



Emphasis on indigenous forests in ETS would benefit public health

1 August 2023

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Summary

The NZ Government is currently consulting the public on a redesign of the NZ Emissions Trading Scheme (ETS), its key climate change control mechanism. [Consultation](#) closes on 11 August.

The Government acknowledges that in its current form, the ETS is not expected to drive gross emissions reductions. Instead, the ETS has incentivised companies to off-set their emissions by establishing pine plantations.

In this Briefing, we summarise [our submission to the review](#). We touch on the impacts to human health from climate change and then outline the problems for public health from landscapes dominated by monocultural forestry. We highlight the public health and other co-benefits from redesigning the ETS to drive the restoration of indigenous forests in the face of climate change.

Given the extent of such benefits, a reformed ETS should put a higher value on restoring native forests above plantation forests. A similar approach should be explored for wetlands, that likewise provide numerous benefits for human and environmental health.

Climate change is one of the greatest health challenges of the 21st century.¹ Climate change poses both direct and indirect health impacts. An example of a direct impact is extreme temperatures, with an estimated 60,000 plus people in Europe dying from heat-related issues in the summer of 2022.² Indirect threats include increased food insecurity and amplified problems from the pollution of fresh water. It is therefore imperative that all climate change policy takes public health into account now and in the future.

However, to date, NZ Government agencies have poorly integrated public health needs into climate policy. The significant impacts to communities' health and well-being from climate change policy is often obscured or ignored when the problem that policy is aiming to solve is too narrowly defined.

In a report on the human health impacts of climate change, the Royal Society of NZ wrote “[w]ell-designed policies to reduce global greenhouse gas emissions will not only limit climate change and reduce the associated risks to human health but have the potential to improve population health and reduce health inequalities”.³

Conversely, climate change policies that do not appropriately consider public health can have significant negative direct and indirect impacts. Frequently such impacts are experienced most severely by communities that are least able to respond due to socioeconomic deprivation and political marginalisation.⁴

The [NZ Emissions Trading Scheme \(ETS\) in its current form has not been effective in reducing emissions](#)⁵ nor does it fully realise its potential to protect public (population) health.

To best support public health, a redesigned ETS must drive gross emissions reductions, with the goal of meeting the country's climate change commitments. Alongside this, it should

incentivise the restoration of native forests over pine plantations given the extent of co-benefits native forest provide and the risks under climate change where monocultural plantations dominate landscapes.

Risks under climate change from monocultural plantations compared to native forests

Current ETS settings have incentivised the planting of monocultural pine plantations. This has had some benefits in terms of extracting carbon from the atmosphere and providing jobs for forestry workers – often in economically-deprived regions. However, compared to the restoration of native forests, it has the following disadvantages:

- The carbon stored in exotic plantation forests is less secure in the long term than in indigenous forests. Trees like pines “may sequester carbon quickly for the first 20 years, but 10 years later they’re cut down and most of the carbon is dispersed and lost.”⁶ That is because wood and paper can be burnt in wood burners releasing the carbon back to the atmosphere; or newspaper rots in garbage dumps releasing methane.
- Relative to indigenous reforestation, monocultural exotic plantations can increase erosion and soil loss (particularly after trees have been harvested).⁷ A July 2023 report produced for the Ministry for the Environment by Manaaki Whenua found standing exotic forests were less effective in erosion control than indigenous forest during Cyclone Gabrielle.⁸ Along with forestry slash, soil lost during flooding can increase the damage to crucial public health infrastructure, like drinking and wastewater facilities.⁹ (see also this [Briefing on Cyclone Gabrielle](#)). Soil deposited on the land after such flood events can be a public health risk. It may contain contaminants and, as it dries, can cause respiratory and other health issues.¹⁰
- Monocultural forestry plantings can disrupt water cycles. As a Nature journal article notes, “the shift from natural or diverse vegetation mixes to planted monocultures can lead to more uniform patterns of transpiration, interception, evaporation, the routing of precipitation to the soil and groundwater recharge.”¹¹ This homogenisation of hydrological functions can contribute to increased flood and drought risk, where less water may be absorbed and stored in soil and underground, and more water may be lost through processes like evaporation. Additionally, research from New South Wales identified negative effects on mental health as an important health consequence of flooding.¹²
- Monocultural pine plantations are more susceptible than indigenous forests to wildfire.¹³ Wildfires have direct and indirect risks to people’s health. As Leverkus, et al, write, “strategies to combat climate change through tree planting—whether through plantations or through restoring native vegetation— should address how the changes in composition and configuration of landscapes can affect fire propagation. Plans should favour landscape mosaics, heterogeneous and fragmented stands rather than large and homogeneous ones...”¹⁴ This susceptibility to fires also degrades the long-term carbon capture of plantation forests relative to indigenous forests.

Incentivising native forest restoration would have higher public health and wider societal benefits

A redesigned NZ ETS that puts a higher value on restoring indigenous forests relative to that for planting exotic plantation forests could have a wide range of benefits. These include:

- Avoiding the above listed problems with plantation forests (ie, via indigenous forests having more secure long-term carbon storage; better erosion prevention; no forestry slash; less pressure on infrastructure; more resilience to drought and flooding; and reduced wildfire risk).
- Improved biodiversity and buffering from climate change impacts. Diverse landscapes and healthy ecosystems support biodiversity and increase resilience to the impacts of climate change. Scholars have identified a “vicious cycle” whereby ecosystem degradation drives climate change drives increased disaster risk which in turn drives ecosystem degradation.¹⁵
- Drinking water source protection. The Government inquiry into the contamination of Havelock North’s drinking water emphasised, “protection of the source of drinking water provides the first, and most significant, barrier against drinking water contamination and illness”.¹⁶ An NZ ETS that encourages permanent native forest restoration could have the co-benefit of improved drinking water source protection.¹⁷ Source water protection reduces contamination risks to people’s drinking water and can reduce costs associated with the treatment of drinking water supplies.
- Mental health and wellbeing benefits, both in terms of reduced risk of high impact events on mental health and in terms of access to the natural world. Connection to a healthy environment provides mental health benefits and is likely to be particularly important for Māori.¹⁸

Models are already being developed for how we might transition poorly placed existing pine plantations to indigenous forests.¹⁹ [However, a recent article highlighted the current difficulty for iwi in Tairāwhiti wanting to restore native forests.](#) Trustee of Totaranui Nama Ono/Te Pa o Penu stated, "You have to question your obligation to your people and your culture and your country when you as an ancestor are not leaving a legacy for your descendants".¹⁸ In the same article, researcher Manu Caddie said, “[T]hey're looking for ways to fund that to get both plants in the ground and natural regeneration, but also pest control, which is all very expensive but it's really the only option for the land." The ETS redesign needs to account for and not worsen socioeconomic disadvantages experienced by Māori.⁴

Policy makers should also expand the ETS to wetlands and estuaries and incentivise their protection and restoration of applying a high value in a reformed ETS. These store significant quantities of carbon, are important for biodiversity and provide numerous ecosystem services that communities rely on.

Finally, an ETS that incentivises native forest restoration is also consistent with international research.²⁰

What's new in this Briefing

- Outlines problems for public health from landscapes dominated by monocultural forestry.
- Highlights the public health and other co-benefits from redesigning the ETS to drive the restoration of indigenous forests in the face of climate change.

Implications for public health policy and practice

- Well-designed carbon pricing policy needs to consider all the health and societal co-benefits that could be gained beyond just meeting our international greenhouse gas obligations.
- Given the overall benefits, a reformed ETS should put a high carbon price on restoring indigenous forests relative to the price for exotic plantation forests. A similar approach should be explored for wetlands.
- Any ongoing ETS support for exotic plantation forest planting must do more to avoid the downsides eg, combining such support with regulations to eliminate the risk of forestry slash being washed down waterways.

[You can read the Public Health Communication Centre's full submission to the ETS Review here.](#)

Author details

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