity for carbon farming in future. This will generally be land that has been constrained for development because of a number of factors, including land ownership structure and governance, low agricultural productivity, imposed land-use regulation (e.g. district and regional plans), lack of capital to develop land, or because it has significant cultural or biodiversity value. Because carbon farming has a low requirement for capital investment, and because it promotes forest retention, it may become an attractive option for Māori, even when the likely economic return may be minimal or not competitive with other land-use options. The benefits of adoption of carbon farming as a land use will need to be carefully evaluated against the liabilities that will incur if the land is withdrawn from this land use in the future.

As an additional land-use option, a number of models and frameworks need to be developed to enable Māori landowners selecting this option to be properly included as part of a “Project” for “enhancement of sinks” (Department of the Prime Minister and Cabinet, 2002). The reward for participation needs to be attractive enough to make it a viable land-use option. The area of Māori Land, that might be suitable, such as areas of regenerating scrub, has not been quantified in this project. Clearly, as the economic incentive for carbon farming increases, so will the chance of it being seen as a viable land-use option for a larger area.

Economic co-benefits on land set aside for carbon farming may be realised through the ability to produce high-value products (e.g. oils, pharmaceuticals) from regenerating indigenous forest and through increased association with industries such as horticulture and apiaries in mānuka and kānuka scrub. In addition, there could be increased cultural and eco-tourism plus indirect benefits resulting from enhanced cultural and biodiversity value plus reduced erosion and consequent improved soil and water quality (Phillips et al. 2000).

The co-benefits of carbon farming that are complementary to production forestry are likely to be particularly important in the Gisborne - East Cape region, and the general East Coast region of the North Island where large areas of land are classified as susceptible to severe erosion (50% of the Gisborne - East Cape region, Gisborne District Council 2000). This susceptibility is exemplified by the severe damage caused by Cyclone Bola in 1988. During the 1980s, following economic restructuring, much of the steeper and erosion-prone land on the East Coast became increasingly marginal for pastoralism as farming subsidies were removed.

The effects of Cyclone Bola, state sector restructuring in the mid-1980s, and low commodity prices in the late 1980s and early 1990s, all greatly impacted on the people of the region. Māori were particularly affected through high unemployment levels and social and economic disadvantage that was manifested in many issues including health, housing, education, low employment opportunities and low household incomes (Statistics New Zealand 1999; Statistics New Zealand 2000). All are still significant issues affecting people on the East Coast today. A large number of strategies are in place at present to improve socio-economic conditions and to plan economic development. Ng~ti Porou, the largest iwi in the region, has been at the forefront of many of these initiatives to reduce social and economic disparities

between Māori and non-Māori (Te Puni Kokiri 2000) and to develop economic opportunities. Thus carbon farming might offer additional economic opportunities for many landowners and communities to improve socio-economic conditions whilst maintaining environmental and cultural aspirations.

Naturally regenerating indigenous forests present a unique opportunity for provision of forest sink credits because of the low capital requirement for scrub establishment combined with a projected sink activity for a period in excess of 200 years (Hall 2001). However, the annual rate of sequestration is generally lower than that of plantation species such as *Pinus radiata* (Hall 2001) and any mechanism for inclusion in “sink enhancement” for New Zealand must reflect these unique properties. In addition, regenerating indigenous forests on Māori Land are generally managed differently to those on non-Māori Land. The degree of difference depends largely on governance structure, a pivotal issue in the feasibility of inclusion of these forests in carbon farms.

2.2 Māori Land in New Zealand

Less than 6% of New Zealand’s land mass is now classified as “Māori Land” (Tables 1 and 2; Durie 1998). Most of this land (95%) is registered under the Māori Land Court, under the Te Ture Whenua Act 1993, and previously the old Māori Affairs Act of 1953 (Ministry of Maori Development 1998). Māori Land can therefore be regarded as “Māori freehold land” under Te Ture Whenua Act, or Māori Land on the “general roll”. The definition of Māori Land is land still under Māori control and ownership, having a majority shareholding by Māori, or taonga tuku iho land, Māori Land passed through generations (Te Ture Whenua Act). Some land that is owned by individual Māori is not subject to Te Ture Whenua Act, and as such, is not defined or discussed here as Māori Land. Te Ture Whenua Act replaced the Māori Affairs Act in 1993 and has a major focus on retaining Māori ownership and control of Māori Land. It is based on the Treaty of Waitangi and recognises that Māori Land is a taonga tuku iho, an asset inherited from earlier generations. The purpose of the Act is to make sure that owners of Māori Land keep land so it is passed onto future generations. Therefore under Te Ture Whenua Act, Māori Land is difficult to alienate. At the same time provision has been made in the Act to focus on better utilisation of Māori Land, and for owners to make maximum commercial use of their land.

Table 1 Māori Land per Māori District (Durie 1998, Ministry of Māori Development 1998).

Māori Land District	Total land area (ha)	Total Māori Land (ha)	% Māori Land of district
Tai Tokerau	1 592 842	139 873	8
Maniopoto	2 019 874	143 388	7
Waiariki	1 780 502	426 595	24
Tairawhiti	1 075 041	310 631	28
Takitimu	1 780 706	88 608	5
Aotea	1 180 967	334 207	28
Te Wai Pounamu	15 370 489	71 769	0.5

Table 2 Patterns of Māori Land Ownership from 1840 to 1996 (Durie 1998; Ministry of Māori Development 1998).

Year	Acres	Hectares
1840	66 400 000	29 880 000
1852	34 000 000	15 300 000
1860	21 400 000	9 630 000
1891	11 079 486	4 985 000
1911	7 137 205	3 211 000
1920	4 787 686	2 154 000
1939	4 028 903	1 813 000
1975	3 000 000	1 350 000
1986	2 626 091	1 181 740
1996	3 743 689	1 515 071

The Act provides five main types of Trust:

- **Ahu Whenua Trusts:** Most common Māori Land trust, similar to the section 438 trusts in the old Māori Affairs Act. They are intended to promote and facilitate the use and administration of the land in the interests of the owners.
- **Whanau Trusts:** Preserve family links to particular land, but without expectation of individual interests or dividends.
- **Kaitiaki Trusts:** Available for persons who are minors, or under disability and are unable to manage their own affairs and land.
- **Whenua Topu Trusts:** Tribal trusts. Designed to facilitate the use and administration of land in the interest of iwi or hapu. This type of trust is used for receiving Crown Land as part of any Treaty settlement.
- **Putea Trusts:** Small uneconomic interests pooled for the common benefit without individual dividends.

As well as trusts, Te Ture Whenua Act (1993) encourages the formation of incorporations, where shareholders remain owners, while the day-to-day management activities remain in the hands of an elected committee of management or a Māori Trustee. Therefore the Māori Trustee is given legal responsibility for looking after the landowners' assets and liabilities for the owners' benefit, or "equitable obligation" in that the trustee manages the land on behalf of the Māori landowners. Under the 1993 Act it has become easier for Māori owners to change general land back to Māori freehold land, but some provision to convert Māori Land to general land under special circumstances has also been retained.

Table 3 Governance structures for Māori Land (under Te Ture Whenua Act) for New Zealand (Durie 1998; Ministry of Māori Development 1998).

Governance structure	Number of land blocks	% Total area
Ahu Whenua Trusts (about 438 trusts)	6 303	50
Whanau Trusts	108	6
Kaitiaki Trusts	8	0.01
Whenua Topu Trusts	10	2
Putea Trusts	1	0
Incorporations	259	13
Trust Boards	106	4
No clear structure	16 405	13
Other	1 129	2
Not described	1 307	4
Total	25 636	100

The governance structure of Maori Land is therefore a significant factor and issue when considering carbon trading on Maori Land, and selection of eligible blocks will depend on the willingness and interest of landowners to participate.

2.3 Gisborne - East Cape region

We are focusing our work in the Gisborne - East Cape region both because it contains large areas of Māori Land that are likely to be eligible for CO₂ credit projects, and because carbon trading may provide another economic opportunity for Maori landowners in the region.

Gisborne regional data from the 1996 Census indicate that 42% of the population of the region is Māori and about 85% of the Māori population has some affiliation to Ngāti Porou (Statistics New Zealand 2000). The region's average unemployment rate is 21%, although this is much higher in localised rural areas such as Tokomaru, Ruatoria and Te Araroa in the north of the region. Only 3% of Māori (aged 15 years and over) in the region earned more than \$40,000 per annum in 1996. Less than half of Māori in the Gisborne region own their homes. Around 37% of Māori in the region leave school with no qualifications, the highest rate in New Zealand. Over half of Māori in the region have no formal qualifications. Personal income in the region is very low. The annual median earned income for Māori is \$10,900, with 40% of Māori 15 years and over earning between \$5,001 and \$15,000 (Ministry of Māori Development 2002).

Many Ngāti Porou and other iwi living in the region are part owners of blocks of land, but a significant number of landowners live outside of the region. Māori Land in the Gisborne - East Cape region is set up under a variety of organisations, such as trusts and incorporated societies, with other areas administered by a Māori Trustee (Māori Land Court). Most land is registered under the Māori Land Court as part of the Tairāwhiti Land District. Blocks of land

in this district are generally large and often governed by Ahu Whenua Trusts or by the Māori Trustee.

The Tairāwhiti District (larger than Gisborne - East Cape) comprises approx. 1.1 Mha. About 28% or 310 631 ha of the district is Māori-owned land (Durie 1998). It is estimated (by the use of Fig. 1) that about 60% of Māori Land in the district could be eligible as Kyoto forests for future carbon trading, as much of it is covered in regenerating indigenous vegetation and pasture on erosion-prone land (Landcare Research 2000). Further research is required to calculate the exact figure. In order to determine if vegetation qualifies as Kyoto forest, the position of a piece of land being considered for CO₂ sequestration should be considered along two continua (Fig. 1).

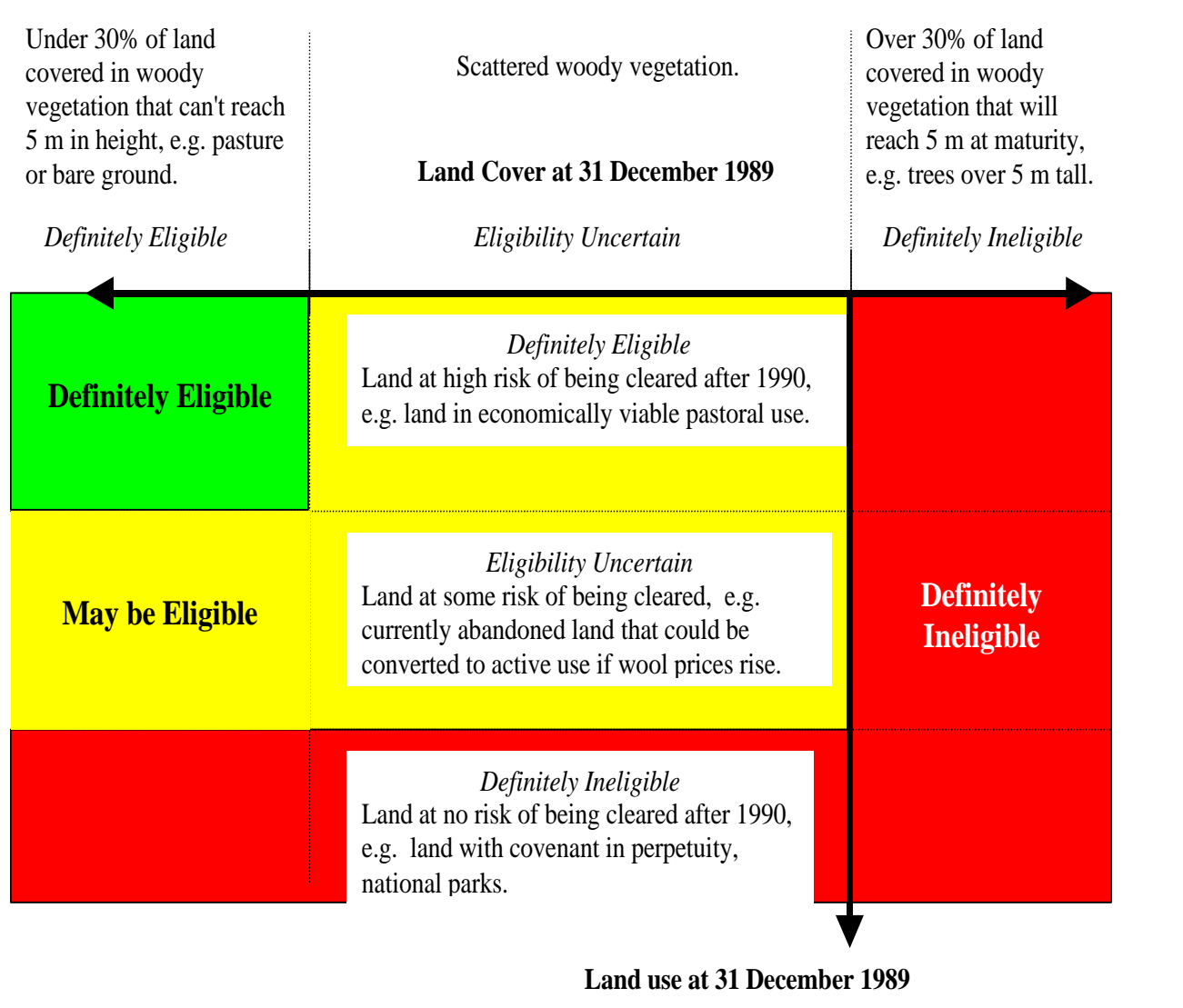


Fig. 1 Two continua of requirements for qualification as “Kyoto forests”.

The horizontal axis of Figure 1 represents the amount and height of woody cover, with the vertical axis representing land use. Land that will definitely count sits in the top left-hand corner while land sitting to the right and/or bottom will definitely not count.

In the Gisborne - East Cape region, Gisborne District Council (GDC) boundary, about 5.3% of the GDC District (443 square kilometres) is presently dominated by scrubland (mānuka and kānuka), with another 4% in secondary indigenous scrub species (Gisborne District Council 2000). About 15% of the region is estimated to be reverting from pasture to shrubland, or is in pasture with scattered scrub. In the East Cape – Ruatoria region, about 12% is in shrubland, with another 20% in pasture reverting to shrubland (Landcare Research 2000).

Local government representatives should be additional participants in the development of a mechanism for carbon farming, as policies on whether reverting scrub is eligible for rates relief vary widely from region to region. The amount of income gained through CO₂ sequestration is unlikely to match or exceed the rates that may become payable on land if it is classified as “productive” because the landowner now earns a modest income from CO₂ sequestration.

3. Objectives

- To evaluate the opportunities for Māori to participate in the provision of “forest sink” credits through regeneration of indigenous forest, using the Gisborne - East Cape region as an example.
- To develop a framework for Māori participation in future CO₂ sequestration projects, in consultation with Ngā Whenua Rahui and Ngāti Porou representatives.

4. Methods

A framework was constructed to enable identification of land that will become eligible as Kyoto forests in future CO₂ trading (Fig. 1). Second, the factors required for Māori to be fully engaged in CO₂ trading in future were identified. The following framework for Māori involvement in carbon farming was developed between October 2001 and April 2002, mainly through consultation with two Māori groups, Ngā Whenua Rahui (Wellington), and representatives from Ngāti Porou, Gisborne.

Ngā Whenua Rahui (NWR) is a covenanting agency of DOC (Department of Conservation) that deals specifically with Māori Land to promote conservation, biodiversity and cultural values along with Māori Land retention. Two meetings were held to discuss greenhouse gas issues, possible scenarios with CO₂ markets and to learn about current models for covenanting Māori Land. The results of these two meetings provided valuable information for defining the framework that follows.

The primary purpose of the meeting with representatives from Ngāti Porou was to gauge the level of support for research on CO₂ markets and future Māori participation in greenhouse gas research, at both practical and policy levels. During the meeting greenhouse gas issues and current research were discussed particularly with respect to implications for Māori. In addition, the current status and possible future functioning of CO₂ markets were discussed.

Information and feedback from Ngāti Porou has been used to develop the proposed framework.

5. Results

The framework consists of a series of steps recommended to facilitate Māori participation in future CO₂ sequestration projects (Fig. 2). The key to this process is the formation of case studies, into which the policy and social issues feed. The resolution of policy and social issues follow a logical order from left to right in Fig. 2. Further detail on key steps of the process is given below.

- 1) Identify one or two key groups of Māori landowners who are willing to participate in a research project aimed at facilitating future participation in CO₂ trading.

Positive societal responses to change occur when tangible (e.g. economic) incentives are given and when communities involved have the “capacity” to respond, that is, the communities have been included in the process up to national policy level (Young et al. 1996; Allen et al. 2002). Ngā Whenua Rahui were concerned about the possibility of low uptake of CO₂ sequestration possibilities if managed in a similar way to previous MAF initiatives for retention of buffer zones of scrub around forestry plots. Poor community consultation and a lack of incentive for landowners were cited as the key failings of this initiative. Given the significance of Māori connection to the land, notwithstanding ongoing Treaty negotiations, any attempt to impose an externally designed mechanism for Māori provision of national CO₂ sinks will be met with fierce resistance unless thorough consultation occurs. Many non-Māori landowners also share this suspicion of “top-down” directives for how private land can be used.

The iwi of Ngāti Porou is made up of a multitude of Māori organisations at different hierarchical levels that serve the interests of Ngāti Porou people in areas such as land development, health, social services, corporate services, education, tourism, forestry, pastoral farming, environment, commercial ventures, fisheries and politics. These organisations may be runanga (iwi and hapu councils and boards, incorporated societies), Whare Wananga (learning institutes), land incorporations, trust boards, Māori companies, marae committees etc. Ngāti Porou, like other iwi, is also made up of many hapu and marae communities, and many people are owners of Māori Land, and belong to Māori Land Trusts. The Māori Land Trusts often have identified and registered Māori landowners and may be managed by trustees. The owners of Māori Land blocks are often engaged in activities such as pastoral farming, forestry, tourism, and other commercial ventures, or may be owners of land that is regarded as undeveloped and may still be in scrub or indigenous forest. Higher-level trust boards, incorporated societies, runanga, or hapu committees coordinate many of these activities, along with fisheries. It will be essential in future to carefully consider the type of organisation and governance structure when designing appropriate models and policies for engaging Māori landowners in carbon trading.

Key representatives of Ngāti Porou, Te Puni Kokiri and the Māori Trustee from the office of the Māori Trustee attended a hui in Gisborne as part of this project and expressed much interest in forming a group to participate in a research project.

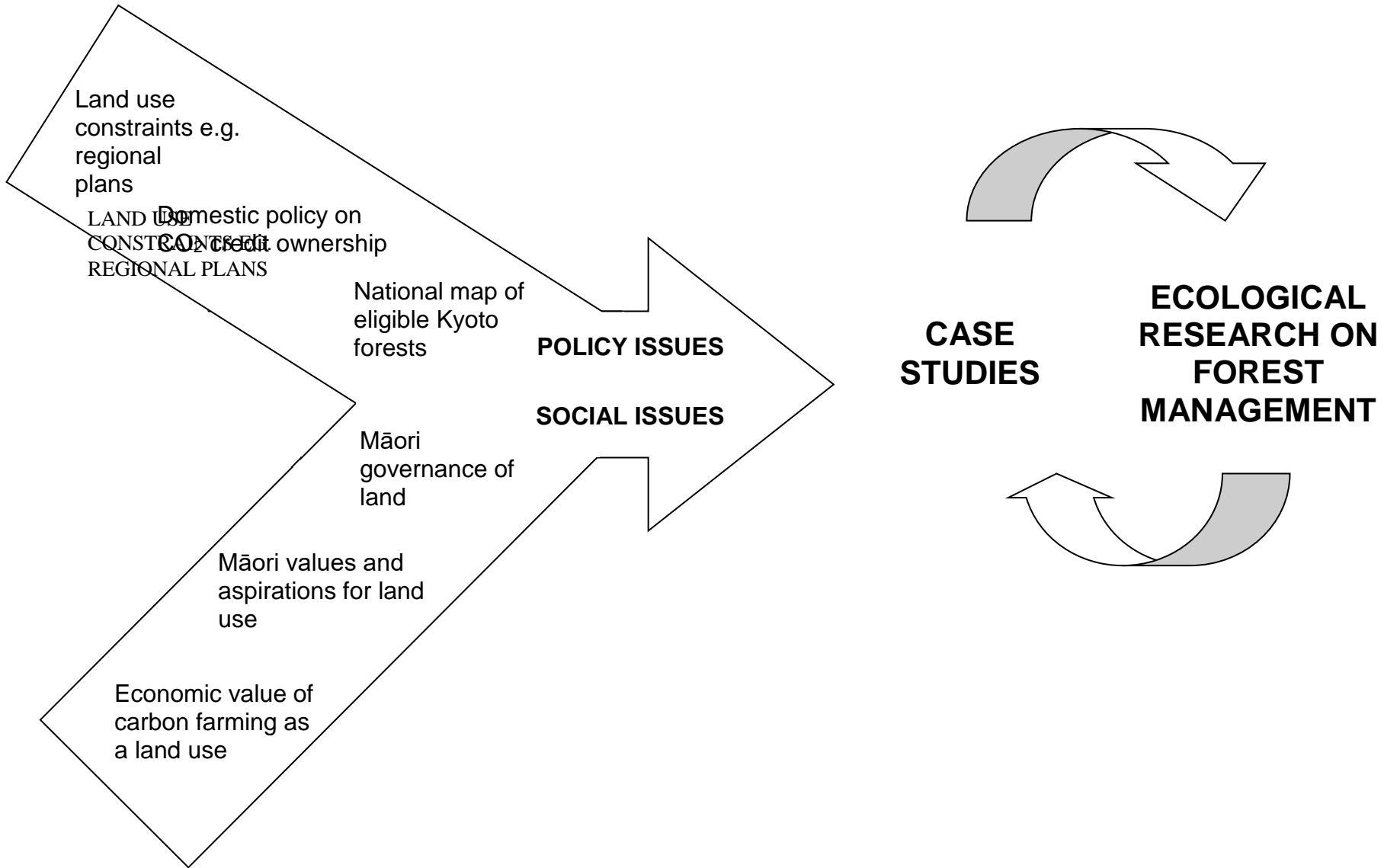


Fig. 2 A framework for engagement of Māori landowners in ‘carbon farming’ using indigenous forest regeneration

- 2) Quantify the economic benefit of CO₂ sequestration as a land use as one of several options for a given piece of land; i.e. how might the returns from CO₂ sequestration compare to commercial forestry and pastoral agriculture? Ideally, such benefits would fit within iwi development plans.

This could be achieved through a collaborative research programme that first defines nationwide land-use capability, then compares the costs and benefits of a range of land uses, and finally identifies the potential uses, costs and returns for a specific piece of land identified through step 1, above. This case study would be used to provide evidence that such a scheme could have economic benefit.

- 3) Ascertain the quantity and location of Māori-owned land that is potentially eligible as Kyoto forest either presently or under future conversion from marginal pasture.

Two issues are involved here: one is a matter of the land that will qualify and the other is the governance structure for that land. The land that is eligible as Kyoto forest is outlined in Fig. 1. The majority of the eligible Māori Land is likely to be contained in the Tairāwhiti district of the East Cape of the North Island and in the Tai Tokerau district of Northland. Of the total Māori Land that is eligible, other issues involving Māori governance structures (e.g. Ahu Whenua Trusts, Māori Trustee), Māori aspirations on control and ownership, appropriate models for kawenata (covenants), customary use, attitudes to limitations in perpetuity, Māori economic development and legal definitions will further constrain the areas on which carbon farming can be effectively developed. These factors also must be considered in future national and regional policy.

We recommend the development of a national map of scrubland that will be eligible as Kyoto forest. This could be overlaid with cadastral data on Māori ownership and governance data. Initial methods could focus on the Ahu Whenua Trust governance structure to include the maximum area of eligible land. Again, the case studies involved in step 1, above will examine governance more closely and make recommendations for how to proceed with some specific structures.

- 4) Refine ecological knowledge about the CO₂ implications of different land-management options. Use knowledge about our ability to monitor and assess the ecological implications of management decisions as an input to decisions about such questions as: does the Kyoto forest need to be managed as a completely non-extractable resource or can some birds/harakeke/firewood/timber be harvested from the land? can walking tracks be put in? can medicinal plants be gathered? which fire control strategies should be implemented?

At the time of quantification of the CO₂ sequestered by a particular piece of land, consideration could be given to the average customary harvest from this piece of land. It is expected that the yield would not change for a small amount of harvest for firewood, weaving and carving. Some forestry research suggests that selective harvest of a small amount of timber could even increase the rate of CO₂ sequestration on a given site, in the same way that pruning and thinning improve timber yields in plantation forestry. Other types of harvest (e.g. of honey) are unlikely to affect the CO₂ yield. Other management decisions relating to forest use and succession should also be examined, e.g. landowners may prefer to keep the forest in mānuka for the collection of honey and firewood, and accept that less CO₂ will be stored over the lifetime of the forest compared with allowing the succession to progress to larger trees, such as beech.

The selection and inclusion of even small areas of land for the purpose of ecological monitoring would be an essential component of the implementation of step 1, above. Paired plots could be used to monitor the long-term effects of selective harvest versus a total exclusion of human use on CO₂ sequestration and the progress of forest succession.

- 5) Explore the advantages and disadvantages of protection in perpetuity relative to more temporary arrangements for carbon storage.

Covenanting land as “forest in perpetuity” is desirable for the purpose of permanent removal of CO₂ from the atmosphere, but there could be provision of an “exit” clause from a CO₂ agreement, whereby the value of the CO₂ credits is repaid if the owner wishes to retire the land from forest. Forests will be cleared to make way for an alternative land-use only if this alternative land-use can offer a greater economic return than that obtained from the receipt of CO₂ credits.

Given the improbability of positive returns from other land uses for marginal East Coast hill-country, the retention of indigenous forest as mānuka or mature beech/podocarp/hardwood will likely be seen as a “win-win” situation by Māori, who will be able to retain their taonga and make a modest return on its retention.

Further investigation of possible contravention of the 1993 Te Ture Whenua Act is warranted as the Act prohibits the removal of Māori-owned land from Māori control. The passing of marginal hill land into a CO₂ storage kawenata should eventually lead to indigenous forest restoration and might lead to restriction of options for future use through regional council bylaws preventing the cutting of these trees or appropriation by DOC as significant ecological areas. Once an area becomes designated as a significant ecological area, its control is essentially removed from Māori.

- 6) Design or adopt vehicles for implementation of CO₂ sequestration kawenata. These could be Ngā Whenua Rahui procedures or those of other bodies. EBEX21[®] could be considered as a part of the vehicle for delivery of the partnership between the landowners and potential buyers of CO₂ credits, if done in accordance with the 1993 Te Ture Whenua Act.

Ngā Whenua Rahui deal both with formal kawenata (of 25 years) and with more informal arrangements (usually where the area is very small) to protect indigenous bush, both types of arrangements resulting in a consideration payment to the landowner (of a small sum of money – likely less than that which could be earned from CO₂ sequestration). Currently they consider only “pristine” sites but were excited about the possibility of getting shrublands with high potential as future forests covenanted. Because of their many years of experience in providing protection for indigenous forest on Māori Land they suggested that if some income would be likely for the landowner, they could assist in the development of the mechanisms for making this happen in the Māori community. Already, Ngā Whenua Rahui have been asked by landowners if the consideration payment will affect landowners’ rights to accept money for CO₂ credits.

When this type of covenant first became available many years passed before concerns about restrictions on future land use, and loss of self-determination of land use were allayed. To date, 95 groups of Māori landowners have “opted in” to these kawenata, covering a total of 112 000 hectares. Although indigenous forest is seen as a taonga, economic pressures dictate

that the possibility of land use for economic return remains open. Interestingly, all kawenata that have reached the end of their term have been rolled over for protection for another 25 years.

A possible part of the vehicle for the involvement of Māori landowners in carbon farming is the Landcare Research project, EBEX21[®]. This is a service that couples organisations that wish to offset a portion of their greenhouse gas emissions with landowners who are prepared to provide indigenous Kyoto forests. Payment is exchanged between the two parties, via the EBEX21[®] project, which provides robust estimates of the CO₂ being exchanged. The international market would dictate the value of the exchange, in the absence of Government intervention.

EBEX21[®] would be an appropriate mechanism for those landowners that make no return on their scrub at present, and are unlikely to be able to make a return in the foreseeable future. Storage of CO₂ through indigenous forest restoration is not likely to be a better land-use option, economically, than either forestry or farming, where these land uses are viable on a given piece of land. The success of EBEX21[®] as a vehicle, in its present form, will depend on whether or not CO₂ credits (defined as “emission units” in Department of the Prime Minister and Cabinet, 2002) for regenerating scrub are devolved to landowners.

Should the Government retain ownership of all New Zealand CO₂ credits, an alternative economic incentive would need to be provided to Māori to conserve existing scrubland as Kyoto forests. This should not interfere with the ability of Māori to determine the use of their land. Some alternative “opt-in” mechanism could be designed through the Project component of the Government's proposed Climate Change Policy.

Again, these mechanisms of inclusion would be worked through by the use of step 1, above.

- 7) Design appropriate contracting mechanisms. These could include the sale of CO₂ credits to buyers or year-by-year rental agreements designed for buyers who wish to defer the purchase of credits that are permanently retired from circulation.

A sale contract involves permanent purchase of credits created when CO₂ is sequestered. The buyer may prefer this if they want to permanently offset their current emissions and have no further obligations. The advantage of a sale to the landowner is that they will receive the full value of the permanent credits up-front. The disadvantage is that it restricts the use of the land forever. If the forest is ever removed from the land, the sequestered CO₂ is released and the credits must be replaced. The landowner bears this liability either to the buyer or to the Government. This makes land use inflexible and may contravene Te Ture Whenua Act 1993.

Currently in EBEX21[®] landowners are required to “sell” the CO₂ credits on their shrubland in yearly units (the transaction could take place as a 5-yearly unit to match the length of Kyoto commitment periods). There is no obligation to continue selling CO₂ credits that accrue after the term of the contract to EBEX21[®] (therefore allowing the determination of land use to remain with the owner), but again, landowners would need to repay the CO₂ credits that they sold should the land ever be cleared.

A lease contract requires that the buyer pay the landowner every year for continuing to protect the CO₂ stored. The buyer may prefer this because they make lower up-front payments. If the climate change regulations are not imposed at a later date, or if they find that they can reduce emissions or obtain credits more cheaply in another way in future, they

have not made a large investment in CO₂ offsets. If regulations are stringent or CO₂ credit prices are high in the future, they have created a relationship with a landowner and may be able to purchase the credits already accrued (or even newly created credits) at that time. The disadvantage to the landowner is that the up-front payment is much lower. Compensating for this, they will receive a flow of income into the future. The major advantage is that they maintain complete control over the use of their land. If they ever decide to clear the land or opt out of the contract for other reasons, they have no liability.

The lease contract also is an easier contract to enforce because payments are contingent on continued protection. In contrast in a sale contract, the payments are made up front and, if the land is not protected, repayment must be sought from landowners who may not have the cash. If the land is cleared a long time after the contract, the buyer may have lost interest and payback may not be enforced unless Government is involved. This creates an environmental risk.

Examples of these two types of contracts between the landowner and a buyer (in this case a business by the name of “*Gas Unlimited*”) are included in Appendices 9.1 and 9.2. Many other details of the contracts can vary. These determine such things as who bears the risk of changes in credit prices or uncontrollable loss of forest, and when payments are made.

6. Recommendations

- The quantity and location of Māori-owned land that is potentially eligible as Kyoto forest either presently or under future conversion from marginal pasture should be ascertained as soon as possible.
- Any mechanism for inclusion of scrub in carbon trading should be developed with “grass-roots” participation from Māori communities and organisations.
- Land ownership and rangatiratanga (in this instance, management of land use) has to remain with the owner(s).
- Provision should be made for “customary use” of a specified area of forest or shrubland. An additional option may be continuous cover forestry where selected trees are harvested according to size class. Further research is required to verify the effect on CO₂ sequestration.
- Contracts and agreements between Māori landowners and buyers of CO₂ credits should be appropriate for both parties – advice could be sought from Ngā Whenua Rahui and EBEX21[®].

7. Acknowledgements

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9. Appendices

9.1 Outline for a sale agreement for five years

Dear Landowner,

I am writing to confirm the relationship between you, as landowner and provider of carbon dioxide (CO₂) credits, and “*Gas Unlimited*” (a buyer of CO₂ credits) who will buy five years’ worth of CO₂ credits from your regenerating forest, starting from the date of this contract. The area of land to be set aside for the purpose of this agreement is outlined in the attached aerial photograph or detailed plan.

***Gas Unlimited*'s key requirements are that:**

- The vegetation cover on the area covered by the contract did not meet the definition of “forest” under the international Kyoto Protocol at 31 December 1989 (see attached definitions).
- The vegetation cover does currently meet the definition of “forest” under the international Kyoto Protocol.
- It is possible to demonstrate and prove a change in land management practices and/or policy since 1990 (such as fencing to prevent domestic stock incursion or seeking kawenata) in order to achieve the above objectives.

Your obligations as landowner are that:

- If the land is withdrawn from indigenous forest or is damaged through fire, grazing stock or tree removal at any time, or, for any reason the landowner wishes to withdraw from the agreement within the next five years, *Gas Unlimited* will be notified in writing. The contract will then be terminated and the landowner will repay to *Gas Unlimited* the market value at the time of contract termination of the total credits paid for. Alternatively other land could be substituted for this area by mutual agreement.
- If *Gas Unlimited* does not exist when the credits need to be repaid, the landowner will instead assume full liability for any regulatory implications of land-use change.
- The CO₂ credits associated with the indicated area and time period may not be sold or leased to another party.
- An independent auditor of CO₂ sequestration, designated by *Gas Unlimited*, will have the right to enter the property with two weeks’ advance warning up to one time each year to monitor the state of the forest and the carbon accumulation.

Gas Unlimited will make one payment equal to $2.5q$ (q tonnes per hectare times 2.5 years) multiplied by $\$X$ per tonne per hectare at the time the contract is signed, followed by an additional payment of $2.5q$ multiplied by $\$Y$ per tonne per hectare at the end of 5 years. Y is equal to X plus interest accumulated at the rate of $y\%$ interest per year.

If you are happy to confirm that these requirements are met and accept these terms, please sign and date each of the two copies of this letter and return both copies for execution.

9.2 Outline for a rental agreement.

Dear Landowner,

I am writing to confirm the relationship between you, as landowner or trustee and provider of carbon dioxide (CO₂) credits, and “*Gas Unlimited*” (a lessee of CO₂ credits) who will lease CO₂ credits, year by year, from your regenerating forest, for a minimum period of x years starting from the date of this contract. If the parties mutually agree, the contract could be extended beyond this period. The area of land to be set aside for the purpose of this agreement is outlined in the attached aerial photograph or detailed plan.

***Gas Unlimited*'s key requirements are that:**

- The vegetation cover on the area covered by the contract did not meet the definition of “forest” under the international Kyoto Protocol at 31 December 1989 (see attached definitions).
- The vegetation cover does currently meet the definition of “forest” under the international Kyoto Protocol.
- It is possible to demonstrate and prove a change in land management practices and/or policy since 1990 (such as fencing to prevent domestic stock incursion or seeking kawenata) in order to achieve the above objectives.

Your obligations as landowner are that:

- If the land is withdrawn from indigenous forest or is damaged through fire, grazing stock or tree removal, or for any reason the landowner wishes to withdraw from the agreement, *Gas Unlimited* will be notified in writing before the end of the contract year (defined from the date of this contract). The contract will then be terminated.
- The CO₂ credits associated with the indicated area and time period may not be sold or leased to another party during the period of this contract, without written notification before the end of the contract year.
- An independent auditor of CO₂ sequestration, designated by *Gas Unlimited*, will have the right to enter the property with two weeks’ advance warning up to one time each year to monitor the state of the forest and the carbon accumulation.

Gas Unlimited will make payments at the end of each contract year that the forest remains intact, over the x -year period. The annual payments will be equal to q tonnes per hectare multiplied by \$Z per tonne.

If you are happy to confirm that these requirements are met and accept these terms, please sign and date each of the two copies of this letter and return both copies for execution.