National Assembly for Wales
Sustainability Committee

Carbon Reduction from Land Use

Fifth Report of the Sustainability Committee's inquiry into Carbon Reduction in Wales

July 2009

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Chair's Introduction

This is our fifth report into Carbon Reduction and considers the issues around Carbon Reduction via Land Use

Agriculture and Land Use is at the heart of rural Wales and as such was a key area for us to look at during our inquiry into carbon reduction. This part of the inquiry was different to the other sections of our Carbon Reduction inquiry as, although land use contributes to approximately 11 per cent of all the greenhouse gas emissions in Wales, of this carbon dioxide plays only a small part, with methane (CH4) and nitrous oxide (N2O) being the largest emitters in this sector. As a sector it is also unique as it can store as well as emit carbon. We heard about the importance of preserving the carbon already in the soils as it is currently estimated that in the 23.4 percent of land surface in Wales which is covered by peats, organic and organo-mineral soils there is 195 mega tonnes of Carbon already stored.

I hope this report begins to address the complex scientific picture in this field and outlines key actions that the different uses of land including agriculture and forestry can take to help reduce the emissions of greenhouse gases in Wales.

I would like to thank all those who have given us written and oral evidence for sharing their knowledge and expertise with us and for their openness and frankness in expressing their views to us.

This report will form part of our final report which will be published in the autumn of 2009. We have also published an introductory document which is designed to be read as an introduction to any of the topic reports that we produce on carbon reduction in Wales and contains our terms of reference and the policy background to carbon reduction. The introduction document can be found on our website at:
http://www.assemblywales.org/bus-home/bus-committees/bus-committeesthird-assem/bus-committees-third-sc-home/inquiries/inquiries_-_carbon_reduction_household.htm

We welcome your thoughts and comments on this report, which can be sent to us at: Sustainability.comm@Wales.gsi.gov.uk or write to us at:
Sustainability Committee
National Assembly for Wales
Cardiff Bay
CF99 1NA

We would like to publish some of your ideas and views on our website so that other people can read them.

You can also find out more about how to contribute to our written consultations on future topics on our website at:
http://www.assemblywales.org/bus-home/bus-committees/bus-committeesthird-assem/bus-committees-third-sc-home.htm

Chapter 1 – Introduction

1.1 This report differs from the others that we have previously published on other sectors. The land use sector is unique in that it is not only a source of carbon emissions but also a reservoir of trapped carbon and a potential carbon sink which could capture carbon from the atmosphere.

1.2 The science surrounding both the carbon emissions from land use and its role in storing and possibly capturing carbon is in its formative stage with many theories and models still being trialled at a small experimental scale.

1.3 Carbon dioxide plays only a small part in the total greenhouse gas emissions for the land use sector with methane (CH_4), a carbon based greenhouse gas and nitrous oxide (N_2O) contributing 64% and 36% of the greenhouse gas emissions for the sector respectively.

1.4 Given the differences with the other sectors we have reported on, this report does not contain headline recommendations and is brief and contains, we believe, a set of recommendations which will start to address the complexity of the mostly scientific issues surrounding the role of the land use sector in achieving the 3% reductions target.

CO_2 emissions from rural land use

1.5 Carbon dioxide (CO_2) emissions from rural land use activities primarily relate to CO_2 emitted as a result of energy or fuel use, for example through the use of agricultural machinery. Agriculture is responsible for around 11 per cent of all greenhouse gas emissions[1] (GHG) in Wales[2]. The greatest emissions from agriculture are methane[3] and nitrous oxide (N_2O)[4], of which Welsh agriculture accounts for 58 per cent and 80 per cent of emissions of these gases respectively.

1.6 In terms of CO_2 emissions alone, figures quoted by the Welsh Government state that agriculture is responsible for 1.1 per cent of total Welsh CO_2 emissions[5], compared with road transport[6], which accounted for 14.4 per cent of CO_2 emissions in 2006[7].

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[1] Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrolfluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF_6)
[2] AEA, *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland 1990 - 2006*, 2008, page 16 web page [on 18 November 2008]
[3] Over 100 years, methane has 21 times the warming potential of CO_2
[4] Over 100 years, Nitrous Oxide has 310 times the warming potential of CO_2.
[5] Welsh Assembly Government *Farming Food and Countryside: Building a Secure Future* June 2008, page 9, web page [on 18 November 2008]
[6] Ibid. Page 15
[7] Ibid. Page 14

Total CO_2 emissions for all UK sectors in 2006 were 554 mega tonnes (Mt), to which Wales contributed 42Mt, or 7.7 per cent[8].

1.2 Carbon stores and sinks

Welsh soils are a source of carbon and remove carbon from the atmosphere. Peatlands are of particular importance as carbon sinks and stores. If in good condition peatlands absorb and store carbon. However, peatlands in bad condition emit carbon into the atmosphere. Welsh soils are estimated to contain 410 mega tonnes of carbon (MtC)[9].

23.4 per cent of the land surface of Wales is covered by peats, organic and organo-mineral soils; the total carbon in these soils is estimated at 195Mt[10]. The remaining 76.6 per cent of Wales is covered primarily by mineral soils with low carbon content[11].

The land use, land use change and forestry sector (LULUCF) currently makes a net contribution to carbon reduction, via soil and forestry-based carbon sinks. In 2006, LULUCF contributed a reduction of 0.2Mt Carbon, or 0.4 per cent[12].

1.3 Rural land use and carbon management

Agriculture

Research undertaken by Natural England and the Country Land and Business Association (CLA) highlighted the importance of making farmers aware of the contribution their activities can make to CO_2 emissions. Their work found that[13]:

- Dairy farms have the highest emissions (excluding specialist horticulture businesses) with an average of around 10 tonnes of CO_2-equivalent (CO_2e) per hectare[14].

- Cereal farms in general had the lowest emissions with an average of around two to four tonnes of CO_2e per hectare[15].

- Draining or cultivating organic (peat) soils greatly increased CO_2 emissions, due to the large amounts of carbon stored in peat being released to the atmosphere.

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[8] Ibid. Page ix
[9] Welsh Assembly Government *Sustaining the Land*, October 2008, Page 12, web page [on 18 November 2008]
[10] Scottish Government and Welsh Assembly Government *Estimating Carbon in Organic Soil – Sequestration and Emissions*, March 2007, page 24, web page [on 18 November 2008]
[11] Welsh Assembly Government *Sustaining the Land*, October 2008, Page 13, web page [on 18 November 2008]
[12] AEA, *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland 1990 - 2006*, 2008, Page 17, web page [on 18 November 2008]
[13] Natural England *Carbon Baseline Survey Project*, April 2008, web page [on 18 November 2008]
[14] These figures include methane and nitrous oxide
[15] These figures include methane and nitrous oxide

- The impact of existing woodland and, particularly woodland planting, on overall emissions was also noticeable. In one or two instances, woodland planting on a farm went a long way towards offsetting their total greenhouse gas emissions.

- A combination of increasing the uptake of renewable energy on farms together with woodland planting and management could potentially have a big impact on reducing a farm's net GHG emissions.

- In the longer term, there is also the potential to deliver practices that enhance carbon storage in soils on the majority of farms.

Activities such as forestry and agriculture have the potential to contribute to the generation of renewable energies through the use of biomass and waste. According to a study into the *Carbon Footprint of British Agriculture*[16]

> Unlike many other industries, agriculture and related activities such as forestry, are also seen as part of the solution to fossil fuel shortages and climate change. Renewable energy in the main relies on the products of agriculture and forestry for the "fuel" for renewable energy generation processes. Such fuel may either come directly from agriculture and forestry as "energy crops" or indirectly from waste food and wood. Furthermore appropriately managed soils and woodland can play a part in absorbing or "sequestrating" atmospheric carbon dioxide ("CO2").

Forestry

There are currently 287,000 hectares of woodland in Wales, of which the Forestry Commission manages 38 per cent. The Forestry Commission Wales has recently undertaken a review of Wales' woodland strategy[17] on behalf of the Welsh Government in which the reduction of CO_2 emissions is a central theme. The consultation states:

> There are 12,000 hectares of plantations on peat soils, some of which have the potential to be restored to open habitats such as bog with benefits for biodiversity. On the Assembly woodland estate, approximately 4,000 hectares of conifers have been cleared since 2000 in order to restore valuable priority open habitats. The greenhouse gas emission implications of managing peat soils are complicated and further guidance is required to help us make better decisions about when and how we go ahead with deforestation and habitat restoration. This is especially complex on highly modified sites where the prospects of successfully restoring habitat are less favourable.

[16] The Carbon Footprint of British Agriculture, *Agriculture's Role in Energy Production From Biomass and Waste*, April 2008, web page [on 18 November 2008]
[17] Welsh Assembly Government *Consultation on proposals to revise Woodlands for Wales*, July 2008, web page [on 18 November 2008]

A consultation by the Scottish Government[18] has identified that increasing the size of the Scottish forest estate by 10,000 hectares per year would potentially lock 0.2m tonnes of carbon per year by 2020 whilst also creating opportunities for renewable energy and green jobs.

1.4 Welsh Government Policies

- *One Wales*[19] contains the following commitments of relevance to this issue:

  > We will aim to achieve annual carbon reduction-equivalent emissions reductions of 3 per cent per year by 2011 in areas of devolved competence.
  >
  > We will provide support for indigenous woodlands, including a tree for all new babies and adopted children, helping to create a Welsh National Forest of native trees to act as a carbon sink.
  >
  > We will develop a support programme to promote energy efficiency and renewable energy production on-farm.
  >
  > We will explore the introduction of a grant scheme to convert to energy crops.

- One of the Wales Environment Strategy[20] outcomes (outcome 16) is the improved management of soil to *"safeguard its ability to support plants and animals, store carbon and provide other important ecosystem services"*. The recent Action Plan identifies soil carbon as being one of the priorities for land management and states:

  > Landscape and catchment-scale management will help sustain the essential ecosystem services that underpin our economy. We will work to ensure that our environmental priorities for land management – in particular biodiversity, water and soil carbon - are delivered in an integrated way.

- The Welsh Assembly Government's consultation on a new farming strategy, *Farming, Food and Countryside: Building a Secure Future*[21], recognised:

  > Agriculture and forestry practices need to be modified to ensure that they contribute to current and future action to cut greenhouse gas emissions and mitigate the effects of climate change. Peatlands and other soils with high organic matter represent an invaluable carbon store requiring careful management.

And

[18] Scottish Government Press Release, *Scotland's Forests Help Combat Climate Change*, web page [on 18 November 2008]
[19] Welsh Assembly Government *One Wales: A Progressive Agenda for the Government of Wales*, web page [on 18 November 2008]
[20] Welsh Assembly Government *Wales Environment Strategy Action Plan 2008 - 11*, 2008, web page [on 18 November 2008]
[21] Welsh Assembly Government *Farming Food and Countryside: Building a Secure Future* June 2008, web page [on 18 November 2008]

Energy conservation, generation and innovation must be increasingly prioritised. '*One Wales'* is committed to promoting energy efficiency and renewable energy production on farm.

- The recent *Woodlands for Wales*[22] consultation identifies opportunities for

  Better management of existing woodlands to protect above and below ground carbon management

  The development of renewable energy based on wood

  New woodlands to help sequester carbon

  The current review of land management measures under Axis 2[23] of the Rural Development Plan is exploring options to make agri environment schemes more targeted towards the management of soil carbon. Current examples of agri environment schemes are Tir Gofal, Tir Cynnal and the Organic Farming Scheme. The review is due to be completed during 2009, with any changes to the schemes to be implemented in 2010.

[22] Welsh Assembly Government *Consultation on proposals to revise Woodlands for Wales*, July 2008, web page [on 18 November 2008]
[23] Welsh Assembly Government *Sustaining the Land*, October 2008, web page [on 18 November 2008]

Chapter 2 – Land Use

2.1 In this chapter, we will deal mainly with the emissions arising as a result of land use by agricultural practices.

2.2 The largest sources of emissions from the land use sector are from the use of fossil fuels for heat, light and power for farming operations and from livestock.

Farming operations

Incentivisation

2.3 The overwhelming evidence that we received on reducing carbon emissions from farming operations indicated that, whilst there was a willingness amongst many farmers to cut their carbon emissions, recent cuts in emissions had resulted mainly from destocking and the decreased use of fertilisers. Both these reductions had occurred mainly as a result of farmers and land owners taking economic decisions because of the livestock and milk markets and the price of fertiliser.

2.4 It was recognised by the majority of witnesses that the main driver for how land is managed is economic. The Country Land and Business Association (CLA) summed up the current situation:

> "In all honesty, I do not think that there has been much incentive to change. The recent incentives have been driven by price. We have de-stocked animals for a variety of reasons. We do not throw fertiliser around when it costs £450 per tonne. You do not plough or use tractors unnecessarily when red diesel costs 80p per litre. Those business decisions are easy to make. As it happens, as the price of oil reduces again, I suspect, from a business point of view, that our intensity or intent will probably diminish with it, but I do not know. Ultimately, it is a business decision, which is why you need an incentive as well as an altruistic motive."

2.5 It was widely acknowledged that current incentives paid to farmers such as those through the cross compliance requirements of the Common Agricultural Policy and Welsh agri-environment schemes produced emissions reductions as a bi-product rather than them being a key objective of the policies.

2.6 The Royal Society for the Protection of Birds (RSPB) emphasised the need for behavioural change saying:

> "The principal challenge to rural land managers, including farmers, is to adopt a 'carbon culture' in their approach to land management…. To assist

> with this necessary culture change, it might be that farmers in particular need to receive some form of financial recognition for adding carbon conservation to their environmental responsibilities, alongside biodiversity and habitat protection and enhancement."

2.7 We welcome the announcement of the Glastir scheme by the Minister in May 2009 and its objective of climate change outcomes. We are concerned, however, that, as the scheme will not be taken up by all farmers, the full potential for carbon reduction in the land use sector will not be achieved.

2.8 Conversely, if the scheme is highly successful, with more farmers and land managers applying for it than for current schemes, the grant allocations for each year of the scheme could quickly become exhausted, leaving many farmers unable to access the scheme and therefore achieve the level of carbon savings they would like to.

2.9 We are also concerned that, although the Minister announced capital grants for renewable energy schemes and grants for protecting carbon rich soils, there is no mention of carbon footprinting for holdings.

2.10 We also welcome the annual £5 million available for farmers for renewable energy projects. We are concerned, however, from evidence we have received during other parts of our inquiry, that many schemes such as anaerobic digestion, which could qualify for the grants, have difficulty in getting planning permission.

Recommendation 1: The Welsh Government should review the funding for Glastir annually to ensure that sufficient funding is in place to cope with demand.

Recommendation 2: The Welsh Government should promote the economic benefits of the carbon saving measures contained within Glastir as part of the scheme.

Recommendation 3 : The Welsh Government should lobby the UK Government and the EU to ensure that carbon reduction is a key objective of any payment scheme covering all farms in the next review of the Common Agricultural Policy.

Information, data and knowledge transfer

2.10 Several witnesses highlighted the lack of availability of information for farmers and landowners on reducing their carbon emissions. The Farmers Union of Wales (FUW) emphasised the problems many farmers have with climate change issues:

> There is a lot of confusion as to what is happening. We know that climate change is happening, but sometimes, those of us on the ground get left behind with regard to what that means to us as individuals and what contribution we can make to mitigate the effects of climate change. One thing that I hope comes out of this is that existing structures, such as Farming Connect, get used to improve the flow of information on what farmers can do to implement energy efficiency measures and to encourage more use of anaerobic digestion and renewable energy on the farm. That enterprise would not only be energy efficient to help to meet the Assembly's targets but also economically efficient for farms.

2.11 The Countryside Council for Wales (CCW) and NFU Cymru highlighted the research currently being done to reduce the release of methane into the atmosphere from the dairy and beef sectors.

2.12 The issue of carbon footprinting for farm businesses was raised by the Country Land and Business Association (CLA). They highlighted the need for farmers and land managers to know what their carbon emissions are before they could start to do something about reducing them.

2.13 Several people pointed to the lack of baseline data as a barrier to measuring carbon reduction from farming practices and there was a general agreement that some simple tool was needed to help farmers to calculate their carbon emissions. CCW said:

> …there is a certain amount of data for agriculture as a whole or we would not be able to talk about the contribution. The difficulty is that the data are there for the Welsh agricultural sector as a whole, not for individual holdings, so more work could be done to look at the ecological footprint of individual holdings. As we also said, the data are not there for the individual holdings that enter schemes. In fact, most of the current agri-environment schemes that we have were not designed in an era of climate change, so they do not even require those kinds of things to be measured.

2.14 We are concerned about the lack of baseline data as this has become a theme throughout the course of our inquiry into carbon reduction in Wales and welcome the pilot studies being undertaken by CCW. We consider that ways of measuring carbon emissions for the agricultural sector will need to be different to those used in other sectors because of the unique sources of carbon and greenhouse gases.

2.15 We heard evidence from the CLA about the success of their carbon footprinting tool 'carbon audit and land management' (CALM) in enabling land managers to evaluate the profit and loss account for their carbon activities and their enterprise mixes.

Recommendation 4: The Welsh Government should establish a dedicated carbon reduction information service for farmers and land managers

Recommendation 5: The Welsh Government should support the development and roll out of a carbon footprinting tool which can be accessed and used by all farmers and land managers as soon as possible. The rollout of the tool should be accompanied by the production and provision of advice and help for using the tool which is accessible to all farmers and land managers.

Livestock

2.15 As discussed in chapter 1, livestock are a larger source of greenhouse gas emissions in the agricultural sector, producing around 6 mega tonnes equivalent of CO_2 in 2005. The emissions are mainly carbon based methane from cattle and nitrous oxide from fertiliser.

2.15 Work being done in Wales and other countries indicated that high sugar grasses and other feed supplements could reduce methane emissions from cattle whilst maintaining a high milk yield.

2.16 The Farmers Union of Wales however, pointed out that these experiments were focussed on reducing methane from intensively reared animals and that the majority of livestock in Wales was reared using extensive methods.

2.17 We are encouraged by the work being done in Wales on reducing methane emissions whilst accepting that it will have more of an impact in areas of intensive cattle farming. We are concerned however, about how the information about new grazing systems is passed on to farmers and how they are encouraged to incorporate the new systems into their management regimes.

2.18 We believe that work being done to encourage farmers to use fertiliser in a more cost effective way is also impacting on the reduction of nitrous oxide from fertiliser.

Recommendation 6: The Welsh Government should develop methods of sharing new scientific advances with farmers and landowners with a view to promoting their positive effect on carbon reduction as well as economic benefits.

Chapter 3 Land Use, Land use Change and Forestry (LULUCF)

3.1 A great deal of the evidence we received focussed on the potential for the retention and possible sequestration of carbon in soils and woodland, making the land use sector unique.

Carbon in soils

3.2 Wales is rich in soil types, especially peat, which contain large stores of carbon. The Centre for Ecology and Hydrology at Bangor University told us:

> Soils represent one of the largest stores of terrestrial carbon and appropriate soil management is crucial to maintaining and enhancing these stocks to avoid the deleterious consequences of the release of carbon to the atmosphere.

3.3 We received very differing estimates of the amount of carbon locked in Welsh soils. The estimates varied from 121Mt to 500Mt.

3.4 We are concerned at the vast difference between these two figures. Some of our witnesses indicated that the lower figures were only based on the top levels of soils and that the higher figures were calculated at greater depth of soils.

3.5 We heard evidence and saw for ourselves at the LIFE Active Blanket Bog Project at Lake Vyrnwy of the potentially damaging effect of agricultural practices on carbon rich soils. The RSPB told us that carbon was lost at a rate of 2% per year from Welsh soils between 1978 and 2003.

3.6 Concern was also expressed that the potential effects of climate change in Wales could cause more peatland to dry out and so more carbon to be released into the atmosphere, so increasing the risk of further climate change.

3.7 We were pleased to see the work being undertaken by the RSPB, CCW, the Environment Agency Wales and the Forestry Commission Wales on researching effective management regimes for peatland in Wales.

3.8 Several of those giving evidence highlighted the absence of any regulatory protection for carbon rich soils and need for policy actions to protect carbon rich soils. The National Trust Cymru said:

> Soil is as equally important a resource as air and water, but the current level of protection is inadequate. Given its carbon storage function, it is essential for soil's importance to be better recognised. Soils need the same protection as water at an EU level.

3.9 We consider the preservation of carbon in peatland soils to be an extremely important issue. Whilst much of the carbon reduction research has been focussed on reducing emissions from industrial processes, energy production and transport, we must not ignore the potential additional carbon that could be released into the atmosphere and water courses from inappropriate use of carbon rich soils.

Recommendation 7: The Welsh Government should agree a baseline figure of the amount of carbon currently held in organic soils in Wales and that figure should be used by all the organisations working on the issue in Wales.

Recommendation 8: The Welsh Government support the research currently being done into the conservation of carbon in soils in Wales and uses the findings of the research to inform land use and agricultural policy as soon as it becomes available.

Recommendation 9: The Welsh Government lobbies the UK Government and the EU to ensure that soils are given high level regulatory protection.

Forestry

3.10 Forestry has long been acknowledged as a potential method of capturing and storing carbon from the atmosphere.

3.11 The Forestry Commission, however, considers that decisions on forestry taken by farmers and land managers are often hampered by a lack of technical advice and information. They said:

> An example of this (decision making process) from a rural land use perspective is the incomplete science base around the dynamics of carbon fluxes from organic soils when trees are planted or harvested in relation to the longer-term positive impact on soil carbon of woodlands as a land-use. We have some information to inform decisions on these issues but not enough to support every potential option or scenario.

3.12 The issue of potentially unlocking stored carbon by planting trees on carbon rich soils was also highlighted by CCW who emphasised the importance of planting “the right trees in the right places”.

3.13 The importance of using wood as a substitute for other materials that may require carbon emitting processes to manufacture them was also strongly endorsed by the Forestry Commission. They said:

> Carbon is removed from the atmosphere during tree growth and dry wood is approximately one half carbon by weight. Some of this wood, and the carbon within it, can be harvested and turned into useful products. Carbon remains 'fixed' within these products throughout their useful lifespan and is only released back to the atmosphere if the wood is oxidised as a result of combustion or decomposition.

3.14 There was some discussion about the use of wood for biofuels. We discussed the issue in our previous report on carbon reduction from energy production and concluded that there was a potential for wood to be used as a biofuel in Wales as long as a market for it could be established and the supply of wood in Wales was managed to meet demand.

Recommendation 10: The Welsh Government support the research currently being done into carbon fluxes in soils for tree planting in Wales and uses the findings of the research to inform land use and agricultural policy as soon as it becomes available.

Recommendation 11: The Welsh Government support the Forestry Commission in establishing and marketing wood products as alternative materials on a commercial scale.

Carbon trading

3.15 We heard some evidence about carbon trading schemes in other countries which include the positive effects of land use as part of their schemes.

3.16 We heard from CCW about a land management component in New Zealand's carbon trading scheme. They also said:

> Wales is bound by European legislation, but there remains scope for a carbon trading scheme that provides financial assistance to land managers undertaking management practices that have proven and demonstrable GHG benefits.

3.17 Throughout the inquiry, we have heard that Wales, through the Climate Change Act 2008, has the powers to have its own internal carbon trading scheme. We consider that a land use based scheme, trading either wholly or partly within the land use sector, would provide a financial incentive to farmers and land managers not only to reduce carbon in their own operations, but also to fully exploit the positive advantages of managing carbon rich soils and woodland.

Recommendation 12: The Welsh Government carries out research into the ways in which it could implement a carbon trading scheme wholly or partly within the land use sector.

Annex A Summary of Recommendations

Recommendation 1: The Welsh Government should review the funding for Glastir annually to ensure that sufficient funding is in place to cope with demand.

Recommendation 2: The Welsh Government should promote the economic benefits of the carbon saving measures contained within Glastir as part of the scheme.

Recommendation 3 : The Welsh Government should lobby the UK Government and the EU to ensure that carbon reduction is a key objective of any payment scheme covering all farms in the next review of the Common Agricultural Policy

Recommendation 4: The Welsh Government should establish a dedicated carbon reduction information service for farmers and land managers

Recommendation 5: The Welsh Government should support the development and roll out of a carbon footprinting tool which can be accessed and used by all farmers and land managers as soon as possible. The rollout of the tool should be accompanied by the production and provision of advice and help for using the tool which is accessible to all farmers and land managers.

Recommendation 6: The Welsh Government should develop methods of sharing new scientific advances with farmers and landowners with a view to promoting their positive effect on carbon reduction as well as economic benefits.

Recommendation 7: The Welsh Government should agree a baseline figure of the amount of carbon currently held in organic soils in Wales and that figure should be used by all the organisations working on the issue in Wales.

Recommendation 8: The Welsh Government support the research currently being done into the conservation of carbon in soils in Wales and uses the findings of the research to inform land use and agricultural policy as soon as it becomes available.

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Recommendation 11: The Welsh Government support the Forestry Commission in establishing and marketing wood products as alternative materials on a commercial scale.

Recommendation 12: The Welsh Government carries out research into the ways in which it could implement a carbon trading scheme wholly or partly within the land use sector.

Annex B: List of respondents to the call for written evidence.

http://www.assemblywales.org/bus-home/bus-committees/bus-committees-third1/bus-committees-third-sc-home/inquiries_sd/inquiries_-_carbon_reduction/sc_3_-carbon_energy-land_use.htm

National Farmers' Union Cymru (NFU)
Nature's Capital Wales
RSPB Cymru
Centre for Ecology and Hydrology, Bangor
Welsh Association of National Park Authorities
Welsh Association of National Park Authorities – (supplementary paper)
Forestry Commission Wales
The National Trust
The Environment Agency Wales
The Environment Agency Wales (supplementary paper)
Country Land and Business Association (CLA)

Annex C: List of witnesses providing oral evidence.

Thursday 4 December 2008 SC(3)-25-08 : Transcript

Countryside Council for Wales
SC(3)-25-08 : Paper 1: Carbon Reduction via Land Use: Evidence from Countryside Council for Wales (pdf, 191Kb)
RSPB
SC(3)-25-08 : Paper 2 : Carbon Reduction via Land Use: Evidence from RSPB
IBERS
SC(3)-25-08 : Paper 3 : Carbon Reduiction via Land Use: Evidence from IBERS
Forestry Commission Wales
SC(3)-25-08 : Paper 4 : Carbon Reduction via Land Use: Evidence from Forestry Commission Wales (pdf, 60.5Kb)
The National Trust
SC(3)-25-08 : Paper 5 : Carbon Reduction via Land Use: Evidence from the National Trust

Thursday 22 January 2009 SC(3)-01-09 : Transcript

National Farmers Union Cymru
SC(3)-01-09 : Paper 1 : Carbon Reduction Via Land Use: Evidence from National Farmers Union Cymru
Farmers Union of Wales
SC(3)-01-09 : Paper 2 : Carbon Reduction Via Land Use: Evidence from Farmers Union of Wales
County land and Business Association
SC(3)-01-09 : Paper 3 :Carbon Reduction Via Land Use: Evidence from Country Land and Business Association
Environment Agency Wales
SC(3)-01-09 : Paper 4 : Carbon Reduction Via Land Use : Evidence from Environment Agency Wales
RSPB Cymru
SC(3)-01-09 : Paper 7 : RSPB Cymru Additional Information to Sustainability Committee Inquiry into Land Management and Carbon Emission Reduction (pdf, 294kb)
British Wind Energy Association Cymru
SC(3)-01-09 : Paper 8 : Further Evidence from The British Wind Energy Association Cymru on Carbon Reduction via Land Use (PDF, 498KB)