Environmental Pillar
WORKING FOR A SUSTAINABLE FUTURE

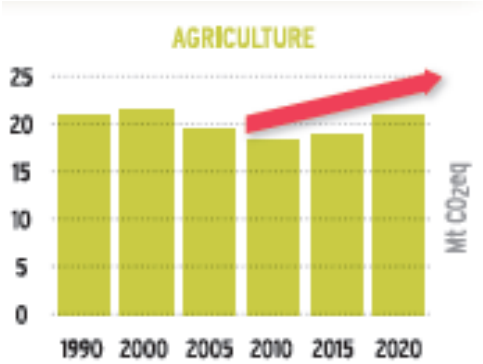
Submission from the Environmental Pillar

23rd March 2015

To the Department of Agriculture, Food and the Marine's discussion document on the potential for Greenhouse Gas (GHG) mitigation within the Agriculture and Forestry Sector

Introduction

There is widespread recognition that the agricultural sector represents a particular challenge for Ireland in reducing GHG emissions. While positive steps are being taken to reduce the emissions intensity of production, the need for substantial overall emissions reductions in the sector remain. Despite this need, emissions from agriculture are projected to increase over the coming years. This is the result of on the one hand a failure to design policies and measures that will achieve emission reductions, as well as the result of a failure to accept that constraints on overall emissions inevitably constrain levels of production expansion. Food Harvest 2020 and 2025 is resulting in substantially increased emissions. The chart below from the EPA illustrates this projected rise in emissions to 2020 and beyond:



The Agriculture Sector Mitigation Action Plan (Section 3.3 in the document) sets four key focuses but decreasing total annual emissions is not one of them. All sectors need this to be an overriding aim, or else explain why other sectors of the economy will have to decrease emissions even more quickly as a result of their inaction. The livestock agriculture sector needs to recognise that the methane and nitrous oxide produced does have real costs that need to be paid for now. As suggested by the EU, the funds raised by Ireland extending a carbon tax to this pollution could also flow back to farmers to achieve reductions in emissions.

The IPCC have stated that "limiting climate change will require substantial and sustained reductions of greenhouse gas emissions".[1] Ireland has committed to do this[2] but is forecast to miss the 2020 GHG target by a wide margin, currently even missing the 'worst case' With Measures projection. Indeed the consultation document says "Developed countries including Ireland are expected to lead by achievement [of] greater reductions of up to 80% by 2050" (p.10) whereas in fact the EU is committed to an 80-95% reduction by 2050, not

1 IPCC AR5 WG1 p,19

2 UNFCCC Copenhagen Accord, 2009, Clause 2.

"up to 80%". Furthermore the science is indicating that developed countries will need to have net negative emissions by then.

Both agriculture and transport will now have to achieve additional measures and emission reductions very quickly if large compliance costs are to be avoided, so both sectors will need to explain why the public exchequer should pay these costs rather than polluters themselves. A revised Agricultural Sector MAP needs to be clear on how it will cut total emissions quickly or how it will help to pay for other sectors to do so.

Climate action can be best achieved to the benefit of both society and the environment if the scale of the problem and urgent need for action now is appreciated. We therefore urge DAFM to consider the following points in revising the Mitigation Plan.

Food security, development and climate change

In the Foreword of the discussion document it says:

> *The challenge facing our sector is immense because we have to produce extra food to feed a growing global population while respecting the environmental limits of the planet. It is not acceptable to sacrifice the future to the needs of the present by producing food in a way that degrades our soil and water, destroys our biodiversity and exacerbates climate change.*

The Environmental Pillar completely agrees with the second sentence. However, producing extra *livestock-derived* food to increase the food supply to a growing global population of *wealthier* consumers will not respect the environmental limits of the planet. Unfortunately, it is clear from climate modelling that global emissions from livestock agriculture, like fossil fuel extraction, will have to be limited to achieve re-stabilisation of the Earth's climate system. The projected growth in global consumption of livestock products by wealthier consumers and the resultant emissions is simply unsustainable and will have to be constrained over time; feeding that demand, particularly with beef and dairy exports,[3] will be adding to the pressures on environmental limits. This reality has repeatedly been made clear in research, including studies by IPCC WG3,[4] UNEP,[5] and Teagasc.[6]

3 FAO Module 8: Climate Smart Livestock pp 218-219 http://www.fao.org/3/a-i3325e/i3325e08.pdf

4 IPCC WG3 Ch 11 p.4

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The current discussion document is largely focused on 'sustaining' and expanding the existing, largely livestock based, agricultural food production in Ireland. One question must be whether this is actually focusing on short-term 'profitability' of current practices that may be unsustainable given the reality of human-caused global climate change. Societally, we need to ask if continuing to *increase* our contribution to the global climate change problem by helping to supply more livestock food products to the increasing number of wealthier global consumers is a responsible course in the context of climate action. If we increase emissions to feed these demands, we are knowingly adding to climate pollution that will add to negative climate impacts on the production of food in already food-insecure parts of the world. Climate impacts will result from our actions in Ireland, from our energy, agriculture and transport emissions, directly affecting the future sustainable development for a global population.

If instead, we can acknowledge our emissions responsibility and act on our capacity to achieve real decreases in annual emissions, then this does not mean sudden radical reductions in Ireland's animal numbers. It does mean though that livestock numbers will likely have to reduce while transitioning to producing lower emission foods, to farming wind and solar energy, and to forestry. Meeting the challenge laid out in the Foreword requires us as citizens to acknowledge that we have a responsibility to limit the climate impacts our activities, including agriculture, are contributing to.

Threats to Irish agriculture as exists and as predicted to develop from climate change

Agriculture is a significant contribution to the Irish economy and it is often incorrectly assumed that Irish agricultural potential will be largely unaffected by climate change. This is incorrect; agriculture is one of the most climate-sensitive industries in Ireland, given that production is heavily dependent on levels of rainfall and temperature. As such the agricultural sector should be seen as a key sector at risk from the impacts of climate change.

Research from 2013 estimates that the economic costs to Irish agriculture from climate change impacts could be €1-2bn per annum.[7] Pests and diseases represent one of the key threats to both the arable and livestock sectors yet these are only beginning to be

UNEP (2010) Assessing the environmental impacts of consumption and production *Priority Products and Materials*. http://www.unep.org/resourcepanel/Portals/24102/PDFs/PriorityProductsAndMaterials_Report.pdf

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Donnellan et al (2014) Some difficult choices for policy makers. http://link.springer.com/chapter/10.1007%2F978-3-319-06635-6_13

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Flood, S. (2013) *Projected Economic Impacts of Climate Change on Irish Agriculture*.

considered in much of the modelling work concerned with climate impacts on agriculture. Similarly, shortcomings in models have, in the past, presented an overly optimistic picture of the positive impacts of climate change on agriculture in countries such as Ireland. However more recent research is addressing significant oversights in the modelling relating to the threshold model of temperature effects on crop yields, a revised understanding of carbon fertilisation and an emerging analysis of regional rainfall.[8]

Planning for the continued expansion of the current focus of agricultural production beyond 2020 is by no means risk-free, with the likelihood of rising economic losses from climate change in the 2030s, 40s and 50s. That is as today's young farmers expect to reap the reward of their investments and prepare for retirement. Given the overwhelming threat presented by climate change to Irish agriculture, efforts must focus on minimising the threat by reducing GHG emissions.

Global demand predictions for meat and dairy and how they relate to the 2 degree target

Limiting global warming to the 'dangerous climate change' 2ºC limit is already extremely challenging. On the current high emissions pathway the remaining global carbon budget for a 2 in 3 chance could be exhausted within as little as seven years, or fifteen years at most.[9] Acting as part of global action can greatly extend that budget. Exceeding 2ºC warming risks ever more irreversible climate damage. Year on year continuous and significant reductions in emissions need to begin now. At present though, EPA projections indicate that Ireland intends to *increase* emissions continuously to at least 2030. Is this the course we wish to take?

The most accessible model to adjust the possible 'levers' to give even a 1 in 2 chance of avoiding 2ºC is The Global Calculator produced by the UK Dept of Energy and Climate Change. For 'Diet', the options are four levels of ambition for each of calories consumed, quantity of meat, and type of meat. Simply scaling back the level one step, from level 2, 'ambitious', to level 1, minimal abatement from the current forecast consumption increase, doubles the cumulative emissions budget to 2100. This is roughly the difference between a 2ºC world and a very dangerous 4ºC world by 2100, changes that could come within the

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See Ackerman, F. and Stanton, E.A. (2012) *Climate Impacts on Agriculture: A Challenge to Complacency?* Synapse Energy Economics, Cambridge, Massachusetts.

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Anderson K (2015) February 2015 Presentation, Tyndall Centre.

lifetime of children alive today. A 4ºC world has been described by scientists as being likely to be incompatible with organised civilisation.[10]

As the IPCC state that climate risks depend on the level of warming, which in turn directly depends on cumulative emissions,[11] it is clear that limiting production and demand for meat and dairy will be very important in limiting climate impacts around the world and for future generations. As a large producer of meat and dairy for export, Ireland will need to decide whether adding even more to these risks is a responsible choice. The same choice faces consumers.

Technical options for meeting food needs with lower GHG intensity including meat alternatives; credibility of current demand predictions in the light of technical options

Food policy at Irish, EU, and international levels needs to recognise the fact that the need for adequate and nutritious food can be met with varying impacts on greenhouse gas emissions. Indeed, to a large extent, food options with lower greenhouse gas impacts generally have lower demand for land and water and are more affordable, therefore contributing simultaneously to emissions reduction and to optimal nutrition. Unfortunately, much of the terminology in the consultation paper implies that the opposite is the case.

The demand predictions relied on in the consultation paper appear to be an extrapolation of current trends. This is of course the most simplistic form of prediction and takes no account of recent or anticipated developments. The ongoing scientific attention being given to alternatives to meat and dairy could lead to quite different outcomes to those predicted.

Global demand predictions and public health

The consultation paper doesn't refer to the public health aspects of predicted increased demand for meat and dairy. The IPPC AR5 WGIII reports on the relevant science including research which considers the climate benefit of a switch to a 'healthy diet':

> Changed diets resulted in GHG emission savings of 34–64% compared to the 'business-as-usual' scenario; a switch to a 'healthy diet' recommended by the Harvard Medical School would save 4.3 GtCO2eq/yr (– 36 %). Adoption of the

10 Anderson and Bows (2012) Nature Climate Change, Vol 2, Sept p.639-640

11 IPCC AR5 WG1 p.27

'healthy diet' (which includes a meat, fish and egg consumption of 90 g/cap/day) would reduce global GHG abatement costs to reach a 450 ppm CO2eq concentration target by ~50 % com- pared to the reference case (Stehfest et al., 2009).[12]

What are the best points in the production and consumption chain to apply pressure for emissions reduction?

According to the IPCC Fifth Assessment Report supply-side mitigation options include: cropland management, grazing land management, restoration of soils, and reduction in use of high input products (such as production of fertilizers, emissions resulting from fossil energy use).

Unfortunately, as Teagasc and DAFM acknowledge, reducing emissions from ruminant agriculture is very difficult and options are very limited. In general, higher food intake for higher yield causes: higher methane emissions, from increased enteric fermentation and manure management; higher nitrous oxide emissions, from increased fertiliser use; and increased carbon dioxide emissions from other inputs including the transport of imported concentrates. Over the last 20 years emissions per head of dairy cattle have increased by about 9 percent according to the EPA.[13] Overall, total emissions from beef and dairy are strongly related to the number of head. Increasing cattle numbers, as is forecast and is occurring under FH2020, is now steadily increasing Ireland's emissions from agriculture. All of these facts indicate that reducing cattle numbers in particular is an important lever in achieving emissions reduction.

On the 'demand-side' measures include changes in diet and reductions of losses and waste in the food supply chain.[14] Ensuring that consumers pay for the costs of climate pollution caused by their consumption would help to drive reductions in demand for higher carbon agricultural products and thereby fund a transition to lower carbon society.

Carbon leakage and agricultural emissions, including how relevant is it in circumstances where all major emitters adopt targets

12 http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf

13 EPA NIR 2014

14 IPCC AR5 WG III (2014) *Agriculture, Forestry and Other Land Use (AFOLU)*. p. 829.

It is welcome that the discussion document does not place any stress on 'risks of carbon leakage' in its Mitigation Action Plan. Other documents from DAFM and Teagasc have stressed carbon leakage but the argument fails if no system (taxation, regulation) is also proposed to reduce overall global emissions by either regulating or taxing the emissions embodied in traded foods, especially high carbon, livestock sourced products. As an exporter of these products Ireland is producing these emissions in large quantities but neither farmers in Ireland nor the product consumers, mostly in other countries, are paying for the resulting climate pollution. For example, current livestock related carbon leakage from the UK to Ireland due to imports of beef and dairy to the UK from Ireland is of the order of 1 MtCO2 annually[15] but currently the very real costs of the GHG pollution will be only be paid by communities and ecosystems that sustain the dispersed future climate damages over centuries to come.

We assume that the lack of reference to 'carbon leakage' reflects and Irish and EU negotiation position for UNFCCC which envisages a global agreement including agricultural emissions. (It however would be of benefit if that could be publicly confirmed, for the avoidance of doubt.) As is hoped, a global agreement on constraining future GHG emissions would likely both regulate and begin to price GHG emissions, to disincentivise production and consumption of emissions, and, to incentivise the sustained and substantial reductions in emissions needed to limit climate change. If Ireland's livestock industry is less carbon intensive than elsewhere then reductions in livestock numbers are likely to be needed less quickly, however the domestic aim of carbon neutrality will likely require such reductions. Similarly, such an agreement would favour the most efficient producers in Ireland, producing less emissions intensive agricultural produce. A realistic pricing of the climate pollution from all sectors of the economy including agriculture would raise large revenues to invest in carbon sequestration, by peatland restoration and afforestation, and in, preferably community owned renewable energy projects.

Considerations for addressing agricultural emissions at various points in the production and consumption chain

Taxing and capping climate pollution at source, the polluter pays principle, needs to be adopted as an essential part of a national mitigation plan that will drive change to lowering emissions in each part of the production and consumption chain. As is inevitable, dairy and meat production will have to plan to bear the social cost of the future damages caused by the climate pollution, methane and nitrous oxide, that is also produced by ruminants during

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Caro et al (2014) CH4 and N2O emissions embodied in international trade of meat http://iopscience.iop.org/1748-9326/9/11/114005/article

production. The EU Commission Country Report working paper points to the need for this to be introduced to disincentivise emissions and incentivise sequestration and low carbon evolution:

> *Although Ireland has a carbon tax in place, it is not linked to the evolution of energy prices and it is not consistent across different energy carriers and climate pollutants (methane and nitrous oxide emissions, for example, are not taxed like carbon).*

Currently the planned "approach" to 'carbon neutrality' as a "horizon point for agriculture by 2050" is heading in the wrong direction. One way for Ireland's agriculture to engage in seriously EU wide reductions of agricultural emissions would be as part of an agricultural ETS that could limit emissions by continuously reducing emissions from the current level. Teagasc's Marginal Abatement Cost Curve assumed a 2020 carbon price of €33 per tCO2eq. A minimum price on pollution set at this level within an ETS emission cap decreasing yearly would both drive and fund the transition that Government, NESC and DAFM acknowledge is necessary.

The discussion document states:

> Ireland must become a world leader in the production, management and marketing of low-carbon, high quality sustainable food. This can be achieved by pushing scientific research and probing farming practice to identify further means of reducing emissions. (p.12 and p.54)

Measures to reduce emissions need to be comprehensive and robust. There is an urgent need to empower farmers to manage their farms sustainably. To effectively reduce emissions you first need to count/measure them. One immediate measure, which could help as a catalyst in achieving the above-mentioned aspirations, would be to equip farmers to measure emissions inside the farm gate.

Teagasc have indicated that priority should be to reduce greenhouse gas emissions at individual farm level followed by quantification of greenhouse gas emissions at the processor and/or national level.

If one does not measure emissions at farm level it makes it very difficult to manage them. Furthermore, contrary to the aspirations throughout the discussion document to directly involve the farmers and make them part of a sustainable solution, this measure would disempower them.

It is also important to note that the offsetting potential associated with land-use change and forestry may not be realistic, not least, because there is not enough land.

Relationship between agricultural GHG mitigation and agricultural adaptation to climate change and other environmental goals

The relationship of mitigation and adaptation needs to be seen in the very difficult context of the extremely limited and rapidly depleting total global carbon budget for a likely chance of limiting global warming to 2ºC. Within this total budget, the remaining carbon budget for wealthier nations, which have the capacity and responsibility for greater climate action, is extremely small compared to their current high annual rates of emissions. Ireland has a high per capita emissions rate of 12.6 tCO2eq. Ireland's commitment to equity and sustainability therefore requires that the priority is substantial and sustained mitigation of national emissions. In conjunction Ireland will need to contribute to financial support for poorer countries to adapt to climate impacts predominantly caused by historic and current emissions from wealthy countries.

Adaptation in wealthy countries will also require funding but if radical cuts in emissions are not achieved then the overall costs of adaptation will be far greater and, if the climate system cannot be stabilised then adaptation may well not be possible. These are difficult realities to face but they have to be faced if we are to make the best decisions possible to plan for the future.

Relationship between agricultural GHG mitigation and adaptation and other public goals including public health, employment, rural development and economic profit (green jobs, opportunities for alternative land uses)

Moving to a low carbon economy will inevitably require large societal and technological changes, but as the large body of evidence produced by the IPCC's report on mitigation shows, planning and achieving these changes as early as possible will be both least costly and most beneficial to society as a whole and for the environment.

A better path will be to lead by example at every level of Irish society from individual citizens to farmers to large businesses to government departments to understand the need for and act to achieve a transition to a low carbon future as rapidly as possible. Ireland's contribution to stabilising the global climate system depends on actions made now and in the coming years. A sustainable future for ourselves and future generations depends on leading by example to motivate climate action. Other countries are taking this responsible path, Ireland can do this too and by doing so help to increase ambition by Europe and around the world.

Food Harvest 2020 and the use of MACC

The Environmental Pillar made significant submissions to the development of the EAR for FH2020. None of the concerns raised resulted in a change in the final version of the EAR following consultation.

Our full submission and critique is attached as an appendix. Specific concerns include:

1. The current lack of baseline data on soils, and a presumed lack of data on soils in 2020 was interpreted as an "imperceptible" change to the health of soil.

2. The EAR findings are quoted including the pre and post mitigation effects on such parameters as water, soil, biodiversity. However the EAR does not specify or examine any mitigation measures.

It is apparent that the role out of FH2020 will not be in accordance with an ecosystem approach. It needs to be revisited as there is an urgent need to apply ecosystem-based management principles and tools to farming practice. Diversification of agricultural production and rural land should be included in the options of measures for narrowing the emissions gap on p.58.

The *Marginal Abatement Cost Curve (MACC) for Irish Agriculture* produced by Teagasc as a submission made to the public consultation on National Climate Policy Development in 2012 is used as a tool in this report.

MACC as a tool has been criticised for its over simplification of complex scenarios. The creators of the McKinsey MACC are careful to include the limitation of the MACC in their reports. The MACC used for the basis of any roadmap is subject to a number of specific limitations and caveats. These caveats are not explicit in this document, and should be subject to considered examination and disclosure.

For example the MACC does not include the effect of mitigation actions yet it recognises the likely negative impact on soil and biodiversity likely to result from some mitigation measures.

The MACC paper takes its scenario for achieving the growth targets in FH2020 from another report by Donnellan and Hanrahan, *Greenhouse Gas Emissions by Irish Agriculture: consequences arising from the Food Harvest targets.* This is a 20 page briefing note produced by Teagasc. This Donnellan & Hanrahan briefing note expressly states that it is an examination of a scenario whereby the targets for FH2020 could be reached. It goes on to say that many more scenarios are expected to come from the Food Harvest implementation group (p.13). This places the briefing note in the context of a starting off point for examination of implementation possibilities and their consequences. The note devotes 5%

of its space to caveats, the limitations of which are diluted in the MACC, and then completely absent in this discussion document.

An example includes the presumption of the cessation of the Suckler Cow Welfare Scheme. Alternative economic supports have been put in place under the Beef Data and Genomics Programme rendering this presumption now invalid.

There is a presumption of afforestation rates of up to 10,000 hectares per annum. Current afforestation rates are below half of that.

These presumptions needed to be reviewed in the context of 2015.

Risks associated with high degrees of specialisation in agricultural production

The current policy focus on increasing specialisation of Irish agriculture on dairy carries clear risks. If climate change mitigation, public health or economic factors lead to demand being significantly lower than currently predicted, Irish farmers could find themselves in a real crisis. A policy which is taking predicted economic opportunities as its main justification needs to consider the risks that the predictions could be wrong and that it is making unhedged bets.

Policy Coherence

The following statements are taken from the policy document *Our Sustainable Future*:

> The value of Irish biodiversity and ecosystem services has been estimated at over €2.6 billion per year (2008). This provides compelling evidence in support of the case for the protection of ecosystems, habitats and species. (page 41)
>
> To improve the situation we must prioritise biodiversity and ecosystems in policymaking at all levels, particularly addressing agriculture, fisheries, regional development, cohesion and spatial planning. (Page 41)
>
> Further improvements in environmental sustainability are key elements of the delivery of Food Harvest 2020 (page 53)

These statements need to be more than rhetoric and reflected in the practical implementation of government policy. The following is also from Our Sustainable Future:

> Notwithstanding this, the Department of Agriculture, Food and the Marine in conjunction with Teagasc, has also carried out a very detailed analysis of the

> potential for, and costs of, emissions reductions in the agriculture sector. The analysis indicates that the sector can reduce emissions cost-effectively by about 4% compared to business as usual. A number of measures have been identified and are being implemented through advisory services, including Teagasc. These measures will reduce emissions over and above the normal efficiency gains in the sector. In general, improving production efficiency per unit of food produced will be the most important contribution from the sector to meeting climate change ambitions. (p.54)

These ambitions from 2012 need to be examined. Where is the report of the analysis carried out that indicated a 4% reduction in emissions? The discussion document states:

> Agriculture emissions are projected to grow on an annual basis to 2020 which reflects the impact of Food Harvest 2020 which reflects the projected increase in food production following the removal of milk quotas which Food Harvest 2020 is based upon.
> For the period 2013-2020, total emissions from agriculture are projected to increase by 9% or approx. 3% above 2005 levels (p.18).

The communications from government are not coherent. The ambition of a 4% decrease in emissions seems to have become a reality of a 9% increase. This highlights the need for a mid-term review of FH2020 which looks at the sustainability credentials of the implementation of this departmental strategy. It also points to the need for quantification of anticipated emissions reductions from each abatement measure. If these measures have not yet been quantified, a question must be raised as to when their potential be quantified.

The repeated ambition is for smart green growth. The growth has been measured and achieved, but what of the smart green ambition?

- The adoption of new technologies at primary producer level;
- Developing new working relationships within the food production chain;
- Piloting new product streams;
- Targeting resources at new markets;
- Enhancing levels of productivity and competitiveness; and,
- Developing production and management skills across the sector.

This is to be achieved by investment in ideas, knowledge and skills, and recognising that collaboration across the food supply chain, with other competitors and, broadly, within the framework of the smart economy, is central to unlocking opportunities (consultation document, p.24). There must be some indication of progress to date on these smart ambitions given that we are 5 years in to the implementation of FH2020.

Appendix

Submission from the Agriculture Working Group of the Environmental Pillar on Food Harvest 2020 Environmental Analysis Report, Draft Analysis Report - v.1.6 (referred to as Draft Report)

The Draft Report has some welcome aspects.

- A Call for monitoring and reporting
- A Call for implementation of legislation and directives
- A Call for support for a soils directive
- Re-iteration of the need for environment to be at the centre of policy making decision and for a halt of degradation – (page 51 table 3.2)
- A Call for use of best practice on farms

However this submission would draw attention to weaknesses under the following 9 headings.

1. Concerns relating to the main scenario, Scenario A.

The Draft Report relies on data from two other reports which specify extensive limitations and caveats – some of which are so outdated that they can no longer be considered accurate or reasonable presumptions.

MACC

Scenario A in the Draft Report is taken from a *Marginal Abatement Cost Curve (MACC) for Irish Agriculture* produced by Teagasc as a submission made to the public consultation on National Climate Policy Development.

MACC as a tool has been criticised for its over simplification of complex scenarios. The creators of the McKinsey MACC are careful to include the limitation of the MACC in their reports. The MACC used for the basis of this Draft Report is subject to a number of specific limitations and caveats. These caveats are overlooked in this Draft Report, and should be subject to explicit examination and disclosure.

For example the MACC does not include the effect of mitigation actions yet it recognises the likely negative impact on soil and biodiversity likely to result from some mitigation measures. The suggestion that current legislation is sufficient as a mitigation measure is proposed in the MACC and repeated in the Draft Report. This satisfies the need for simplification in terms of the MACC but does not reflect a reasonable reflection of the practical impact of implementing a strategy to achieve the FH2020 targets.

Reference is made in the Draft Report to the use of a 20% increase target for the beef sector, when FH2020 has a target of a 40% increase. This discrepancy is expected to be addressed by increased market prices. There is no re-running of the model to reflect a 100% increase in the target.

The significance of these limitations at best undermines and at worst invalidates the findings of the Draft Report.

All limitations and caveats, presumptions and gaps in data should be represented in the executive summary.

Furthermore, the MACC paper takes its scenario for achieving the growth targets in FH2020 from another report by Donnellan and Hanrahan, *Greenhouse Gas Emissions by Irish Agriculture: consequences arising from the Food Harvest targets.* This is a 20 page briefing note produced by Teagasc. This Donnellan & Hanrahan briefing note expressly states that it is an examination of a scenario whereby the targets for FH2020 could be reached. It goes on to say that many more scenarios are expected to come from the Food Harvest implementation group (page 13). This places the briefing note in the context of a starting off point for examination of implementation possibilities and their consequences. Yet, it would appear that the briefing note scenario forms the basis of the main analysis of FH2020 in 2013 in this Draft Report. As with the MACC the limitations and caveats of the briefing note are not explicitly repeated in the Draft Report. There is a whole page, 5% of the body of the briefing note, allocated to “Caveats”. This is not reflected in the Draft Report.

An example includes the presumption of the cessation of the Suckler Cow Welfare Scheme. Alternative economic supports have been put in place under the Beef Data and Genomics Programme rendering this presumption now invalid.

There is a presumption of afforestation rates of up to 10,000 hectares per annum. Current afforestation rates are below half of that.

These presumptions needed to be reviewed in the context of 2013, especially as they are being used as the basis for an environmental analysis of growth in the sector.

The following scenarios are the basis for the main scenario in the Draft Report. Yet neither they nor the briefing note they come from, are referenced in the Draft Report. It is critical that this paper appears as an appendix and that the limitations are clarified in the executive summary.

The modelling that is used is an iterative economic model. This sets the scenario of achieving the growth targets in FH2020 through three possibilities.

a. Increase in Irish farm gate prices relative to our competitors

b. Cost savings ex farm gate

c. Increased real Irish farm gate prices (cost savings within the farm gate)

The mechanism by which these things will be achieved is not specified. This absence is conspicuous in the MACC and also in the Draft Report. The modelling involves alteration of the above variables with an inbuilt reactionary increase in output as economic theory would support. This is run until the increases reach a level that matches the targets in FH2020.

The dependency on market forces and the lack of a mechanism to drive the cost savings raises serious concerns. The reliance on external market forces is not reflected in a risk analysis or the development (or recommendation of development) of a consequent risk management strategy.

The limitations in the context of the science of a MACC are scientifically acceptable. The limitation and caveats in a briefing note are to be expected. The review of existing data and published reports to formulate an analysis of the environmental impact of an agricultural growth strategy can only be expected to use what is available.

However, given the lack of comprehensive analysis in the background reports, and given the explicitly stated limitations of said reports, the Draft Report cannot be considered a suitable assessment of the actual likely impacts of achieving FH2020 targets on the affected natural capital, in the context of meeting the requirements of the SEA directive.

2. The relevance of FH2020

FH2020 target have been under implementation by the High Level Implementation Group since 2010. Since then a new CAP has been negotiated. Milk quotas are to be removed from 2015. This Draft Report has been open for public consultation. 2014 is to be a gap year for agri-environmental schemes. This Draft Report is to satisfy the requirements of an SEA as prescribed in the SEA Directive necessitating re-drafting of the policy under assessment.

These factors combine to require that FH2020 is replaced by a new version of agricultural policy that reflects these significant changes. A mechanism for achieving this needs to be an outcome of this process.

3. Cumulative Impacts

The Draft Report (page 99) states that

In-combination effects have the greatest potential to occur with intensification of the dairy industry which is one of the prime outcomes of Food Harvest 2020.

The same paragraph concludes that

At this strategic level it is not possible to fully assess potential for in-combination impacts.

The omission of cumulative impacts does not meet the requirements of an SEA. (see footnote (1) to Annex 1(f) of the Directive)

4. Lack of Baseline Data

The Draft Report identifies significant data gaps. One example relates to soils. The Draft Report states on page 149

There is no national soil monitoring system.

And

…soil data coverage of Ireland is incomplete in both detail and extent

If the report is working from a baseline of no data how can the impact of, for example, an 11% increase in nitrogen use on grassland be considered "neutral/imperceptible". Is the Draft Report stating that no data now on soils and no data in 2020 on soils equates to an imperceptible change?

The lack of baseline data needs to be addressed, and explicitly stated in the Draft Report. There needs to be an executive summary of the data gaps.

5. Averaging of results masks worst affected areas

The Draft Report acknowledges that there will be greater impact in certain areas, at both a regional and at a farm level. It does not attempt to identify where this is most likely to occur. This undervalues the public consultation as those in the worst affected areas are unable to ascertain the relevance of FH2020 to them.

It is understood this is an analysis of a high level strategy, but some effort should have been made to identify specific areas or establish zones in the country that reflect the areas that will be most affected.

6. Definitions used in the report

The Draft Report uses the phrase **"Slight Negative Impact".**

It finds that:

……a Slight Negative Impact will occur in relation to biodiversity, flora and fauna, water quality (including drinking water), air quality and climatic factors. (page viii)

It then defines Slight Negative Impact as

An impact which causes noticeable changes (negative) in the character of the environment without affecting its sensitivities

Two pages later the following appears

The current status, based on NPWS (2008) of the majority of habitats and species listed under the Habitats Directive is considered to be "poor" or "bad". ……Therefore, many of the habitats and species assessed…may be at the limits of their ecological tolerances e.g. freshwater pearl mussel. (page x)

How can a habitat or species at the limit of its ecological tolerance not have its sensitivities affected by negative change?

7. Aquaculture

To satisfy the requirements of an SEA it is not acceptable to omit the effect of the proposed massive growth in the aquaculture sector.

8. High Technology Scenario

The Draft Report envisions the use of a high technology model as the most appropriate means of achieving the Food Harvest targets for growth. The environmental impact of the High Technology model is not examined in the report in any detail.

This does not reflect an attempt to satisfy the criteria of the SEA directive.

9. Mitigation

The use of the phrase "pre-mitigation" is redundant in a document which does not specify any mitigation measures.

A presumption of full compliance with existing legislation should be replaced with an aspiration for full compliance while the reality of inadequate compliance should be reflected.

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This Policy was developed using the Environmental Pillar processes but is not necessarily the policy of each member group in the Pillar.

Environmental Pillar members: An Taisce. Bat Conservation Ireland. BirdWatch Ireland. CELT. Coastwatch. Coomhola Salmon Trust. Crann. ECO UNESCO. Feasta. Forest Friends. Friends of the Earth. Global Action Plan Ireland. Gluaiseacht. Good Energies Alliance Ireland. Hedge Laying Association of Ireland. Irish Doctors Environment Association. Irish Natural Forestry Foundation. Irish Peatland Conservation Council. Irish Seal Sanctuary. Irish Seed Saver Association. Irish Whale and Dolphin Group. Irish Wildlife Trust. The Native Woodland Trust. The Organic Centre. Sonairte. Sustainable Ireland Cooperative. VOICE. Zero Waste Alliance Ireland.