14/06/21
www.giy.ie
[redacted]

GIY Submission

Draft Agri-Food Strategy

Introduction

GIY is a social enterprise that contributes to building a more sustainable food system for people and planet. It believes that our food system benefits from more people caring about what they eat, who grew it, how it was grown. We call this food empathy. GIY believes that growing at least 1% of your food increases food empathy.

Our Manifesto

Food Growing leads to

- Eating Healthily
- Zero Food Waste
- Supporting Local Producers
- End Food Pollution
- Connecting with Nature

Our Stakeholders

Ireland

- The Irish household
- Local Irish communities
- Irish schools

Our Contribution

- Shift consumer attitude, knowledge and behaviour towards a more sustainable food production and consumption at household and community level through communication, campaigns and programmes.

Mission 1) Climate Smart Environmentally sustainable agri-food sector

Access to Nature

- We believe there must be policy coherence between the agri-food policy and the outdoor recreation policy of the Department of Rural and Community Development, in particular relating to the right to roam and farm diversification options.

A Healthy Nature

no food pollution, no food waste

1.1 Climate neutral agri-food system by 2050

- We believe the Irish agri-food industry should aim to be net positive, not just net zero in GHG emissions by 2050.

- We believe that industry growth should only occur through increase in value, not in herd size. We believe that every decision made for the health of the environment is a decision made for the health and survival of the farmer.

- We support the reduction commitments for Ammonia and Nitrogen.

- We support the inclusion of regenerative agriculture. Clear targets are needed on how this method of farming will be introduced, taught, monitored and supported, including a SignPost farm.

- We propose the inclusion of private gardens in the building of the Land Use Map & Policy (1.2 million front and back gardens of detached and semi-detached homes occupied at time of 2016 national census, CSO 2016).

1.2 Restore and enhance Biodiversity

- We support the reduction of pesticide use by 50% by 2030.

1.4 Develop diverse multi-functional forests

- We support afforestation with native, not sitka spruce tree species, under appropriate management, not clear fell, and call for a keen assessment of HNV land and the need for extension grazing on these kinds of sites before permission to plant is awarded.

- We propose the inclusion of urban forestry in a forestry strategy, particularly for eco-system services such as air pollution reduction, residential mental health and a contributor to food poverty alleviation.

- We call for the investment of CAP subsidies into the creation and maintenance of the Natura 2000 sites (Dr. Guy Pe'er).

1.6 Embed the agri-food sector in the circular, regenerative bioeconomy

- Halve Food Waste by 2030. We support this target and call for a change in wording to commit the industry to halving food waste in the food processing space: "...that Origin Green *could* act as a vehicle for facilitate food industry actions" becomes "...that Origin Green *will*... etc" (pp.72)

Mission 2: Viable and Resilient Primary Producers with Enhanced Wellbeing

Access to good food

This requires that local, good food exists, including small, mixed farming that is plant-forward.

2.1 Improve Competitiveness and Productivity

- We support the conversion to organic. We feel that the target should be 25% by 2030, in line with the EU F2F strategy.

- We do not support the increase in productivity for intensive pig and poultry farming.

- We support the recognition for a domestic market for Irish horticulture, and the strong value-add potential for plant-based foods and beverages.

- We seek clearer targets on how horticulture initiatives will be supported financially to start-up and scale. We seek clear support of small-scale mixed farming, and the inclusion of urban food growing initiatives in the pending horticulture strategy.

- We seek that the pending strategy for the horticulture industry creation should be based in Regenerative Agriculture and Agroecological principles.

2.2 Improve Creation and Equitable Distribution of Value

- We believe that the low level of PDOs in Ireland is partly related to our relationship with food and with the concept of Irish cuisine at the time of writing. We propose the Irish Chef's Manifesto Network as a vehicle to strengthen national opinion and pride about Irish cuisine and terroir.

2.3 Increase Primary Producer Diversification & Resilience

- We support the notion that an agriculture that specialises in a few crops has a high exposure to risk. We seek the inclusion of A Just Transition in the action concerning

"options for diversification" and clear commitments to the support that will be offered to those transitioning.

Mission 3: Food Which is Safe, Nutritious and Appealing; Trusted and Valued at Home and Abroad.

Access to local

This requires city planning to avoid food deserts and to ensure that local growers can sell their produce at a fair price in a hospitable, respectful environment.

3.1 Prioritise Coherent Food and Health Policies to Deliver Improved Health Outcomes

- We support the coherence of the agri-food strategy with the department of health and welcome the planned National Food And Health Policy.

- We seek stronger targets for making the healthy and sustainable food choice accessible, such as introducing a confectionary tax and ban on junk food advertising for children in line with the Irish Heart Foundation recommendation 2019.

- We seek the inclusion of measures to address food deserts, ensuring that an affordable, healthy shopping option is within walking or public transport distance for all.

3.4 Develop Market Opportunities at Home and Abroad

- We seek clearer targets to create routes to market in local and domestic markets.

- We seek the creation of a food policy in every local authority, the creation of a food councillor, and a designated market site with appropriate amenities in primary town/city of each county for a weekly farmers' market.

- We seek a national strategy for community and urban growing that is operationalised at the local authority level. We seek standardised practice for every county for community land use, insurance, waiting lists, maintenance and monitoring. We call for communal green space and growing space to be included in the mandatory conditions of planning permission.

- We seek for the coordination between of horticultural training at Fetac level and the demand for local food in urban and rural centres.

- We call for the coordination of horticulture training with the demand for good, healthy food by those suffering from food poverty.

- We seek for state procurement in hospitals and schools to prioritise local, seasonal and nutritionally dense foods, and we seek for industry support for farmers who wish to supply these contracts.

Omissions in the Strategy

Access to appropriate seed

- No mention of the need to mobilise research funding for the production and storage of Irish vegetable seed, as a matter of food security on an island.

- We seek designated research on viable organic vegetable seed production in Ireland.

Access to climate-positive growing medium

- No mention of the need to mobilise research funding into alternative climate-smart growing media for the horticultural sector in light of the ban on peat extraction. This will be essential to reaching the target of increasing the production of Irish horticulture beyond its current 1%.

Access to growing space

- No mention of the role community gardens, community and council allotments, and other communal growing initiatives play in the development of an aware consumer open to paying more for sustainable production techniques.

- No mention of the role of growing initiatives in built environments in offsetting food security concerns and in consumer food education.

Access to growing knowledge

- We welcome the opportunity for the consumer to connect with the producer, virtually or in person.

- We welcome the move towards greater transparency in the value chain

- We welcome the creation of Innovation Hubs by Teagasc and ask that they include an open source element.

Written submission to Department of Agriculture, Food and the Marine in response to the public consultation on the Strategic Environmental Assessment of the Draft Agri-Food Strategy 2030

on behalf of

Trócaire

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Freedom of Information: Trócaire recognises that responses are subject to the provisions of the Freedom of Information Acts and may be released in total or in part. There are no aspects of the Trócaire response that we seek to have withheld.

Date of posting response: 14th June 2021

1. INTRODUCTION

Following on from Trócaire's 2019 submission to the initial consultation on Ireland's Agri-Food Strategy to 2030, we welcome this opportunity to participate in the public consultation on the Strategic Environmental assessment of the draft Agri-Food Strategy 2030. We specifically welcome the inclusion of a goal on policy coherence and synergies in sustainable food systems between Ireland's domestic and overseas development policies. This creates a welcome space for considering pressing cross-cutting issues such as climate change and trade justice. Our submission therefore pays particular attention to the four actions under goal 7 of mission 4 on page 132 of the draft Agri-Food Strategy 2030.

In light of the growing appreciation of the complex interactions between agriculture and food systems with a range of challenges including the right to adequate food, healthy diets, remunerative livelihoods, biodiversity loss and climate change, Trócaire welcomes the food systems approach that underpins this draft strategy. A food systems approach presents an opportunity to holistically address diverse but interconnected social, economic and environmental challenges. For a food system to be sustainable it needs to generate positive outcomes across the three pillars of sustainability, social, economic and environmental. Changing a food system to achieve sustainability outcomes across the three pillars means shifting the conditions that obstruct transitions to sustainable food systems. These conditions include structural and relational elements, agricultural policies and policy influence and representation across social, economic and environmental stakeholder groups. It is in this context that the draft Agri-Food Strategy 2030 is presented as signalling "a significant change in direction and policy".[1] A change that underpins Ireland's ambition to "become a thought, policy and practice leader in SFS". [2]

In this submission we reference our contribution to the initial 2019 public consultation as a means to address aspects of each of the three dimensions of sustainability, social, environmental and economic before responding to the four actions presented in the draft Agri-Food Strategy 2020 to ensure policy coherence between Ireland's domestic food related policies and its development cooperation and foreign policies. Recommendations are included at the end of each section.

2. A Food Systems Approach needs to be Grounded in a Human Rights Framework

The UN Special Rapporteur on the Right to Food underlines how food systems need to be grounded in a human rights approach[3]. A human rights grounding of food systems requires attention being paid not just to questions related to agricultural productivity and trade opportunities amongst others but to questions of equality, accountability and governance. A just transition to a sustainable food systems approach is predicated upon participatory decision making, where citizens and relevant stakeholders are involved in both the decision

making process and its implementation. The multistakeholder approach that underpins the development of the draft Agri-Food 2030 strategy is a move towards more inclusive, participatory food systems governance, however, the approach has yet to provide equal representation to the three areas of social, economic and environmental sustainability, An analysis of the 32 member Agri-Food 2030 Strategy steering committee underlines the absence of specific stakeholders e.g. consumer platforms, and the inadequate reflection of a food systems approach with economic interests disproportionately represented, to the potential detriment of environmental and social interests.

Recommendations:

- Mainstream a food systems approach based on a human rights framework within all institutions and organisations involved in development cooperation.

- Ensure balanced stakeholder representation across the spheres of social, economic and environmental sustainability in the make-up of future stakeholder approaches to developing, implementing and monitoring policies for a sustainable food system that is grounded in a human rights framework

- Ireland's agriculture and food systems should be coherent with our human rights obligations including the right to adequate food, commitments to the Agenda 2030 Sustainable Development Goals, the Paris Agreement, the EU Green Deal and current legal obligations to protect biodiversity and water quality.

3. **Climate Justice**

Trócaire is an international non-government organisation working with communities and farmers whose livelihoods are dependent on smallholdings where rainfed agriculture is highly vulnerable to changes in temperature and related drought and flood events. In our response to the question in the initial 2019 public consultation that asked, *"What do you think should be the absolute priority for the agri-food sector strategy to 2030?"*, we highlighted Ireland's obligations to the global agreement on climate action, adopted in Paris in 2015 and the importance of setting out agricultural sectoral emissions reduction targets. Subsequent emission projection reports disturbingly indicate Ireland's agricultural emissions are continuing to rise, with agriculture the largest sectoral contributor to Ireland's overall climate impact [4]. The recently published Climate Bill's commitment to reduce Ireland's emissions by 51% before 2030, as compared to 2018, highlights the obvious need for a step change in relation to the ambition of the Ag-Climatise Roadmap so that agriculture delivers its fair contribution to these emission reduction targets.

While the allocation of sectoral carbon budgets reflective of Ireland's 2030 emission reduction commitments are awaited, the draft Agri-Food Strategy 2030 does note the agricultural sectors which are most carbon efficient, tillage and horticulture, while seeking to treat the sustainability challenges presented by high emitting sectors, especially dairy, without reference to a modal shift, instead underlining "the core of Ireland's agri-food output will continue to be grass based livestock production". While there are no specific targets in the draft Agri-Food Strategy 2030 related to herd size, the strategy does include the target to increase five-fold the portion of agricultural land under organic production. However, more detailed provisions should be included, for example to show how enforceability will be implemented.

Recommendations:

- Ensure that Agriculture Delivers its Fair Contribution of the 51% Reductions in greenhouse gas emissions (GHG) by 2030 committed to in the Programme for Government

- Update Ag-Climatise in 2021 to reflect new national commitments to reducing GHG emissions to be set out in the forthcoming climate budgets.

- Include clear mechanisms for accountability and enforcement of targets set out in national policies

4. **Value of Investing in Regenerative Agricultural Systems**

In Trócaire's 2019 submission we drew attention to evidence from our international work on the value of regenerative agricultural systems, in terms of climate change mitigation and adaptation as well as in its potential to improve farm incomes and promote social equity. Research into and the promotion of the concept of regenerative agriculture as it relates particularly to Irish conditions is a welcome reference in the draft Agri-Food Strategy 2030 which merits greater emphasis. Compared with sustainable intensification regenerative agriculture provides greater space for incorporating the comprehensive perspective required for transformation towards sustainable food systems.

Recommendation:

- Invest more resources in research on the feasibility and value of regenerative agricultural practices in the Irish context. Place greater emphasis on social innovation alongside technological innovation.

5. **Policy Coherence and Synergies in Sustainable Food Systems between Ireland's domestic policy and its development co-operation and foreign policy**

With specific respect to the welcome inclusion of a goal on policy coherence and synergies in sustainable food systems between Ireland's domestic policy and its development co-operation and foreign policy the draft Agri-Food Strategy 2030 presents four actions:

1. Promote food and nutrition security, and Sustainable Food Systems as a central part of delivering on Ireland's ambition of achieving the UN aid target of 0.7% of GNI by 2030
2. Advocate that Sustainable Food Systems are an important part of the deepening strategic relationship between Africa and the EU
3. Play a leadership role at the UN Food Systems Summit in September 2021
4. Work to secure the establishment of a network of international experts to develop a composite indicator or index of sustainable food systems

While the draft Agri-Food Strategy 2030 recognises that *'each country has its own distinctive food system, based on its natural resource base, climate, production patterns, eating habits and history'*, this is not clearly followed through in its approach to global sustainable food systems. Instead the draft Agri-Food Strategy 2030 is based on an assumption that the Irish experience of agricultural and rural transformation is of relevance and benefit to countries at different stages of their transformation processes. This transformation process is essentially framed in the context of achieving 'modernised' systems – systems that have led to specialisation in production, reliance on proprietary technologies, are export oriented and are capital rather than labour intensive. These systems are associated with large scale industrial farming, biodiversity loss and high carbon footprints.

The actions and deliverables related to policy coherence do not clearly address challenges relating to just and fair transitions in agricultural and food systems that *leave no one behind*. The deliverable of 'achieving the UN aid target' of 0.7% of GNI is not hunger nor food systems-specific. Even assuming ODA to tackle hunger is increased, there is no clear commitment to ensure this is directed towards *sustainable* and *just* food systems based on regenerative approaches rather than pursuing investments to conventional agricultural initiatives.

Beyond advocating for sustainable food systems and championing a food system approach at high level forums, including the UN Food Systems Summit, a more ambitious objective would be to play a leadership role to advance the ambition of Sustainable Development Goal 2 through to 2030. This would imply leadership on each of Goal 2's sub-targets, including SDG 2.4 to "ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that

strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality".[5]

International leadership on sustainable food systems could also be demonstrated by highlighting the mandate and role of the most inclusive intergovernmental and international global platform for food security and nutrition, the Committee on World Food Security (CFS) and supporting the adoption of its recommendations into national laws and policy frameworks. With this in mind Trócaire would highlight the opportunity for Ireland to promote the recently endorsed CFS policy recommendations on agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition.[6]

Finally, the draft Agri-Food Strategy 2030's ambition to develop a composite indicator for the development of a sustainable food systems measurement reflects a welcome awareness of the imperative to measure what matters in a sustainable food systems approach. The development of such an indicator index should be based on inputs from relevant stakeholders domestically, international experts and located within evolving international norms with a potential role for the Committee on World Food Security's High Level Panel of Experts. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution to promote social equity, women's empowerment, economic productivity and prosperity, environmental regeneration and resilience building to climate and other shocks.

Recommendations:

- Ensure Ireland's efforts for global leadership extend beyond high level events such as the UN Food Systems Summit. For example, Ireland can provide leadership on sustainable food systems within the context of SDG 2 and by highlighting the relevance and role of the most inclusive intergovernmental and international global platform for food security and nutrition, the Committee on World Food Security.

- Increase the quantity and focus of development cooperation flows for agricultural research, extension and education in low-income countries. Prioritise bilateral and multilateral investments in these areas towards support of indigenous institutions and regenerative agriculture based on agroecological approaches.

- Agree appropriate sustainable agri-food metrics following input from relevant stakeholders domestically, international experts and located within evolving international norms with a potential role for the Committee on World Food Security's High Level Panel of Experts. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution

to promote social equity, women's empowerment, economic productivity and prosperity, environmental regeneration and resilience building to climate and other shocks. This important task should be under the remit of an independent body with no conflicts of interests.

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[1] Draft Agri-Food Strategy 2030 Executive Summary (2021) page 5

[2] Ibid page 17

[3] Letter from Special Rapporteur on the Right to Food to UNSG Special Envoy for the 2021 UN Food Systems Summit https://quota.media/open-letter-by-the-un-food-rapporteur-to-agnes-kalibata-special-envoy-of-the-un-secretary-general/

[4] Environmental Pillar, Stop Climate Chaos and the Sustainable Water Network (2021) Towards a New Agricultural and Food Policy for Ireland page 27

[5] https://sustainabledevelopment.un.org/sdg2

[6] http://www.fao.org/3/nf777en/nf777en.pdf

Dee Sir/Madam

I wish to give my feedback to the 2030 Strategic Agriculture Plan's Environmental Assessment.
We have entered the epoch of the Anthropocene as defined by Earth System Scientists in peer reviewed literature since 2000. This means that the human species is now a geological force altering earth & we must learn to live within our planetary boundaries if we are to avoid dramatic dangerous climatic, environmental and biodiversity changes in this century. All human enterprises must learn to mitigate and adapt patterns, expectations and behaviors to fare the myriad of unprecedented challenges arising, not least the agriculture industry.
Whilst Irish farmers and agriculture interests have begun to adapt many different practices to support nature-friendly farming, reduce energy usage, lower harmful run-off from nitrogen and phosphorus, and eliminate veterinary pollutants, we need political leadership to inspire & encourage a more effective large scale transformation of Irish agriculture. We need more ambitious programs that advocate for inclusion of native plant, invertebrate and animal species, provide space for Irish nature on farms to recover wildlife habitats and stop destructive clearing of scrub & natural regeneration. We need policies that incentivize Irish farmers to implement regenerative farming activities, such as silvo pasture and mixed sward pastures, that replenish the soil naturally and build capacity to farm with fewer to no chemical inputs. We need farmers markets in every town and mobile shops to encourage people to purchase food from local producers, supporting fair income to food producers and reduce carbon costs of food miles. We need a new national food naming & labeling system that includes type of farming, & natural capital benefits to educate the public about the environment costs and benefits with farming.
We need to prioritize biodiversity recovery through widespread adoption of approaches shown to work from farming with nature projects. We need less green washing by large powerful agricultural players as in origin green marketing campaigns. Instead we need real natural capital measures linked to food production that consumers can trust. We need small family farms to be given additional supports to develop & implement creative climate change & food production solutions.
We need to rapidly adapt Ireland's agriculture to be part of real effort to provide food & natural capital services for the population in difficult times ahead.
Yours sincerely,
[redacted]

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Written submission to Department of Agriculture, Food and the Marine in response to the public consultation on the Draft Agri-Food Strategy 2030

on behalf of

Irish Forum for International Agricultural Development (IFIAD)

The Irish Forum for International Agricultural Development (IFIAD) is a voluntary, multi-disciplinary platform, bringing together actors from the agri-food sector to share knowledge and good practices for the benefit of agricultural development programming and policy in support of Ireland's development objectives. The underlying premise for establishing IFIAD was a recognised need for a more effective multi-disciplinary engagement in the area of agricultural development combined with an opportunity to better leverage Irish expertise in this area for the benefit of development programmes overseas. Capitalising on Ireland's excellence in the agri-food sector, the Forum aims to bring together researchers, policymakers and practitioners with a view to strengthening the research-policy-practice interface and maximising the Irish contribution to agriculture-driven poverty reduction in developing countries.

This response represents the contributions and inputs compiled by a range of IFIAD Steering Committee members and does not constitute the views of any one individual, member or organisation within IFIAD.

The Forum is comprised of a Chair, Vice Chair, Steering Committee, Secretariat (Co-ordinator), and General Members.

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Freedom of Information: IFIAD recognise that responses are subject to the provisions of the Freedom of Information Acts and may be released in total or in part. There are no aspects of the IFIAD response that we seek to have withheld. This document constitutes our response in full.

Date of posting response: 14th June 2021

IFIAD welcomes the draft Agri-Food Strategy 2030 and congratulates the Committee of Stakeholders on facilitating the strategy process. IFIAD commends the ambition of the strategy in implementing a food systems approach and seeking to support Ireland's international leadership in sustainable food systems. The innovative linking of domestic policy with Irelands foreign and development cooperation policies is highly commendable and of particular interest to IFIAD.

> "A further innovation in this Strategy is the linkage between the domestic policy on SFSs and Ireland's foreign and development cooperation policies in Mission 4. Improving the food and nutrition security of the world's poorest people has been central to Ireland's development cooperation policy since its inception in the mid-1970s. This commitment will continue but will now be framed within the promotion of sustainable food systems, which is central to the updated development cooperation policy set out in 'A Better World' (2019)." Pg. 15 Draft Strategy

It would be worthwhile to include a statement indicating that the SDGs are indivisible and universal, where greater consideration of trade-offs and co-benefits between impacts of agri-food activities on different SDGs will be considered. The specific SDG targets that the Agri-Food Strategy will contribute to need to be indicated throughout the document i.e., beyond the "headline" SDGs.

1. Mission 4 An Innovative, Competitive & Resilient Agri- Food Sector, Driven by Technology and Talent:

Goal 7 Policy coherence and synergies in Sustainable Food Systems (SFSs) between Ireland's domestic policy and its development cooperation and foreign policy (pg. 132 Draft Strategy)

IFIAD welcomes the proposals to position food security, nutrition, and sustainable food systems as part of Ireland's overseas aid commitments and as a priority for Ireland's multilateral engagement at EU and UN level. Ireland's leadership in Sustainable Food Systems and in leading efforts to develop a science-policy interface are commendable. IFIAD considers that there are opportunities for further ambition in relation to the 4 actions set out under Mission 4 Goal 7.

Additional actions that should be considered in this section of the strategy are:

1. Including a reference to Ireland's climate diplomacy (the Paris Agreement), linking food diplomacy to climate diplomacy.
2. Identifying opportunities for engagement beyond the upcoming food systems summit / EU-African Union Summit, which will keep the strategy relevant and strategic up to 2030.
3. Including a reference to Ireland's support for research and innovation for sustainable food systems at global level, including research partnerships.
4. Take concrete steps to strengthen policy coherence more broadly relating to agri-food and Irelands foreign policy: IFIAD recommends the establishment or strengthening of an inclusive multi-stakeholder national advisory committee reporting to Minister for Agriculture and

Minister for Foreign Affairs on policy coherence, to provide advice on trade-offs and synergies in Sustainable Food Systems (SFSs) between Ireland's domestic policy and its development cooperation and foreign policy.

5. In line with the recommendations of the OECD DAC Review, develop mechanisms for analysing the impact of its domestic agri-food policies on developing countries, identify potential inconsistencies, discuss action to address these with all stakeholders, and ensure that progress is monitored.
6. In line with the recommendations of the OECD DAC Review, Ireland will adopt results frameworks for agri-food activities for international development that spell out the expected results chain, using SDG targets and indicators, and enable a clear focus on those furthest behind.
7. Efforts to develop a science-policy interface should include due consideration of existing platforms with the necessary expertise, for example, the Committee on World Food Security (CFS), High Level Panel of Experts (HLPE).
8. Goal 7 could include an indicative list of priority areas for Ireland, within the framework of Sustainable Food Systems e.g., gender equality. For example, the Farm to Fork Strategy provides an indicative list of areas and guiding principles, this approach could be mirrored by Ireland.

"The EU will focus its **international cooperation** on food research and innovation, with particular reference to climate change adaptation and mitigation; agro-ecology; sustainable landscape management and land governance; conservation and sustainable use of biodiversity; inclusive and fair value chains; nutrition and healthy diets; prevention of and response to food crises, particularly in fragile contexts; resilience and risk preparedness; integrated pest management; plant and animal health and welfare, and food safety standards, antimicrobial resistance as well as sustainability of its coordinated humanitarian and development interventions. The EU will build on ongoing initiatives [e.g. DESIRA], and integrate policy coherence for sustainable development in all its policies". EU Farm to Fork Strategy pg.18

2. Africa and Agri-food 2030:

In contrast to Food Wise 2025 which focused on African demographics and export trade opportunities, Agri-Food 2030 presents a broader conceptualisation of Irelands agri-food engagement with Africa, including international cooperation, sustainability, and policy coherence. This is a very positive development, welcomed by IFIAD.

The Strategy identifies African countries as potential consumers of Irish agri-food expertise relating to sustainable food systems. Indeed, Ireland's national food dialogues invited participants to consider "what aspects of Ireland's agri-food experience could be of most interest and benefit to developing countries?"

"Ireland's transformation of its own agri-food and rural sector, as well as its practice of developing ten-year strategies using an inclusive multi-stakeholder basis, is of interest to a wide range of countries, particularly in Africa." Pg. 15 Draft Strategy

"Ireland aims to become a thought, policy and practice leader in Sustainable Food Systems. If such a leadership position can be attained, particularly at the Food Systems Summit in September 2021, this could provide the basis for a continuing leadership role during the coming decade. It is also likely to open opportunities for international collaboration, with Ireland becoming a leading supplier of policy advice and services to countries adopting their own SFSs, particularly in Africa." Pg. 23 Draft Strategy

IFIAD considers that there is an opportunity to further strengthen the Strategy's narrative on Africa to encompass the complexity of the relationship and partnership between Ireland and Africa. In particular, the Strategy should consider the following in its communications and messaging on Africa.

1. Consider the engagement of African partner governments, institutions, NGOs, stakeholders and diaspora in discussions and implementation of Agri-Food 2030.
2. Ensure Agri-Food 2030 aligns with the Global Ireland – Ireland's Strategy for Africa to 2025.
3. Align with the EU communication – "Towards a Comprehensive Strategy with Africa" which emphasises equal partnership and mutual interests.
4. Seek to reflect both trade and technical assistance ambitions, *and* development objectives relating to hunger, nutrition, and food security in a holistic and complementary way.
5. Seek to avoid presenting a homogenous image of Africa, but rather a diversity of countries and sub-regions/contexts with which Ireland will engage, including through context specific approaches.
6. Support the principles of the Maputo Declaration on Agriculture and Food Security, by synergising with national economic and agricultural planning processes in partner developing countries in Africa, including the Comprehensive Africa Agriculture Development Programme (CAADP) process, National Agriculture Plans, National Adaptation Plans and agri-food aspects of Nationally Determined Contributions (NDCs). In addition, aim to align with the agri-food policies under development by regional economic groupings in Africa (e.g. ECOWAS, EAU, COMESA, SADC).

3. EU – Africa Partnership:

"the EU has prioritised a deeper partnership with Africa as a key element of its foreign policy. The next African Union (AU)-EU Summit will agree the basis for a comprehensive strategy between Africa and Europe. Ireland should advocate that a key element of that strategy will be the sustainable development of Africa's agri-food sector and rural economy." Page 22 Draft Strategy

IFIAD welcomes the proposal to advocate for the sustainable development of Africa's agri-food and rural development within the upcoming AU-EU Summit. In particular, IFIAD welcomes the Ireland Africa Rural Development Committee and the recommendations of the National Task Team on Rural Africa.

4. A Food Systems Approach:

A key hallmark of Agri-Food 2030 is that it proposes to use a "food systems approach". This is very welcome and will place Ireland in a favourable position to show leadership in this emerging framework.

IFIAD suggests using the FAO definitions and framework for food systems in the preface so that it is clear what is meant by a food system. This is done to some extent but could benefit from more detail i.e. include the following text from FAO:

"Food systems (FS) encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded. The food system is composed of sub-system (e.g. farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g., energy system, trade system, health system, etc.). Therefore, a structural change in the food system might originate from a change in another system; for example, a policy promoting more biofuel in the energy system will have a significant impact on the food system.

A sustainable food system (SFS) is a food system that delivers food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised. This means that:

– It is profitable throughout (economic sustainability)

– It has broad-based benefits for society (social sustainability), and

– It has a positive or neutral impact on the natural environment (environmental sustainability).

A sustainable food system lies at the heart of the United Nations' Sustainable Development Goals (SDGs). Adopted in 2015, the SDGs call for major transformations in agriculture and food systems in order to end hunger, achieve food security and improve nutrition by 2030. To realize the SDGs, the global food system needs to be reshaped to be more productive, more inclusive of poor and marginalized populations, environmentally sustainable and resilient, and able to deliver healthy and nutritious diets to all. These are complex and systemic challenges that require the combination of interconnected actions at the local, national, regional and global levels."

Defining a 'food systems approach' will be important in sharing Ireland's experience in this regard. Indeed, it would be valuable to learn more about how a food systems approach was implemented or enabled new ways of working throughout the strategy process. A key characteristic of a 'food systems approach' is that it engages a wide range of stakeholders, particularly across different systems or silos.

The Agri-Food Strategy defines a 'food systems approach' as one which "recognises the interconnectedness between policies for food, environment, and health; and acknowledges that each actor in the food chain from farm to fork has an important role in developing a sustainable food system". IFIAD further notes that a Sustainable Development Approach was incorporated in the Strategy development with the three pillars of economic, social, and environmental sustainability (1992 United Nations Conference on Environment and Development - UNCED). It would be useful to include an infographic/diagram/flowchart mapping the "food systems approach" which guided the Agri-Food Strategy development in this section of the strategy document. This diagram could map the food system drivers, components, and outcomes of Agri-Food 2030 (including interlinkages) and would serve as a valuable communication tool in sharing Ireland's Food Systems Approach. Several organisations have developed "Food Systems Approach Frameworks" which could provide a starting point for how Ireland can communicate its food systems approach such as IFPRI (2020), Foresight for Food (2020), HLPE (2017), UNEP (2016), Global Panel (2016).

In implementing the strategy, the implementation committee of the Agri-Food 2030 strategy should seek to strengthen the 'food system approach' credentials of the Strategy by:

1. Broadening the stakeholder base for the strategy, to include consumers, retailers, food processors, influencers, health & social sectors, parents, teachers, young people, civil society, and a broad base of society.
2. Seek to be *explicit* about potential synergies and trade-offs in the strategy, for example by registering and documenting them. Use food systems analysis to identify "leverage points" within the strategy – These are places within a complex system where a small shift in one area can produce big changes more broadly.
3. Document how Ireland is implementing a food systems approach through the Agri-Food 2030 Strategy, which can be used to share lessons learned from Ireland e.g. in a case-study or playbook. This will enable Ireland to better share it's experience in emerging initiatives such as the proposed Food Systems Summit gamechanger "Foster shared learning on Food System Transformation Pathways".

4. Build on the national food system dialogues which were convened by DAFM, to continue the culture of dialogue and stakeholder engagement which is an important component of having a food systems approach.
5. Continue to support global research and policy efforts to define "food systems approach" including through support for a science – policy interface for food systems transformation.
6. The UN Food Summit in September 2021 presents an opportunity to promote our food systems approach. However, we will also need to show that there has been acceptance and buy-in of our approach at domestic level and that the approach is producing results.

5. A Sustainable Food System:

To date there is limited agreement on defining or measuring a "sustainable food system", and this is an acknowledged limitation within the strategy.

"Ireland will advocate for sustainable food systems internationally and for the development of a recognised SFS measurement or index."

IFIAD welcomes this proposal for a SFS measurement as an essential action to provide clarity and credibility to the strategies overall vision of making Ireland a leader in sustainable food systems. In developing new indicators for sustainable food systems, consideration should be given to existing nationally agreed indicators to enable reporting. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution to promote social equity, women's empowerment, economic productivity and prosperity, environmental regeneration and resilience building to climate and other shocks. The development of nationally agreed indicators should seek to include input from relevant stakeholders domestically and internationally.

The Strategy would benefit from a statement indicating that women are key actors in efforts to develop sustainable food systems, where all pathways and initiatives for transitioning to sustainable food systems should be socially inclusive and transformational in relation to gender equity and equality.

6. Monitoring and Implementation:

IFIAD would welcome the opportunity to engage further with the Agri-Food 2030 Implementation Committee on the relevant aspects of the strategy in which IFIAD members are engaged.

AgendaConsulting
MANAGEMENT & BUSINESS CONSULTANCY

Submission
to
Agri-Food Strategy 2030
Environment Report

June 2021

AgendaConsulting
MANAGEMENT & BUSINESS CONSULTANCY

Corduff Hall, Lusk, Co. Dublin

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Introduction

The AgriFood 2030 strategy presents a major opportunity to redefine the nature of Irish agriculture in the context of the global challenges presented by climate change. Never before has there been such a policy focus on climate change by the Irish government and the world. Against this backdrop the overall structure of the industry must change while also enhancing competitiveness.

The previous strategy of "FoodWise 2025", proved to be anything but wise. It accelerated the negative impact that the Irish dairy sector was having by creating a headlong drive to expand the sector. This was a flawed strategy. It lacked balance and it failed to recognise the environmental impacts of the proposals. The importance of climate change is now being prioritised in line with 2030 and 2050 climate change targets and this creates the major challenge to the 2030 Strategy. While agriculture can play a key role in climate change, providing there is a balanced strategy that recognises the importance of sustainability and the role that renewable energy and the circular economy can play going forward. Any future strategy that is viewed as "greenwashing" the Irish agricultural industry will be called out based on the monitoring of the policies over the coming decade.

Environmental Report Monitoring Proposals

The monitoring section of the proposed strategy will be key to understanding whether future policies are the right policies while also defining whether they are having the desired impacts in line with national climate change targets.

The monitoring is being framed against the 4 missions and associated goals which is logical providing the proposed goals are correctly framed. The following section will review the "goals" and the proposed monitoring.

Mission 1: A Climate Smart, Environmentally Sustainable Agri- Food Sector

Goal 1: **Develop a climate neutral agri- food system**

Scale up renewable energy (RE) sources, especially anaerobic digestion and biorefining, and solar PV and energy efficiency; possible unintended adverse impact on landscape, cultural heritage and biodiversity.

COMMENT: The goal sets no targets for renewable energy. The absence of targets means that a suitable policy framework is not available. The absence of a supportive policy framework means that the opportunities presented by RE are not likely to be realised.

Goal 2: Restore and enhance biodiversity

COMMENT: The goal sets targets for measurement which is positive. Key to this goal is the publication of a national land use review. The publication of this document will tick the monitoring box however it fails to recognise the importance that a land use review should be making to the future of Irish agriculture. This land use review should in fact become an input to the development of a land-use strategy that will seek to maximise the potential that our land and sea natural assets can deliver.

Goal 3: Protect high status sites and contribute to achieving good water quality and healthy aquatic ecosystems, as set out in the Water Framework Directive

COMMENT: The role of monitoring the quality of our water bodies already falls within the remit of the EPA. The monitoring required is the work being undertaken by the EPA against the EU targets which should be clearly defined as part of the strategy monitoring.

Goal 4: Develop diverse, multi- functional forests

COMMENT: This goal should clearly set out the forestry targets for new planting for coniferous and broadleaved planting against the level of deforestation leading to a net figure for commercial forestry

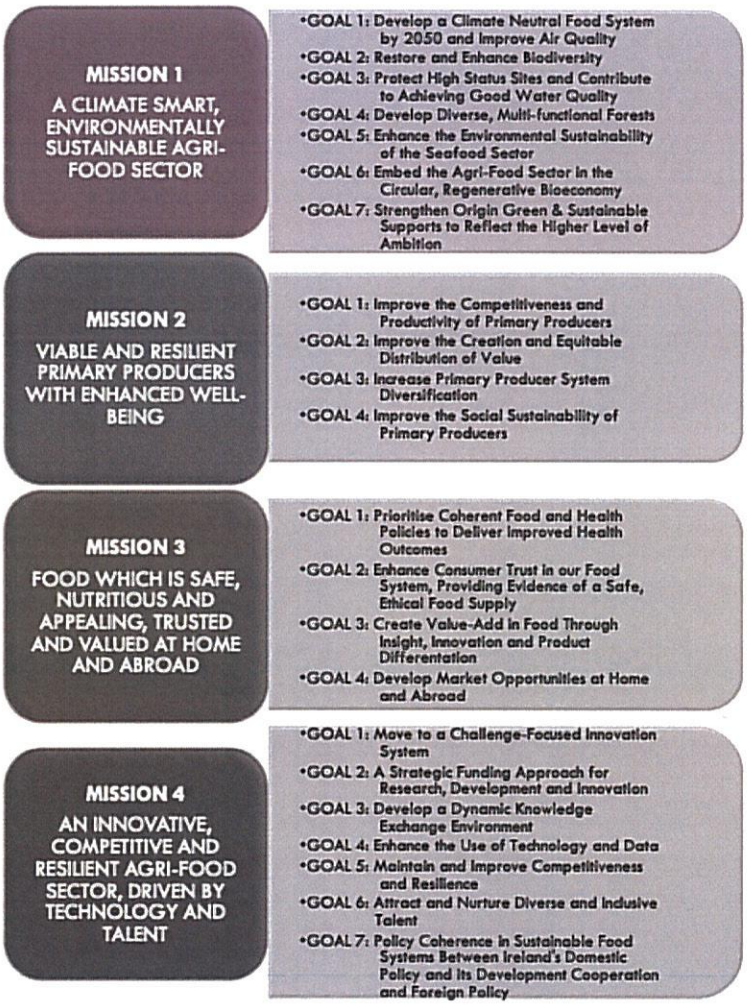
in the country. It is clear that the existing forestry targets are not being met so the new monitoring framework needs to be improved.

Goal 5: Enhance the environmental sustainability of the seafood sector.

COMMENT: Metric against targets should also be linked to seawater quality in order to better understand the dynamics of the goal.

Goal 6: Embed the agri-food sector in the circular, regenerative bioeconomy
COMMENT: The targets and monitoring metrics for this goal are wholly inadequate

Goal 7: Strengthen and invest in Origin Green and other sustainability supports to reflect higher level of ambition in agri-food sector
COMMENT: Considering that Origin Green is a foundation stone of the proposed strategy, there are no targets being set for the programme apart from "additional uptake". This is not a suitable metric for monitoring.



Mission 2: Viable and Resilient Primary Producers with Enhanced Well-Being

Goal 1: Improve competitiveness and productivity of primary producers
COMMENT: This goal requires the development of competitiveness metrics e.g. gross and net profit via farm income monitoring for all sectors of agriculture. Productivity metrics should be based on agricultural output data and areas of production for all sectors. Origin Green metrics are more relevant to Goal 7 above. They are not a measure of either competitiveness or productivity. National

Soil and Horticulture Strategies are not suitable metrics for this goal. The metrics here must be comprehensive across all sectors.

Goal 2: Improve the creation and equitable distribution of value
COMMENT: This goal requires new metrics. Quality Assurance metrics do not provide evidence of value chain value.

Goal 3: Increase primary producer diversification and resilience
COMMENT: This goal requires new metrics. Organic production is a single but small measure of diversification. Investment in renewable energy and on-farm value added metrics across all sectors are essential.

Goal 4: Improve the social sustainability of primary producers
COMMENT: Consider EPA environmental compliance as a social metric

Mission 3: Food that is Safe, Nutritious and Appealing, Trusted and Valued at Home and Abroad

Goal 1: Prioritise coherent food and health policies to deliver improved health outcomes
COMMENT: Consider food safety metrics via the FSAI

Goal 2: Enhance customer and consumer trust in our food system, providing evidence of a safe, ethical food supply
COMMENT: Consider Bord Bia consumer market research for suitable metrics

Goal 3: Increase value add in food & drink through insight, product development and differentiation
COMMENT: While R&D and training spend are metrics for this goal, neither address the rate of change for value add in the agri-food sector which is critical to monitoring the dynamics of the industry. Cross referencing value add with sustainability would be a suitable metric.

Goal 4: Develop market opportunities at home and abroad
COMMENT: While export monitoring will provide a link with food miles, domestic monitoring of market developments is equally important in terms of reducing food miles from farm to fork. Renewable energy opportunities are a sustainable environmental metric of significance that requires monitoring.

Mission 4: An Innovative and Competitive Agri-Food Sector, Driven by Technology and Talent

Goal 1: Move to a challenge focused innovation system
COMMENT: This goal does not have any specific targets and is therefore very difficult to monitor

Goal 2: A strategic funding approach to research, innovation and development
COMMENT: It is clear that this goal will have positive sustainability benefits. Again there needs to be a sustainability metric that will monitor this goal

Goal 3: Develop a dynamic knowledge exchange environment
COMMENT: This goal needs to identify the number of people in the industry that are benefiting from sustainability knowledge transfer

Goal 4: Enhance the use of technology and data
COMMENT: Technology is critical to driving new environmental benefits from precision spraying and fertiliser application to satellite monitoring of crops. It is essential that specific metrics are developed to monitor this goal.

Goal 5: Improve competitiveness and resilience

COMMENT: There are cost implications for environmental and sustainability initiatives which directly impact competitiveness and resilience. New metrics need to be developed for this goal. "Lean" practices may provide one such metric.

Goal 6: Attract and nurture diverse and inclusive talent
COMMENT: Environmental metrics linked to environmental/sustainability/quality assurance staffing provides a metric for this goal.

Goal 7: Policy coherence and synergies in Sustainable Food Systems (SFSs) between Ireland's domestic policy and its development cooperation and development policy
COMMENT: This goal should be considered in the context of knowledge transfer from Ireland's agri-food industry to other development aid countries. Irish Aid and Irish universities should be consulted regarding suitable metrics

Dear Friends,

The following is my submission on the above -referenced Strategy.

I started reading the non-technical summary and was immediately concerned in that you state:
The Committee has agreed to adopt a 'Food Systems' approach in the development of the Strategy…"a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food and nutrition for future generations are not compromised" (FOA, 2017). This means that:•It is profitable throughout (economic sustainability) •It has broad based benefits for society (social sustainability) •It has a positive or neutral impact on the natural environment (environmental sustainability).

If we need to reduce carbon emissions by 51% by 2030 then all goals should be developed through this prism of confronting and trying to mitigate the climate crisis. Economic sustainability demands this, that 'environmental sustainability' is the first goal and others cascade down from there.

A minimum of only 10% methane reduction by 2030? That's not a goal, it's a reward for farmers for lobbying the Dept of Agriculture on this issue. They are the only industry that would be allowed to continue to pollute to such an extent in the face of overwhelming evidence of the damage they are doing, and continuing to allow such levels of methane and ammonia underscore this.

Achieve 30% of Marine Protected Areas by 2030? Why not sooner? If we continue to allow the dredging of ocean floors (often releasing carbon including the destruction it causes), the overfishing and excessive exploitation of these areas then the quality will be so degraded that some won't be worth saving.

What does this mean when you're only aiming to increase organic farming to only **7.5%** of usable agricultural land: *Mission 2 includes four goals and associated actions. The high-level targets for Mission 2 are: •High ambition for primary producers, focusing on the premiumisation of output, increased integration of certain sectors, and diversification of activity and income streams: o Improved primary producer performance across a range of indicators, as measured by the National Farm Survey (NFS) and Bord Iascaigh Mhara (BIM); o Strong and functioning collaborative structures for primary producers; o Increased tillage, horticulture, organic and agro-forestry production*

You must increase the supports and targets for organic farming. You must be more ambitious on this – it should drive all your other goals.

Missions 3 and 4 in the SEA Environmental Non-Technical Summary don't even mention the climate crisis or the underpinning drive to reduce carbon emissions by 51%! Has the agricultural lobby and industry representatives just written this document for you? I'm taken aback that there isn't even a sugar coating on it. It just ignores the Government targets around climate change, even though the industry contributes about 33% of carbon emissions in this country. It's appalling.

3.1 Current State of the Environment: This is an almost unbelievable whitewashing of the current decline of biodiversity and bird species in this country. I attended a Teagasc webinar on biodiversity the other day and the representatives from Birdwatch Ireland and I came away with a very, very different impression and it does not support your statement: *Over half of the Habitat Directive-listed species are in favourable condition and many are demonstrating stable or improving trends.* What is your evidence for this? Equally, your statement on high nature value upland farming is simply untrue based on my experience in walking the hills and visiting my families farms in the west of Ireland.

There's a reference in the Executive Summary to ethical food production. It is not ethical to support farmers to increase their dairy and beef herds which will increase carbon emissions. The document keeps referring to 'sustainable food systems' but there are no methods laid out by which sustainability can be achieved (i.e. the specific steps and changes in farming practice that would ensure reducing carbon emissions by 51% by 2030) in light of the growth goals you lay out: *Sustainably develop Ireland's food and drink offering, with new ambition for value-add and new markets with a view to agri-food exports reaching €21 billion by 2030.*

It is unacceptable that agricultural sector, the biggest contributor of carbon emission, should be allowed to dodge the 51% carbon emissions cuts that the rest of the economy will have to bear: *The sector should aim to become climate-neutral by 2050, with* ***verifiable progress by 2030****, encompassing emissions, biodiversity and water quality.*

To have the temerity to put the following statement in this document underscores the extent to which the agricultural industry influenced this document: *But the core of Ireland's agri-food output will continue to be grass based livestock production wherein lies Ireland's natural competitive advantage.*

This is the heart of the problem, the intensification approach to agriculture focusing on beef and dairy, and must be challenged. This document does not appear to be an independently researched and prepared document and is not fit for purpose as we confront the climate crisis. It will not support the industry in reducing their carbon emissions dramatically, and in changing their farming practices to halt the biodiversity crisis. The farming lobby, and it appears this document, doesn't seem to believe that we're all in this together.

Kind regards,

[redacted]

Agri-Food Strategy 2030 and Environment report

Submission by [redacted]

Introduction and Summary

Agri-Food Strategy 2030 is the first national agricultural strategy in 30 years which addresses greenhouse gas (GHG) constraints, and which incorporates a set of specific actions aimed at reducing climate impact. The strategy acknowledges that an increase in the national cattle herd would be inconsistent with national GHG policy. This is a welcome change from previous strategies such as Food Harvest 2020 and Food Wise 2025, which were expansionary in nature and have resulted in increased agricultural emissions. The difficulties in achieving reductions in agricultural GHG emission in Ireland are well known and have been pushed aside as an unsolvable issue by politicians over the years[1]. The strategy represents a first step in acknowledging and addressing the issue.

This submission refers only to climate aspects of Agri-Food Strategy 2030. While it is critical of many aspects of the strategy, it is intended as constructive input aimed at improving the strategy. Any plan or programme will inevitably have to be continuously revised in light of developing knowledge and evolution of policy at national and international level. There is an urgency in addressing climate change with less than a decade left to avoid runaway warming to a world where there is breakdown of ecosystems, social upheaval, and disruption of agricultural systems, at which stage there will be no need for any future agricultural strategies. Objectively the projected GHG reduction in the strategy could be termed "slight", and is clearly inconsistent with current national and international targets. However, it is not suggested that the strategy be sent back to the drawing board to produce the perfect plan, rather that all actions in the strategy should be immediately implemented, and all opportunities taken to maximise the identified measures for delivery of GHG reductions and sequestration.

The Environmental Report outlines the assessment of the three alternatives considered. The business as usual Do Nothing scenario would allow agricultural output to adjust to the market demand and would most likely increase GHG emissions, in clear contravention of our national GHG strategy and international obligations. From a GHG perspective the most effective strategy would be the Reduced Output scenario, with a reduction in cattle numbers, mainly in the suckler herd. Given current economic, social, legal and political constraints it is highly likely that this would be unworkable and would fall at the first hurdle. Selection of the Balanced Approach is therefore understandable as a pragmatic strategy, which can be built upon and improved. Agricultural GHG issues are in many cases unsolvable at national level. As discussed later, agricultural emissions would be optimally addressed at EU level, which can direct CAP supports to achieve desired outcomes, in terms of maximum acceptable residual emissions in 2050, equity, geographical and efficiency factors, and measures to prevent GHG leakage. As EU policy and implementation measures evolve it is essential to have a credible Irish agricultural GHG strategy in operation, with a developed

[1] for a brief history of Irish Agricultural GHG policy see Appendix A

knowledge base and management system which can respond appropriately to evolving targets. Strong green credentials would increase the likelihood of EU measures favourable to Ireland.

This submission has serious concerns regarding treatment of climate aspects in the Environmental Report, which should have picked up on a number of misleading aspects of Agri-Food Strategy 2030. The Environmental Report presents detailed impact matrices, yet fails to present in clear language the evident conflicts with existing GHG reduction plans and programmes. These potential impacts would have to be classified as strongly adverse. Consequently, the report fails to identify the need for substantial mitigation measures to address these adverse impacts. The assessment methodology and impact ratings in the Environmental Report should be urgently reviewed and revised to reflect reality.

Aiming for Climate Neutrality

Agri-Food Strategy 2030 and Ag Climatise make many references to achieving a climate neutral food system by 2050. A key target of the strategy is stated to be:

> "Climate neutral agriculture sector by 2050, with substantial verifiable progress by 2030 "

In terms of GHG accounting, climate neutrality can be defined as a balance between emissions and sinks, such as the definition in the Draft Climate Bill 2021:

> 'climate neutral economy' means a sustainable economy and society where greenhouse gas emissions are balanced or exceeded by the removal of greenhouse gases".

In the case of short lived climate forcers (SLCF) the definition may in future be refined in terms of global temperature, such that residual low emissions of these gases do not compromise achievement of the internationally consensus of limiting warming to 1.5 degrees. To have a neutral impact on climate all Irish agricultural emissions would either have to be offset by sinks, or to be of a very low residual level consistent with international consensus on temperature targets.

However, Agri-Food 2030 is explicitly based on stabilizing existing methane emissions. Maintaining existing emissions, or slight reductions in these emissions could not be termed a neutral impact on climate. The strategy essentially proposes to maintain existing agricultural production, with a set of mitigation measures which can deliver at most a very modest target of a 10% reduction in biogenic methane by 2030. Confusingly, a reduction target is given in the strategy of 25% to 47% by 2050, but no explanation is provided of the origin of this projection, or how measures in the 2030 strategy align with these higher 2050 targets. These 2050 targets do not appear in the Ag-Climatise Roadmap. At the upper end of the range, 47%, may indeed be a more realistic roadmap in direction of climate neutrality, but certainly could not be achieved without reduction in the cattle herd.

Implications of Stabilising Methane Emissions

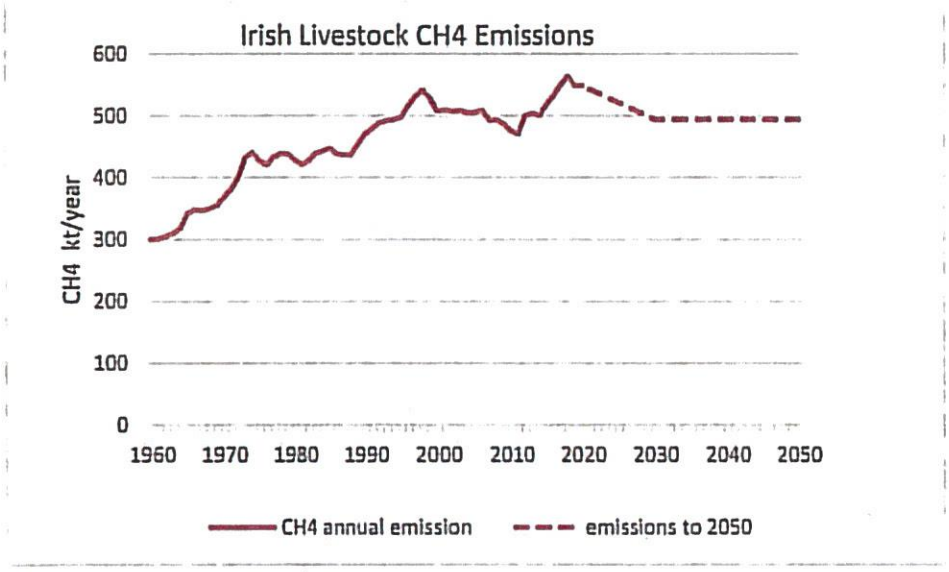
Methane is identified by the IPCC as the second most significant greenhouse gas after carbon dioxide. Methane concentration in the atmosphere has increased by a factor of 2.5 from 1750 to the present (IPCC, 2014). Emissions from Irish agriculture have also followed this trend, driven by the increasing national cattle herd, which was approximately 2.3 million in 1850, and now stands at 7.3

million. Allowing for a methane atmospheric residence time of around 10 years, the current mass of methane from Irish agriculture in the atmosphere (atmospheric burden) is approximately three times the burden prevailing in 1850 (see Appendix B). There is evidently a significant impact of Irish agricultural methane compared with the nineteenth century.

Agri-Food 2030 is based on stabilization of the national herd and mitigation measures to achieve a 10% reduction in biogenic methane by 2030. Goal 1 of the strategy is to:

> "Develop a climate neutral agri-food system so that by 2050, the climate impact of methane is reduced to zero and remaining agricultural emissions are balanced by removals; and improve air quality "

As it stands the Agri-Food Strategy 2030 is not on a trajectory to zero climate impact by 2050. Methane emissions from Irish Agriculture from 1960 to the present are shown in Figure 1. Also shown is the calculated atmospheric burden of methane, which is steadily growing, even allowing for its continuous removal from the atmosphere through oxidation. The upper graph in Figure 1 shows annual emissions, with the projected 10% reduction to 2030, and constant emissions thereafter. As discussed later, Teagasc analysis shows that these methane emissions in 2030 and 2050 could not be offset by land sinks (Shulte et al., 2013), and consequently climate neutrality cannot be achieved for this scenario. The lower graph shows the calculated resultant atmospheric burden of methane to 2050. This shows a gradual stabilisation in atmospheric burden, with a reduction of about 4% in 2050, similar to the level in 2016. While the goal of stabilizing methane emissions and resulting atmospheric burden could be achieved, in terms of climate impact there would be no significant change. In the context of the global climate crisis, and our international obligations "no significant change" could not be credibly described as neutral impact. The climate impact of methane is not reduced to zero as per Goal 1, rather it represents a continued significant adverse impact.



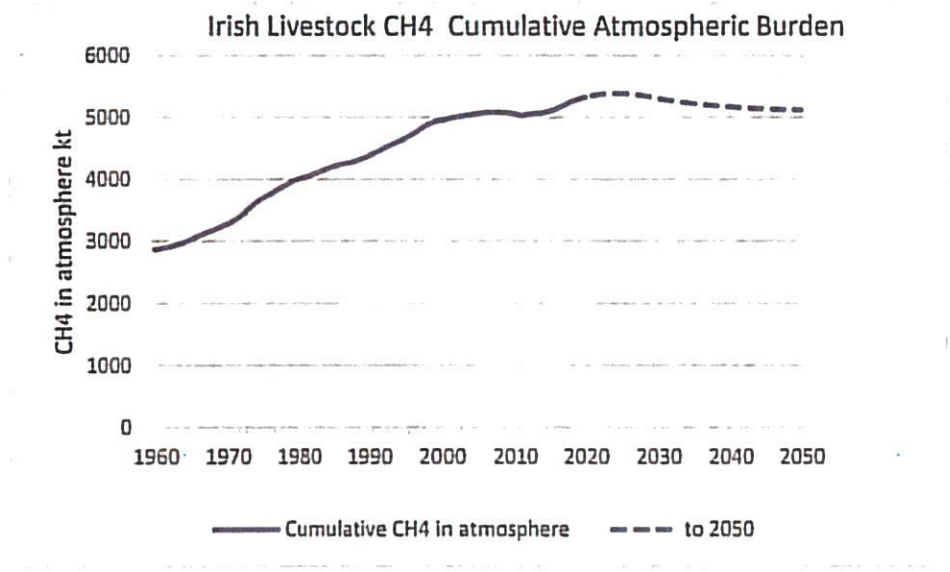


Figure 1. Emissions of methane from Irish agriculture from 1960 to 2020, and resulting cumulative atmospheric burden. Dotted lines show projected 10% reduction in emissions by 2030, with stabilized constant emissions thereafter, and projected atmospheric burden to 2050 (see Appendix B for details of calculations).

Limited Mitigation Potential for Ruminant Emissions

Under a constant production scenario, the mitigation opportunities for ruminant methane emissions are inherently limited. This is confirmed by the 10% reduction projection in the Ag Climatise and Agri-Food Strategy 2030 reports, and in the recent statement by Teagasc (2021), where a mitigation potential of 10-15% is mentioned. While alternative feeds, feed additives and selective breeding can achieve some reductions, the limiting factor is that cattle and sheep which evolved over of millions of years to successfully digest grass cannot do so without emitting methane.

In an economic assessment carried out by the EU JRC the modelled economically achievable agricultural GHG reductions for Ireland were just 15% for all mitigation scenarios considered both

subsidised and unsubsidized (Domínguez et al., 2016). Achieving climate neutrality for national emissions under the current model of Irish agriculture, as proposed in the strategy is objectively impossible. This is clear from a Teagasc assessment (Shulte et al., 2013), which projects large residual emissions from agriculture in 2030 and 2050 which cannot be technically offset, even with the full mobilisation of all mitigation measures, and exploitation of all potential grassland and forestry offsets. While up to one third of emissions could in theory be offset by 2030, analysis shows that only 25% of agricultural emissions could be offset in 2050, with this worsening situation being due to declines in forest sequestration. Since this analysis in 2013, afforestation rates have declined, and a reasonable conclusion is that we cannot expect forestry to contribute significantly to offsets, and forestry may even become a carbon source as early as the 2030s. Forest sequestration was only ever a mid-term bridging offset solution which could at best benefit to the 2060s, as in the long-term after several rotations, carbon equilibrium would be established. The scope of the carbon land sink measures proposed in Ag Climatise and Agri-Food Strategy 2030 are considerably less than the maximal assumptions in the Teagasc analysis, and consequently offsetting will be much less.

Maximising Mitigation Measures

Nitrogen

Modern farming is heavily reliant on human intervention in the nitrogen cycle whereby atmospheric nitrogen is converted to active nitrogen on an industrial scale and applied to the land in quantities that greatly exceed the natural nitrogen fixation rate. The measure to reduce inorganic nitrogen application to 325,000 t by 2030 is a welcome environmental benefit, and begins to tackle the emissions of nitrous oxide. There is however considerable scope for further reductions. EU Farm to Fork mentions a target of 20% reduction in nitrogen by 2030. The proposed 325,000 t in the strategy represents a reduction of about 11%. If anything, Ireland with its high proportion of grassland area should be in a better position to achieve nitrogen reductions than the EU average, and a target in excess of 20% reduction may be technically feasible.

It is of course simplistic to set a lower target without considering the link to productivity especially for the more intensive farms. However, in the small-farmer beef and suckler sectors, which are based more on extensive grazing there is considerable scope for reductions. Naturally, there would be a gradual decline in stocking density and productivity, but profitability for these small farmers could be maintained by savings on inputs and with appropriate financial supports. Such a strategy would be linked with a gradual move in the direction of organic farming, (not necessarily certified as such) and would enhance Ireland's sustainability credentials.

Organic Farming

The strategy sets a target of 7.5% agricultural area under organic farming by 2030. While this would be a big improvement from the current situation, it deviates significantly from the EU Farm to Fork aim for 25% organic farming by 2030. A strategy to move towards the EU target would also align with the EU aims for a reduction of 50% in pesticides, and 20 % reduction in nitrogen fertilizer. For dairy and beef sectors organic farming would rely more on extensive grazing, and if the area farmed is the same there would be a gradual decline in production, which would need to be compensated through higher market prices, or other support mechanisms.

Increase Forestry and Land Sequestration

At national and EU level there is an anticipated need for carbon dioxide removal in 2050 to offset likely residual emissions from agriculture and other sources. Yet neither AG Climatise nor Agri-Food 2030 address this requirement adequately. Ireland should at this stage mobilise all available land and forestry sequestration options, and not limit ambition to the off-set flexibility of 26.8 $MtCO_{2e}$, allowed under current arrangements for 2030. If mitigation potential for afforestation, organic soils and mineral grasslands are to generate significant sustainable benefits by the 2030's these measures need to be implemented immediately, as it will take many years for verifiable sequestration to develop. Such sequestration measures cannot be suddenly switched on in 2030.

Regarding water table management on organic soils, the strategy mentions a target of "at least 40,000 ha". This is presented as a total target, not an annual target. This soil category is a major emission source for carbon dioxide and an accelerated programme over a much larger area would have been expected if the state is serious about reducing land emissions and maximising sequestration. The strategy gives no target for management of other grasslands where there are already identified opportunities for enhanced sequestration.

Ag Climatise claims to respond to Climate Action Plan 2019, but in the case of land management it has not done this. The 2019 plan had set a target of rewetting 40,000ha *per year* of organic soils, and proposed better management of 450,000 ha of grassland.

The strategy is vague on how the current low afforestation rates should be addressed, and only mentions the possibility of development of a new forestry strategy. While Agri-Food 2030 is arguably specifically aimed at food, afforestation targets clearly would interact with targets for agricultural land use.

Conflicts with other Plans and Programmes

Ag Climatise did not claim to reflect current GHG reduction targets at national or EU level, and was limited to consideration of Climate Action Plan 2019. Agri-Food 2030 likewise did not seek to incorporate updated national aspirations for 2030, nor for 2050. Mentioning and then proceeding to ignore current plans and programmes is an obvious deficiency in the strategy. If, as is likely to be the case, it would be impossible for agriculture to achieve targets for 2030 or 2050, this should have been explicitly stated. It is essential that such strategies are based on facts, and that difficulties are not brushed aside by unsupported references to carbon neutrality in the distant future.

Agri-Food Strategy is clearly in conflict with the reduction target of around 50% mentioned in the Programme for Government 2020, and its ambitions for climate neutrality by 2050. It is also in conflict with the EU target reduction of 55% by 2030, and with the targets in EU Farm to Fork.

The strategy is also in conflict with the stated aims of the Climate and Clean Air Coalition (CCAC), in which Ireland is a partner. CCAC is a voluntary international framework for concrete and substantial action to accelerate efforts to reduce short lived climate pollutants, with an initial focus on methane, black carbon, and many hydrofluorocarbons (HFCs). Ireland has been a state partner since 2013. Continuation of elevated methane emissions is in conflict with the CCAC framework.

Evolving Understanding with respect to Methane

Biogenic Methane

The "special characteristics" of biogenic methane are referred to in Ag-Climatise, Agri-Food Strategy 2030, and in the Programme for Government 2020. Biogenic methane is the same as methane from fossil sources from a chemical and physical standpoint, with the same heat-trapping effect, and the same average lifetime in the atmosphere, with eventual oxidation to carbon dioxide and water. There is a slightly lower longer term climate impact from biogenic methane, in that the carbon content originated in the natural carbon cycle, and consequently the carbon dioxide eventually produced can be accounted as part of the natural carbon cycle. In contrast for fossil methane, the eventual carbon dioxide produced derives from a fossil source and contributes to the imbalance in atmospheric concentration. From a GHG policy perspective this difference is of only slight significance, and could be dealt with by applying a marginally higher GWP to fossil methane. In Ireland's case practically all our methane emissions are biogenic and there is therefore no issue regarding any subtle rebalancing of strategy to optimally balance biogenic and fossil methane emissions.

Global Warming Potential (GWP and GWP*)

Questioning and challenging scientific theories is an inherent and essential part of the scientific process. As new data emerges scientific theories and models may need to be revised. Such questioning needs to be itself on a scientific basis, with supporting evidence and hypotheses which can be reviewed and tested by the scientific community. For methane, increased understanding supported by data has resulted in a number of revisions of its climate impact over the years. All these revisions indicate that it is a more potent GHG and contributor to atmospheric pollution than originally thought.

A number of references in Agri-Climatise and in Agri-food Strategy 2030 question the current treatment of methane by the IPCC. The argument is not made explicitly but one could infer from the comments that there is a belief that methane is not as damaging to climate as currently claimed.

> "As research progresses on the different characteristics of various GHGs, especially short-lived emissions such as methane, these need to be recognised and reflected by the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change." (P.52 of the strategy.)

Presumably these comments refer to current discussions among climate scientists on the merit of the recently developed modified Global Warming Potential (GWP), termed GWP*. This aspect was clarified and amplified in the recent statement by Professor Gerry Boyle to the Oireachtas Agriculture Committee (Teagasc, 2021). It is claimed that a new metric, termed GWP*, may better describe the mitigation pathways and temperature impacts for short lived climate forcers (SLCF), such as methane.

The traditional GWP is a convenient simplified method of quantifying GHG emissions and reduction targets in the context of multi-gas regulation. It has been firmly embedded over many decades in existing international agreements. It has always been acknowledged that GWP has deficiencies, in particular that nominally equivalent emissions of carbon dioxide and SLCFs such as methane have different future temperature impacts. This is not to suggest that there is a serious flaw in climate science, the findings of which are unequivocal, and identify carbon dioxide ,methane and nitrous oxide as the three main heat trapping gases. Rather it is a question of whether there is a better GHG accounting system which could be used by policymakers to optimally plan emissions reductions.

The potential advantages of GWP* were addressed in the in the IPCC 1.5 degree report (IPCC, 2018). As presented, the metric appears to have merit for policy considerations on methane emissions with a better alignment of emissions with the global temperature response. How such a potential change in metric would feed into policy response is less clear, and it would be unwise to base any agricultural strategy on a belief that GWP* would be a more forgiving metric for biogenic methane. While the long-term impact of sustained emissions of methane may work out to be lower under this metric, the cooling effects of immediate reductions in methane are greater. GWP* would therefore support a policy aimed at immediate substantial reductions in methane as a means of forestalling global warming (such as proposed by CCAC). Immediate methane emissions reduction is in fact the only strategy that would yield a benefit within a decade. In the long-term, accounting under GWP* may point to the feasibility of residual, but much lower, methane emissions beyond 2050, while maintaining a stable global temperature. However, this should not be interpreted as a licence for continuation of existing methane emissions from agriculture. The IPCC (2018) is clear that deep reductions in methane will be required to limit warming to 1.5 degrees.

> "Limiting warming to 1.5°C implies reaching net zero CO2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO2 forcers, particularly methane" (IPCC, 2018)

Regarding GWP and GWP*, the IPCC (2018) states

> "Whatever method is used to relate emissions of different greenhouse gases, scenarios achieving stable GMST well below 2°C require both near–zero net emissions of long–lived greenhouse gases and deep reductions in warming SLCFs"

Need for EU Approach to Agricultural GHG Emissions

Ireland could achieve reduction in methane emission by measures aimed at reducing the national herd. However, this would probably give rise to increased production elsewhere, and carbon leakage. This issue is especially concerning for Ireland given the land border with the UK following Brexit, and strong linkages between agricultural systems north and south of the border. The issue of carbon leakage can only be dealt with at EU level, and the EU Green Deal envisages a carbon border adjustment mechanism to control such leakage. Development of policy on methane at EU level indicates that a step up to 35% to 37% methane emission reductions by 2030 would be required compared to 2005 (COM(2020) 663), and allocation of effort sharing for this target will have to be optimally devised.

Given that the EU is expected to continue to have residual GHG emissions in 2050, and that leakage can only be controlled at EU level, this would point to the need for an EU-wide approach to agricultural emissions. A maximum level of sustainable agricultural emissions is best determined at EU level with appropriate controls and trading mechanism to allow production to be optimally distributed. To best position Ireland to adapt to evolving EU measures it is essential to align policy as closely as possible with EU roadmaps.

Environmental Report RSK

The environmental report assesses a major beneficial impact of the plan on climate change. This conclusion is Impossible to reconcile with the facts.

Neither Ag Climatise nor Agri-Food 2030 would result in a significant reduction in methane by 2030. As discussed earlier this does not represent a pathway to carbon neutrality and is completely at variance with current national and EU targets for GHG reductions to 2030. Consequently, the strategy would have to be identified as having a significant to severe adverse impact on current climate targets.

The Environmental Report appears to take at face value statements in the strategy that agriculture will be carbon neutral by 2050, without probing the basis for these statements. For example consider Mission1 Climate Smart, Environmentally Sustainable Agri-Food Sector, which has stated as Goal 1:

> "Develop a climate neutral agri-food system so that by 2050, the climate impact of methane is reduced to zero and remaining agricultural emissions are balanced by removals; and improve air quality"

Action 1 of Goal 1 immediately implements the Ag-Climatise Roadmap. Action 1 is rated as having a strong beneficial impact. However, Ag Climatise has no credible provision for achieving climate neutrality by 2050, and should have been rated as having a strong adverse impact on climate.

The Environmental Report does not address conflicts with other plans and programmes. In Table 4.1 on page 21 the report includes the EU Green Deal, Farm to Fork, Programme for Government 2020 as plans and programmes that directly support or are supported by Agri-Food Strategy 2030. While these plans and programmes were mentioned, no analysis was done of conflicts between the targets of the strategy and the much higher reduction targets of these relevant plans and programmes. The potential conflicts with Agri-Food Strategy 2030 should be listed.

These issues had been raised in the consultation on the Scoping Report by Inland Fisheries Ireland, EPA, and An Taisce, and have not been properly addressed in the final report. The report evaded engagement with important issues. For example, the EPA raised the issue of alignment with targets in Farm to Fork. The report pushed this question aside with the following reply:

> "Farm to Fork Strategy (F2F) sets out a number of targets. These are not legally binding and will be the subject of legislative changes to be preceded by Impact Assessments. So agree that F2F and Biodiversity Strategies set a framework/vision which needs to be taken into account, however, specific targets for individual countries are not clear".

Were the same "legally binding" criterion to apply to all plans and programmes, then Climate Action Plan 2019 could also have been ignored, as it was not legally binding, nor the Draft Climate Bill 2021, nor the EU Green Deal, nor EU Farm to Fork. While it is accepted that specific targets for individual countries for evolving policies are unclear at present, this is no justification for ignoring the implications of publicly declared targets by the Irish Government and by the EU.

The Environmental Report should be reviewed and corrected to acknowledge conflicts and adverse impacts of the strategy on existing plans and programmes.

Appendix A - A Brief History of Irish Agricultural GHG Policy

1990 to 2000

Shortly after establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, Ireland developed an initial strategy to address its treaty obligations (DOE, 1993). This strategy was confined to proposals to limit the growth of carbon dioxide emissions, with some of the increase offset by forest sequestration. There was no consideration of any measures for agriculture. Later in the 1990's the strategy evolved to include a specific afforestation target of 30,000 ha per year as a mitigation measure. There was no question of aiming for actual reductions in carbon dioxide emissions, due to Ireland's need to catch up the the EU economically. In fact it was proposed to increase carbon dioxide emissions by 20%. Forestry was proposed as a mitigation to offset a proportion of the increase. There was no need for any new measures, as national afforestation policy had actually pre-dated any national GHG strategy, and the 30,000 ha/year target had already been incorporated in the state's Programme for Economic and Social Progress.

By 1997 there was more detailed consideration of agricultural emissions, but no specific strategy for reduction. The approach was to aim for stabilisation of animal populations with improved feed quality to result in stabilization of methane emissions (an approach echoed over 20 years later in Ag-Climatise). A subtle change in 1997 was setting Ireland's target for increased emissions in terms of total GHG rather than carbon dioxide emissions. This was not just semantics. GHG included agricultural gases, and by arguing at that time for an emissions increase of 15% in total GHG emissions this would translated to a 28% increase in CO_2 emissions, assuming emissions from agriculture were unchanged. Ireland could to an extent disguise increased emissions from fossil fuel combustion in the large underlying agricultural emission. Adding in the projected sequestration from forestry, Ireland could achieve even greater growth in carbon dioxide emissions.

Put simply, Ireland's initial GHG strategy for the land, agriculture and forestry, was to exploit opportunities to facilitate greater consumption of fossil fuel in the rest of the economy. There was no serious consideration of any specific strategy for reductions in agricultural emissions.

Kyoto Protocol

The Kyoto Protocol in 1998 required the EU to reduce emissions by 8% relative to 1990, to be achieved in the first Kyoto period 2008 to 2012. Ireland was able to successfully argue within the EU that based on its lower GDP and the recalcitrant agricultural emissions, such a reduction would not be possible, and an increase was argued for. Within EU effort sharing Ireland succeeded in being allowed an increase of 13% in GHG emissions. Again, it could claim 13% of the agricultural emissions which could be transferred to other sectors of the economy, supplemented by forest off-sets.

Ireland's National Climate Change Strategy in 2000 (NCCS 2000) assigned sectoral allowances aimed at reaching its +13% Kyoto target. NCCS 2000 was in fact the only national strategy ever devised with definite sectoral targets. Agriculture was the only economic sector where a reduction in GHG emission was factored in, and was projected to reduce its emissions by just under 10% relative to 1990. No specific measures were envisaged to achieve this reduction, as following EU de-coupling measures it was expected that there would be a natural gradual decline in the national herd. These reductions in agricultural emissions were effectively transferred to other sectors as emission allowances, never to be returned. It would have been logical to have assigned forestry sequestration to agriculture. The benefits of such sequestration were however transferred to other sectors. Ironically improving forest carbon sinks had permitted increase fossil fuel combustion, which would be hard to unwind.

Bioenergy

At face value bioenergy appeared to embody the very definition of sustainable development, and it appeared to provide an alternative model for agriculture. It could integrate national objectives in energy security, GHG emissions, agriculture and rural employment. Ireland's national GHG strategies from 2000 onwards expected bioenergy to contribute significantly to renewable electricity, transport fuel, heating, and as a feedstock in the chemicals industry. It was promoted as an essential element in delivering future energy needs with the opportunity for Ireland to become a leader in bioenergy technology. Farmers were encouraged to grow oilseed crops for biofuel and short rotation willow and miscanthus for solid biomass fuel. Many of the bioenergy projections were however quite unrealistic. Projected targets could never have been achieved in a free market, with competition from imports, competition for land, and in the absence of a realistic price on fossil carbon. Consequently the liquid biofuels initiative failed, and progress on solid fuel biomass crops has been negligible. Much effort was wasted in in these misguided strategies, and farmers lost out economically, and confidence in any future government schemes has been undermined.

Emissions Trading Scheme (ETS)

There was no evident link between agriculture and the Emissions Trading Scheme when it was first implemented, but by fundamentally changing sectoral allocations it effectively made compliance with 2020 targets very difficult for the domestic sector, including agriculture. When ETS was introduced the national climate change strategy was derailed. A very large portion of Ireland's permitted emissions were transferred to the power companies, cement companies and large industries within the ETS, which were greatly in excess of emissions envisaged in NCCS 2000. However, it was one less problem for the government to deal with, as emissions from these companies would in future be subject to declining emissions allowances which they would have to comply with through their own resources. New EU reduction targets and accountancy rules for 2020 were also devised to provide a seamless transition from 2012. The EU ETS was assigned a reduction target of 21% re 2005, and remaining domestic emissions in Ireland were assigned a reduction target of 20% re 2005. Forest sequestration which was a bulwark of Irish strategy was not allowed for 2020 compliance.

Astute government officials were no doubt horrified at the implications of this new 2020 target. No commentators at that time saw any significance in this for agriculture but within a few years the implications for agriculture in the post Kyoto period would become stark. A revision of the National Climate Change Strategy was produced in 2007 to adjust for the creation of the ETS and to address the surging emissions in carbon dioxide which were projected to exceed the Kyoto limit. Additional reductions were projected in agricultural emissions, and existing forestry measures again through projected decline in output without having to implement any specific measures. Provision was made for national purchase of emissions allowances to bridge the compliance gap.

The banking collapse occupied all attention during the Kyoto period 2008-2012. There was not much fanfare post 2012 when figures showed that Ireland had achieved its Kyoto target. Economic conditions contributed to Kyoto compliance, but there was also a large contribution from the land in the form of forest sequestration and reduced agricultural emissions. Excluding agriculture, annual average emissions from the domestic sectors of transport, residential and industry had increased by almost 23% (4.6MtCO2eq/yr) relative to 1990. However these increases were more than offset by forest sequestration (3.6MtCO2eq/yr) and reductions in agricultural emissions of (1.4MtCO2eq). Thus the land contributed a total of 5MtCO2eq/yr GHG savings, and the Kyoto limit was comfortably complied with, without resorting to national purchases of allowances.

Targets for 2020

Give the successful Kyoto compliance, and the positive role of the land in achieving this, a bizarre situation presented itself in the post Kyoto period. Emissions from the Irish ETS were already in 2012 almost in compliance with their 2020 limit, while the remaining domestic emissions were projected by the EPA to be hopelessly off target for 2020. Due to design of the ETS, which was now under EU control, there was no possibility of claiming back a portion of their emissions allocation. In retrospect it is easy to see that there had been substantial overallocation to the ETS.

EU targets for 2020 were set relative to 2005 emissions, with a reduction target of 21% for the ETS and 20% for the remaining Irish domestic emissions. Due to its high initial allowances, the Irish ETS would be permitted to emit 20% more GHG in 2020 than it did in 1990, and still reach its target. The domestic sectors of transport, residential, industry (excluding agriculture) could meet their portion of the domestic 2020 target and still emit 7% more in than in 1990. In contrast were agriculture to achieve the 20% reduction target relative to 2005, it would have to reduce emissions by 22% relative to 1990. This inequity was the unintended consequence of the timing and interaction of EU and national policies, compounded by the unusual emissions profile in Ireland, and inflated per capita GDP which attracted twice the effort share compared with the EU average.

In view of this evident inequity politicians could be forgiven for blaming the previous regime, throwing their hands in the air and ignoring the looming problem. The problem was disguised

for a number of years as the reference curve against which emissions were compared was quite forgiving in the early years.

In the aftermath of the economic crisis government policy on agriculture changed from laissez faire to active promotion of increasing productivity. Agriculture had proved resilient during the economic crisis and all economic sectors would have to be stimulated to pull the country out of depression. The EU plan to abolish of milk quotas in 2015 provided an opportunity for expansion. Climate policy took a back seat. If there was a conscious strategy for agricultural emissions between 2012 and 2020 it was to allow freedom for agricultural expansion and to postpone consideration of the GHG emissions issue for which no solution was evident, other than curtailing production.

The Climate Action Plan in 2019 was the first revision of national strategy in 12 years. The 2020 target would be missed in any event and the plan could leap over this inconvenient problem and focus was on achieving the 30% reduction target for 2030 (re 2005), where some flexibility was provided by the EU for using limited quantity of carbon sequestration. The strategy for agriculture was based on implementation of all cost effective mitigation measures while maintaining production which would yield by 2030 a projected reduction in the range 0% and 9% relative to 2005 (reduction figures given in the plan are higher as they were referenced to projected increased agricultural emissions in 2030 under the national development plan). Forest sequestration, rewetting of organic soils and grassland management would be used to claim the permitted flexibility of 2.68 $MtCO_{2eq}$/year. This was not specifically assigned to agriculture but would have brought the its overall reduction relative to 2005 to a more respectable range of 15% to 25% re 2005.

Hardly was the ink dry on the paper of Climate Action Plan 2019 when its targets were made redundant by rapidly evolving targets at EU level, and a change in government with a commitment to align closely with the new EU targets for 2030. Hostile reaction to GHG strategy among farm organisations and farmers is readily understandable. After all, the land had contributed significantly to Kyoto compliance. Farmers had followed government and EU policy at all times, so how had we ended up with this mess?

2020

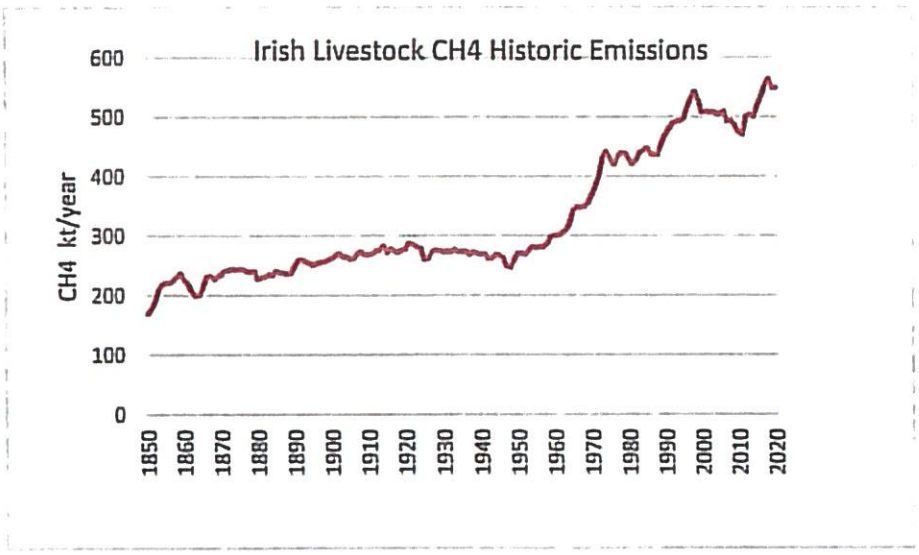
Ag Climatise was devised to address the 2019 Climate Action Plan, and it noted that revisions would be required when sectoral allocations for the revised government and EU targets were available. Agri-Food Strategy 2030 undertook to implement this GHG strategy. Essentially the strategy as far as agriculture is concerned is steady as she goes, with modest mitigation.

Appendix B- Ireland's Historic Methane Emissions

Calculated methane emissions from Irish Agriculture are presented in the Figure B1 below, along with the calculated resultant atmospheric burden of methane (mass of methane in the atmosphere in a given year due to emissions in current and preceding years).

The upper curve (orange) shows emissions increasing in the years after the famine, driven by the increases in cattle numbers. Cattle numbers, emissions and atmospheric burden stabilized from the 1920's to the 1940's. After the second world war with expansion and modernisation of agriculture, emissions began to climb again. The growth increased following opening up of the Irish economy to trade, expectation of membership of the EEC in the 1960s, and eventual membership in the 1970s. The emissions curve continued to climb to reach a peak in the late 1990's. There followed a decline to 2010, driven by EU Cap reforms, economic and market conditions. This decline had been anticipated by policymakers and was factored into National Climate Change Strategy 2000, whereby the expected reductions could be assigned to non-agricultural sectors. Increases in emissions from 2010 onwards were driven by a change in government policy following the economic crisis to stimulate the agricultural economy, and by the abolition of the EU milk quota system, all of which resulted in an increase in the cattle herd, and increased milk production.

The lower graph (blue curve) shows the calculated atmospheric burden increasing steadily since the mid-nineteenth century, with a period of stabilisation in the mid-decades of the twentieth century, and a shorter period of stabilisation in the first decade of this century. Expansionary agriculture policies since 2010 are reflected in the continued growth in the atmospheric burden to the present.



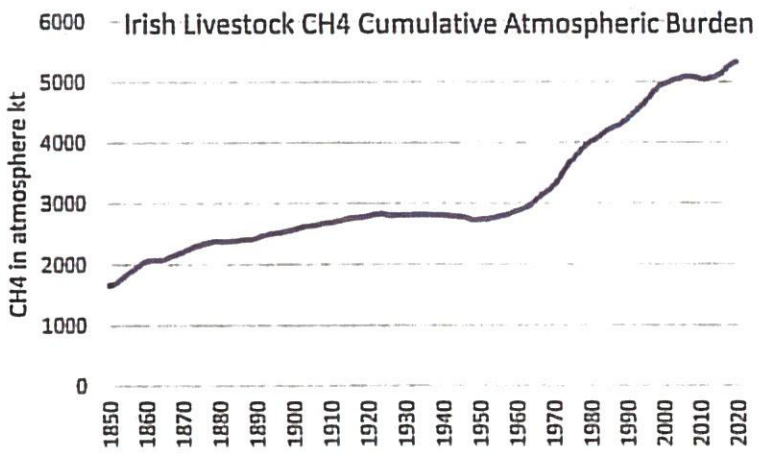


Figure B1. Upper blue curve: Estimation of methane emissions from Irish agriculture from 1850 to 2020 (emission data from 1990 to 2019 is from EEA database).

Lower blue curve represents the accumulated atmospheric burden of methane for any given year. It includes emitted CH4 in the current year with reducing contributions from preceding years and decades.

Methodology

This is necessarily a simplified analysis, which nevertheless is likely to provide a reasonable estimate of trends and scale in emissions over the past 170 years. It is based on historic livestock data from 1847 to 1990 published by the CSO (CSO, 1997), and the CSO database for livestock from 1990 to 2020.

Livestock included: Cattle, sheep, pigs, poultry, goats, horses, asses

Nature of emissions: enteric plus manure CH4

Emission factors: based on National Inventory Report (NIR) data for 1990. Historic livestock data does not distinguish between dairy and suckler cows. A nominal emission factor was assigned to represent the emission of an average cow (dairy and suckler). Emissions for dairy cows were separated into a base emission factor plus a milk related emission factor, based on analysis of NIR data from 1990 to 2019. A CH4 correction was then applied for historic milk production to represent output from dairy herd. Milk production data from 1961 was taken from Food and Agriculture Organisation FAOSTAT database. Milk yield per cow is assumed to be the same prior to 1960, which is likely to result in an overestimate in historic CH4 emissions.

The cumulative methane curve is calculated based on a simple exponential decay model, with an average atmospheric lifetime of 9.3 years to represent the oxidation process by OH^{-} radicals in the atmosphere (IPCC, 2014).

Conflicts of Interest

[redacted] is an independent climate change policy analyst. The views in this submission are his own and do not seek to represent the views of other persons or organisations.

Conflicts of interest: none

Qualifications: BA(mod) Physics, M.Sc. Physics, Pg.Dip (Env), Ph.D.

References

Central Statistics Office (1997) *Farming Since the Famine: Irish Farm Statistics 1847-1996.* Dublin: Stationery Office.

IPCC, 2018: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)].

IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

Pérez Domínguez, I., T. Fellmann, F. Weiss, P. Witzke, J. Barreiro-Hurlé, M. Himics, T. Jansson, G. Salputra, A. Leip (2016): *An economic assessment of GHG mitigation policy options for EU agriculture* (EcAMPA 2). JRC Science for Policy Report, EUR 27973 EN, 10.2791/843461

Schulte, R.P.O., Donnellan, T., Black, K.G. (FERS Ltd), Crosson, P., Farrelly, N., Fealy, R.M., Finnan, J., Lanigan, G., O'Brien, D.,O'Kiely, P., Shalloo, L., O'Mara, F. (2013) *Carbon Neutrality as a horizon point for Irish Agriculture.* Carlow: Teagasc.

Teagasc, 2021. *The Climate Action and Low Carbon Development Bill – implications for agriculture.*, Teagasc statement to the Oireachtas Agriculture Committee, 14 April 2021