

Garnaut Review Secretariat  
Level 2, 1 Treasury Place  
Melbourne VIC 3002

Dear Professor Garnaut

**Personal Submission on Issues Paper 1. Climate Change: Land Use - Agriculture and Forestry**

My current role is Manager of Sustainability for the Water Corporation of Western Australia, but this submission is made in a private capacity.

This submission specifically addresses possible solutions to some of the adaptation challenges outlined in page 4 of the Issues Paper.

If Australia solves the challenges in adapting its agricultural and pastoral systems to climate change in a systematic, environmentally sound, socially sensitive and economically robust manner, it will become a recognised leader in effective responses to global warming. There will also be obvious benefits to the economy, society, and the natural environment, and innovative Australian approaches to the social, financial and technical aspects of land use adaptation would be readily exported, particularly as aid to developing countries.

My broad vision is that our failing agricultural and pastoral landscapes would be 'climate-hardened' by introducing 'carbon farming' while progressively transforming cropping and grazing systems to be more resilient in the face of climate change. If done on a large enough scale, this would create new economic opportunities, remnants of native vegetation, including streamlines, would be reconnected by corridors of indigenous vegetation so that pathways for migration of wildlife and gene flow would exist as climate stresses occur, and the threat of extinctions could be minimised. Changing landscapes in this way will also contribute to sequestering carbon for long periods in soils, reducing or reversing dryland salinity, erosion, the decline of many regional towns and businesses, the spread of weeds and other problems.

The key conceptual and practical elements of my proposal are:

- To provide individually-tailored financial, physical and technical support to rural landholders to transform their pastoral, pasture and cropping systems by introducing a landscape-appropriate mix of carbon sinks in the form of soil carbon, shrubs, trees, perennial pastures and crops, as well as linking patches of remnant native vegetation in a manner appropriate to their local landscape and climatic conditions. An emerging possibility is that of 'carbon farming' or 'agri-char', where charcoal or other suitable carbon residues are added to agricultural soils. This provides long-term sequestration of carbon in a way that is simple to audit, as well as improving soil structure, water retention and plant production (please see [http://www.wmaa.asn.au/director/divisions/energy\\_from\\_waste/papers/seminars.cfm](http://www.wmaa.asn.au/director/divisions/energy_from_waste/papers/seminars.cfm))
- The technical details of the interventions would vary from region to region, and would be voluntary, at least to begin with. The incentive model I proposed has already been successful in cost-effectively transforming waste management in the dairy industry near Busselton in WA and beyond, in stark contrast to the broad scale failure of the Commonwealth's Landcare and the National Heritage Trust programs to achieve any significant level of change at the behavioural, catchment or landscape system level. The landscape interventions would be based on the best

available science (agronomic, ecological and behavioural), and may need further research and monitoring to progressively refine them.

- Indigenous landowners could participate by being paid to manage their lands to enhance the retention of natural biodiversity and maximise the sequestration of carbon by native vegetation and soils. This would align closely with their cultural attachment and interests in the land.
- This approach requires the existence carbon rights and carbon trading, so that there is an incentive for the major investment of private funds in landscape restoration and the consequent sequestration of carbon.
- The financial support to land owners would be on a 50:50 cost (and risk-) sharing basis (except for indigenous lands), and underpinned by simple common law contracts, supported by Carbon Rights legislation that already exists in most State jurisdictions. The program could be funded in full by the Commonwealth, or in partnership with the States, but most beneficially by industry funding the establishment of carbon credits on the farmer's land, and then owning those credits for their practical lifetime. Given that many landholders are already under severe financial and emotional stress from drought, low interest rate loans would assist them in participating in the program. Indigenous landowners could be paid directly to achieve the desired outcomes. If the scheme were properly structured it could become financially self-sustaining within a decade or so as loans were repaid to the central pool of funds.
- This program could also assist in socially adjusting rural communities confronting recurrent crop failure in places like the eastern and northern wheatbelt of Western Australia and elsewhere. Farmers or graziers could have the option of moving out of failing enterprises, or being paid to stay and manage their land for other purposes, such as salinity restoration, biodiversity enhancement and carbon sequestration.
- There is direct evidence of the success of this approach from my experience with the Water Corporation's Busselton Environmental Improvement Initiative, which won the 2005 Prime Minister's Award for Excellence in Public Sector Management, the 2004 United Nations Association Awards for Excellence in Coastal Zone Management and the 2004 WA Premier's Award for Excellence in Public Sector Management (see attachments). The Corporation is currently designing a combined nutrient reduction/carbon sequestration scheme for the Ellenbrook catchment to the north of Perth, using the proven Environmental Improvement Initiative framework.

There is obviously much more work required fully developing and implementing this scheme, but the advantages of such a broad approach seem obvious to me.

Yours sincerely

Dr Robert Humphries

**References:**

McGuire, Lorna; Newman, Letisha and Humphries, Robert (2007). Busselton Environmental Improvement Initiative 2000-2004. Final Report. Water Corporation. ISBN 1740432983  
[http://www.watercorporation.com.au/\\_files/BEII\\_Final\\_Report.pdf](http://www.watercorporation.com.au/_files/BEII_Final_Report.pdf)

O'Grady, B and Humphries, R (2003). Confronting the failure of volunteerism in river basin management - the Water Corporation's Busselton Environmental Improvement Initiative. RiverSymposium 2003.  
[http://www.watercorporation.com.au/\\_files/BEII\\_Riversymposium2003.pdf](http://www.watercorporation.com.au/_files/BEII_Riversymposium2003.pdf)

Web-based information on the Busselton Environmental Improvement Initiative  
[http://www.watercorporation.com.au/B/busselton\\_eii.cfm?uid=0850-8286-9750-3235](http://www.watercorporation.com.au/B/busselton_eii.cfm?uid=0850-8286-9750-3235)