

## **Office of Australia's National Advocate for Soil Health**

Major General the Honourable Michael Jeffery, AC, AO(Mil), CVO, MC (Retd)

### **PROPOSAL: A Clear and Simple Solution to Australia's Carbon Emissions**

#### ***Preamble***

1. The community and particularly young people are increasingly concerned about climate change. This concern has been reinforced by Sir David Attenborough's TV series "The Planet", the UN Report of 6 May on "Unprecedented Species Extinction Rates", the recent climate demonstrations by school children Australia wide and a Lowy Institute poll of 8 May 2019. Neither major political party appears to have cut through to the public with the climate policies they are presently espousing.
2. As the National Advocate for Soil Health, I strongly believe that current political and public debate on the subject has failed to address a potentially key solution: to use the CO<sub>2</sub> drawdown capacity of a regenerated agricultural landscape to meet all our existing industrial emission targets and probably those emanating from the processing of our overseas oil, gas and coal exports.

#### ***The Issue***

3. Australia currently emits around 550mt of industrial CO<sub>2</sub> per year and the equivalent of a further 2.25Gt through the overseas processing of our coal, gas and iron ore exports. This represents approximately 80t of CO<sub>2</sub> per head of population.
4. Our agricultural landscape comprises 470m ha, approximately 55% of the Australian continent.
5. If we could draw down 1.2t CO<sub>2</sub> per ha, we would neutralise our industrial emissions, whilst a 4.4t ha draw down would neutralise both our industrial and export emissions.

#### ***Proposal***

6. **As the National Advocate for Soil Health, I propose that the next Australian government commit to prioritising the promotion and resourcing of a rapid transition to regenerative farming practices as the means to neutralise our CO<sub>2</sub> emissions, and in the process, create a prosperous farming and food secure nation.**

## ***The Science of Carbon Capture in our Soils***

7. Australia's former Chief Scientist, Prof Robin Batterham AO, FREng, FAA, FTSE, FDI Associate<sup>1</sup>, argues that healthy soils have the capacity to absorb like a sponge, at least sufficient CO<sub>2</sub> to meet our Paris Agreement target. Accordingly we should be pursuing with the utmost vigour, a cheap, accurate, broad acre soil carbon measurement system.
8. A study just published by the Joint Research Centre (JRC) in Nature Climate Change<sup>2</sup> shows that soils can be a net sink of greenhouse gases through increased storage of organic carbon.
9. A report from the Queensland Department of Primary Industries asserts that carbon stored in soils worldwide, represents the 3rd largest sink in existence, after oceans and geologic sinks. It states that "there is 2-4 times as much C stored in soils as there is in the atmosphere and approximately 4 times the C stored in vegetative material (i.e. plants)." <sup>3</sup>
10. The International Journal of Low-Carbon Technologies also asserts that regenerative agricultural practices have the capacity to store significant amounts of CO<sub>2</sub>. It says: "Carbon fixation by photosynthesis is mainly under consideration for sequestering atmospheric CO<sub>2</sub> for long-term period". The Journal authors examine a range of carbon sequestration techniques, including geological, oceanic and chemical, and positively promote regenerative practices such as no-till farming, the production of biochar, the planting of perennial crops, nitrogen fixation and bio-energy crops, as an effective way to build up sufficiently healthy soils to sequester CO<sub>2</sub>.<sup>4</sup>
11. The National Academies of Sciences, Engineering and Medicine's "*Negative Emissions Technologies and Reliable Sequestration*" report provides strong evidence of the efficacy of CO<sub>2</sub> sequestration in soils, as part of a study on various methods. <sup>5</sup>
12. A UK study on urban soils as a method for capture and storage of carbon concluded that "in a global context, soils are now recognised as an important potential tool for mitigation of rising atmospheric CO<sub>2</sub> concentrations". <sup>6</sup>

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<sup>1</sup> <http://www.futuredirections.org.au/publication/two-focusing-questions-that-suggest-our-soils-deserve-more-attention/>

<sup>2</sup> <https://ec.europa.eu/jrc/en/news/soil-carbon-sink-it-depends-also-nitrogen>

<sup>3</sup> <https://futurebeef.com.au/wp-content/uploads/2011/09/Soil-Carbon-Sequestration-Report.pdf>

<sup>4</sup> <https://academic.oup.com/ijlct/article/11/2/266/2198361>

<sup>5</sup> <http://dels.nas.edu/resources/static-assets/basc/miscellaneous/basc-cdr-20-min-briefing-slides.pdf>

<sup>6</sup> [http://discovery.ucl.ac.uk/1409317/1/Washbourne\\_For\\_archive\\_Manuscript\\_soil\\_carbon\\_formation.pdf](http://discovery.ucl.ac.uk/1409317/1/Washbourne_For_archive_Manuscript_soil_carbon_formation.pdf)

### ***The Suggested Solution***

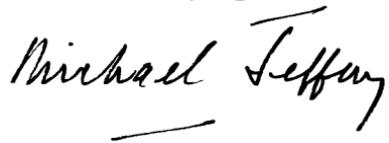
13. I, along with former Chief Scientist Robin Batterham and other reputable research agencies, believe it is demonstrable that those agriculturists who successfully integrate the management of their soil, water, plant and where applicable, their animal assets, can sustainably and markedly improve their soil health and thus their soil carbon levels. In so doing farmers would also be eligible to earn carbon credits as a further income stream.
14. Some individual regenerative farmers have demonstrated draw down rates of 10 t CO<sub>2</sub> per hectare or more on their properties. Every unit of carbon sequestered facilitates the retention of up to eight units of water in the soil, the key to reducing the appalling evaporative loss of 50% of our annual rainfall.
15. Reduction of Australia's current emissions through photosynthesis would provide breathing space to develop a planned, well thought through transitional energy policy from a fossil fuels base to renewables etc. The regenerative agricultural process required to draw down CO<sub>2</sub> and sequester it as soil carbon will also ensure a more prosperous farming community and a sustainably food secure nation. The methodologies developed here could be made available to big CO<sub>2</sub> emitter countries.

### ***Summary***

16. This proposal has been written at short notice with the intention of giving both major political parties the opportunity to outline a simple and doable policy framework, prior to the election, to meet our industrial and mineral export carbon emissions, through the aegis of a regenerated agricultural landscape. Such a philosophy, properly implemented would do much to overcome public disquiet and frustration about current election climate change policy announcements.
17. The method to achieve CO<sub>2</sub> draw down at scale, is through increasing the photo synthetic capacity of a regenerated agricultural landscape
18. This can only be achieved through a nationally coordinated and resourced effort to fully integrate the management of our soil, water, plant and animal assets.
19. The methods, educative requirements and funding resources to do this are well proven and documented; for example on the Soils For Life website at [www.soilsforlife.org.au](http://www.soilsforlife.org.au).

### ***Conclusion***

20. I commend this proposal to you and seek agreement in principle during this election campaign.

A handwritten signature in black ink that reads "Michael Jeffery". The signature is written in a cursive style with a horizontal line underneath the name.

Major General the Honourable Michael Jeffery, AC, AO(Mil), CVO, M (Retd)  
10 May 2019