

**Joint Submission to the Joint Committee on Agriculture, Food and  
the Marine  
6 March Committee Meeting regarding Climate Change**

**The Environmental Pillar and the Stop Climate Chaos Coalition and  
2 March 2018**



**Environmental  
Pillar**

Working for a sustainable future



**The Environmental Pillar and Stop Climate Chaos coalition welcome the focus of the Committee on climate change given the urgent imperative for the State to take immediate and effective climate action while protecting rural communities, livelihoods and the natural environment.**

**The Environmental Pillar** is made up of 29 national independent environmental non-governmental organisations<sup>1</sup> that work together to represent the views of the Irish environmental sector.

**Stop Climate Chaos** is the civil society coalition campaigning for Ireland to do its fair share to tackle climate change. Our 33 members<sup>2</sup> include overseas aid and development, environmental, youth and faith-based organisations.

### Executive Summary

- In order to protect rural communities and take responsible climate action, Ireland should be charting a different course for agriculture, one which recognises the importance of diversification of production within a rural economy. Government policies should support more sustainable agriculture and land management, such as High Nature Value Farming, sustainable afforestation and agroforestry, bioenergy crop agriculture and protection of peatlands.

- Ireland can expect a range of adverse impacts from climate change, such as extreme weather conditions and flooding. Such impacts represent a significant threat to Irish farmers and farming.

- In relation to reform of the CAP post 2020, farmers that are living and working in areas of high nature value should be seriously supported in continuing to protect and enhance the biodiversity, soils and water quality while implementing measures to achieve the absolute minimum impact on the climate.

- The ongoing expansion of the meat and dairy sector is resulting in major increases in polluting greenhouse gas emissions as well as damage to waters and biodiversity. This expansion poses fundamental risks for Irish farming and rural development, as well as Ireland's international reputation. It is also undermining the state's ability to meet climate obligations in national and EU legislation and under the Paris Agreement, with potentially severe economic consequences.

- The phrase from the National Policy Position on Climate Change which aims not to compromise 'capacity for sustainable food production' has been misrepresented and is misleadingly equated not merely with 'business-as-usual' but with ever-increasing meat and dairy production. It is not the case that one industry in one sector of the economy in one country can simply be exempted from the same discipline that applies to all other sectors and countries.

- Claims that Irish livestock and dairy exports are important to food and nutrition security for a growing world population have absolutely no basis in fact and only serve to damage Ireland's international reputation.

- The answer to climate change and agriculture must also encompass broader demand side issues such as food waste and consumption patterns.

- Participation in energy emissions mitigation by the agriculture sector should be fully supported. We welcomed the positive moves on community ownership of renewables in the Government's proposed new Renewable Electricity Support Scheme (RESS) but were very disappointed by the exclusion of small-scale rooftop solar. Grasping the opportunity for on-farm renewable

electricity generation must not be confused with the independent, parallel, need for the substantive and sustained reduction in non-energy emissions

- Portrayals of the Citizens' Assembly's examination of climate action in agriculture as superficial or unsatisfactory are entirely without basis. Support for farming communities was clear and strong in the Assembly's concerns and is reflected in Assembly recommendations.

- Ireland's climate obligations to reduce emissions under national, EU and international law are made on the basis of absolute levels of polluting emissions and not on the basis of efficiency claims.

## 1. Ireland's Climate Obligations

### Obligations At National Level

- The State's 2050 climate objective, as set out in the *National Policy Position on Climate Action*, is an 80% reduction in aggregate emissions from electricity, buildings and transport and 'an approach to carbon neutrality in the agriculture and land-use sector, including forestry, which does not compromise capacity for sustainable food production'. As detailed in our recent joint research, the Government is not taking adequate or appropriate steps in this sector to reach this objective.<sup>3</sup> Most alarmingly, **'capacity for sustainable food production' has been misrepresented and is misleadingly equated not merely with 'business-as-usual' but with ever-increasing meat and dairy production.**
- **It is not the case that one industry in one sector of the economy can simply be exempted from the same discipline that applies to all other sectors.** The National Policy Position accords special and differential treatment to the agricultural sector (carbon neutrality rather than an 80% reduction) but even so agricultural emissions will have to be halved from 18 million tonnes to nine million tonnes per year by 2050. Based As detailed in our joint analysis in 2017, nine million tonnes is most that we can aim to offset by enhancing our carbon sinks to achieve carbon neutrality. The halving of emissions from 18 to nine million tonnes represents year-on-year reductions of 2% a year, every year between now and 2050, compared to 5% annual reductions required in every other sector.<sup>4</sup>
- Ireland can be said to be exceptional in comparison with other EU Member State in that Irish agriculture sector has the highest emissions as a proportion of the "non-ETS" sector in the EU.<sup>5</sup> However, the view that the relative size of the agricultural sector simply makes Ireland a special case has been questioned given that Ireland is close to the EU average in terms of both export percentage from agriculture and value added of GDP, and below average in relation to employment percentage from agriculture.<sup>6</sup>

### Obligations at UN and EU Level

- Ireland's climate change obligations are principally framed by developments at EU and UN level. It is important to be clear that currently Ireland and the EU fall short of the commitments entered into under the Paris Climate Agreement in 2015. The EU's and thus Ireland's existing 2030 targets will need to be strengthened to be brought into line with what the science tells us is a reasonable chance of delivering on the temperature limits set out in the Paris Agreement.
- The impact of climate change on food security and the protection of food production is addressed in the Paris Agreement. However, unsurprisingly, the Paris Agreement does

not state that the expansion of developed country meat and dairy exports must not be compromised. The Agreement is very clear that the focus must be on those who do not have access to food, as well as on the severe effects of climate change on agriculture.<sup>7</sup>

**There is no suggestion that agriculture, or any sector, should simply be given a free pass in terms of contributing to emission reductions.<sup>8</sup>**

- In EU Council Conclusions of 2014<sup>9</sup>, the multiple objectives of the agriculture sector are recognised and the document refers to the greater challenges associated with reducing emissions in agriculture. However, the 2014 Conclusions do not provide any sort of legally-binding concessions for any individual sector. The purpose of the Conclusions was not to allow for exemptions but to pave the way for new obligations. The Conclusions detailed how the EU would legislate in order for Member States to collectively reduce emissions by 2030. Relevant legislation was agreed in December 2017 with a reduction of 30% in EU emissions mandated across agriculture, transport, buildings and waste.<sup>10</sup>
- All countries have certain sectors which are particularly polluting and industries which call for special treatment. **In contrast with other EU Member States however, Ireland's response in EU negotiations appears to be largely focused on exemptions and allowances.** As reported in several media articles<sup>11</sup>, the Government has repeatedly called for less demanding obligations rather than putting in place concrete plans to meet them. It is important to acknowledge that the inclusion of such exemptions and allowances in EU climate and energy legislation does not merely apply to Ireland but affects all Member States, thereby undermining rather than enhancing EU collective action.
- Given the critical role the EU plays in climate diplomacy and in generating and sustaining global ambition, the implications for the public good of efforts to oppose the ambition and integrity of EU climate action must be taken into serious consideration.

## 2. Adverse Effects of Climate Change on Irish Agriculture

- The people most vulnerable to climate change impacts will be those who depend on agriculture for their livelihood and income. **It is important to be clear that this vulnerability of farmers to climate impacts relates not only to developing countries but also to Ireland.** As noted in the new National Planning Framework, Project Ireland 2040, *'Climate change also has significant consequences for food production and biodiversity.'*<sup>12</sup>
- Research has shown that Ireland can expect a range of adverse impacts such as increasing average temperatures, extreme weather conditions and flooding. **Such impacts represent a significant threat to Irish farmers and farming.**<sup>13</sup> The risks of fodder crises as a result of extreme weather event (as occurred in 2013<sup>14</sup>) are particularly acute in Ireland given the dependency on feed imports.

## 3. Increasing Meat/Dairy Production and Ireland's Emissions Trajectory

Ireland's agriculture sector contributes greatly to the economic capacity of rural life and is of crucial importance in many economically disadvantaged regions. However, the industry focus on ever-increasing meat and dairy production poses fundamental risks for Irish farming, rural development, as well as Ireland's international reputation. The ongoing expansion of the meat and dairy sector is resulting in major increases in polluting greenhouse gas emissions. This focus on continuing expansion runs directly counter to Ireland's responsibilities to achieve its

climate change commitments, as well as its obligations under EU environmental directives and national and international strategies on ecosystem protection and biodiversity.<sup>15</sup>

The growing contradiction between Ireland's climate and agriculture policies, as well as the need for a drastically improved approach, have been raised at national and EU levels.

- In December 2017 at the Food Wise 2025 conference in Dublin, EU Agriculture Commissioner, Phil Hogan warned that "...the day has gone where we can pay lip service to sustainability and climate action".
- In January 2018 at the European Parliament, the Taoiseach stated: *'As far as I am concerned, we are a laggard. I am not proud of Ireland's performance on climate change....There are lots of things that we intend to do so that we can meet those targets. It's something that I am very committed to, and certainly my generation of politicians is committed to. It's not just the right thing to do; it makes sense economically, I think, in the longer term as well.*

It is important to be clear on the scale of the challenge due to inaction on climate change:

- In 2016 the IIEA noted that 'Emissions [from agriculture] are projected to increase by up to 7% in the period 2014-2020, and by 2020 are projected to account for 47% of Ireland's emissions'.<sup>16</sup>
- The degree of climate inaction in the agriculture (and transport sectors) is of such an order as to expose the population as a whole to severe economic consequences. It has been highlighted by the Department of Public Expenditure and Reform, as well as other analysts that if the agriculture sector does not face the same discipline as every other sector, all taxpayers will effectively have to pay for the sector's expansion through carbon credits and other financial penalties.<sup>17</sup>
- In November 2017, the Environmental Protection Agency released its latest analysis which shows that Ireland's emissions increased markedly in 2016, following another substantial increase in 2015. The EPA's latest analysis highlighted that *'Agriculture emissions increased by 2.7 per cent in 2016...The most significant drivers are higher dairy cow numbers (+6.2%) which reflects national plans to expand milk production. Dairy cow numbers have increased by 22 per cent in the last four years while greenhouse gas emissions increased by 8 per cent over that time.'<sup>18</sup> This is also resulting in particularly harmful increases in both methane and nitrous oxide.<sup>19</sup>*
- Also in November, Ireland was ranked the worst performing country in Europe for action on climate change. The Climate Change Performance Index, which is produced annually on the basis of joint analysis by two leading European think-tanks, placed Ireland 49th out of 56 countries, a drop of 28 places from last year.<sup>20</sup>
- In December 2017, Ireland's Climate Change Advisory Council produced its first Annual Review report, which provides an independent, expert assessment of Ireland's performance on climate change. The Council highlighted that *'By 2020, transport and agriculture are projected to account for 74% of emissions outside of electricity generation and heavy industry. Simply put, Ireland will miss its [EU] target of reducing emissions by 20% by 2020 by a large margin.*

#### 4. Recommendations on future of the CAP post-2020

- Farms cover between 75-80% of the land surface of Ireland and our marine resources cover an area 10 times as large as the land area of the country. These are massive resources but they are also very vulnerable ones. Our rural and coastal communities, in particular, rely on a stable climate and all the services that our biodiversity, waters and

soils provide for their livelihoods and general wellbeing. **It is essential that we take action now to protect all of these essential natural services and this can be done whilst ensuring that farmers are rewarded for doing the right thing for the climate, the environment, global food security and the public good more broadly.**

- The Common Agricultural Policy (CAP) plays a major role in the development of a socially, environmentally and climate-destructive model of farming. The 2013 CAP reform was meant to ensure that measures securing the sustainable management of natural resources would receive public money, with funds ring-fenced for climate protection. Unfortunately, attempts at real reform were thwarted by vested interests lobbying Members State governments and MEPs for a “business as usual” approach to the intensification of European agriculture through CAP supports.
- Farm incomes in Ireland at present average at about 50% of those in Germany. **Farmers that are living and working in areas of high nature value should be seriously supported in continuing to protect and enhance the biodiversity, soils and water quality while implementing measures to achieve the absolute minimum impact on the climate.** The problems of rural poverty, upland degradation, farm abandonment et al, should be addressed hand in hand with enabling these farmers to live dignified lives, handing on their natural environment inheritance in at least as good a condition as when they began their lives there.
- The future CAP (post 2020) is being negotiated, with a current consultation on the next phase of the CAP being undertaken by DAFM. The EU Commission has indicated that it is prioritising environmentally sustainable activities and basing rewards on these. **We strongly support this approach and would be keen to work with agricultural interests to ensure climate measures are adequately financed.**
- The Commission Communication (launched in November 2017) suggests giving increased powers to individual Member States when deciding how to spend CAP funds. **An ambitious CAP programme in Ireland, that seeks evidence-based measures to deliver results represents a timely opportunity for Ireland to re-align its food production systems to meet the current and future needs of society both locally and globally.**

## 5. Sustainable Mitigation Measures, Mixed and Alternative Land Use

- Under the 2015 Climate Action and Low Carbon Development Act, the Government produced a new 5-year strategy on how Ireland will cut climate pollution in July 2017. This strategy, the National Mitigation Plan, applies to all sectors of the economy. However, the National Mitigation Plan the Plan does not provide a clear analysis of how emissions from the agriculture sector, and other highly polluting sectors such as transport, will be progressively reduced in line with national and EU commitments. **The Government must immediately enhance and revise the National Mitigation Plan and urgently introduce new policies and measures, particularly in the agriculture sector.**
- **In order to protect rural communities and take responsible climate action, Ireland should be charting a different course for agriculture, one which recognises the importance of diversification of production within a rural economy.** For the sector as a whole to be genuinely sustainable (as opposed to ‘relatively more sustainable than others’ in relation to a number of cherry picked elements of our production systems), its

primary objectives cannot be continuously and simplistically equated with ever-increasing high-input, livestock-intensive agriculture.

- Government policies should encourage intensive farmers to transition away from greenhouse gas intensive production systems to more sustainable agriculture and land management. EU and Irish subsidies and research need to be redirected to low input, mixed and market garden agriculture, maximising nutrition per hectare and supporting the economic viability of small farms and a diverse agricultural and rural economy.
- Climate, social and ecological sustainability claims made in Government initiatives, such as Bord Bia's *Origin Green* programme, must be underpinned by scientific evidence and monitored by independent authorities.<sup>21</sup> Where companies involved are found to be major polluters (as occurred in 2017), this carries major reputational risks for the entire agri-food sector.<sup>22</sup>

### Proposed Sustainable Measures:

- a) High Nature Value Farming:
  - The potential to grow organic and High Nature Value/added value products has not been well debated in Ireland to date. Such farming generates vital economic opportunities in marginal parts of the country as well as supporting a range of undervalued ecosystem services (e.g. carbon sequestration, drinking water storage, flood attenuation) and internationally important hotspots for cultural and ecological heritage which have spin off benefits for other sectors such as the tourism industry. According to the Irish Organic Farmers and Growers Association Ireland now has one of the fastest growing organic sectors globally<sup>23</sup> with supply outstripping demand<sup>24</sup> yet this trend has been driven by a shift in consumption rather than by government policy or industry policy. **The positive environmental benefits of the lower inputs and intensity of organic production should be considered as well as the much needed diversification it would bring to a sector all too often at the mercy of global markets.**
- b) Protect and Expand Ireland's Peatlands:
  - Credible carbon sinks in which Ireland should seek to protect and expand include peatlands, wetlands, permanent grassland on high carbon soils and native woodlands. As has been outlined in detail in the 'Not So Green Report' (2017), peatlands cover less than 3 per cent of the global land surface but store more carbon than is contained in the vegetation of the world's forests<sup>25</sup>. Ireland is third only to Finland and Canada in proportional area of peatland cover with peat soils covering 20 percent of the country<sup>26</sup>. In their healthy state, bogs will not only store carbon but they will continue to absorb CO<sub>2</sub> as they grow providing a carbon sink which can continue to grow for thousands of years.<sup>27</sup>
- c) Sustainable Afforestation and Agroforestry that respects biodiversity:
  - To balance or offset emissions from agriculture the expansion of commercial forestry is being proposed as a means of carbon sequestration. High levels of polluting emissions from increasing meat and dairy exports cannot simply be cancelled out (or 'offset') by commercial forestry. It is likely that only a small part of agricultural greenhouse gas emissions will be offset by carbon sequestration in grasslands and forestry in the coming decades, thus leaving an 'emissions gap'.<sup>28</sup> **Temporary carbon sequestration in monoculture forestry cannot be used as a substitute for the substantial and sustained reductions required in livestock emissions.**<sup>29</sup>

- Moreover, the temporary benefit is effective only as long as mature forest is left in place (unharvested) and protected as a standing carbon stock; but this is the very opposite of commercial forestry operation under current market structures (which offer no revenue for maintaining such stocks, but focuses instead on harvest, typically by clear-fell). There is also the risk of expanding unsustainable monoculture forestry, one of the leading pressures on some of Ireland's most threatened species and habitats. The predominance of intensively managed non-native conifer plantations within Irish forestry and the targeting of open habitats of high conservation value for afforestation<sup>30</sup> means that Irish forestry is one of the leading drivers of biodiversity loss in Ireland.<sup>31</sup> In Ireland's most recent report<sup>32</sup> to the EU Commission on the habitats and species listed in the annexes of the Habitats Directive, forestry is ranked as the second greatest pressure and threat on designated habitats and species in Ireland. Nearly 40% of designated habitats under the Habitats Directive have forestry as a pressure or threat of high, medium and low intensity.<sup>33</sup>
  - Our future rather depends on a transition to land stewardship that ensures long-term emission reductions and sustains the health of people and nature. We need a better plan to get there. As recently proposed by the Irish Natura and Hillfarmers Association, *'Agroforestry [should] be considered by intensive farming enterprises to mitigate the greenhouse gases produced off their farms. A principle of the polluter cleaning their mess needs to be applied. We are all part of the problem and we all must be part of the solution.'* The Association also recommends *'Carbon credits arising from carbon sequestration off our land belongs to us, the farmer. Now there is a value to this service, we should be paid for it.'*<sup>34</sup>
- d) Bioenergy crop agriculture:
- There are significant opportunities for development of genuinely sustainable bioenergy agriculture in Ireland.
  - If such dedicated bioenergy land use displaced the current highest emissions-intensity ruminant production, then there would be a potential "triple climate dividend": enhanced national energy security, net carbon dioxide removal, and significant mitigation of non-CO<sub>2</sub> emissions. Of course, any such shift to bioenergy production must be carefully managed to protect overall food production, and must be compatible with wider environmental and ecological objectives.

## 6. Farm-based and Community Renewable Projects

- Rapid decarbonisation of our energy system is a climate action priority in its own right. It will absolutely require the maximum participation from citizens, communities, businesses and public bodies across all sectors. **Participation in energy emissions mitigation by the agriculture sector should therefore be fully supported and welcomed, as from every other part of society. Indeed, the energy transition can provide a significant economic opportunity in rural Ireland.** As noted by Joseph Curtin of the IIEA in his presentation to the Citizens' Assembly: *"ambitious climate action can happen in such a way that benefits rural communities, and in a manner that drives regionally dispersed economic development. After all, distributed renewable energy sources such as wind, sunlight, wood, and organic wastes are abundant in rural and marginalised communities. The technologies needed to harvest these renewable sources of energy are, in many cases, small scale, so that they can provide business opportunities for locals."*<sup>35</sup>
- The Stop Climate Chaos coalition welcomed the positive moves on community ownership of renewables in the Government's proposed new Renewable Electricity Support

Scheme (RESS) published last September. However, **we were very disappointed by the exclusion of small-scale rooftop solar from the RESS.** Since then the Department has held a very constructive workshop with stakeholders and has now announced a pilot grant scheme for microgeneration to be launched later this year. While this is a positive signal, grant schemes are often inefficient and dependent on annual funding from the exchequer. A portion of the public money also gets captured by contractors who raise their prices (and are the main advocates of a grant scheme). Householders, farmers and communities should be able to sell their surplus electricity to the grid (as proposed by the Citizens' Assembly) and without a right to a fair payment you will not get the kind of participation that is needed to make the energy transition a societal project.

- The findings of the IIEA are insightful in relation to how this price support should be structured: “a support scheme for rooftop solar combining a generation tariff (for all electricity generated) of 10 cent/kWh, along with an export tariff of approximately 6.6 cent/kWh would provide an attractive proposition for citizens. If the scheme were capped at 50,000 homes with 3Kw systems by 2030, the cost to the PSO would be €13.85 million per annum, a small fraction of the current PSO. With a generation tariff of 10 cent/kWh, the scheme would offer roughly a 10-year simple payback for the householder.”<sup>36</sup>
- Grasping the opportunity for on-farm renewable electricity generation **must not be confused with the independent, parallel, need for effective mitigation of non-energy emissions. This is not an “either/or” choice:** both are required, given the severity of the climate risks that have now accumulated, and the growing, cumulative, chasm between Ireland’s overall emissions and its “fair share” mitigation responsibilities. In the specific Irish context, non-energy emissions are in fact dominated by emissions within the agriculture sector, and accordingly that mitigation responsibility remains primarily on that sector. Thus, while the necessary and essential participation of the agriculture sector in mitigating energy emissions will be very welcome, on a fully fair and equal basis with all other energy-using sectors of society, this does not at all alter or reduce the requirement for effective, absolute, reductions in non-energy emissions from agriculture.

## 7. Recommendations by the Citizens' Assembly

- In relation to new initiatives to reduce emissions in the meat and dairy industry, it is important that a number of clarifications and corrections are made regarding inaccurate and dismissive commentary on recommendations made by the Citizens' Assembly. **Portrayals of the Assembly’s examination of climate action in agriculture as superficial or unsatisfactory are entirely without basis.** After having received in-depth presentations on the impacts of climate change from national and international experts, sessions were held on climate action in all the main sectors. This included a specific session on agriculture with presentations given by 5 experts in the agriculture sector, including Teagasc. All of their presentations and submissions are available online.<sup>37</sup> The Assembly Members also had access to a very wide range of submissions from stakeholders from all aspects of agriculture and beyond, and preparatory sessions prior to the public events.
- The Assembly’s recommendation of a new carbon tax on agriculture has also been dismissed as a flawed approach. **It is extremely disappointing (and misleading) that neither the full recommendations, nor the background for them, were clarified in certain Dáil and media comments as support for farmers was clear and strong in the Assembly’s concerns.** It was recommended that ‘...*there should be a tax on*

*greenhouse gas (GHG) emissions from agriculture. There should be rewards for the farmer for land management that sequesters carbon. Any resulting revenue should be reinvested to support climate friendly agricultural practices’.* This recommendation was made as, unlike in other industries, the high costs associated with emissions from meat/dairy do not have to be taken into account by farmers when making production decisions. The Assembly also recommended that ‘*the State should review, and revise supports for land use diversification with attention to supports for planting forests and encouraging organic farming.*’ It is striking too that Assembly members also voted overwhelming to support paying higher carbon tax themselves.

## 8. The ‘Feeding the World’ narrative is inaccurate and inappropriate

Ireland has a proud reputation of humanitarian and development assistance. Irish diplomats, NGOs, aid workers with the consistent strong cross-Party and public support have long sought to ensure that the poorest communities around the world receive the aid they need, improve livelihoods and resilience through sustainable agriculture and natural resource management. However, **claims that Irish livestock and dairy exports are important to food and nutrition security for a growing world population have absolutely no basis in fact and cannot be used to justify increasing Irish agricultural emissions.**<sup>38</sup>

2018 poses key diplomatic challenges and opportunities in the context of the ongoing Brexit negotiations, as well as Ireland’s UN Security Council campaign. The deliberate confusion of Irish agri-exports with Irish aid is deeply damaging to Ireland’s global standing as an honest broker with a proud humanitarian record. As noted by Institute for International and European Affairs, we must ‘distinguish between...commercial objectives for Irish food outputs from aspirations to contribute to global food security.’<sup>39</sup>

There are several reasons why the ‘feeding the world’ narrative is inaccurate and inappropriate:

- Ireland’s emissions, including those from agriculture, are fuelling climate change that is resulting in more frequent and severe droughts and crop failures, undermining food security of the poorest, particularly in east Africa.<sup>40</sup> Climate change impacts have also been implicated in the development of the conditions for the civil war in Syria.
- The United Nations Food and Agriculture Organization estimates that about 795 million people of the 7.3 billion people in the world, or one in nine, were suffering from chronic undernourishment in 2014-2016. Almost all the hungry people, 780 million, live in developing countries, representing 12.9 percent, or one in eight, of the population of developing countries. **More food is not the same as less hunger.** There is already enough food in production globally to feed everyone.<sup>41</sup> The primary cause of hunger is not inadequate global production but lack of access to adequate resources and land at local level. The UN Food and Agriculture Organization (FAO), UN human rights bodies, leading think tanks, academics and analysts have repeatedly warned against the view that a production-based approach is in any way sufficient.<sup>42</sup>
- The increased demand for Irish high-end meat and dairy products does not come from those facing food insecurity. **The vast majority of Ireland’s production is directed at affluent populations in other developed countries, mainly in Europe.** While demand for meat and dairy is rising among the better-off in developing countries, increasing Irish production does not help vulnerable communities whose food needs are either already insecure or whose ability to grow or access food is threatened by climate change. And even when Irish exports do go to developing countries, they are expensive products aimed at the middle classes who are not at risk of malnutrition. In terms of Ireland’s own food security, research has shown that on a net calorie basis, Irish food exports feed 1.4 million fewer people than food imports.<sup>43</sup>

- It is the true that agricultural systems throughout the world will have to provide extra food to feed a growing population. However, **in order to tackle hunger the focus needs to be on access and the vast majority of increased production needs to come from developing countries themselves and particularly from small holders**. Efforts to address global food security should focus on the real issue of supporting the majority of the world's farmers who are small scale farmers who, for example, produce 70% of Africa's food supply.<sup>44</sup> Climate change is making this increasingly difficult with increased desertification and soil degradation.

## 9. Efficiency is Not the Benchmark

- In recent years, a number of broadly climate-related initiatives have been introduced in the agriculture sector. These include a focus on improving efficiency/productivity, in other words reducing the polluting emissions released *per unit of meat/dairy product*. Trying to improve carbon efficiency (or what's also called 'emissions intensity') is an important step which can in theory contribute to reducing emissions. However, it is important to be clear that progress on efficiency in the agriculture sector cannot be used *in itself* as a meaningful indicator for climate action. **Our climate obligations to reduce emissions under national, EU and international law are made on the basis of absolute levels of polluting emissions and not relative efficiency.**
- What we have seen in the recent development of the Irish agriculture sector are *marginal* improvements in efficiency being consistently swamped by *large increases* in absolute production (herd numbers and feed) leading to *overall absolute increases in emissions rates*. **Focussing on the marginal changes in efficiency is misleading at best; and at worst it is a deliberate attempt to distract from the underlying reality.**
- At the heart of the Government's agriculture strategy, drafted in large part by the industry, (*Food Wise 2025*) is a plan to significantly increase meat and dairy exports. Fundamentally, this means putting the predominant focus of Irish agriculture on producing and exporting more meat and dairy which is resulting in major increases in Ireland's overall emissions. Detailed research led by the Institute for International and European Affairs in 2016 on climate action in the agriculture sector addressed the issue of efficiency and involved extensive consultation with Government, industry and Non-Governmental Organisations. The research repeatedly notes that efficiency gains on their own will not yield anything close to the levels of mitigation required from agriculture.<sup>45</sup> As stated by the Climate Change Advisory Council, **'Progress in improving the greenhouse gas efficiency of food production has not resulted in a reduction in absolute emissions. The agriculture and land sector must adopt all reasonable cost-effective measures to reduce emissions and enhance removals within the sector.'**<sup>46</sup>
- While efficiency gains can bring benefits, such as cost-savings, **there is also the major risk that savings are spent on more cattle and increasing production that in turn increases overall emissions**. It should also be noted that, although the sector has highlighted certain indicators that point to the efficiency of Irish dairy production relative to other EU Member States, much of this data is now out of date and there is also significant analysis which points to the industry's great inefficiency.<sup>47</sup>
- Regarding the idea that efficient Irish meat and dairy might simply be 'replaced' by more polluting producers, the likelihood of this occurrence (known as 'carbon leakage') is on which supplier would replace this produce (and under what conditions). The contention that carbon leakage is an inevitability is highly questionable: the vast majority of Irish

meat and dairy exports go to other EU countries and changes in meat and dairy export levels are largely taken up by other (highly efficient) producers in other western European Member States. There is a risk in using 'leakage' arguments also in that they may be used against Ireland for non-agricultural products by other countries. However, more importantly, it is not the case that the Irish meat and dairy industry is simply being asked to act alone: there is already a common obligation on all countries to take climate action by reducing emissions across all sectors in the form of the Paris Climate Agreement, as well as common EU requirements. In other words, thanks to such common obligations, the Government can ensure collective and strong climate action in agriculture at UNFCCC and EU level, as opposed to a 'do-nothing' approach.

## 10. Global Dietary Mix and Food Demand

- **Emissions from livestock account for 15% of total global emissions, which is equivalent to the exhaust emissions from all the vehicles in the world.**<sup>48</sup> Even assuming rapid decarbonisation of other sectors, if concrete measures are not taken by the agriculture sector globally, the increasing emissions associated with meat and dairy production will make it impossible to achieve the Paris goal to stay 'well below 2 degree C average global temperature rise'.<sup>49</sup>
- **The answer to climate change and agriculture must also encompass broader demand side issues such as food waste and consumption patterns.** Even with efforts to lower the emissions intensity of livestock production, rising demand for meat and dairy globally means that emissions will continue to rise.<sup>50</sup> Therefore, it is highly unlikely that the goals of the Paris Agreement can be achieved without reducing global meat and dairy consumption.
- Consumption has already reached unhealthy levels: in industrialized countries, the average person is already consuming twice as much meat as is considered healthy by experts.<sup>51</sup> Beef consumption also has by far the greatest impact on resource use and the environment of all commonly consumed foods.<sup>52</sup> Therefore, Governments must lead efforts to address this unsustainable consumption<sup>53</sup> and dietary change to less carbon-intensive foods is one of the main opportunities to significantly reduce emissions from agriculture.<sup>54</sup>
- As detailed in the Global Nutrition Report 2015, **an important step in changing consumer habits is 'for national dietary guidelines to recommend lower red meat consumption among high-consuming groups'**. Initiatives by the Health Council of the Netherlands and Sweden's National Food Agency are given as positive examples in this regard.<sup>55</sup> The World Resources Institute has also carried out in-depth analysis on overconsumption of animal-based foods, in particular beef, and put forward a framework for marketing and behavioural change in order to shift people's diets.<sup>56</sup>

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<sup>1</sup> *Environmental Pillar members*: An Taisce. Bat Conservation Ireland. BirdWatch Ireland. CELT - Centre for Ecological Living and Training. Coast Watch. Coomhola Salmon Trust. Cultivate. ECO-UNESCO. Feasta. Forest Friends. Friends of the Earth. Global Action Plan. Gluaiseacht. Good Energies Alliance Ireland. Green Economy Foundation. Green Foundation Ireland. Hedge Laying Association of Ireland. Irish Peatland Conservation Council. Irish Seed Saver Association. Irish Whale and Dolphin Group. Irish Wildlife Trust. Native Woodland Trust. The Organic Centre. The Rediscovery Centre Ireland. Sonairte. Sustainable Projects Ireland, VOICE. Wildlife Rehabilitation Ireland. Zero Waste Alliance Ireland.

<sup>2</sup> *Stop Climate Chaos coalition members*: Afri, BirdWatch Ireland, Christian Aid Ireland, Comhlámh, Community Work Ireland, Concern Worldwide, Cultivate, Cyclist.ie, Dublin Friends of the Earth, Eco Congregation Ireland, ECO UNESCO, Feasta, Fossil Free TCD, Friends of the Earth, Good Energies Alliance Ireland, Gorta-Self Help Africa, Jesuit Centre for Faith and Justice, Just Forests, Kimmage Development Studies Centre, Latin America Solidarity Centre (LASC), Liberia Solidarity Group, Methodist Church of Ireland – Council of Social Responsibility, Mountmellick Environmental Group (MEG), National Youth Council of Ireland, Oxfam Ireland, Peoples Climate Ireland, Presentation Ireland, Tearfund Ireland, Trócaire, An Taisce, VITA V.O.I.C.E., and Young Friends of the Earth.

<sup>3</sup> Stop Climate Chaos Coalition and the Environmental Pillar, *Not So Green: Debunking the Myths around Irish Agriculture*, July 2016  
[https://www.stopclimatechaos.ie/download/pdf/not\\_so\\_green.pdf](https://www.stopclimatechaos.ie/download/pdf/not_so_green.pdf)

<sup>4</sup> Submission to the Department of Communications, Climate. Action and Environment on the draft National Mitigation Plan (NMP). Stop Climate Chaos Coalition and the Environmental Pillar. April 2017  
[https://www.stopclimatechaos.ie/download/pdf/scc\\_pillar\\_joint\\_submission\\_on\\_national\\_mitigation\\_plan.pdf](https://www.stopclimatechaos.ie/download/pdf/scc_pillar_joint_submission_on_national_mitigation_plan.pdf)

<sup>5</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#)', 2016', p. 31

<sup>6</sup> World Bank. (2016). Agriculture, value added (% of GDP) X Data. [online] Available at: <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS> ; EC. (2016e). Agriculture in the European Union and the Member States - Statistical factsheets - Agriculture and rural development. [online] Available at: [https://ec.europa.eu/agriculture/statistics/factsheets\\_en](https://ec.europa.eu/agriculture/statistics/factsheets_en) See Antóin Mc Dermott, MSc Thesis, *Irish Agriculture: Feeding the world or Feeding the Problem? A Case Study on Dairy Farming and Infant Formula*, Dublin Institute of Technology, 2016

<sup>7</sup> It is noted in the explanatory preamble that in signing up to the Agreement, states '[r]ecogniz[e] the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change.'

<sup>8</sup> The Agreement sets out that in the context of sustainable development and efforts to eradicate poverty, states are required to respond to climate change by '[i]ncreasing the ability to adapt to [...] adverse impacts [...] and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production'. [Article 2(1)(b)]

<sup>9</sup> See <http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/en/pdf>

<sup>10</sup> See <http://www.consilium.europa.eu/en/press/press-releases/2018/01/17/effort-sharing-regulation/>

<sup>11</sup> See Editorial by the Times [here](#) (final section). See articles by the Irish Times, the Irish Examiner, two articles by Politico (here and here), as well as Climate Change News.

<sup>12</sup> National Planning Framework, Project Ireland 2040

<sup>13</sup> Dr Stephen Flood, NUIM for Stop Climate Chaos, Projected economic impacts of climate change on Irish agriculture <http://www.stopclimatechaos.ie/news/2013/10/24/climate-change-could-cost-irish-agriculture-up-to-2-billion/> ; EPA, Greenhouse Gases & Climate Change Factsheet, 2013

<sup>14</sup> See for example <https://www.irishexaminer.com/viewpoints/columnists/victoria-white/farm-fodder-crisis-will-continue-unless-we-confront-climate-change-230716.html> and <https://www.farmersjournal.ie/fodder-crisis-is-far-from-over-152012>

<sup>15</sup> See Stop Climate Chaos Coalition and the Environmental Pillar, Not So Green: Debunking the Myths around Irish Agriculture, July 2016 [https://www.stopclimatechaos.ie/download/pdf/not\\_so\\_green.pdf](https://www.stopclimatechaos.ie/download/pdf/not_so_green.pdf). On ecosystem protection and biodiversity, see Ó hUallacháin, D, Copland, A., Buckley, K., McMahon, B.J., (2015) 'Opportunities within the Revised EU Common Agricultural Policy to Address the Decline of Farmland Birds: An Irish Perspective', Diversity, 7, 307-317

<sup>16</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity, 2016](#)', pages 29 and 34.

<sup>17</sup> Analysis by the Department of Public Expenditure & Reform has shown that without new, immediate and substantive efforts to cut emissions, Ireland faces financial penalties in the region of €500 million by 2020 for failing to comply with our EU climate and renewable energy commitments. Analysis by the IIEA estimates that Ireland may face non-compliance costs of between €3bn and €6bn by 2030 for failing to reduce emissions unless further action is taken.

<http://igees.gov.ie/wp-content/uploads/2013/10/Future-Expenditure-Risks-associated-with-Climate-Change-Climate-Finance1.pdf>. P. 2

Paper of Prof. Alan Matthews Professor Emeritus of European Agricultural Policy, TCD delivered to The Citizens' Assembly on 04 November 2017

<https://www.citizensassembly.ie/en/Meetings/Alan-Matthews-Paper.pdf> ; Joseph Curtin, IIEA, How Much of Ireland's "Fiscal Space" Will Climate Inaction Consume, September 2016. <https://www.iiea.com/climate-and-sustainability/how-much-of-irelands-fiscal-space-will-climate-inaction-consume/>

<sup>18</sup> See [http://www.epa.ie/newsandevents/news/pressreleases2017/name\\_63280,en.html/](http://www.epa.ie/newsandevents/news/pressreleases2017/name_63280,en.html/) Emissions from agriculture and transport are part of the EU's 'Non-ETS' sector in terms of its legally binding 2020 and 2030 emissions targets. It is important to be clear that the reference year for EU targets is 2005. Statements which put the reference year at 1990 have the effect of making the agriculture sector's record appear better and transport's appear much worse. However 2005, and not 1990, is the reference year for the binding national targets for agriculture at EU level to 2020 and now to 2030.

<sup>19</sup> Irish agriculture has particularly high emissions due to methane and nitrous oxide (both potent greenhouse gases) produced by over 7 million cattle and over 5 million sheep. Currently, the methane produced per head of cattle has increased in Ireland since 1990. Increasing methane emissions associated with dairy expansion have long-term and extremely negative impacts on the atmosphere, principally as they are continually supplemented by more methane emissions.

<sup>20</sup> NewClimate Institute, GermanWarch, CAN International, Climate Change Performance Index 2018, November 2017 <https://www.climate-change-performance-index.org/country/ireland>

<sup>21</sup> Regarding sustainability claims, see Stop Climate Chaos Coalition and the Environmental Pillar, Not So Green: Debunking the Myths around Irish Agriculture, July 2016. [https://www.stopclimatechaos.ie/download/pdf/not\\_so\\_green.pdf](https://www.stopclimatechaos.ie/download/pdf/not_so_green.pdf).

<sup>22</sup> In October 2017, three companies (Carbery Food Ingredients - Ballineen Co Cork, Arrabawn Co-Op - Nenagh Co Tipperary, and Dairy Gold - Mallow Co Cork), which had previously been designated as environmentally-friendly food producers by Bord Bia under the Origin Green scheme, were [found by the Environmental Protection Agency](#) to be among the country's worst polluters. The EPA's findings raises major [questions](#) about the [merits](#) of the Origin Green scheme, including its purported climate and environmental sustainability credentials, as well as its marketing/media focus.

<sup>23</sup> IOFGA (2017) <http://iofqa.org/general/ireland-is-the-second-fastest-growing-organic-market-globally-fibl/>

<sup>24</sup> Agriland (2017) <http://www.agriland.ie/farming-news/demand-for-organic-produce-in-ireland-is-outweighing-supply/>

<sup>25</sup> Parish, F. et al., (2008). Assessment on Peatlands, Biodiversity and Climate Change. 1st ed. Wageningen: Global Environment Centre & Wetlands International.

<sup>26</sup> Gore, A., (1983). Ecosystems of the World; 4B - Mires: Swamp, Bog, Fen and Moor. 1st ed. Amsterdam: Elsevier Scientific Publishing Company.

<sup>27</sup> Ireland's extremely poor record of managing our bogs is it is estimated resulting in emissions from Irish peatlands and related activities (e.g. combustion, horticulture) of around 11.01 Mt CO<sub>2</sub> yr<sup>-1</sup> to the atmosphere which is comparable to our transport sector. Wilson, D., Müller, C. and Renou-Wilson, F., (2013), 'Carbon emissions and removals from Irish peatlands: present trends and future mitigation measures'. Irish Geography, 46(1-2), 1-23.

<sup>28</sup> DAFM Discussion document on mitigation potential in Irish AFOLU sector, 2015

<sup>29</sup> Stop Climate Chaos Coalition and the Environmental Pillar, Not So Green: Debunking the Myths around Irish Agriculture, July 2016  
[https://www.stopclimatechaos.ie/download/pdf/not\\_so\\_green.pdf](https://www.stopclimatechaos.ie/download/pdf/not_so_green.pdf)

<sup>30</sup> Farrelly, N and G Gallagher. (2013) Classification of Lands Suitable for Afforestation in the Republic of Ireland. A report commissioned by the COFORD Council Land Availability Working Group (CCLAWG),. Athenry, Co. Galway: Teagasc.

<sup>31</sup> In addition 20% of species designated under the Habitats Directive in Ireland have forestry as a pressure or threat category of High, Medium and Low intensity. See NPWS (2014) Ireland's Summary Report for the period 2008 – 2012 under Article 12 of the Birds Directive. Dublin: National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht. According to the most recent report submitted by Ireland to the European Commission in relation to the Birds Directive, silviculture / forestry is identified as a pressure / threat which is having a 'high' impact on Annex I bird species nationally. See NPWS (2014) Ireland's Summary Report for the period 2008 – 2012 under Article 12 of the Birds Directive. Dublin: National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht. Afforestation and/or forestry management is identified as being a main pressure and threat for Hen Harrier (*Circus cyaneus*), Merlin (*Falco columbarius*), Golden Plover (*Pluvialis apricaria*), Bewicks Swan (*Cygnus columbianus bewickii*), Greenland White-fronted Goose (*Anser albifrons flavirostris*) and Dunlin (*Calidris alpina schinzii*). In relation to water quality commercial forestry in Ireland is the greatest pressure on river and lake water bodies that are at risk of not meeting their high ecological status objective. Department of Housing, Planning, Community and Local Government (2017) Draft River Basin Management Plan for Ireland (2018-2021), Dublin: Department of Environment, Heritage and Local Government. These are water bodies which Ireland has a legal obligation to prevent their deterioration. They also support a range of freshwater habitats and species with are protected under Irish and EU law.

<sup>32</sup> NPWS (2013) The Status of EU Protected Habitats and Species in Ireland, Dublin: National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht.

<sup>33</sup> NPWS (2014) Ireland's Summary Report for the period 2008 – 2012 under Article 12 of the Birds Directive. Dublin: National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht.

<sup>34</sup> Policy outline on Forestry for INHFA, January 2018

<sup>35</sup> See <https://www.citizensassembly.ie/en/Meetings/Joseph-Curtin-Paper.pdf>

<sup>36</sup> See Page 19. <https://www.iiea.com/publication/power-transfer-2030-considering-pace-democracy-diversity-irelands-electricity-system-decarbonisation/>

<sup>37</sup> The presenters were Gary Lanigan (Teagasc), Iseult Ward (Food Cloud), Professor Alan Matthews on approaches to carbon neutrality, Andrew McHugh on the Smart Farming initiative and Tony Garahy on organic farming. See <https://www.citizensassembly.ie/en/Meetings/Second-Meeting-on-How-the-State-Can-Make-Ireland-a-Leader-in-Tackling-Climate-Change.html>.

<sup>38</sup> See for example, Ashoton (2016) Ireland's Agricultural Sector's Role in Food Security in the Wake of Climate Change [http://www.antaisce.org/sites/antaisce.org/files/irelands\\_agricultural\\_sectors\\_role\\_in\\_food\\_security\\_in\\_the\\_wake\\_of\\_climate\\_change\\_0.pdf](http://www.antaisce.org/sites/antaisce.org/files/irelands_agricultural_sectors_role_in_food_security_in_the_wake_of_climate_change_0.pdf)

<sup>39</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#), 2016', p. 59

<sup>40</sup> See FAO's 'State of Food and Agriculture' 2016 and [http://www.unep.org/pdf/smallholderreport\\_WEB.pdf](http://www.unep.org/pdf/smallholderreport_WEB.pdf), p. 10

<sup>41</sup> See <https://www.worldhunger.org/2015-world-hunger-and-poverty-facts-and-statistics/>

<sup>42</sup> As noted by the UN Special Rapporteur on the Right to Food: '... it is proven that more food production does not necessarily result in fewer people suffering from hunger and malnutrition. The world has long produced enough food, not only sufficient to meet the caloric requirements of the existing global population of over seven billion but also to meet the needs of the population expected to reach nine billion in 2050. Hunger and malnutrition are a function of economic and social inaccessibility, not production.' UN Special Rapporteur on the Right to Food, Hilal Elver, in her Statement at the 70th session of the General Assembly (23 October 2015, New York)

<http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=16683&LangID=E>  
See also <http://www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf>;  
[http://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session25/Documents/A\\_HRC\\_25\\_57\\_ENG.DOC](http://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session25/Documents/A_HRC_25_57_ENG.DOC);

<http://www.truth-out.org/opinion/item/27322-the-right-to-food-an-interview-with-hilal-elver>  
<http://www.abc.net.au/news/2012-06-19/de-schutter-hunger-is-political/4077824>

Alexandratos and Brunisma 2012 World Food Programme 2011 UN 2011 Tomlinson 2011

<sup>43</sup> Stop Climate Chaos Coalition and the Environmental Pillar, Not So Green: Debunking the Myths around Irish Agriculture, July 2016  
[https://www.stopclimatechaos.ie/download/pdf/not\\_so\\_green.pdf](https://www.stopclimatechaos.ie/download/pdf/not_so_green.pdf)

<sup>44</sup> See <http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=15172>

<sup>45</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#), 2016', pages 22, 65 and 37/38

<sup>46</sup> Climate Change Advisory Council Annual Review 2017, November 2017

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<sup>47</sup> See <https://www.irishtimes.com/business/agribusiness-and-food/irish-agriculture-the-least-climate-efficient-in-europe-study-finds-1.3032584>

See also increased methane produced per head of cattle since 1990 in EPA, Ireland Greenhouse Gas Emissions NIR Tables 2012. Table G.1. 2 & 3, 2014

Doyle, C. (2016) 'Feeding the world sustainably? - analysis of Irish and EU food nutrition trade balances' at <http://www.antaisce.org/publications/feeding-the-world-sustainably-an-analysis-of-irish-and-eu-food-nutrition-trade-balances>

<sup>48</sup> Laura Wellesley, Catherine Happer and Antony Froggatt, Chatham House Report, Changing Climate, Changing Diets Pathways to Lower Meat Consumption, November 2015. [https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15\\_WEB\\_NEW.pdf](https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15_WEB_NEW.pdf)

<sup>49</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#), 2016', page 24

<sup>50</sup> Rob Bailey, Antony Froggatt and Laura Wellesley, Chatham House Research Paper, Livestock – Climate Change's Forgotten Sector Global Public Opinion on Meat and Dairy Consumption, December 2014. [https://www.chathamhouse.org/sites/files/chathamhouse/field/field\\_document/20141203LivestocKClimateChangeForgottenSectorBaileyFroggattWellesleyFinal.pdf](https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20141203LivestocKClimateChangeForgottenSectorBaileyFroggattWellesleyFinal.pdf)

<sup>51</sup> Laura Wellesley, Catherine Happer and Antony Froggatt, Chatham House Report, Changing Climate, Changing Diets Pathways to Lower Meat Consumption, November 2015. [https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15\\_WEB\\_NEW.pdf](https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15_WEB_NEW.pdf)

<sup>52</sup> Ranganathan, J. et al. 2016. "Shifting Diets for a Sustainable Food Future." Working Paper, Instalment 11 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute. Accessible at [http://www.wri.org/sites/default/files/Shifting\\_Diets\\_for\\_a\\_Sustainable\\_Food\\_Future\\_0.pdf](http://www.wri.org/sites/default/files/Shifting_Diets_for_a_Sustainable_Food_Future_0.pdf)

<sup>53</sup> Laura Wellesley, Catherine Happer and Antony Froggatt, Chatham House Report, Changing Climate, Changing Diets Pathways to Lower Meat Consumption, November 2015. [https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15\\_WEB\\_NEW.pdf](https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15_WEB_NEW.pdf)

<sup>54</sup> The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#), 2016', p. 55 and Ranganathan, J. et al. 2016. "Shifting Diets for a Sustainable Food Future." Working Paper, Instalment 11 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute. Accessible at [http://www.wri.org/sites/default/files/Shifting\\_Diets\\_for\\_a\\_Sustainable\\_Food\\_Future\\_0.pdf](http://www.wri.org/sites/default/files/Shifting_Diets_for_a_Sustainable_Food_Future_0.pdf)

<sup>55</sup> International Food Policy Research Institute. 2015. Global Nutrition Report 2015: Actions and Accountability to Advance Nutrition and Sustainable Development. Washington, DC. <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/129443/filename/129654.pdf>

<sup>56</sup> Ranganathan, J. et al. 2016. "Shifting Diets for a Sustainable Food Future." Working Paper, Instalment 11 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute. Accessible at [http://www.wri.org/sites/default/files/Shifting\\_Diets\\_for\\_a\\_Sustainable\\_Food\\_Future\\_0.pdf](http://www.wri.org/sites/default/files/Shifting_Diets_for_a_Sustainable_Food_Future_0.pdf) ; The Institute for International and European Affairs, '[A Climate-Smart Pathway for Irish Agricultural Development Exploring the Leadership Opportunity](#), 2016', p. 55