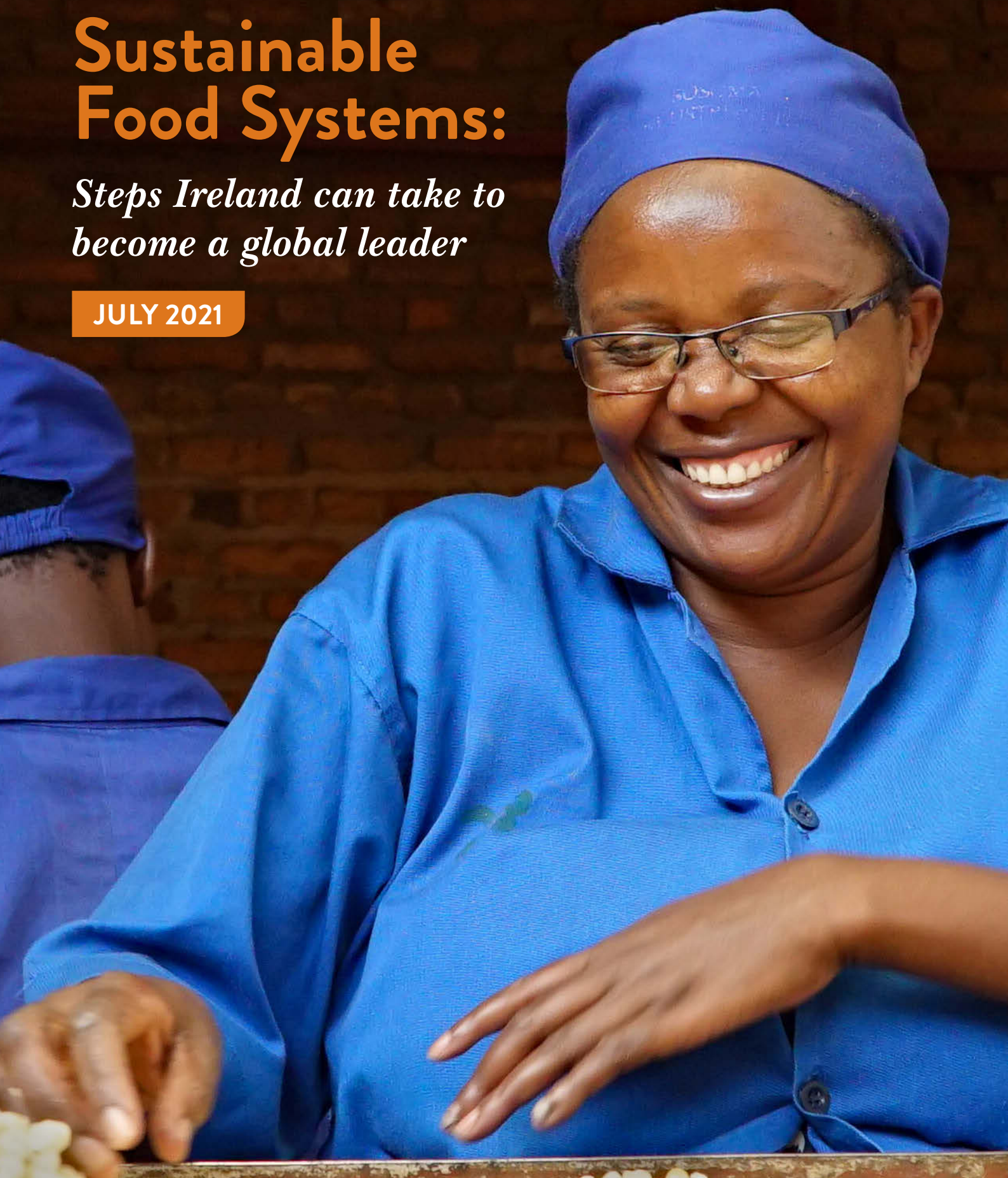


Sustainable Food Systems:

Steps Ireland can take to become a global leader

JULY 2021



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Acknowledgements:

We were grateful, throughout the research, for the substantial contributions and feedback from experts and practitioners in the field, including comments on initial drafts, methodologies, data validation, and valuable insights. With sincere gratitude to: Adriana Vidal, Alan Matthews, Anna Guðrún Þórhallsdóttir, Azara Remalia Sanogo, Brendan Dunford, Callie Berman, Carol Forrester, Caroline Rowely, Celine Horner, Chris Somerville, David Butler, David Styles, Colm Duffy, Emma Siliprandi, Erin McKay, Mary O'Shaughnessey, Elaine McGoff, Ella McSweeney, Gary Lanigan, Harry O'Crowley, Hélène Bortreau, Jakub Csabay, John Fitzgerald, Karen Ciesielski, Lawrence Haddad, Leonard Mizzi, Lisa Horan, Maeve Henchion, Michael Owing, Michelle Winthrop, Niamh Garvey, Siddharth (Montu) Saxena, Nina Moeller, Oonagh Duggan, Patrick Webb, Paul Kiernan, Paul Price, Paula Fitzsimons, Phil Dobie, Rebecca McLaren, Richard Burton, Sheila Mowlds, Sophia Murphy, Sadhbh O'Neill, Tara Kenny, Tina Schivatcheva, Thierry Kesteloot, Tom Arnold, Una Murray, William Masters, Edward Makoni, Yingfeng Ji, Colin Sage.

While the report has greatly benefitted from these contributions, the views expressed in the summary and full report do not reflect the views of the listed individuals nor do they represent their endorsement of its content.

Cover Photo: Immaculée Mukobwujaha, worker at the SOSOMA factory in Rwanda.
Photo: Raja Nundlall

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List of Acronyms

AADP	Africa Agri-Food Development Programme
ACF	Action Contre la Faim
ACORNS	The Accelerating the Creation of Rural Nascent Start-ups
AFOLU	Agriculture, Forestry, and Other Land Use
AFS 2030	Ireland's Agri-Food Strategy 2030
AMR	Antimicrobial Resistance
ANC	Area of Natural Constraints
BAU	Business as Usual
BDGP	Beef Data and Genomics Programme
BEEPS	Beef Environmental Efficiency Programme Sucklers
BFP	Beef Finisher Payment
BMGF	Bill & Melinda Gates Foundation
BP	The Burren Programme
BPS	Basic Payments and Entitlements
CAP	Common Agricultural Policy
CBA	Cost Benefit Analysis
CFS	Committee on World Food Security
CH ₄	Methane
CO ₂	Carbon Dioxide
COVID-19	Coronavirus

CRS	Creditor Reporting System
CSA	Climate-Smart Agriculture
CSM	Civil Society and Indigenous Peoples' Mechanism
CSO	Civil Society Organisation
DAC	Development Assistance Committee
DAFM	Irish Department of Agriculture, Food, and the Marine
DFA	Department of Foreign Affairs
EBI	Economic Breeding Index
ECDPM	The European Centre for Development Policy Management
EIPs	European Innovation Partnership Projects
EIU	The Economist Intelligence Unit
EPA	Irish Environmental Protection Agency
EU	European Union
F2F	EU's Farm to Fork Strategy
FAO	UN Food and Agricultural Organisation
FOI	Friends of the Irish Environment
GAEC	Good Agricultural and Environmental Condition
GAIN	The Global Alliance for Improved Nutrition
GDP	Gross Domestic Product
GFSD	Global Food Systems Dashboard
GHG	Global Greenhouse Gas
GLAS	Green, Low-Carbon, Agri-Environment Scheme
GNI	Gross National Income
HLPE	High Level Panel of Experts
HSE	Health Service Executive
IBEC	Irish Business and Employers Confederation
ICMSA	Irish Creamery Milk Suppliers Association
ICOS	Irish Co-operative Organisation Society
ICSA	Irish Cattle & Sheep Farmers Association
IFA	Irish Farmers Association
IFIAD	Irish Forum for International Agricultural Development
IIEA	The Institute of International and European Affairs
iNAP	National Action Plan on Antimicrobial Resistance 2017-2020
INFHA	Irish Natura and Hill Farmers Association
IPCC	Intergovernmental Panel on Climate Change
IPES	The International Panel of Experts on Sustainable Food Systems
IPR	Intellectual Property Rights
LEADER	<i>Liaison entre actions de développement de l'économie rurale</i> (Links between actions for the development of the rural economy)
LESS	Low Emission Slurry Spreading
LULUCF	Land Use and Land Use Change and Forestry
MAACs	Marginal Abatement Cost Curves
N2O	Nitrous Oxide
NCDs	Non-Communicable Diseases
NECD	National Emissions Ceiling Directive
NESC	National Economic and Social Council

NGOs	Non-Governmental Organisations
NTTRA	National Task Team on Rural Africa
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
PCD	Policy Coherence for Development
PPPs	Public-Private Partnerships
QWIDS	Query Wizard for International Development Statistics
RAI	Responsible Investments in Agriculture and Food systems
SDGs	Sustainable Development Goals
SFPA	The Sea Fisheries Protection Agency
SFSI	Sustainable Food Systems Ireland
SMART	Specific, Measurable, Achievable, Realistic, and Timely
SME	Small and Medium Enterprise
SSBs	Sugar-Sweetened Beverages
SWAN	Sustainable Water Network
TAMS	Targeted Agriculture Modernisation Scheme
TAPE	Tool for Agroecology Performance Evaluation
TCA	True Cost Accounting
TFP	Total Factor Productivity
TRIPS	The Agreement on Trade-Related Aspects of Intellectual Property Rights
TSP	Total System Productivity
UCC	University College of Cork
UNDRIP	UN Declaration of the Rights of Indigenous Peoples
UNDROP	United Nations Declaration on the Rights of Peasants and other people working in Rural Areas
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UNFSS	United Nations Food Systems Summit
WHO	World Health Organisation
WTO	World Trade Organisation

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Foreword

Using a ‘food systems approach’ to thinking about how to achieve the transition to more sustainable ways of producing and consuming food has become increasingly common. Later this year, in September, the UN Secretary-General António Guterres will convene a Food Systems Summit as part of the Decade of Action to achieve the Sustainable Development Goals (SDGs) by 2030. The intention is to spur action within the food system to help us get back on track to achieving the SDGs by implementing reforms that are good for people and planet. As part of Ireland’s engagement with the Summit, the Department of Agriculture, Food and the Marine has convened a series of four National Dialogues on Ireland’s food system. Several independent dialogues have also been held to feed views into the Summit process.

The report of the Agri-Food Strategy 2030 committee, whose draft report was issued for public consultation in April 2021, set as its central objective that Ireland should become an international leader in Sustainable Food Systems. What that might mean in practice is open to different interpretations. Many of the important issues that need to be debated are spelled out in subsequent chapters of this report, for which I am pleased to write this foreword.

Food systems are conventionally described as consisting of the entire chain of actors involved in the provision of inputs, production, processing, distribution, consumption, and disposal of food and the way they relate to each other. Food systems also comprise the various norms, rules and policies that influence their functioning, as well as supporting services such as inspection, extension, and research.

The way food systems function and operate determines not only outcomes with respect to food supply and nutrition, but also impact on the livelihoods of those involved in these activities as well as their environmental footprint. These objectives are clearly related, but policy making has often addressed them in isolation. As the OECD has noted, the concept of ‘food systems’ draws attention to the important synergies and trade-offs that might exist between these different areas, and to the need for increased co-ordination between policy making communities.

The Scientific Group advising the UN Food Systems Summit has drawn a distinction between positive and normative food systems concepts. A positive concept of food systems sets out to describe and understand the relationships that exist between the various food system actors and the outcomes around food security and nutrition, livelihoods, and environmental sustainability. The normative concept postulates a set of objectives (in this case, set out in the SDGs) and aims to shape food systems to serve the stated objectives. Using the normative approach highlights the gaps and deficiencies between how food systems operate today and how we would like them to operate.

This report marshals a compelling set of statistics and evidence to underline the need for transformation in food systems both globally and in Ireland. Food systems even in developed countries are characterised by malnutrition arising from over-consumption of energy-dense but nutrition-poor diets; excessive environmental pressures contributing to the loss of biodiversity, water scarcity, soil degradation, deterioration in water quality, air pollution and contribution to climate change; reliance on international supply chains that can contribute to deforestation and other adverse outcomes in exporting countries; as well as pressure on incomes both of farmers but also farm workers and workers in processing plants who increasingly are migrants and whose working conditions are often below acceptable standards. An important element stressed in this report is the need for coherence between Ireland’s aim to be a leader in sustainable food systems and the use it makes of its overseas development aid budget in supporting agricultural development in low-income countries.

The changes required to address these challenges and to move towards more sustainable food systems are urgent, complex, and contested. This should not be a surprise. Sometimes different viewpoints rest on a different understanding of facts. Whether lower consumption of red meat and dairy products in an Irish context would improve health outcomes is a factual question and disagreements over time can be narrowed as additional research becomes available.

Other differences in views in how to transform food systems may rest on differences in interests. All policy changes involve winners and losers. If the true cost of all negative externalities resulting from food production were internalised in the cost of food, food prices might rise to the detriment of low-income households who spend a high proportion of their income on food. Reducing ruminant animal production to limit greenhouse gas emissions in the absence of low-cost technological mitigation options will negatively impact on farm incomes. In the real world, political conflicts arising from differences in interests can sometimes be settled through the payment of compensation to offset the cost of the policy change for negatively affected groups. In this context, this report highlights the potential for eco-system payments to provide an alternative income stream for farmers who might otherwise face lower incomes because of necessary food system transformation.

But, as is also made clear in this report, differences on how to move towards more sustainable food systems are also rooted in differences in values. The report notes that how we will feed the world in the decades ahead is becoming a highly contested arena of competing visions. The report draws a broad distinction between productivist and transformative narratives. While my own view would be that this binary distinction is too black-and-white and overlooks potential synergies between the two approaches, the report is surely right to highlight the role that values play in our views on how food systems should evolve. Whether local food systems should be encouraged at the expense of participation in global supply chains, the conditions under which we consider it is reasonable to keep animals for food production or not, our views as to the optimal farm structure, and how much government intervention to influence our food consumption habits is justified, are all examples of issues where differences in values will lead to differences in views with respect to how food systems should evolve. Differences in values cannot be resolved as easily as differences with respect to facts and interests. As the report highlights, this makes it even more important that all relevant stakeholders have a seat around the table and can make their input into the future design of food systems.

This report makes an important contribution to the discussion of food systems in Ireland. Many of the assertions made are provocative and will not find agreement among all stakeholders. I have already explained why this is likely to be the case. But it is still a useful exercise to spell out the breadth of the food systems approach and to illustrate the many different connections and challenges that this approach highlights. Navigating a path through the competing objectives, interests and values will require much more discussion, and this report will serve as an important milestone in that debate.

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May 2021

Summary and Recommendations

The growing evidence and appreciation of the complex interactions between agriculture and food systems, with the interconnected challenges of food insecurity, biodiversity loss, and climate change, are propelling debates on the transformation of these systems at all levels. Globally, a consensus may be emerging on the need for transformation, but there is no agreement on what innovative approaches can best deliver social, economic, and environmentally sustainable outcomes.

Both Oxfam Ireland and Trócaire work in contexts where agriculture and food is the main source of employment and income, is small scale and rainfed, and accounts for most of the food consumed within households and in their wider local communities. Countries' sustainable development is intertwined with securing these communities and their futures, building their food security, and strengthening their resilience to climate and other shocks.

The focus now, on food systems' thinking, presents an opportunity to holistically address diverse but interconnected social, economic, and environmental challenges. Underpinned by rights-based approaches, countries' agriculture and food policies must be framed in ways that foster social equity, women's empowerment, economic productivity and prosperity, environmental regeneration, and resilience building at all levels.

The Irish Government has set out the commendable ambition to become a global leader in sustainable food systems over the next decade.¹ Given Ireland's commitments to international and regional agreements, including those related to the right to food, the European Green Deal, and the Paris Agreement on climate change, this report assesses where Ireland is at and what Ireland needs to do, in both the domestic and international spheres, to achieve this ambition.

The sustainable transformation of the global food system presents an immense challenge. The global food system² is at the centre of complex, interconnected challenges: including climate change, ecological degradation, land use competition, and conflict. An increasing number of people are facing food insecurity (a trend that has been further exacerbated by COVID-19), with the climate change and biodiversity emergencies further underpinning arguments for agriculture and food system transformation. The world faces the unprecedented challenge of pursuing human development and ensuring the right to adequate food for all on a planet where the population is estimated to increase to over 9 billion people by 2050,³ in ways that don't breach essential ecological and planetary boundaries,⁴ while tackling poverty and extreme inequality.

At a global level, agriculture, forestry, and other land usage accounts for 23% of all greenhouse gas emissions. Add in other emissions from the food chain, from farm to consumer, and the estimate rises towards 34%. In Europe, the agricultural sector accounts for 10.3% of GHG emissions. Irish agriculture contributes more than 30% of the country's national GHG emissions.⁵ This figure does not include the emissions related to land use and land use change generated by imports of commodities such as soy and beef. Critically, the great variety in the level of emissions associated with different agricultural approaches and products draws attention to the opportunities for incentivising systems that advance climate mitigation and adaptation objectives.

¹ Draft Agri-Food Strategy 2030, April 2021, available at: <https://www.gov.ie/en/consultation/bd894-public-consultation-on-the-environmental-assessment-of-the-draft-agri-food-strategy-to-2030/>

² Please see Chapter Two for an outline of the key elements of food systems.

³ <https://www.un.org/development/desa/en/news/population/world-population-prospects-2019.html>

⁴ <https://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>

⁵ Teagasc: <https://www.teagasc.ie/publications/2020/agricultural-emissions--greenhouse-gases-and-ammonia.php#:~:text=Unfortunately%20for%20Irish%20farmers%2C%20agriculture,product%20of%20ruminant's%20digestive%20process.>

The right to adequate food cannot be reduced to a right not to starve. While ‘cheap’ and ‘available’ to some, a significant ongoing failure of the global food system concerns the supply and access to nutritious foods for healthy living. We know that about 9% of the world’s population is undernourished to various degrees,⁶ while another 39% of adults, globally, were overweight in 2016, with 13% classed as obese.⁷ According to the FAO, 3.5%⁸ of the Irish population, or 171,000 people, are severely food insecure,⁹ while a Safefood study from 2018 found that 1 in 10 Irish households were in food poverty.¹⁰ According to latest WHO figures, 25% of the Irish population, or 1.22m people, are obese (2016). This is an increase from 16% in 2000.¹¹

Over the last few decades, national and transnational corporations in the agri-food sectors have conducted highly successful campaigns to, acquire land (e.g. through large-scale “land-grabbing”¹²), increase their control, and build dependence on proprietary inputs, including seeds and other genetic resources, capture digital data, and control institutional and public narratives about agriculture, food systems, and “development”.¹³ The extension of conventional “resource-grabbing” into intellectual, digital and social domains, paired with the increasing political influence that has accompanied corporate consolidation, has enabled industry players to shape agri-food systems to their benefit.¹⁴ At the same time, a survey of the world’s 350 most influential food

and agriculture companies has found that half of the companies assessed do not disclose targets or report on progress to reduce GHG emissions, while over a third do not sufficiently acknowledge their responsibility to ensure that the human rights of workers in their supply chain are respected, nor do they demonstrate any intention of helping to improve the livelihoods of smallholder farmers.¹⁵

As Dr. Sage (2015) puts it *“How we will feed the world in the decades ahead is becoming a highly contested arena of competing visions but one where sustainability is frequently cited in the discourses of opposing protagonists. On the one hand there remains a hugely powerful status quo that regards the current predicament of global malnourishment as vindication for the rejuvenation of an agri-industrial model that we might label as productivism. This paradigm extols the merits of next generation biotechnology and nanotechnology to deliver greater output (by between 70 to 100 percent) in order to feed a projected population of nine billion by 2050. While the emphasis remains on technological solutions and market-driven innovations, an important strand of this approach (‘sustainable intensification’) argues that greater agricultural productivity could be achieved with reduced environmental impacts.”*¹⁶

Since the food price crisis of 2007-08, momentum has been gathering around an alternative vision for agriculture and food systems. This *transformative narrative* is focused on pro-poor and pro-environment approaches, hallmarks of the groundbreaking International Assessment of Agricultural Knowledge, Science and Technology for Development, which Ireland endorsed. The IAASTD report highlighted the imperative of transitioning towards agriculture and food systems that are, not only productive, but also advance rural development, and environmental and social justice outcomes. In the intervening years, redesigning food systems in ways that address ecological, economic, and social sustainability has become a greater focus for UN agencies, including the FAO, academic, and scientific research literature. The outcomes of this focus include the development of analytical tools and policy recommendations that are designed as guides to support policy makers and other stakeholders plan, manage, and

⁶ <https://ourworldindata.org/hunger-and-undernourishment#undernourishment-by-world-region>

⁷ <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>

⁸ <http://www.fao.org/sustainable-development-goals/indicators/212/en/>

⁹ In simple terms, a household is classified as severely food insecure when at least one adult in the household has reported to have been exposed, at times during the year, to several of the most severe experiences described in the FIES questions, such as to have been forced to reduce the quantity of the food, to have skipped meals, having gone hungry, or having to go for a whole day without eating because of a lack of money or other resources, available at: <http://www.fao.org/3/c-i4830e.pdf>.

¹⁰ <https://irishheart.ie/news/many-low-income-families-struggle-to-afford-healthy-diet/>

¹¹ <https://apps.who.int/gho/data/node.main.A900A?lang=en>

¹² Simon Hernandez-Arthur, Matt Grainger (2016), Custodians of the land, defenders of our future A new era of the global land rush, Oxfam, available at: <https://www.oxfam.org/en/research/custodians-land-defenders-our-future>. Trocaire (2019), Making a Killing: Holding corporations to account for land and human rights violations, available at: https://www.trocaire.org/sites/default/files/resources/policy/making_a_killing_holding_corporations_to_account_for_land_and_human_rights_violations_1.pdf

¹³ Update: The emerging issue of “digitalization” of agriculture. Angelika Hilbeck & Eugenio Tisselli, in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), Transformation of our Food Systems-The Making of a Paradigm Shift, Zukunftsstiftung Landwirtschaft and Biovision, available at: <https://www.arc2020.eu/wp-content/uploads/2020/09/FullTextOfTransformationFoodSystems.pdf>

¹⁴ Update: Corporate multilateralism at the UN, Pat Moone in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), Transformation of our Food Systems-The Making of a Paradigm Shift, Zukunftsstiftung Landwirtschaft and Biovision, available at: <https://www.arc2020.eu/wp-content/uploads/2020/09/FullTextOfTransformationFoodSystems.pdf>

¹⁵ World Benchmarking Alliance, available at: www.worldbenchmarkalliance.org/publication/food-agriculture

¹⁶ Sage, C. (2015) Food and Sustainable Development: How should we feed the world? In *The Routledge International Handbook of Sustainable Development* (Redclift, M., Springett, D., eds), Abingdon, Oxon, UK: Routledge, pp. 264-277, available at: https://www.academia.edu/7101864/Food_and_Sustainable_Development_How_should_we_feed_the_world

evaluate transitions based on agroecological initiatives. An enabling environment that supports the scaling up and out of agroecological transitions is a priority for global peasant movements and their civil society allies in the global North and South.

This dynamic contestation represents the context for the United Nations Food Systems Summit (UNFSS). The UNFSS was initially characterised as a ‘People’s Summit’ which would address solutions and contain diverse dialogue on topics ranging from nutrition, sustainability, equitable livelihoods, and resilience.¹⁷ However, in the lead up to the summit, concerns about the approaches being taken by the UNFSS have been expressed by civil society, especially those representing small-holders in the Global South and indigenous peoples. In 2020, over 300 civil society organisations¹⁸ signed a joint letter over shared concerns around the lack of human rights approaches and legitimacy and the lack of inclusiveness in preparations for the UNFSS. Since then, the Civil Society and Indigenous Peoples’ Mechanism (CSM)¹⁹ of the Committee on World Food Security (CFS), the largest international space of civil society organisations (CSOs) working to eradicate food insecurity and malnutrition, have voiced their concerns over the proposed operation of the UNFSS and put forward proposals for how these concerns could be addressed. These include a proposal that the UNFSS should have an explicit aim to “reverse the corporate capture of food systems, an additional action track should be established, as part of the formal summit process, to focus on the transformation of corporate food systems.”²⁰

What is a sustainable food system?

For a food system to be sustainable, it needs to generate positive value across all three dimensions of sustainability: economic, social, and environmental. The FAO (2018)²¹ elaborates on this:

- On the economic dimension, a food system is considered sustainable if the activities conducted by each food system actor or support service provider are commercially or fiscally viable. The activities should generate benefits, or economic value-added, for all categories of stakeholders: wages for workers, taxes for governments, profits for enterprises, and food supply improvements for consumers.
- On the social dimension, a food system is considered sustainable when there is equity in the distribution of the economic value-added, taking into account vulnerable groups categorized by gender, age, race, and so on. Of fundamental importance, food system activities need to contribute to the advancement of important socio-cultural outcomes, such as nutrition and health, with respect for local and indigenous peoples’ traditions, labour conditions, and animal welfare.
- On the environmental dimension, sustainability is determined by ensuring that the impacts of food system activities on the surrounding natural environment are neutral or positive, taking into consideration biodiversity, water, soil, animal and plant health, the carbon footprint, the water footprint, food loss and waste, and toxicity

Changing the food system to achieve these sustainability outcomes means shifting the conditions that are holding the problems in place. Kania, J. et al. (2018) identify six conditions for systems change, based on structural, relational, and transformative change, as illustrated in the diagram below. This report focusses primarily on the structural dimension and the power dynamics of the relational change dimension.

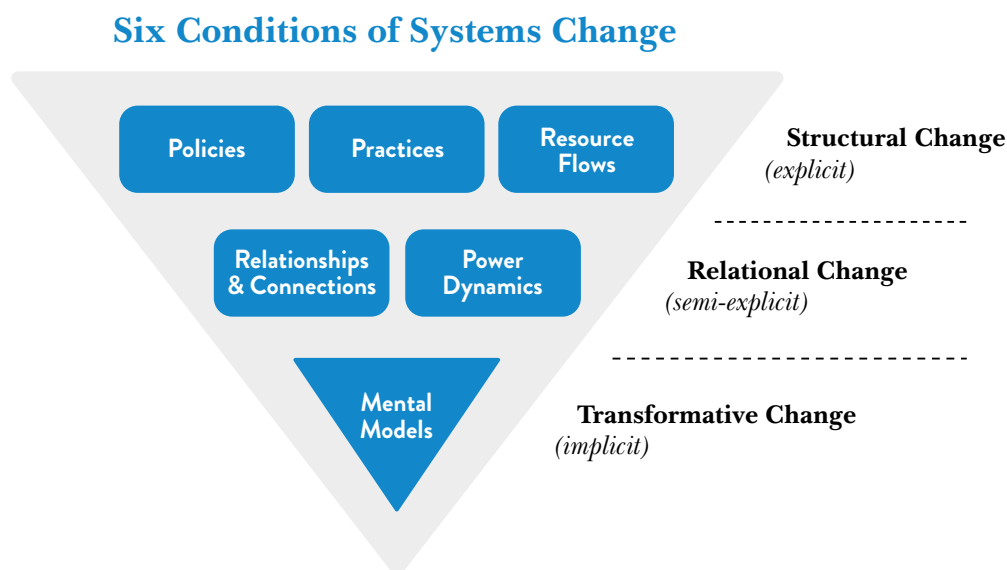
¹⁷ UN FSS, available at: <https://www.un.org/en/food-systems-summit>

¹⁸ https://www.foodsovereignty.org/wp-content/uploads/2020/02/EN_Edited_draft-letter-UN-food-systems-summit_070220-4.pdf

¹⁹ CSM online – What is the CSM, available at: <http://www.csm4cfs.org/the-csm/>

²⁰ CSM Letter to the CFS Chair on Food Systems Summit, available at: <http://www.csm4cfs.org/letter-csm-coordination-committee-cfs-chair/>

²¹ FAO (2018) Sustainable food systems: Concept and framework, available at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

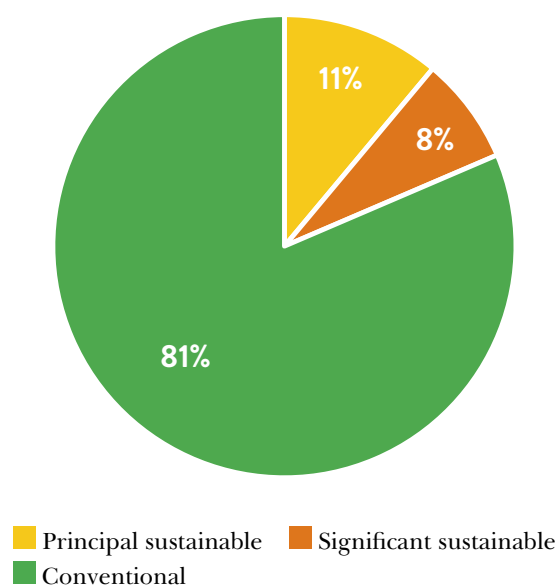
Figure S1: Six Conditions of Systems Change

Source: Kania, J., Kramer, M. Senge, P. (2018) *The Water of Systems Change*, FSG

What Ireland needs to do to become a global leader in sustainable food systems

- a. **Farmers should be incentivised and rewarded for sustainable food production. Programmes with clear environmental and social sustainability objectives should be increasingly prioritised in the Department of Agriculture's budget allocations, including, but not limited to, the expansion of results-based approaches. A much larger proportion of ODA spending on agriculture should be spent on sustainable agriculture, especially agroecological initiatives.**

One of the key levers Ireland can use to ensure more sustainable food production is by making national agricultural schemes payments reward sustainable practices by incentivising desirable environmental outcomes. At present, 81% of national Irish funding is directed toward projects that are not described as sustainable agriculture, 8% to 'significantly' sustainable, and 11% to 'principally' sustainable agriculture. The disproportionate funding to conventional agriculture, with no environmental or social targets attached to it, is also compounded by the fact that, in some cases, farmers are penalised for their efforts to support biodiversity. For example, when hedges and trees are planted, this area can be deducted from the land eligible for grants, so farmers are penalised rather than rewarded by their efforts – efforts that support both wildlife habitat and carbon sequestration efforts.

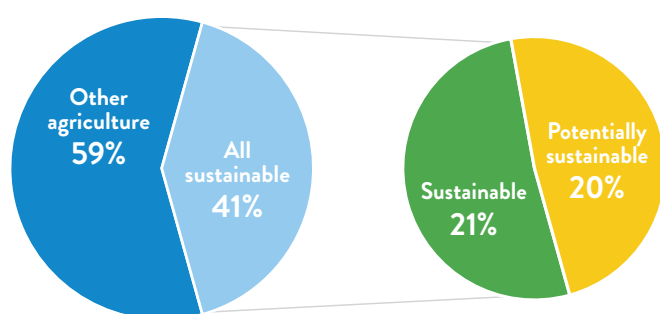
Figure S2: Domestic agricultural Schemes payments 2020

Source: Gov.ie, *Scheme Payments by County September to December 2020*, Published 14/01/2021 <https://www.gov.ie/en/publication/5f0e9-scheme-payments-by-county-september-to-december-2020/>

The same logic, of supporting sustainable rather than conventional agricultural initiatives, should apply to Ireland's development cooperation strategies, yet the majority of Irish ODA for food and nutrition security is not clearly directed toward sustainable or agroecological initiatives. Figure S3, below, shows that just 21% (USD 23.5 million) of agricultural ODA between 2016-2018

was directed toward projects described as sustainable (e.g. ‘agroecology’²² or ‘sustainable agriculture’).²³ When combined with projects described in such a way that they could be considered *potentially* sustainable (e.g. projects aiming to increase the diversification of incomes but with no clear sustainable description), this share grows to 41% (USD 45.7 million). The remaining 59% (EUR 64.9 million) was invested in projects with no mention of sustainability, which could comprise industrial agricultural practices.

Figure S3: Proportion of agricultural ODA targeting sustainable vs other agricultural approaches (total, 2016-2018)²⁴



Source: OECD CRS, 2016-2018 microdata, constant 2018 USD, disbursements, and author's calculations

Recommendation 1: Mainstream the pilot Results-Based Programme, with an aim that the majority of agricultural schemes payments will be directed towards sustainable agriculture by 2030. A critical component of this will be ensuring the co-creation of the scoring system with farmers.

Recommendation 2: Ireland explicitly recognises the principles of agroecology as a key part of the solution in building sustainable food systems. Ireland should commit to increasing the proportion of ODA spending on agriculture and food systems directed towards the scaling up and out of agroecological initiatives.

b. Ensure Ireland is using appropriate sustainability metrics to monitor sector wide progress and has an independent and trusted mechanism to measure progress on transitioning to sustainable food production

While Ireland's agricultural production may be considered less destructive for the environment in contrast to large-scale industrial agriculture in other countries, narratives claiming that Ireland's food is 'produced sustainably' or that the Irish food industry has made great progress towards 'driving sustainable food production' are difficult to validate when assessing agri-environmental indicators. This is highly detrimental to establishing trust along the food supply chain and can undermine Ireland's credibility, therefore putting at risk future trade opportunities, as consumers (domestically and abroad) increasingly demand transparent, ethical food production.

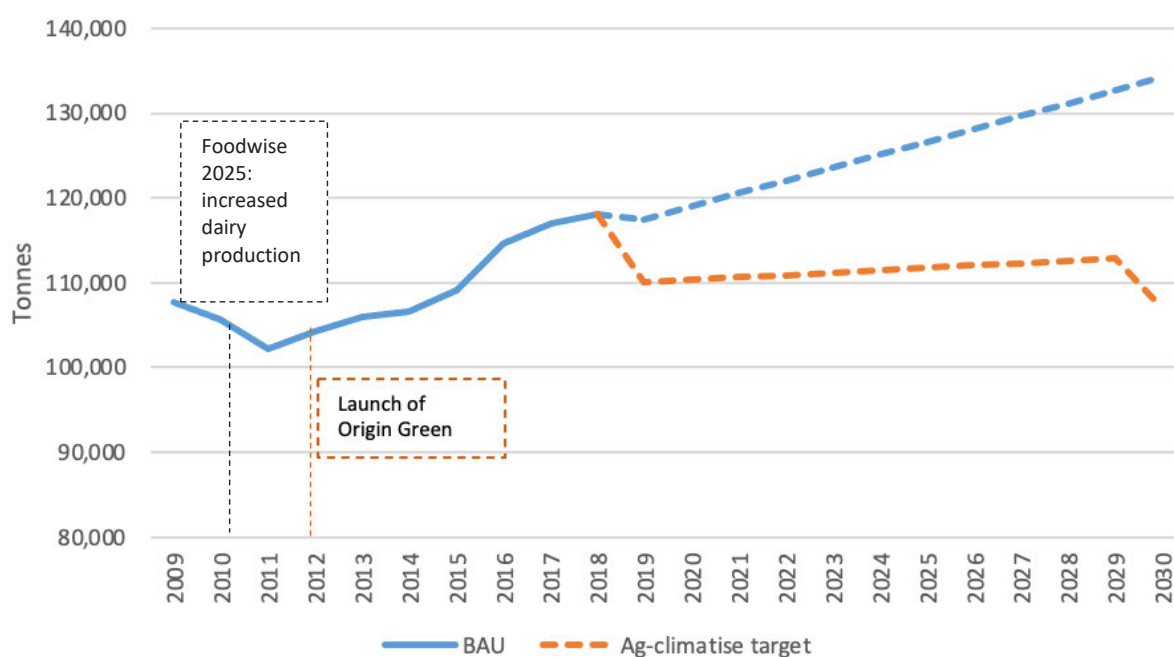
Narratives relating to Origin Green's role in promoting sustainable agriculture are especially hard to validate, in light of deteriorating quality of water, air, and biodiversity since the programme's launch. For example, the figure below contrasts the current trends in ammonia emissions (in a BAU approach) with the required trend to achieve the Ag-Climate target. The increasing trend since 2010 does little to suggest that introduction of Origin Green in 2012 led to more sustainable approaches to agricultural production.

In addition, for transparency and substance, Ireland would benefit from harmonising its use of metrics across government agencies; and developing more ambitious and comprehensive measurements of sustainability, for example, moving beyond yield as a primary indicator of efficiency. Further, in light of Ireland's role domestically and abroad, in terms of knowledge transfer and innovation, Ireland would benefit from underlining all technological solutions with clear and fair data use principles; i.e., ethical practices need to be embedded in responsible data collection and analysis to avoid imbalances of power through asymmetry of access to information.

²² Throughout the report, 'agroecology' refers to the principles of agroecology as defined by the FAO (2018), which defines agroecology as: 'an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system'. P. 1 of FAO (2018) Ten Elements of Agroecology, I9037EN/1/04.18

²³ Climate-Smart Agriculture (CSA) was classified as 'potentially sustainable' given that agroecological principles are not foundational to CSA.

²⁴ The analysis identifies sustainable ODA investments as those which are described in the microdata as relating to 'agroecology' or 'sustainable agriculture' (including diversification, seeds, agroecology, and sustainability). Those identified as 'potentially sustainable' include investments related to resilience, local food production, 'improved' practices or production, integrated approaches, and transformative agriculture. Both classifications are weighted the same.

Figure S4: Ammonia from agriculture - Business as Usual vs Ag-Climate target

Source: Eurostat, Ammonia emissions from agriculture (source: EEA) [SDG_02_60]

Recommendation 3: Agree appropriate sustainable agri-food metrics following input from national and international experts and relevant stakeholders and located within evolving international norms. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution to nourishing humans and bolstering environmental outcomes (biodiversity, diverse landscape, healthy habitats). This important task should be under the remit of an independent body with no conflicts of interests – see Recommendation 22.

Recommendation 4: Ensure the provision of metadata, methodological notes, and sources for all government publications. Harmonise definitions and conceptualisations of key food systems concepts across government departments. Align with Open Data principles and embed ethical practices in responsible data collection and analysis.

- c. **Address power imbalances in policy influence and representation (including southern women smallholders) by ensuring balanced stakeholder representation across the spheres of social, economic, and environmental sustainability in the make-up of stakeholder approaches to developing, implementing, and monitoring the transition to a sustainable food system.**

Ireland has a strong basis when it comes to participative agri-food policy-making processes, with extensive consultations prior and during the development of its strategies. It has also made progress since the consultation process for the former agri-food strategy (Food Wise 2025), for example, in terms of better gender representation.

However, gender imbalances remain and, importantly, private sector and state bodies maintain a much larger presence in decision-making processes than environmental and social sustainability representatives. In addition, greater efforts should be made to ensure the voices of low-income country partners and those impacted by Irish agriculture and food policies are integrated into policy making.

Given the complexities and divergent interests of various groups involved in food systems, mediation mechanisms to maintain the integrity of participative processes could play a role in keeping dialogue open amongst disagreeing stakeholders. This is particularly relevant in light of the criticisms raised on the UN Food System Summit's structure and public engagement. The CSM repeatedly raising concerns related to the Summit's governance, the absence of robust mechanisms to address conflicts of interest and the need to recognise human rights as the core foundational pillar for food systems. Prioritisation of the voices of those who produce most of the food that is consumed in the developing world, small scale farmers,

is deemed inadequate, resulting in the risk of the most powerful and well-resourced participants dominating the agenda.²⁵

Recommendation 5: 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.

d. Urgently review national agri-food policies and targets to reflect the new national GHG emissions reduction target and a food systems approach

A key challenge with the various agri-food and relevant climate action strategies is a lack of clarity around the means of achieving climate change goals, in particular the lack of specificity around sectoral targets, and the subsequent potential lack of ambition of these targets. An important step in defining these targets will be the national carbon budget allocation.

As of 2018, 91% of Irish agricultural CH₄ emissions came from cattle (35% dairy, 56% beef).²⁶ Agricultural methane in Ireland is responsible for an ongoing contribution to global warming; equivalent to 30 years of current energy CO₂ emissions.²⁷ These CH₄ emissions demonstrated a decreasing trend between 2005 and 2011, at which point a sharp increase occurred. This rise is associated with government policy endorsement of sectoral agricultural strategy, i.e., plans to expand milk production under Food Wise 2025, and is expected to continue rising. During the 2013 – 2018 period, as milk production rose, so did levels of nitrogen by 15.7%.²⁸

²⁹ This ‘national climate policy failure’ since 2010 has ‘undone 20 years of mitigation effort’, seriously undermining efforts for sustainable food systems.³⁰

²⁵ http://www.csm4cfs.org/wp-content/uploads/2020/03/EN_CSO-Letter-to-UNSG-on-UN-food-systems-summit.pdf <http://www.csm4cfs.org/letter-csm-coordination-committee-cfs-chair/>

²⁶ EPA (2020) Ireland’s Provisional Greenhouse Gas Emissions 1990–2019

²⁷ Price, P. & Mullen, B. (October 2020) Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

²⁸ Price, P. & Mullen, B. (October 2020) Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

²⁹ Department of Communication, Climate Action, and the Environment: National Energy & Climate Plan 2021 – 2030

³⁰ Price, P. & Mullen, B. (October 2020) Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

At the same time, dairy farming is more lucrative than other agricultural activities, including beef and, as such, is much more attractive for current farmers and new entrants. There are ample arguments to be made in favour of reducing herd sizes, especially for those focused on achieving reduced GHG emissions; particularly in light of the portion of agricultural GHG emissions that come from these sectors.

In addition, the national approach is heavily reliant on technological innovation to the detriment of social. Social innovation refers to the design and implementation of new solutions that imply conceptual, process, product, or organisational change, *which* ultimately aim to improve the welfare and wellbeing of individuals and communities. Policies are thus needed to support public, non-profit and private actors to co-construct and implement socially innovative solutions.³¹ Social innovation is a prerequisite for solving problems such as discrimination, poverty, or pollution. It relates to changes in social relations, behaviour, norms, and values. Social innovation is considered essential as both an instrument and a process to ensure a transition towards more sustainability.³² The government’s key agri-food policies would benefit from explicitly including a participative approach to shifting Ireland’s largely herd-based farming toward more sustainable practices. This will support a *just transition* for farmers and support ownership of the transition, thus increasing the likelihood of both immediate and long-term uptake.

Further, more detailed provisions could be included in the AFS 2030; for example, to show how enforceability will be implemented. In addition, other targets could be deemed lacking in ambition, such as targets to reduce ammonia emissions to 2014 levels, rather than the lower levels found in 2010.

In addition, greater emphasis could be placed on regenerative approaches rather than sustainable intensification, as the former provides greater space for the comprehensive perspective required for transformation towards sustainable food systems.

Recommendation 6 Update: Ag-Climate in 2021 to reflect new national commitments to reducing GHG emissions to be set out in the forthcoming climate budgets. Aim to reduce ammonia emissions to 2010 levels. Include a greater emphasis on stimulating demand for organic produce in Ireland.

³¹ OECD online, ‘Social Innovation’, available at: <https://www.oecd.org/regional/leed/social-innovation.htm>

³² Bock, B. B. (2012) Social innovation and sustainability; how to disentangle the buzzword and its application in the field of agriculture and rural development, *Studies in Agricultural Economics* 114(2012), 57–63, <http://dx.doi.org/10.7896/j.1209>

Recommendation 7: Include clear mechanisms for accountability and enforcement of targets set out in national policies.

Recommendation 8: Immediately 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.

e. Ensure Ireland consistently promotes sustainable food systems across relevant international policy forums.

Ireland can demonstrate food systems leadership beyond the UN FSS: Ireland should acknowledge that the UN FSS's ambition to be a "People's Summit" and "A Solutions Summit" necessitates action on the key concerns that has mitigated against the active participation of the largest international space for civil society organisations working to eradicate food insecurity and malnutrition, the CSM. Taking a leadership role on sustainable food systems requires Ireland looking beyond the UNFSS and reinforcing the mandate and role of the most inclusive intergovernmental and international global platform for food security and nutrition, the Committee on World Food Security.

While Ireland has a strong reputation when it comes to tackling hunger, in part reflected in its support for the UNFSS, recent policy documents suggest a risk of diverging from core development principles. Indeed, greater emphasis appears in the narratives (e.g. relating to the AADP) and on the use of development cooperation as a tool to benefit Irish businesses and trade, rather than emphasising support to low-income countries to achieve locally-owned sustainable food systems based on their specific climatic, cultural, and nutritional needs.

Ireland demonstrates global leadership in terms of food safety and ODA disbursements to food and nutrition security – which have remained consistently higher (as a portion of their total ODA) than their DAC peers since 2007. In addition, the data suggest that this ODA prioritises resilience and climate change adaptation, and, importantly, marginalised groups, inclusive policies, and smallholder farmers, thus aligning with at least some of the principles of an agroecological approach.³³

At the same time, Ireland could demonstrate greater leadership by increasing its ODA to agricultural research,

extension, and education. The progressive alignment of investments in these areas can support the scaling up and out of innovative approaches for sustainable food systems, especially those based on agroecological approaches, as highlighted by the recently adopted CFS policy recommendations.³⁴

Ireland should ratify the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. The Protocol is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity.³⁵ Ireland must also advocate at global and regional levels for strengthened equity within the WTO system; for example, to deter oligarchic type market control of genetic resources, the privatisation of biodiversity, and the appropriation of knowledge relating to genetic diversity. Engagement with African countries should consider impact assessments that identify mutually beneficial initiatives which prioritise the recipients of ODA, rather than domestic agri-businesses.

Recommendation 9: Mainstream a food systems approach in all institutions and organisations involved in development cooperation, including the human rights and food sovereignty components. Specifically, ensure transparency of all public funding to demonstrate the mutual benefits of funding and ensure same is not disproportionately benefitting Irish businesses to the detriment of local markets in low-income countries.

Recommendation 10: 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 bottom-up approaches.

Recommendation 11: Ratify the Nagoya protocol. Advocate for greater acknowledgement of traditional knowledge as a key part of the evidence-base for decision making regarding food systems. Advocate for more inclusive and fair policy and agricultural trade spaces, including a reform of the TRIPS agreement to eliminate oligarchic type market control of agri-businesses and the privatisation of biodiversity.

³³ HLPE (2019) Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

³⁴ Policy recommendations on agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition, available at: <http://www.fao.org/3/nf777en/nf777en.pdf>

³⁵ Nagoya Protocol On Access To Genetic Resources And The Fair And Equitable Sharing Of Benefits Arising From Their Utilization To The Convention On Biological Diversity, Article 1

Recommendation 12: Work to ensure Irish agri-business entrench principles of policy coherence in all engagements with low-income countries, especially the principle of ‘do no harm’. Ensure that Irish agri-business undertake a real strategic shift towards collecting locally produced produce from local family farms in export markets. For example, explore mechanisms to ensure Irish exporters reach the ECOWAS target of 25% of local milk collection by 2025. Put in place necessary supports to enable increases in local production within export countries.³⁶

Recommendation 13: Introduce effective Human Rights and Environmental Due Diligence legislation to ensure private sector compliance with sustainable food systems approaches. Such legislation will ensure that companies are legally obliged to fulfil human rights and environmental obligations throughout their supply chain. To this end, Ireland should work to actively support and contribute to the development of an ambitious, effective and binding UN treaty on business and human rights, to regulate the activities of transnational corporations and other business enterprises.

Recommendation 14: Advocate for changes at EU and global level to relevant policy frameworks to ensure unsustainable food production around the world is phased out and sustainable methods of production are supported.

Recommendation 15: Ensure Ireland’s efforts for global leadership extend beyond the UN Food Systems Summit. Ireland can provide leadership, for example, towards the achievement of SDG 2, including building on its strong relationship with the Rome-based agencies to reinforce the mandate and role of the Committee on World Food Security.

f. Place greater emphasis on local food production and distribution networks for rural revitalisation, bolstered social cohesion, and equity

There is inadequate attention in the AFS 2030 for the prioritisation of local production and supply of food, yet the F2F strategy clearly states ambitions toward the promotion of shorter supply chains and enabling local

food production. Currently, just 43 large firms account for the majority (84%) of agri-food export wealth in Ireland. While there are numerous food security, availability, and diversity benefits to international trade and exports, more emphasis on the potential for local and shorter supply chains to bolster rural revitalisation through local economies and social cohesion is needed. This is especially pertinent, given the high volumes of imported fruit and vegetables, which could be grown locally, in contrast to the low levels of horticultural production.

More research into the history of food in Ireland, as well as greater investment in local food networks could strengthen the social sustainability of food systems. Although not typically considered in the context of agri-food policies, a barrier to social and economic sustainability remains the poor quality of digital connectivity in rural Ireland, despite the 2020 Programme for the Government’s (and previous) commitments to roll out broadband in rural areas. Further, coherence needs to be established between Ireland’s trade outcomes and the effects on local markets in low-income countries, as outlined in Recommendation 9 (above).

Recommendation 16: Ensure adequate investment is made to support rural economies. Urgently implement government commitments to large-scale broadband access. Invest more in programmes that can bolster local supply chains (e.g. LEADER).

Recommendation 17: Invest more in fresh, nutritious, and local produce. Increase subsidies for horticultural development, to reduce the reliance on imported fruit and vegetables.

Recommendation 18: Invest more in Ireland’s food identity. Increase funding for research into Ireland’s food history. Create a food subject in schools to educate students on healthy diets and cooking options, the links between agriculture and human and environmental health, as well as to promote domestic approaches to reduce food waste at the household level.

g. Urgently reconsider approaches to nutrition and health in Ireland

While a healthy diet is largely accessible in Ireland, healthy diets represent a significant portion of spending for certain demographics, such as lower-income groups and some rural households. If Ireland were to demonstrate leadership and apply True Cost Accounting

³⁶ ECOWAS (2019) Regional Offensive for local milk value chains promotion in West Africa, available at: http://www.hubrural.org/IMG/pdf/angl...projet_de_rapport_final_ym_rev2-3.pdf

to the agri-food decision-making processes, then such decisions would need to be accompanied with robust social safety programmes to offset a potential increase in the price of nutritious food.

Some of the current regulatory and health approaches – including self-regulation by industry and reformulated products for healthier diets – are inadequate to tackle rising obesity and non-communicable disease challenges in Ireland. There is a need for greater attention to be placed on national dietary guidelines, particularly with a view to aligning with the UN FAO HLPE’s conceptualisation of *agency* in sustainable food systems, which states citizens should have the capacity to: ‘*make their own decisions about what foods they eat [...] and to engage in processes that shape food system policies and governance*’.³⁷

Recommendation 19: Establish clear targets to redirect responsibility for regulation firmly in the public sphere. Restrict or ban the (online) marketing of foods high in trans-fat, salt, or added sugars to children and adolescents up to 19 years. Policies that promote this, particularly those that promote ‘plant-forward’ diets, need to emphasise the need for a cap of starchy staple foods (e.g. at 50% of total dietary energy requirements).

Recommendation 20: Explore pathways forward to support the increase in the cost of food (e.g. via True Cost Accounting), alongside appropriate social safety net measures.

Recommendation 21: Increase funding to nutrition research in Ireland, with a view to the majority of the nutrition-related evidence-bases and research being owned by the public sector.

h. Improve governance and transparency domestically

Coordination in complex systems can benefit from informality due to their inherent dynamic state. Indeed, informality may provide space for the flexibility required for the efficient consideration of feedback loops within the systems and subsequent adaptive decision-making.

At the same time, informality puts accountability and transparency at risk. If there are no formal mechanisms to track and follow-up on commitments made and decision-making processes, then trust can be eroded. This puts at risk the social sustainability of the policy, which needs buy-in and uptake from all stakeholders.

Recommendation 22: Establish a national sustainable food systems body that provides space for the voices of all stakeholders – including the most marginalised in Irish society – to be heard and integrated into decision-making. Ensure adequate mediation processes are in place to manage potential barriers to consensus. This body should have a clear mandate to influence government policy making; be tasked with ensuring adequate representation of all communities and from social, environmental, and economic sectors; ensure coherence across all policies; and develop adequate sustainability metrics for Ireland’s food system components (from agriculture to retail) founded in scientific evidence and social and economic realities.

³⁷ HLPE (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome



Anna James holds tomato seedlings outside a greenhouse in Tanzania.
Photo: Bill Marwa/Oxfam

Chapter 1

“Choosing a sustainable path will require transformative change, underpinned by levels of ambition, coordination and political will akin to, or even greater than, those of the Marshall Plan.”

Dasgupta Review³⁸

Introduction

The Irish Government has set out the commendable ambition to become a global leader in sustainable food systems over the next decade³⁹. This report is an assessment of what Ireland needs to do in both the domestic and international spheres to achieve this ambition.

Chapter One sets out the impacts of the current global food system and the challenges that need to be faced to transform this system along sustainable lines. Chapter Two provides a summary overview of Ireland’s national and global policies relevant to sustainable food systems and outlines some of the key government institutions involved in decision-making processes. Chapter Three identifies seven opportunities and investigates each of these opportunities and associated challenges for Ireland’s transformation towards sustainable food systems. Each opportunity area and related challenge is accompanied by focused recommendations. This analysis is based on a review of relevant policies – primarily the Agri-Food Strategy 2030 (draft for consultation), an identification of current sustainability gaps in Ireland, and the subsequent challenges for achieving sustainable transformation. Chapter Four draws on the findings in Chapter Three to summarise the opportunities and gaps in Ireland’s approach to structural transformation with a particular focus on Ireland’s policy making infrastructure for sustainable food systems. Finally, two annexes are provided: the list of recommendations and the methodological notes.

Definitions and concepts

For an efficient sustainable food system, policy coherence needs to be applied across different sectors (including nutrition and agriculture). Hawkes (2017)⁴⁰ argues that to create policy coherence, the question ‘coherence for what?’ must be answered. Under the remit of the EU Green Deal and UN Food and Agricultural Organisation (FAO) High Level Panel of Expert (HLPE) report framings, the response is: a fair, healthy, and environmentally friendly food system. Further, Benton & Baily (2019) argue that a sustainable food system is one that reframes efficiency; and develops policies that aim for food systems to deliver profits, healthy diets, and a healthy planet, rather than focussing on trade, yield (increasing), and price (decreasing) policies.

The FAO (2018)⁴¹ defines a food system as one encompassing:

“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 same report specifically define a Sustainable Food System as one which:

*“delivers food security and nutrition for all in such a way that the economic, environmental and social bases to generate food and nutrition for future generations are not compromised”*⁴²

³⁸ Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. Headline Messages. (London: HM Treasury), p. 3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf

³⁹ Draft Agri-Food Strategy 2030, April 2021. <https://www.gov.ie/en/consultation/bd894-public-consultation-on-the-environmental-assessment-of-the-draft-agri-food-strategy-to-2030/>

⁴⁰ Hawkes, C. (2017) Policy coherence across the food system for nutrition: from challenge to opportunity? ECDPM Great Insights Volume 6 Issue 4 September/October 2017: <https://ecdpm.org/wp-content/uploads/Great-Insights-Vol6-Issue4-September-October-2017-Web.pdf>

⁴¹ FAO (2018): Sustainable food systems Concept and framework available online at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

⁴² FAO (2018): Sustainable food systems Concept and framework available online at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

Until recently, the commonly accepted conceptualisation of food and nutrition security encompassed just four components: *availability, access, utilisation, and stability*. On the 25th June 2020, the HLPE⁴³ produced their 15th report on food security and nutrition for the Committee on World Food Security⁴⁴ (CFS). In this report, two components were added to the concept of food security: *agency and sustainability*.

Agency: capacity of individuals or groups to make their own decisions about what foods they eat, what foods they produce, how that food is produced, processed and distributed within food systems, and their ability to engage in processes that shape food system policies and governance.

Sustainability: long-term ability of food systems to provide food security and nutrition in a way that does not compromise the economic, social and environmental bases that generate food security and nutrition for future generations.

These additional concepts, along with the FAO (2018) definition of a food system and its interlinkages, provide space for considering the intricate interdependencies between food system components; and emphasise the need for policies that appreciate the interconnectedness of different systems and sectors to achieve ‘regenerative, productive and resilient food systems’⁴⁵. The definition of ‘agency’ acknowledges individuals as citizens (e.g. by recognising a group’s agency), rather than as consumers only, thus providing space for interdependencies at structural, spatial, and temporal levels to be considered (e.g. future generation’s welfare)⁴⁶.

Further, the HLPE report highlights the need for a rights-based approach to underpin this framework, and ‘widen our understanding of food security and to adopt a food systems framework’. A rights-based approach is central to a just transition in food systems. A just transition must include a food system that not only benefits ‘nature and the climate but also ensures the right

to food for all’⁴⁷. The EU Farm to Fork Strategy (F2F) suggests alignment with these concepts in its aim for a ‘fair’ system to be achieved through a ‘just transition’, based on four main components:

1. Building the food chain that works for consumers, producers, climate and the environment
2. Enabling the transition
3. Focus on hunger and all forms of malnutrition
4. Recognise food and nutrition security as context specific and requiring diverse solutions

This report draws on the HLPE (2020) four policy shifts and enabling conditions for transformative change (see table 1, below).⁴⁸ It also draws on the Kania, J., et al (2018)⁴⁹ conceptualisation of the structural changes required for systems change through policies, practices, and resources flows (see Box 1).

Structural change (the primary focus of this report) can be considered through changes in policy, practice and resource flows. Systems change is influenced by **policy**, meaning: *government, institutional and organizational rules, regulations, and priorities that guide the entity’s own and others’ actions*. **Practices** will influence system change through ‘*espoused activities of institutions, coalitions, networks, and other entities targeted to improving social and environmental progress. Also, within the entity, the procedures, guidelines, or informal shared habits that comprise their work.*’ **Resource** flows are important for systems change in the way ‘*money, people, knowledge, information, and other assets such as infrastructure are allocated and distributed.*’⁵⁰

Systemic change is also influenced by power dynamics such as ‘*the distribution of decision-making power, authority, and both formal and informal influence among individuals and organizations.*’⁵¹

⁴³ The High Level Panel of Experts on Food Security and Nutrition, a science-policy interface of the UN Committee on World Food Security (CFS), was created in October 2009 as an essential element of the CFS reform.

⁴⁴ HLPE. 2020. Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

⁴⁵ HLPE. 2020. Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

⁴⁶ Vatn, A. (2009) An institutional analysis of methods for environmental appraisal, *Ecological Economics*, Volume 68, Issues 8–9, 15 June 2009, Pages 2207–2215

⁴⁷ ActionAid (2019) Principles for a Just Transition in Agriculture, available online: https://actionaid.org/sites/default/files/publications/Principles%20for%20a%20just%20transition%20in%20agriculture_0.pdf

⁴⁸ HLPE. 2020. Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

⁴⁹ Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

⁵⁰ Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

⁵¹ Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

Table 1: The HLPE's four policy shifts and enabling conditions for sustainable food systems

From...	...To	Implications
Exclusive focus on increasing agricultural supply in a context of population growth	Working toward a radical transformation of food systems as a whole to improve food and nutrition security and achieve Agenda 2030	From quantity to quality (e.g. agency, sustainability, resilience of food production and distribution networks, consideration of nutrition and health from production to consumption)
Viewing Food and Nutrition Security as a sectoral issue	Viewing Food and Nutrition Security as a system interconnected with other systems and sectors	Connection with health, agriculture, environment, and culture; and other systems, ecosystems, energy, social-cultural systems)
Exclusive focus on reducing hunger and undernutrition	Focus on hunger and malnutrition in all its forms, in their complex relation to one another	Include a focus on obesity, micronutrient deficiencies; inequalities and at-risk populations; power, income, gender and access to natural resources and services
Focus on finding globally applicable food and nutrition security solutions	Understanding that food and nutrition security is context-specific, requiring diverse solutions	Design context-specific transition pathways; including incorporating different types of knowledge, including local and indigenous knowledge;
Enabling conditions		
Governance	<p>Multilateral cooperation and coordination; implement global guidelines; coordination across different scales (from local, to national, and global). Representative participation (including through targeted financing); uphold the right to food.</p> <p>Although the HLPE does make this connection explicit, good governance could also include the allocation of resource flows to primary producers based on the delivery of ecosystems services, including for the nutrient dense foods.</p>	
Research	<p>Emphasise research for critical and emerging issues</p> <p>(1) anticipating the inter-connected future of urbanization and rural transformation; (2) conflicts, migrations and FSN; (3) inequalities, vulnerability, marginalized groups and FSN; (4) impacts of trade on FSN; (5) agroecology for FSN in a context of uncertainty and change; (6) agrobiodiversity, genetic resources and modern breeding for FSN; (7) food safety and emerging diseases; (8) from technology promises towards knowledge for FSN; and (9) strengthening governance of food systems for an improved FSN.</p>	

Source: adapted from HLPE (2020) Report 15: Food security and nutrition: building a global narrative towards 2030

Box 1: What is a sustainable food system?⁵²

A food system is a complex adaptive system (CAS). Policy making for food systems thus needs to recognise the characteristics of such a system.

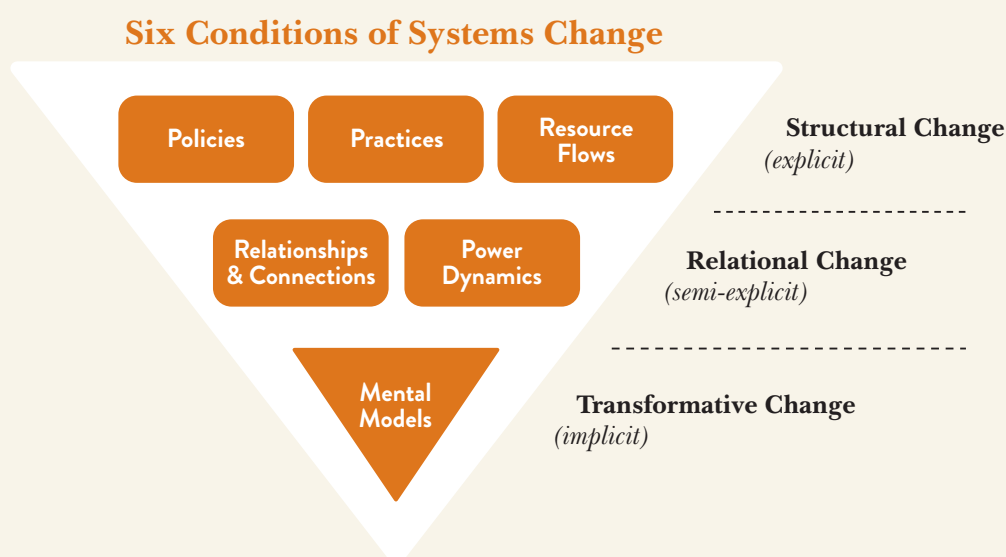
A system is a set of related components. It's considered **complex** if the components of the system interact or respond to each other. The components may also respond to influences outside its own system. If the components adjust to other components or to their environment, they are part of a complex **adaptive** system. Characteristics of a CAS include:

- Emergence: the whole is more than the sum of its parts. This means that behaviour of the system can't be derived by 'adding up' the individual behaviours
- Non-linearity: the dynamics of the system are non-linear
- Limited predictability: the behaviour of the system cannot be easily predicted and small changes in initial conditions can have significant effect. Assuming the future will be like the past does not apply for CAS.
- Evolution dynamics: variation is at the source of the evolution mechanism
- Self-organisation: there is no central control.

For a food system to be sustainable, it needs to generate positive value across all three dimensions of sustainability: economic, social, and environmental. The FAO (2018)⁵² elaborates on this:

- On the economic dimension, a food system is considered sustainable if the activities conducted by each food system actor or support service provider are commercially or fiscally viable. The activities should generate benefits, or economic value-added, for all categories of stakeholders: wages for workers, taxes for governments, profits for enterprises, and food supply improvements for consumers.
- On the social dimension, a food system is considered sustainable when there is equity in the distribution of the economic value-added, taking into account vulnerable groups categorized by gender, age, race and so on. Of fundamental importance, food system activities need to contribute to the advancement of important socio-cultural outcomes, such as nutrition and health, traditions, labour conditions, and animal welfare.
- On the environmental dimension, sustainability is determined by ensuring that the impacts of food system activities on the surrounding natural environment are neutral or positive, taking into consideration biodiversity, water, soil, animal and plant health, the carbon footprint, the water footprint, food loss and waste, and toxicity.

Changing the food system to achieve these sustainability outcomes means shifting the conditions that are holding the problems in place. Kania, J. et al (2018) identify six conditions for systems change, based on structural, relational, and transformative change illustrated in the diagram below:



Source: Kania, J., Kramer, M. Senge, P. (2018) *The Water of Systems Change*, FSG

This report focusses primarily on the structural dimensions and the power dynamics of the relational change dimensions

⁵² FAO (2018) Sustainable food systems: Concept and framework retrieved from -<http://www.fao.org/3/ca2079en/CA2079EN.pdf>

Global Food Systems: Overview

Since the 1800s, food systems around the world have successfully rebuked Malthusian fears of insufficient food availability to feed growing populations. Farmers and fishers have managed to continuously increase production to keep pace with population growth. In addition, from the mid twentieth century, agriculture has become less dependent on land use. While world population doubled between 1960 and 2010, global food production tripled, while agricultural land use increased by less than 15%.⁵³

Yet, the global food system is at the centre of complex, interconnected challenges: including climate change, ecological degradation, land use competition, population growth and conflict. The increasing number of people, are denied the right to adequate food, who, who are facing food insecurity and the consequences of climate change and biodiversity loss underpin arguments for agriculture and food system transformation. We face the unprecedented challenge of pursuing human development (i.e. bolstering freedoms, opportunities, and wellbeing) and ensuring food for all in a planet where the population is estimated to increase to over 9 billion people by 2050⁵⁴, in ways that don't breach essential ecological and planetary boundaries⁵⁵ while tackling poverty and inequality. COVID-19 has underlined the urgent need for a fundamental transformation of our global food system to ensure better stewardship of our natural resources, better responses to the multi-pronged challenges of growing hunger, food insecurity, climate change and biodiversity loss and better nutrition and health outcomes. Our food system needs to operate within a "safe and just operating space" for us to have any chance of achieving the vision of the Sustainable Development Goals (SDGs).

Though our global food systems produce volumes of food never before imagined, the negative impacts of current unsustainable production approaches make for sobering reading. Human activity has degraded about a quarter of the planet's land area not covered by ice⁵⁶ and of the

wetlands we know existed in 1700, more than 85% had been lost by 2000⁵⁷. Artificial chemical fertilisers now release more nitrogen into the environment than all natural processes combined. World-wide pesticide use has been climbing at about 6% a year, although it's worth noting that this is partially driven by a significant increase in China, whose pesticide use is three times the global average. In most parts of the world, the numbers of native species have fallen by at least 20% over the past century – and 40% of amphibians, a third of marine mammals and about 10% of insect species are threatened⁵⁸. Species are becoming extinct at a rate of between 100 and 1,000 times that of preindustrial levels⁵⁹. As well as the many negative environmental impacts, our food system also poses many significant health hazards- exemplified in the rise of emerging infectious diseases such as COVID-19. Half of the emerging zoonotic diseases between 1940 and 2005 have been attributed to changes in land use, intensive agricultural practices, especially livestock production and food production.⁶⁰

Hunger and obesity - nutrition needs

While 'cheap' and 'available' to some, an ongoing failure of the global food system concerns the supply and access to nutritious foods for healthy living. We know that about 9% of the world's population is undernourished to various degrees⁶¹, while another 39% of adults globally were overweight in 2016, and 13% were obese⁶². Restrictions due to the COVID-19 pandemic have greatly worsened this situation in relation to hunger in low-income countries. A new Global Report on Food Crises 2021 shows an increase of 20 million people experiencing acute hunger: from 135 million in 2019 to 155 million in 2020.⁶³ This is happening at a time when eight of the biggest food and beverage companies in the world have paid out over USD18 billion to their shareholders in the first six months of 2020,

⁵³ OECD: How we feed the world today, Food & Agriculture: a (very) brief history, available online at: <https://www.oecd.org/agriculture/understanding-the-global-food-system/how-we-feed-the-world-today/>

⁵⁴ <https://www.un.org/development/desa/en/news/population/world-population-prospects-2019.html>

⁵⁵ <https://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>

⁵⁶ Intergovernmental Panel on Climate Change (IPCC). Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. (Revised) January 2020. <https://www.ipcc.ch/srccl/>

⁵⁷ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). "Media Release: Nature's Dangerous Decline 'Unprecedented', Species Extinction Rates 'Accelerating'." 2019. <https://ipbes.net/news/Media>

⁵⁸ IPBES 2019 *op. cit.*

⁵⁹ Gerardo Ceballos, Paul R. Ehrlich, Peter H. Raven, "Vertebrates on the brink as indicators of biological annihilation and the sixth mass extinction" Proceedings of the National Academy of Sciences Jun 2020, 117 (24) 13596-13602;

⁶⁰ IPES-Food (International Panel of Experts on Sustainable Food Systems). 2017. Unravelling the Food–Health Nexus: Addressing Practices, Political Economy, and Power Relations to Build Healthier Food Systems. Global Alliance for the Future of Food and IPES-Food. [http://www.ipes-food.org/_img/upload/files/Health_FullReport\(1\).pdf](http://www.ipes-food.org/_img/upload/files/Health_FullReport(1).pdf)

⁶¹ FAO STAT: <http://www.fao.org/faostat/en/#data/FS>

⁶² WHO (2021) Fact Sheet: Obesity and Overweight, available online at: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>

⁶³ Global Network against Food Crises & Food Insecurity Information Network, Global Report on Food Crises 2021, available online via Relief Web: <https://reliefweb.int/sites/reliefweb.int/files/resources/GRFC%202021%20050521%20med.pdf>

even as the COVID-19 crisis unfolded across the globe.⁶⁴ This is over 10 times the amount of food and agriculture assistance funds requested in the UN's COVID-19 humanitarian appeal⁶⁵. Women and girls are more vulnerable to these shocks and are most likely to go hungry in poor families. In India, for example, 90% of women workers are based in the informal sector and may face significant income losses in the wake of COVID-19⁶⁶. Yet hunger is not confined to low-income countries. According to the FAO, 3.5%⁶⁷ of the Irish population, or 171,000 people, are severely food insecure,⁶⁸ while a Safefood study from 2018 found that 1 in 10 Irish households were in food poverty⁶⁹. According to latest WHO figures 25% of the Irish population or 1.22 million people are obese (as of 2016). This is an increase from 16% in 2000⁷⁰.

Our food industry serves up too many packaged foods high in empty calories from processed or ultra-processed sugar and fat, high in salt, and low in nutrition and price⁷¹, while globally this model of food production can negatively impact poorer farmers in terms of increasing indebtedness and dependence on patented inputs and monocropping, reducing resilience to shocks. The variety of what we eat is shrinking: of the thousands of edible plant species, only six dominate agriculture today: maize, rice, wheat, sugar cane, soybeans and palm oil. This mix of unbalanced diets, with over-consumption existing alongside under-nourishment – along with the negative impact food production is having on the environment and climate – has been called a global

“syndemic” by a group of experts gathered by The Lancet medical journal. Another such group, the EAT-Lancet Commission, attributes 11 million premature deaths a year globally to dietary problems⁷². Europeans eat 2.5 to 3 times as much meat as recommended by dieticians, posing extra risk of cardiovascular, intestinal and other disease. Europeans also eat too much potato and other starches, and not enough vegetables, fruits, legumes, nuts or seeds⁷³. This has resulted in spiralling public health costs associated with industrial food implying the sooner a sustainable transition is implemented, the quicker fiscal benefits will be felt.

The biggest challenge in tackling both hunger and obesity is quality not quantity, due to inequality and associated asymmetric power relationships that influence policy making. More food production does not always/ automatically translate into less hunger. Inequality coupled with persistent 19th-century approaches to food prices with pricing based on weight or volume rather than nutrient composition and density and the siloing of the agricultural, health, and environment sectors are key reasons why so many people have either too little or too much of the wrong food to eat.⁷⁴

Environmental footprint

At global level, agriculture, forestry and other land usage accounts for 23% of all greenhouse gas emissions⁷⁵. However, if we add in other emissions throughout the food chain, right the way from farm to consumer, the estimate increases towards 34%⁷⁶. In Europe, the agricultural sector accounts for 10.3% of GHG emissions⁷⁷. This figure, however, does not consider the emissions related to land use

⁶⁴ Oxfam gathered information on dividend payments of eight of the world's biggest food and beverage companies up to the beginning of July 2020, using a mixture of company, NASDAQ, and Bloomberg websites. Numbers are rounded to the nearest million: Coca-Cola (\$3,522m), Danone (\$1,348m), General Mills (\$594m), Kellogg (\$391m), Mondelez (\$408m), Nestlé (\$8,248m for entire year), PepsiCo (\$2,749m) and Unilever (estimated \$1,180m). Many of these companies are pursuing efforts to address COVID-19 and/or global hunger.

⁶⁵ FAO Country Profile: <http://www.fao.org/faostat/en/#country/104>

⁶⁶ COVID-19 and the crisis in food systems: Symptoms, causes, and potential solutions Communiqué by IPES-Food, April 2020, available online: http://www.ipes-food.org/_img/upload/files/COVID-19_CommuniqueEN%283%29.pdf

⁶⁷ FAO Sustainable Development Goals: <http://www.fao.org/sustainable-development-goals/indicators/212/en/>

⁶⁸ In simple terms, a household is classified as severely food insecure when at least one adult in the household has reported to have been exposed, at times during the year, to several of the most severe experiences described in the FIES questions, such as to have been forced to reduce the quantity of the food, to have skipped meals, having gone hungry, or having to go for a whole day without eating because of a lack of money or other resources- <http://www.fao.org/3/c-i4830e.pdf>.

⁶⁹ Irish Heart Foundation (2019) Many low-income families struggle to afford healthy diet: <https://irishheart.ie/news/many-low-income-families-struggle-to-afford-healthy-diet/>

⁷⁰ WHO Global Health Observatory Repository: Prevalence of obesity among adults, BMI ≥ 30, age-standardized Estimates by country online: <https://apps.who.int/gho/data/node.main.A900A?lang=en>

⁷¹ Willett, W., J. Rockström, B. Loken, M. Springmann, T. Lang, S. Vermeulen et al., “Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems.” *The Lancet* (393: 10170) P447–492, February 02, 2019. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

⁷² Willett, W., J. Rockström, B. Loken, M. Springmann, T. Lang, S. Vermeulen et al., “Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems.” *The Lancet* (393: 10170) P447–492, February 02, 2019. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

⁷³ European Commission 2020 RESILIENCE AND TRANSFORMATION –Natural resources and food systems: Transitions towards a ‘safe and just’ operating space, Report of the 5th European Commission’s Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group – p. 48

⁷⁴ Alders, R., M. Nunn, B. Bagnol, J. Cribb, R. Kock, and J. Rushton. 2016. “Approaches to Fixing Broken Food Systems.” In M. Eggersdorfer, K. Kraemer, J. B. Cordaro, J. Fanzo, M. Gibney, E. Kennedy, A. Labrique, and J. Steffen, eds., *Good Nutrition: Perspectives for the 21st Century*. Basel, Switzerland: Karger. <https://www.karger.com/Article/Pdf/452381>.

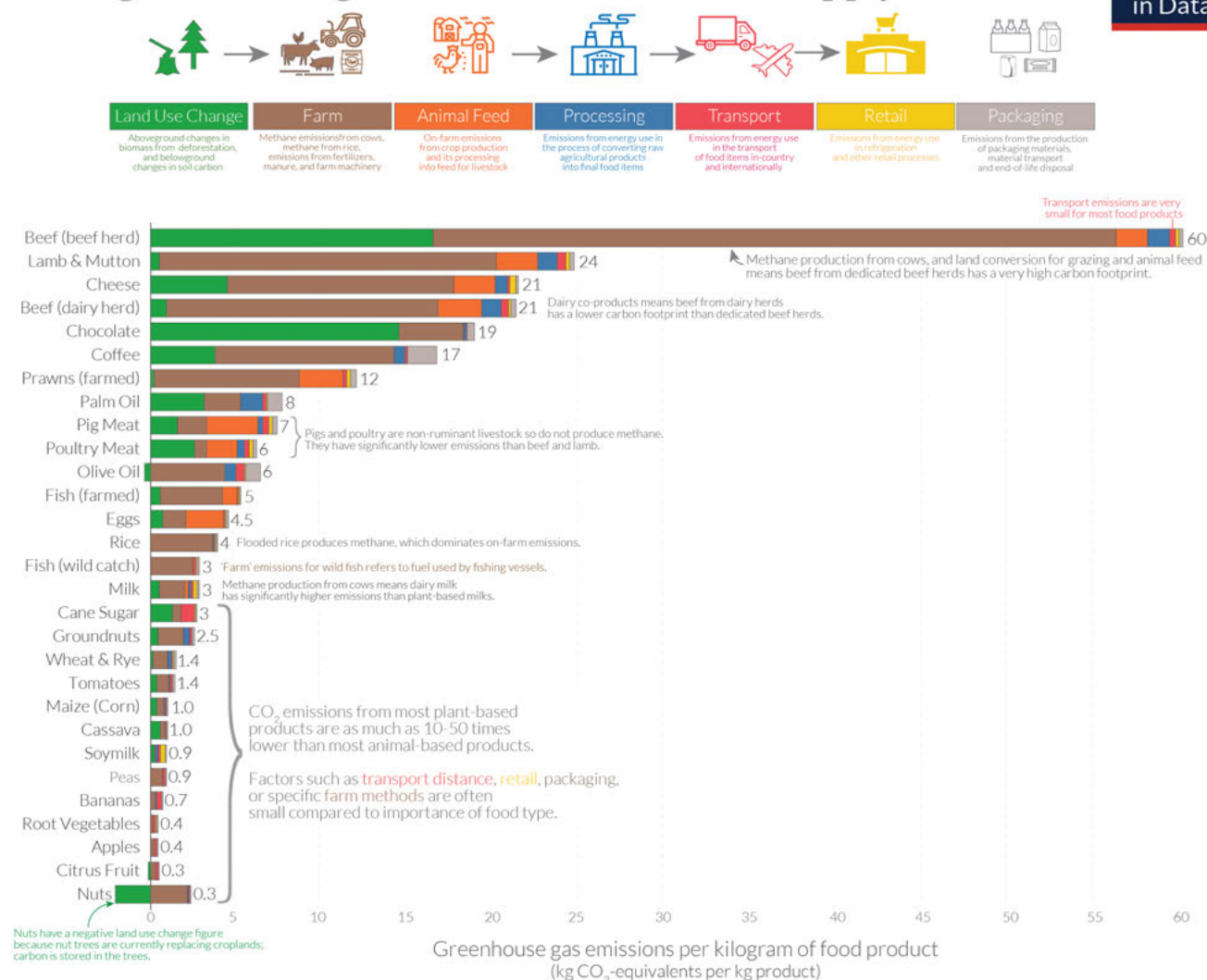
⁷⁵ IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.

⁷⁶ M. Crippa, E. Solazzo, D. Guizzardi, F. Monforti-Ferrario, F. N. Tubiello & A. Leip (2021), Food systems are responsible for a third of global anthropogenic GHG emissions, *Nature*, <https://www.nature.com/articles/s43016-021-00225-9#Sec25>

⁷⁷ European Environment Agency. “Annual European Union greenhouse gas inventory 1990–2017 and Inventory report 2019.” <https://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2019>

Figure 1: Greenhouse Gas Emissions along the Food Supply Chain

Food: greenhouse gas emissions across the supply chain

Our World
in Data

Note: Greenhouse gas emissions are given as global average values based on data across 38,700 commercially viable farms in 119 countries.

Data source: Poore and Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*. Images sourced from the Noun Project.

OurWorldinData.org – Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the author Hannah Ritchie.

Source: Our World in Data (ourworldindata.org)

and land use change generated by imports of commodities such as soy and beef^{78 79}. However, there is a great variety in the level of emissions produced by different agricultural products. In the visualization below we can see GHG emissions from 29 different food products – from beef at the top to nuts at the bottom⁸⁰. It's worth noting, however, that this is the conventional picture where the carbon sequestration of grasslands is not included. As data become

available, carbon sequestration in grasslands should also be accounted for. In addition, there is ample evidence pointing to the health benefits of animal-sourced food products when consumed in appropriate quantities. It can therefore be useful to consider dietary changes that support moderate consumptions of meat and dairy products to benefit both environmental and human health, rather than complete elimination of animal-sourced foods.^{81 82 83}

⁷⁸ Ração, R., B. Soares-Filho, F. Nunes, J. Börner, L. Machado, D. Assis et al. "The rotten apples of Brazil's agribusiness." *Science* 369(6501), 246-248. 2020.

⁷⁹ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group – p27

⁸⁰ Poore, J., & Nemecek, T. (2018). [Reducing food's environmental impacts through producers and consumers](#). *Science*, 360(6392), 987-992.

⁸¹ Hyland, J., McCarthy, M., Henchion, M. and McCarthy, S., (2017) The role of meat in strategies to achieve a sustainable diet lower in greenhouse gas emissions: A review, *Meat Science*, 132 (October 2017, pp189-195, DOI: 10.1016/j.meatsci.2017.04.014

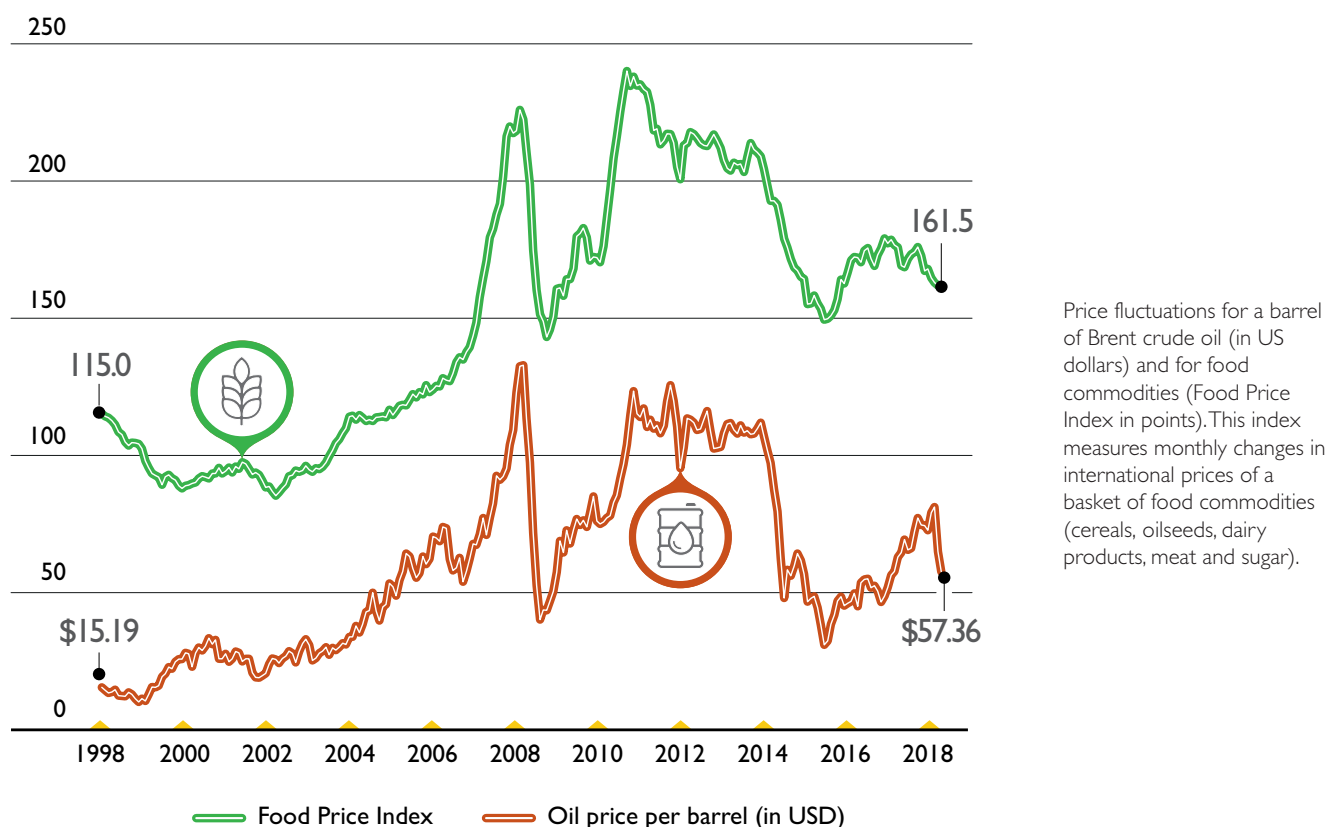
⁸² Hyland, J., Henchion, M. McCarthy, M. and McCarthy, S., (2017). The climatic impact of food consumption in a representative sample of Irish adults and implications for food and nutrition policy, *Public Health Nutrition*. Sep 26,1-13, DOI <https://doi.org/10.1017/S1368980016002573>

⁸³ Zaharia, S. et al (2021) Sustained intake of animal-sourced foods is associated with less stunting in young children, *Nature Food*, 2, pages246–254(2021)

Food production is hugely dependent on the petrochemical system with price of crude oil and food developing almost in parallel since the turn of the millennium, as per figure 2, below. This is, in part, due to the high energy input used in the production of agricultural commodities. Modern agriculture is still heavily reliant on fossil fuel energy, e.g. for the manufacture of chemical fertilisers and pesticides or for producing and running farm machinery. Energy produced from fossil fuel is also used to process, package, distribute and prepare food. It could be said that today's food system is based on a system that transforms fossil fuels, via agriculture, into calories for people⁸⁴. More energy is used in producing many crops than we receive from the crops themselves – the very definition of unsustainability⁸⁵.

While there is a wide consensus that we need to replace petrochemicals in our energy and transport systems to address climate change, discussions on this issue in relation to agriculture have yet to commence. In fact, an EU Commission Foresight Expert Group points out that: “there is no international agreement – not even in the Paris Climate Accord, beyond a general objective for all economic sectors – to set explicit targets for reducing agricultural emissions of greenhouse gases”⁸⁶. This absence of appropriate global targets and governance structure to address agricultural emissions is a major flaw in efforts to address climate change and has put great stress on global North-South relations⁸⁷.

Figure 2: Oil and Food Prices, 1998 - 2018



Source: IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision⁸⁸

⁸⁴ 2013 UNCTAD: How to cope with largely dysfunctional market signals for sustainable agriculture? Ulrich Hoffmann Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision, https://www.arc2020.eu/wp-content/uploads/2021/01/KI021987IENN.en_.pdf p. 46

⁸⁵ POLLAN, M. (2006). *The omnivore's dilemma: a natural history of four meals*. New York, Penguin Press, p.46

⁸⁶ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group – p27

⁸⁷ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group. p27

⁸⁸ EIA US Energy Information Administration (2020). Europe Brent Spot Price FOB, Monthly. <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RBRT&f=M>
FAO (2020). FAO Food Price Index. Monthly Food Price Indices (2002-2004=100). <http://www.fao.org/worldfoodsituation/foodpricesindex/en/>

Climate change – partly created by agriculture – is already affecting many parts of the world. This threatens to affect the stability of supply that current food systems have been largely successful at ensuring. As climate change renders farmland barren, it could cut per capita supply of food by 3.2% by 2050. Vegetable and fruit production will become harder⁸⁹ and cereal prices could also climb by an average 7.6%⁹⁰. Even before the pandemic, the Food and Agriculture Organisation estimated, developing countries were annually suffering on average 260 natural disasters killing 54,000 and costing USD27 billion⁹¹. Although the agricultural sector everywhere will face challenges arising from climate change, production in temperate climates will be less affected than tropical ones.

Emissions aren't the only negative environmental impact as a result of our food systems. Agriculture is also responsible for 70% of all freshwater withdrawals today⁹² (in Europe this figure amounts to 44%⁹³) and water usage is growing twice as fast as the population. Food production is the most significant driver of terrestrial biodiversity loss. Although modern agriculture allows us to produce food at unprecedented rates, this has come at a significant cost for biodiversity and ecosystem services. Indeed, we are currently seeing the sixth major extinction, primarily due to human activity⁹⁴. Livestock used for food, combined with humans, constitute 96% of the mass of all mammals on the planet. Only 4% can be attributed to everything else – from elephants to badgers, from moose to monkeys. And 70% of all birds alive at this moment are poultry – mostly chickens for us to eat. If we continue this damage, whole ecosystems will collapse – systems upon which agriculture and food depend⁹⁵.

⁸⁹ Springmann M, D. Mason-D'Croz, S. Robinson, T. Garnett, H.C. Godfray, D. Gollin, M. Rayner, P. Ballon, P. Scarborough. "Global and regional health effects of future food production under climate change: a modelling study." *The Lancet* 387:10031 (2016), pp. 1937- 1946.

⁹⁰ IPCC 2019 *op. cit.*

⁹¹ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group. p7

⁹² Food and Agriculture Organisation. *Building a common vision for sustainable food and agriculture. Principles and approaches*. Rome: FAO. 2014.

⁹³ European Commission. "Protecting water in the CAP: Overview." Accessed 31 July 2020. https://ec.europa.eu/info/food-farming-fisheries/sustainability/environmental-sustainability/natural-resources/water_en. The figure they use, however, does not consider the 'virtual water' embodied into the imported agricultural and food commodities.

⁹⁴ Kolbert, Elizabeth. *The Sixth Extinction : an Unnatural History*. New York :Henry Holt and Company, 2014.

⁹⁵ Dasgupta, P. (2021), *The Economics of Biodiversity: The Dasgupta Review*. Abridged Version. (London: HM Treasury), p. 1. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957292/Dasgupta_Review_-_Abridged_Version.pdf

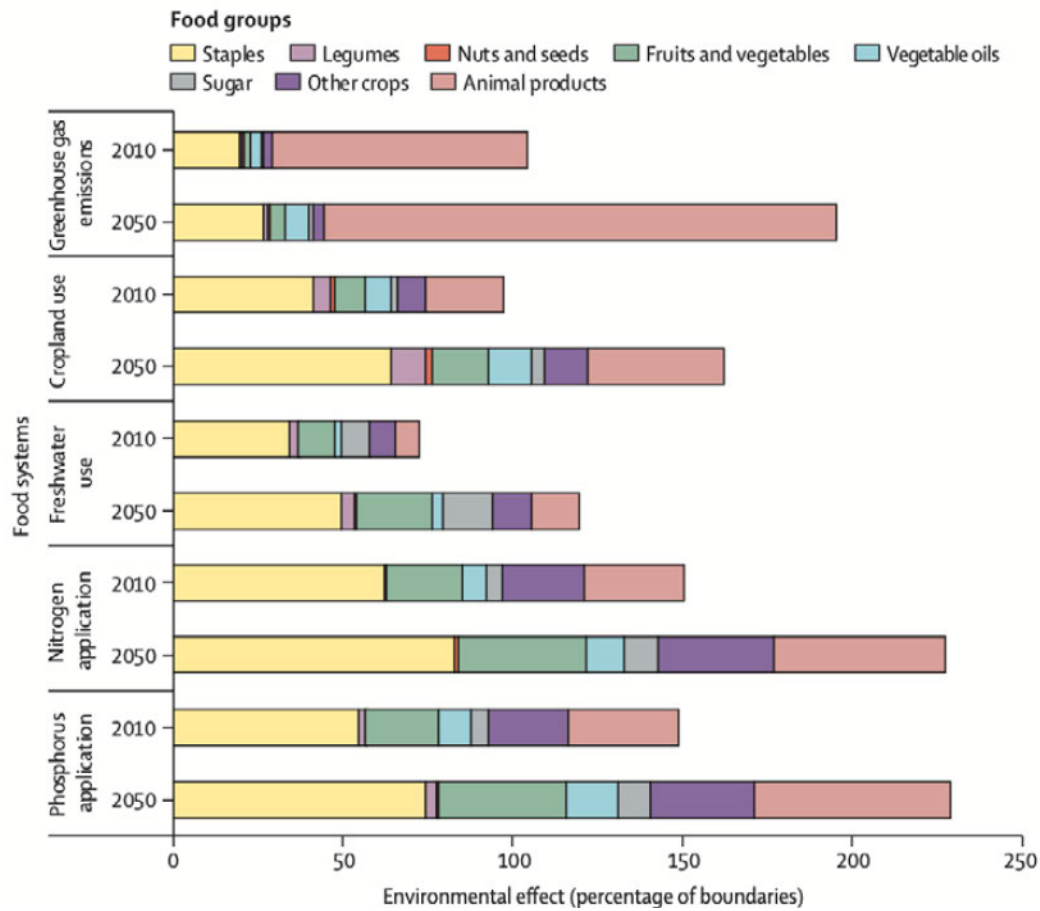
Central to this negative environmental damage is the outdated and inappropriate way nature's worth to society is valued in our market systems. This has led to significant price distortions, with environmentally destructive agricultural practices continuing to attract the vast majority of investment. As the recently published Dasgupta Review has stated *"this is not simply a market failure: it is a broader institutional failure too. Many of our institutions have proved unfit to manage the externalities. Governments almost everywhere exacerbate the problem by paying people more to exploit Nature than to protect it, and to prioritise unsustainable economic activities. A conservative estimate of the total cost globally of subsidies that damage Nature is around US\$4 to 6 trillion per year."*⁹⁶

This institutional failure is coupled with an ideological failure to recognise that nature is capable only of producing a finite flow of goods and services, and hence economic growth is bounded within planetary limits, which we are fast approaching and, in many cases, have already crossed. This is why Ireland became the second country in the world to declare a climate and biodiversity emergency in 2019⁹⁷. An unproven faith in technological progress continues to perpetuate the falsity that humanity is 'external' to nature rather than being 'embedded' within it. Addressing this ideological failure provides a massive challenge not only to agricultural production models but to all current production and consumption models. If we are to develop a sustainable food system that meets the needs of the human population, while avoiding exceeding the limits of what nature can provide, we cannot rely on technology alone: consumption and production patterns will need to be fundamentally restructured. It is worth noting that many of these so-called silver bullet technologies are as of now either untried or their impacts not fully understood.

The following graph illustrates the impact of production and consumption patterns on environmental boundaries. This is not to say that livestock can't be part of a sustainable food system, but that the size of its footprint within a sustainable global food system would need to be carefully considered and sustainable management techniques more widely used.

⁹⁶ Dasgupta, P. (2021), *The Economics of Biodiversity: The Dasgupta Review*. Headline Messages. (London: HM Treasury), p. 2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf

⁹⁷ RTE news, 10th of May 2019- <https://www.rte.ie/news/environment/2019/0509/1048525-climate-emergency/>

Figure 3: The environmental impact of what we eat

Source: Springmann M, D. Mason-D'Croz, S. Robinson, T. Garnett, H.C. Godfray, D. Gollin, M. Rayner, P. Ballon, P. Scarborough. "Global and regional health effects of future food production under climate change: a modelling study." *The Lancet* 387:10031 (2016), pp. 1937- 1946.

Uneven Trade and Inequality in Global Supply Chains

While the current global food system has increased production, profits are disproportionately captured by a few, at the cost of the many. At the global level increased production is linked with less diversity and concentration of returns to larger agri-business interests which has resulted in rural decline as well as greater indebtedness amongst farmers who are locked into a system that requires greater productivity based on a reliance on a growing web of advanced/digital/proprietary technologies. Many Northern countries rural regions have been experiencing declining populations that result in a mismatch between supply and demand for services. In the Global South displacement of increasing numbers of rural dwellers has led to a situation where rural youth are forced to seek alternative livelihoods in urban centres that have been unable to provide enough quality employment opportunities.

Rural and environmental decline is also happening in other nodes of the global food chain. As land in low- and middle income countries is used to grow feed crops for

cattle, pigs and chickens in other parts of the world—this destroys forests and native grasslands and contributes to loss of carbon sinks.^{98 99} EU livestock intensification would not be possible without such environmentally regressive land use change in other parts of the world that supply imported feed. Similarly, a significant part of the foods imported into low- and middle-income countries come from intensive dairy livestock production in the exporting Northern countries, resulting in negative impacts on ecosystems, pastoralists' livelihoods, and human health¹⁰⁰. This subsidised production in Northern countries causes price distortions undermining local

⁹⁸ Blanco, M. 2018. *The Impact of the Common Agricultural Policy on Developing Countries*. Brussels: European Parliament. [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603862/EXPO_STU\(2018\)603862_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603862/EXPO_STU(2018)603862_EN.pdf).

⁹⁹ Dudley, N. et al (2020) Grasslands and savannahs in the UN Decade on Ecosystem Restoration, *Restoration Ecology*, Strategic Issues Article, Vol. 28, No. 6, pp. 1313-1317

¹⁰⁰ Coordination SUD. 2019. *The EU CAP: How Coherent Is It with the Development of Peasant Agriculture in the South?* Paris. https://www.coordinationsud.org/wp-content/uploads/Rapport_PAC_web_anglais_05.10.19.pdf

production and market opportunities for unsubsidised Southern farmers, facilitated by discriminatory international and bilateral trade agreements.

Low- and middle- income countries have become increasingly dependent on food imports as a result of the world's globalised food system. This has led to an underinvestment in local farmers, farmer associations, and smallholder-oriented value chains¹⁰¹. Yet smallholders account for 84% of the farms globally^{102,103}. Supporting these smallholder farmers is key to achieving SDG 2. While OECD countries, including Ireland, continue to provide assistance designed to help increase smallholder farmers' production and income in low- and middle-income countries, they also retain trade advantages through nontariff barriers to trade.¹⁰⁴ The trade gaps between low- and middle-income countries and high-income countries are getting bigger, with low- and middle-income countries projected to be net importers of meat and dairy products by 2030¹⁰⁵. There is a glaring lack of policy coherence in this approach with domestic production in low and middle-income countries, a potential key driver of poverty reduction and environmental sustainability, being unable to compete with cheap imported goods (such as ultra-processed foods or powdered milk) that benefit from subsidised production in the global North.¹⁰⁶

Large supermarkets and transnational corporations have become increasingly powerful actors in the global food system. They exert significant influence over public policy and the research sector, while remaining largely unregulated as they set prices to their advantage¹⁰⁷

by determining prices that farmers pay for inputs and receive for their outputs, as well as retail prices that consumers pay. This has fuelled consumer expectations for cheap food and contributed significantly to food loss and waste. Approximately one-third of food produced globally is lost or wasted¹⁰⁸. These companies dominate global food markets, allowing them to squeeze value from vast supply chains that span the globe, while at the bottom the bargaining power of small-scale farmers and workers has been steadily eroded in many of the countries from which such companies source their products. Oxfam has documented myriad forms of abuses in food supply chains from forced labour aboard fishing vessels in Southeast Asia to poverty wages on Indian tea plantations¹⁰⁹. Many primary producers of our food in the global South face hunger due to the low wages and labour abuses they face¹¹⁰.

It is women who are most negatively impacted by this system, whether on small-scale family farms or among workers in production facilities. Deeply entrenched gender norms mean they are denied equal access to land¹¹¹, less likely to enjoy trade union representation¹¹², shoulder most unpaid care work¹¹³, face discrimination over pay and progression to more senior roles, and face the threat of sexual harassment and violence¹¹⁴. Women's work in food supply chains goes unseen and their voices at the negotiation table are least heard. It is no surprise, therefore, that women are concentrated in the lowest paid, least secure roles across the agri-food sector, providing a reserve of cheap, flexible labour on which modern food supply chains are built¹¹⁵.

¹⁰¹ FAO (2014) *Impacts of Foreign Agricultural Investment on Developing Countries: Evidence from Case Studies*. Rome. <http://www.fao.org/3/a-i3900e.pdf>.

¹⁰² Lowder, Sarah & Sánchez, Marco & Bertini, Raffaele. (2019). Farms, family farms, farmland distribution and farm labour: What do we know today? https://www.researchgate.net/publication/337445028_Farms_family_farms_farmland_distribution_and_farm_labour_What_do_we_know_today_Farms_family_farms_farmland_distribution_and_farm_labour_What_do_we_know_today

¹⁰³ FAO (2019): Launch of the UN's Decade of Family Farming to unleash family farmers' full potential, available online: <http://www.fao.org/news/story/en/item/1195811/icode/>

¹⁰⁴ Gourdon, J., and A. Nicita. 2012. "NTMs: Interpreting the New Data." In O. Cadot and M. Malouche, eds., *Non-Tariff Measures: A Fresh Look at Trade Policy's New Frontier*. London: Centre for Economic Policy Research; Washington, DC: World Bank. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.370.933&rep=rep1&type=pdf>.

¹⁰⁵ FAO, 2017. *The Future of Food and Agriculture: Trends and Challenges*. Rome. <http://www.fao.org/3/a/i6583e.pdf>.

¹⁰⁶ Global Hunger Index, In Focus, 2020 Issue: *Where the Cracks Are Showing: Weak Points in the World Food System*, available online: <https://www.globalhungerindex.org/issues-infocus/2020.html>

¹⁰⁷ Update: Trade and market policy, Steve Suppan in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision, <https://www.arc2020.eu/wp->

¹⁰⁸ FAO (2019), *The State of Food and Agriculture 2019. Moving Forward on Food Loss and Waste Reduction* (Rome: FAO).

¹⁰⁹ Oxfam 2018, *Ripe FOR CHANGE- ending human suffering in supermarket supply chains*, https://www-cdn.oxfam.org/s3fs-public/file_attachments/cr-ripe-for-change-supermarket-supply-chains-210618-en.pdf

¹¹⁰ Ibid, Oxfam 2018

¹¹¹ OHCHR and UNWOMEN. (2013). *Realizing Women's Right to Land and Other Productive Resources*. Retrieved from: <http://www.ohchr.org/Documents/Publications/RealizingWomensRightstoLand.pdf>

¹¹² ETUC. (2003). *Women in Trade Unions: Making the difference*. Retrieved from: <https://www.etuc.org/en/publication/women-trade-unions-making-difference-0>

¹¹³ D. Chopra. (2014). *Towards Gender Equality with Caresensitive Social Protection*. Retrieved from: <http://www.ids.ac.uk/publication/towards-gender-equality-with-caresensitive-social-protection>

¹¹⁴ The ILO has found that women workers are often expected to provide sexual services or endure harassment in exchange for gaining a job or a promotion. See International Labour Organization (2017). *Ending Violence and Harassment against Women and Men in the World of Work*. Geneva: ILO. Retrieved from: http://www.ilo.org/wcmsp5/groups/public/-ed_norm/-relconf/documents/meetingdocument/wcms_553577.pdf

¹¹⁵ S. Barrientos. (2001). *Gender, Flexibility and Global Value Chains*. *IDS Bulletin*, 32(3), 83–93. Retrieved from: <https://opendocs.ids.ac.uk/opendocs/handle/123456789/8749>

Global food system drivers

Technological changes since the end of World War Two, including *motorisation* (the development of the internal combustion engine within increasingly powerful tractors and engines fuelled by oil); *mechanisation* (increasingly complex and effective machines); *chemicalisation* (synthetic fertilizers and pesticides), as well as associated developments in plant and animal breeding¹¹⁶ have helped shape the global food system. Another key driver is the role and influence of agri-food companies and regulatory environments that have privileged their interests. The market share held by the top four firms globally in 2019 is 40% or higher in an increasing number of sectors related to food production: agrochemicals (65.8%), animal pharmaceuticals (58.3%), commercial seeds (53.2%), and farm equipment (46.2%)¹¹⁷. Further, the investment power of dominant asset management firms investing in food and agricultural industries, and persistent power asymmetries in international food and commodity supply chains, have reduced competition and inhibited policymakers' ability and will to protect farmers and rural communities from loss of political, economic and market space.¹¹⁸

Financialisation of food production has greatly increased over the past number of decades and has exhibited a number of dimensions¹¹⁹. Firstly, there is the targeting of agriculture as a new area for capital accumulation. Agricultural markets were highly regulated for most of the twentieth century to enable hedging by those involved in them, and to prevent financial speculation by those who were not. However, a boom in speculation on agricultural commodity prices and the development of new financial investment instruments linked to food and agriculture arose when markets were deregulated in the 1980s¹²⁰. This process was supplemented by Structural Adjustment Policies imposed on low-income countries in response to various debt crises. Traditional business practices have changed due to financialisation which has led towards the prioritisation of shareholder value. Further, increasing levels of corporate restructuring and mergers, has led to ownership becoming

more concentrated and decreased competition¹²¹. This has driven socio-ecological changes that undermine food system resiliency and creates barriers for collective action due to the highly complex nature of financial instruments and growing lobbying power of corporate and financial elites and ultimately puts downward pressure on primary producers, farmers¹²².

Throughout the last number of/recent decades, national and transnational corporations in the agri-food sectors have conducted highly successful campaigns to acquire land (e.g. through large-scale "land-grabbing"¹²³), increase their control and build dependence on proprietary inputs including seeds and other genetic resources, capture digital data and control institutional and public narratives about agriculture, food systems and "development"¹²⁴. The extension of conventional "resource-grabbing" into intellectual, digital and social domains, paired with the increasing political influence that has accompanied corporate consolidation, has enabled industry players to shape agri-food systems to their benefit¹²⁵. Transnational agribusinesses position themselves, their technologies and products as offering ideal solutions to global concerns, oppose regulations that might constrain product sales and frequently co-opt the language of deeper systemic change put forward by others, sometimes with active support from states but to the detriment of local communities¹²⁶.

Government regulation and policy also plays a key role in the current direction of the global food system. The way in which subsidies are distributed matters; for example, it can skew market dynamics towards bigger, specialised producers. Diversity matters as it can provide alternatives and resilience in a system. Diversity supports a varied and

¹¹⁶ Mazoyer, M. and Roudart, L. (2006) *A History of World Agriculture: From the Neolithic to the current crisis*, London: Earthscan.

¹¹⁷ Howard, Philip H. & Mary K. Hendrickson. **The State of Concentration in Global Food and Agriculture Industries**. Pp. 89-91 in *Transformation of Our Food Systems: The Making of a Paradigm Shift*. (Hans Herren, Benedikt Haerlin & IAASTD +10 Advisory Group, eds.). ISBN 978-3-00-066209-6., Update: The state of concentration global food and agriculture industries. Phil H. Howard & Mary K. Hendrickson

¹¹⁸ UNCTAD: How to cope with largely dysfunctional market signals for sustainable agriculture? Ulrich Hofmann

¹¹⁹ Jennifer Clapp and S. Ryan Isakson (2018) *Speculative Harvests Financialization, Food, and Agriculture*, Fernwood Publishing.

¹²⁰ Merisa Thompson (2018), 'What is the financialisation of food and why should we care?'. Blog <http://speri.dept.shef.ac.uk/2018/11/07/what-is-the-financialisation-of-food-and-why-should-we-care/>

¹²¹ Jennifer Clapp and S. Ryan Isakson (2018) *Speculative Harvests Financialization, Food, and Agriculture*, Fernwood Publishing.

¹²² Jennifer Clapp and S. Ryan Isakson (2018) *Speculative Harvests Financialization, Food, and Agriculture*, Fernwood Publishing.

¹²³ Simon Hernandez-Arthur, Matt Grainger (2016), *Custodians of the land, defenders of our future A new era of the global land rush*, Oxfam. <https://www.oxfam.org/en/research/custodians-land-defenders-our-future>
Trocaire (2019), *Making a Killing: Holding corporations to account for land and human rights violations*. https://www.trocaire.org/sites/default/files/resources/policy/making_a_killing_holding_corporations_to_account_for_land_and_human_rights_violations.1.pdf

¹²⁴ Update: The emerging issue of "digitalization" of agriculture. Angelika Hilbeck & Eugenio Tisselli, in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision, <https://www.arc2020.eu/wp->

¹²⁵ Update: Corporate multilateralism at the UN, Pat Moone in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision, <https://www.arc2020.eu/wp-content/uploads/2020/09/FullTextOfTransformationFoodSystems.pdf>

¹²⁶ Update: Indigenous autonomy and indigenous community-based research. Tirso Gonzales, in Hans R. Herren, Benedikt Haerlin and the IAASTD+10 Advisory Group (2020), *Transformation of our Food Systems-The Making of a Paradigm Shift*, Zukunftsstiftung Landwirtschaft and Biovision, <https://www.arc2020.eu/wp->

balanced diet and provides a form of protection against natural or human disasters¹²⁷.

Population increase is another factor. Today there are 7.7 billion people in the world, and it is likely that another two billion will be added to the global population by 2050¹²⁸. This population is becoming urbanised fast. More than half the world's population lives in urban areas – a growing proportion¹²⁹ – and the ecological footprint of cities is huge. What happens in cities ripples into the countryside, linked by the food chain and social need. And their global impact is immense: at present, they represent a mere 2% to 3% of the world's land area, while accounting for 78% of carbon emissions and 60% of residential water use¹³⁰.

There are many in-built barriers to transforming this system – including industry structure, consumer preference, social organisation, pricing structures. Food pricing can make it difficult for consumers, especially those on low incomes to afford more healthy foods for example for the past 25 years¹³¹, food prices in Europe have risen faster than retail price inflation, making it harder for poorer families to choose often-costlier healthy foods. Further, globalisation and intense competition mean the economics of farming are hard on small producers, and can favour large-scale, homogeneous production. Finally, cultural preferences for meat consumption are prevalent in many parts of the world so as incomes rise, so too does an appetite for meat. Thus, regulation and other policy levers may need to be introduced to ensure that economic incentives and cultural expectations are recalibrated so as not to undermine a sustainable transformation of global food systems. As noted above, this does not imply the elimination of meat from diets, rather incentives and promotion of appropriate levels of intake.

Current food systems are a product then of power imbalances and system lock-ins. These lock-ins include: path dependency, export orientation, expectation of cheap food, compartmentalised, short-term or linear thinking, “feed the world” or technological fix narratives, inappropriate measures of success (focusing for example on simple economic metrics such as GDP or single crop yield that fail to value social and

natural capital and neglect to quantify true costs), opposing agendas from corporate actors, limited donor vision, fear of failure and concentration of power¹³².

The size of the economic footprint of the current system can compound the challenges faced to achieve sustainable food systems. In the EU food production revenues total €2.25 trillion¹³³. The food and drink industry is the number one manufacturing employer in half the EU member states. It generates €1.2 trillion in annual turnover and employs 4.72 million people. Though most of these products are traded within the EU, the EU still manages to be the world's largest exporter of food and drink products – amounting to €110 billion and generating a trade surplus of €36 billion. Further, it is supported by a global processing and handling equipment sector of USD137 billion in 2019¹³⁴ (equivalent to €122.3 billion).

Competing visions of transforming the global food system

How we will feed the world in the decades ahead is becoming a highly contested arena of competing visions but one where *sustainability* is frequently cited in the discourses of opposing protagonists. On the one hand there remains a hugely powerful status quo that regards the current predicament of global malnourishment as vindication for the expansion of an agri-industrial model that we might label as *productivism*. The *productivity narrative* extols the merits of next generation biotechnology and nanotechnology to deliver greater output (by between 70 to 100 %) in order to feed a projected population of nine billion by 2050.¹³⁵ While the emphasis remains on technological solutions and market-driven innovations, an important strand of this approach (*sustainable intensification*) argues that greater agricultural productivity could be achieved with reduced environmental impacts.¹³⁶

¹²⁷ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group

¹²⁸ United Nations. World Population Prospects 2019. Online Edition. <https://population.un.org/wpp/>

¹²⁹ Grimm, N.B. et al., “Global Change and the Ecology of Cities,” *Science* (80), vol. 319, no. 5864, pp. 756–760, February 2008.

¹³⁰ United Nations Convention to Combat Desertification. *The Global Land Outlook*. 2017. https://knowledge.unccd.int/glo/GLO_first_edition

¹³¹ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group11/12

¹³² IPES-Food (International Panel of Experts on Sustainable Food Systems). 2017. Unravelling the Food–Health Nexus: Addressing Practices, Political Economy, and Power Relations to Build Healthier Food Systems. Global Alliance for the Future of Food and IPES-Food. [http://www.ipes-food.org/_img/upload/files/Health_FullReport\(1\).pdf](http://www.ipes-food.org/_img/upload/files/Health_FullReport(1).pdf).

¹³³ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group . p6

¹³⁴ European Commission 2020 RESILIENCE AND TRANSFORMATION -Natural resources and food systems: Transitions towards a 'safe and just' operating space, Report of the 5th European Commission's Standing Committee on Agricultural Research, SCAR Foresight Exercise Expert Group p.52

¹³⁵ Beddington, J. (2010) Food security: contributions from science to a new and greener revolution. *Phil. Trans. Roy. Soc. B* 365, 61–71.

¹³⁶ Garnett, T. and Godfray, C. (2012) *Sustainable intensification in agriculture. Navigating a course through competing food system priorities*, Food Climate Research Network and the Oxford Martin Programme on the Future of Food, University of Oxford, UK

Since the food price crisis of 2007-08, momentum has been gathering around an alternative vision for agriculture and food systems. This *transformative narrative* is focussed on pro-poor and pro-environment approaches, hallmarks of the groundbreaking International Assessment of Agricultural Knowledge, Science and Technology for Development, which Ireland endorsed. The IAASTD report highlighted the imperative of transitioning towards agriculture and food systems that are not only productive but advance rural development, environmental and social justice outcomes. In the intervening years redesigning food systems in ways that address ecological, economic and social sustainability has become a greater focus for UN agencies, including the FAO, academic and scientific research literature. The outcomes of this focus include the development of analytical tools and policy recommendations that are designed as guides to support policy makers and other stakeholders plan, manage and evaluate transitions based on agroecological initiatives. An enabling environment that supports the scaling up and out of agroecological transitions a priority for global peasant movements and their civil society allies in the global North and South. This *transformative narrative* advocates that a more fundamental set of changes are required than relying on technical efficiencies.¹³⁷ The goal is no longer simply one of maximising productivity but to optimize it across a far more complex landscape of production, rural development, environmental and social justice outcomes¹³⁸.

Colin Sage outlines well what a transformative approach involves:

*“this will require a fundamental break with the central role accorded to ‘magic bullet’ technologies and scientific innovations developed in research laboratories and regarded as suitable blueprints for driving change in diverse regions of the world. Rather, it will require working through context-specific pathways that combine particular social, technological, ecological and other elements prevailing within each area. It means, above all, working with small-scale farmers who make up the overwhelming majority of the world’s food producers and who are best placed to deliver required outputs while sustaining ecosystem functions”.*¹³⁹

¹³⁷ International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) (2009) *Synthesis Report: A Synthesis of the Global and Sub-Global IAASTD Reports*, Washington, D.C.: Island Press.

¹³⁸ Pretty et al 2010 The top 100 questions of importance to the future of global agriculture. *International Journal of Agricultural Sustainability* 8, 4: 219-236.

¹³⁹ Sage, C. (2015) Food and Sustainable Development: How should we feed the world? In *The Routledge International Handbook of Sustainable Development* (Redclift, M., Springett, D., eds), Abingdon, Oxon, UK : Routledge, pp. 264-277 https://www.academia.edu/7101864/Food_and_Sustainable_Development_How_should_we_feed_the_world

Calls have also increased for ‘A One Health’ approach to food systems that recognises how our current challenges are interconnected and makes it clear that human, animal, and environmental health and fair-trade relations must be considered holistically¹⁴⁰.

Agroecology has been emerging as a viable pathway for the sustainable transformation of food systems. Agroecology is short-hand for agroecological approaches that adhere to agroecological principles¹⁴¹. Such approaches are context specific rather than a prescriptive blueprint. As the International Panel of Experts on Sustainable Food Systems (IPES-Food) has identified: “*Agroecology combines different plants and animals, and uses natural synergies – not synthetic chemicals – to regenerate soils, fertilize crops, and fight pests. Diversity in the field increases access to fresh and nutritious foods for communities and keeps traditional food cultures alive. Agroecology also improves farmers’ livelihoods through diverse income streams, resilience to shocks, and short supply chains that retain value in the community. In other words, agroecology has the potential to reconcile the economic, environmental and social dimensions of sustainability. Around the world, farms, communities and regions are engaging in agroecological transitions. Approximately 30% of farms around the world are estimated to have redesigned their production systems around agroecological principles.*”¹⁴² However, enabling policy environments for developing and disseminating knowledge on agroecology, where positive incentives and buffers for food producers are provided while they transform their systems are essential for the scaling up and out of agroecology.¹⁴³

Yet, the share of DAC development aid disbursed to agricultural research, education and extension in the total ODA to food and nutrition security has stagnated in recent years, highlighted in figure 4, below.

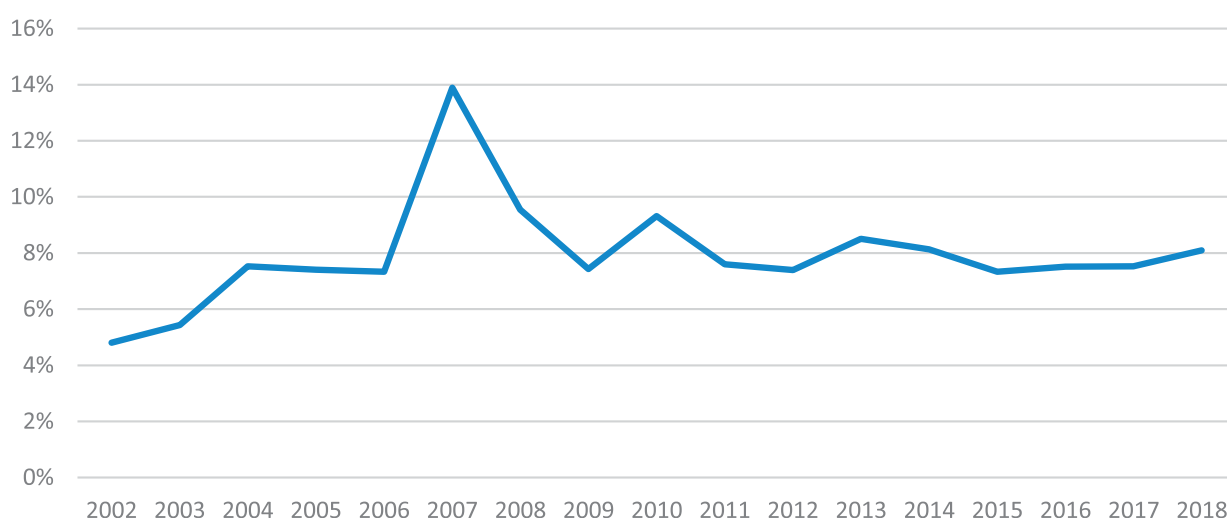
¹⁴⁰ CDC (Centers for Disease Control and Prevention). 2020. One Health. <https://www.cdc.gov/onehealth/index.html>

¹⁴¹ Throughout the report, ‘agroecology’ refers to the principles of agroecology as defined by the FAO (2018), which defines agroecology as: ‘an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system’. P. 1 of FAO (2018) Ten Elements of Agroecology, I9037EN/1/04.18 available online: <http://www.fao.org/3/i9037en/i9037en.pdf>

¹⁴² Biovision Foundation for Ecological Development & IPES-Food. 2020. *Money Flows: What is holding back investment in agroecological research for Africa?* p. 4. http://www.ipes-food.org/_img/upload/files/Money%20Flows_Full%20report.pdf

¹⁴³ FAO (2018) Scaling Up Agroecology Initiative <http://www.db.zs-intern.de/uploads/1523253471-Initiative.pdf>

Figure 4: Share of DAC ODA to agricultural research, extension, and education in total ODA to Food and Nutrition Security



Source: OECD QWIDS, Disbursements, Constant 2018 USD, and author's calculations

More actors are now involved in delivering agroecology projects. Philanthropic donors are becoming a major player alongside governments and international organisations, with public-private partnerships (PPPs) increasingly widespread. Non-governmental organisations (NGOs) are also often involved in project rollout. Yet, only a handful of donors – including France, Switzerland, Germany, the Food and Agriculture Organisation of the United Nations (FAO) and the International Fund for Agricultural Development – have explicitly recognised agroecology as a key solution for building sustainable food systems. Moreover, recent research has shown that agroecology remains marginal within many of these funding flows.¹⁴⁴ Moreover, what is categorised as agroecology is often not what is understood to be transformative agroecology. As many as 85% of projects funded by the Bill and Melinda Gates Foundation (BMGF) were limited to supporting industrial agriculture and/or increasing its efficiency via targeted approaches such as improved pesticide practices, livestock vaccines or reductions in post-harvest losses¹⁴⁵. However, some countries are taking leadership in this area- 51% of Swiss-funded Agricultural Research for Development projects had agroecological components, and the majority of these (41% of all projects) also included aspects of socioeconomic and political change like decent working conditions and gender equality. Just 13% of Swiss-funded projects focussed only on industrial agriculture and efficiency-based approaches¹⁴⁶.

Another challenge to transforming the global food system is the current structure of global governance in relation to food systems which is dangerously fragmented. For example, the UN CFS¹⁴⁷ which was established in 1974 and reformed in 2009 is the foremost inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all. However, agricultural trade rules are a core part of the World Trade Organisation's remit, with little cross organisational consultation while regional trade deals continue to be agreed without adequate assessments of their food security implications.

From the initial announcement of the UN Food Systems Summit (UNFSS) concerns over power asymmetries have been to the fore. Initially characterized as a 'People's Summit' which would address solutions and contain diverse dialogue on topics ranging from nutrition, sustainability, equitable livelihoods, and resilience¹⁴⁸ concerns about the Summit's approach have been repeatedly expressed by a substantial number of civil society organisations, especially those representing smallholders in the Global South and indigenous peoples. In 2020 over 300 civil society organisations¹⁴⁹ signed a joint letter over shared concerns around the lack of human rights approaches and the lack of inclusiveness in preparations for the UNFSS. Since then, the Civil Society and Indigenous Peoples' Mechanism

¹⁴⁴ Biovision Foundation for Ecological Development & IPES-Food. 2020. Money Flows: What is holding back investment in agroecological research for Africa? p. 4. http://www.ipes-food.org/_img/upload/files/Money%20Flows_Full%20report.pdf

¹⁴⁵ Ibid Biovision Foundation for Ecological Development & IPES-Food. 2020,

¹⁴⁶ Ibid Biovision Foundation for Ecological Development & IPES-Food. 2020

¹⁴⁷ UN FAO online, CFS 'about' section: <http://www.fao.org/cfs/about-cfs/cfs-structure/vn/>

¹⁴⁸ UN FSS online: <https://www.un.org/en/food-systems-summit>

¹⁴⁹ Foodsoverignty.org, undated letter to UN Secretary General, available online: https://www.foodsoverignty.org/wp-content/uploads/2020/02/EN_Edited_draft-letter-UN-food-systems-summit_070220-4.pdf

(CSM)¹⁵⁰ for the CFS, the largest international space of civil society organisations (CSOs) working to eradicate food insecurity and malnutrition have voiced their concerns over the proposed operation of the UN FSS and put forward proposals for how these concerns could be addressed. These include a proposal that the UNFSS should have an explicit aim to “reverse the corporate capture of food systems, to focus on the transformation of corporate food systems.”¹⁵¹ The CSM takes a clear position that a transformative approach is needed to address the failures of the global food system and are concerned that this is not on the agenda of the UNFSS and that productivity approaches are being favoured that will lead to private sector and big agribusinesses further consolidating an industrial model of food production resulting in increased inequality for millions of people around the world.

The adoption of the United Nations Declaration on the Rights of Peasants and other people working in Rural Areas (UNDROP) in 2018 was an important milestone. It vests peasants and other groups working in rural areas with rights that need to be respected, protected and fulfilled, and recognizes their contribution to conserving and improving biodiversity as well as food security¹⁵². UNDROP reaffirms the universality of all human rights, in particular the 2007 UN Declaration of the Rights of Indigenous Peoples (UNDRIP). The rights, vision and agency of peasants, pastoralists, fishers, smallscale livestock keepers, women, Indigenous and forest peoples are therefore at its foundation and are central to the transformative change that is required in agriculture and food systems.

The need for the transformation of food systems has been gaining traction globally. At EU level the European Commission has within the past year issued a number of communications and strategies reflecting the urgency of sustainable transitions within agriculture and food systems, involving all actors in the food chain, from producers to consumers. The European Green Deal provides a strategy to increase the efficient utilisation of resources by moving to a clean, circular economy, restore biodiversity, and cut pollution¹⁵³. The action plan lays out investments needed and financing tools which are accessible. The Green Deal communication sets a high level of ambition for the EU’s food system to transition into a global standard for

sustainability and is the cornerstone of the goal for the EU to be climate neutral in 2050.

“From Farm to Fork” is the food wing of the European Green Deal¹⁵⁴. The goal of Farm to Fork is to ensure that food in Europe is nutritious, safe, and of high quality while reducing the impact of its production on nature. The plan envisions farmers and fishermen as key stakeholders in coordinating a just transition. The Commission promises to work to ensure that national strategic plans for agriculture ensure just transition, reduce the dependency of pesticides, develop innovative techniques for farming and fishing, combatting food fraud, and ensuring that food imported to the EU meets EU standards. The strategy aims to achieve a circular economy in which citizens are better informed, food production systems are more efficient, there is better storage and packaging of food, less food loss, and more sustainable processing and transport of food. Critically the Green Deal and associated F2F and Biodiversity strategies commit the EU to lead the sustainable transition not only within the Union but beyond through international cooperation, bilateral and multilateral.

Though this ambitious policy is designed to bring about positive and green environmental change at home, there are concerns that EU member states will use this framework to outsource environmental damage to non-European countries¹⁵⁵. For example, farming practices that are restricted in Europe under the Farm to Fork policy are explicitly permitted in imports. Additionally, loose guidelines around sustainability criteria and certification may lead to importation of unsustainable products. How Ireland can show leadership to help advance the transformation to a sustainable global food system relationship, especially related to the challenges and opportunities highlighted in this chapter, is the focus of the rest of this report.

¹⁵⁰ CSM online – *What is the CSM*, available online: <http://www.csm4cfs.org/the-csm/>

¹⁵¹ CSM (2021) CSM Letter to the CFS Chair on Food Systems Summit, available online: <http://www.csm4cfs.org/letter-csm-coordination-committee-cfs-chair/>

¹⁵² UNDROP: The UN Declaration on the rights of peasants and other people working in rural areas. María E Fernandez

¹⁵³ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

¹⁵⁴ https://ec.europa.eu/commission/presscorner/detail/en/fs_19_6727

¹⁵⁵ <https://www.nature.com/articles/d41586-020-02991-1>



Venantie Mukacyemayire, member of the Turengere Ibidukikige Cooperative, Ngdrorero, Nyamagabe, Rwanda.
Photo: Alan Whelan/Trócaire

Chapter 2:

Policy and institutional landscape - summary overview

This chapter provides a summary overview of Ireland's national and global policies relevant to sustainable food systems and outlines some of the key government institutions and associations involved in decision-making processes. These institutions need to have a common understanding of, and approach to, sustainable food systems in a coordinated, coherent way.

Ireland's global and regional policies and commitments

Ireland commits to the right to food through article 45.2 of its constitution^{156 157} and as a party to the Universal Declaration of Human Rights (article 25); and as a party to the International Covenant on Economic, Social and Cultural rights, which affirms: “*States Parties to the present Covenant recognise the right of everyone to an adequate standard of living for himself and his family, including adequate food*”.

As a member of the European Union and the FAO Committee on World Food Security, Ireland has made commitments to align with the goals and objectives of the European Green Deal and its subsequent strategies (Farm to Fork and Biodiversity 2030).

In addition, the Paris Agreement – to which Ireland is also a signatory – commits countries to clear national action plans that determine the extent and pathways for achieving climate change mitigation and adaptation targets. In response to these global commitments and frameworks, the Irish government published a National Mitigation Plan in 2017. This plan was subsequently quashed by the Irish Supreme Court in 2020 due to the lack of specificity required under the Climate

Action and Low Carbon Development Act, 2015. A new Climate Action and Low Carbon Development (Amendment) Bill, 2021, is currently passing through the Oireachtas to provide a legal framework for Ireland's Paris Agreement commitments, with a new National Mitigation Plan to be developed this year in response to the Supreme Court judgment. Importantly, the recently published Climate Action and Low Carbon Development (Amendment) Bill, 2021, lays strong ground for Ireland to move in the right direction, with a commitment to reduce the country's GHG emissions by 51% before 2030, as compared to 2018. Under this new law, each sector within the Irish economy (including agriculture) will be allocated 5-year carbon budgets, identifying how much GHG they can expend in each 5-year period. These carbon budgets will be reduced every five years to ensure that Ireland meets its climate change commitments. These new 5-year carbon budgets will be developed by a new Climate Change Advisory Council, following the passage of this Bill.

Ireland's national policies and commitments

Ireland's Agri-food strategies are being developed in a context which presents multiple unique and often unpredictable challenges, including the global pandemic and Brexit. Both of these crises have significant implications for Irish agri-business.

Compounding this is the state of flux in which the Irish agri-environmental policy landscape finds itself. Indeed, Ireland's key strategic plans and policies (namely, Agri-

¹⁵⁶ Article 45.2: “That the citizens (all of whom, men and women equally, have the right to an adequate means of livelihood) may through their occupations find the means of making reasonable provision for their domestic needs.”

¹⁵⁷ <http://www.fao.org/right-to-food-around-the-globe/countries/irl/en/#:~:text=The%20Constitution%20of%20Ireland%20has,1989%20by%20way%20of%20ratification.>

Food Strategy 2030,¹⁵⁸ Ag-Climate, and the Organic Strategy 2015-2019) were designed and formulated prior to the current updating of the Climate Action and Low Carbon Development (Amendment) Bill, 2021, the development of a new National Mitigation Plan and to the raised ambitions under the EU Green Deal¹⁵⁹ and the new Climate Action and Low Carbon Development Bill. Proposed new EU legislations to reflect its new targets are expected by June 2021.

Further, climate action in Ireland is already contentious, both at the EU level and between state and civil society. At EU level, Ireland's significant per capita GHG emissions could make the country an outlier in relation to the region's 2030 and 2050 goals. At national level, discontent at the Irish National Mitigation Plan was expressed in the Supreme Court case, *Friends of the Irish Environment (FOI) v Ireland*, which led to the need for a new Climate Action and Low Carbon Development (Amendment) Bill, 2021, as mentioned above.

While the evolving policy landscape compounds the complexity of decision making in food systems, it also presents an opportunity. Indeed, Ireland can leverage the dynamism in the current policy landscape to incorporate targets that reflect the urgency of the challenge. Iterative decision-making provides space for engaging with a variety of audiences and embraces trial and error – two ways to promote the uptake of research evidence.¹⁶⁰

Agri-Food Strategy 2030

A key institutional anchor in Ireland's food systems is its Agri-Food Strategy 2030 (AFS 2030), put forward for public consultation on the 17th April 2021.

Ireland's AFS 2030 aims to take a 'food systems approach', meaning it aims to emphasise the links between policies for food, health, and the environment. The strategy aims to bring economic, environmental, and social sustainability to its core, ensuring profitability, positive (or neutral) impacts on the natural environment, and broad-based benefits for society. This provides space in Ireland's decision-making processes for the complex interlinkages between the sectors to be considered. It is the first time an agri-food policy has integrated health and foreign policy components, creating a vision for

Ireland's agri-food landscape's future to be based on the three dimensions of sustainability.

AFS 2030 signals a change in the direction of national agri-food policies and presents significant opportunities.

Ireland is now the only country in the world that has aimed to provide a national food system action plan; it is the only country that has aimed to bring together environmental, health, and agricultural policies in one place. This is an opportunity for Ireland to implement a truly just transition towards sustainable food systems. It is an opportunity to continue building off the momentum of the 2015 Paris Agreement and Sustainable Development Goals, to align environmental and social goals, thus bolstering the potential for uptake and sustainability of activities. Being a leader in this sense can open up additional economic opportunities for Ireland, and, while economic sustainability is only one component of a sustainable food system, it is justifiably an important consideration for Ireland's decision-makers, not least in light of the significant impact of a changing trade relationship with the UK.

Globally, such an approach is equally significant. This is an opportunity for Ireland to share its experience of taking a food systems approach with other countries. Indeed, it is the first time a national agri-food strategy considers the links between its domestic and overseas development policies. This provides space for the interconnections between these policies to be established, discussed, and improved upon. The challenges of climate change – namely through concepts such as climate justice – have helped bring to light the potential injustices faced by low-income countries due to the growth pathways chosen by developed countries. Bringing domestic and international agri-food policies together allows for injustices in food systems to be considered and acted upon.

Common Agricultural Policy (CAP) Strategic Plan

Ireland is currently developing its CAP strategic plan. This is a key component of the Irish agri-food policy landscape, particularly as the funding can serve as incentives for Irish farmers. However, to date, the CAP is deemed to be '*failing with respect to biodiversity, climate, soil, land degradation as well as socio-economic challenges*'.¹⁶¹ While the EU's proposal for a new CAP includes greater scope for sustainability (namely based

¹⁵⁸ At the time of writing, AFS 2030 is being finalised through public consultation

¹⁵⁹ European Commission Climate Strategies and Targets online, Policy, available at: https://ec.europa.eu/clima/policies/strategies/2030_en

¹⁶⁰ Mayne, R. et al (2018) Using evidence to influence policy: Oxfam's experience, *Nature*, 122(2018), available at: <https://www.nature.com/articles/s41599-018-0176-7>

¹⁶¹ German Centre for Integrative Biodiversity Research (iDiv) 9th March 2020, available at: <https://www.idiv.de/en/cap-scientists-statement.html?s=03>

on results-based approach) member states can choose their pathways for implementation. This represents an opportunity for Ireland to demonstrate leadership by opting for the more ambitious pathways that will reduce GHG emissions while bolstering other agri-environmental outcomes such as biodiversity. A group of 26 NGOs and national signatories addressed an open letter to the EU Commission, Parliament, and Council calling for greater integration of principles, objectives, and targets of the Green Deal into CAP Strategic plans.¹⁶² Further, a group of 3,600 scientists has put forward 10 urgent action points for the three EU institutions:¹⁶³

1. Transform direct payments into payments for public goods
2. Provide sufficient support for effective climate change mitigation
3. Provide sufficient support for biodiversity protection and restoration (zero decline, followed by increasing farmland biodiversity)
4. Support innovative approaches to design and implement measures addressing environmental challenges
5. Enhance spatial planning and collaborative implementation and the application of landscape level measures
6. Demand members states to set SMART targets in their strategic plans
7. Revise the set of indicators (e.g. open the indicators' list to scientific evaluation and participation)
8. Strengthen environmental monitoring and enforcement
9. Identify and address global impacts of the CAP, especially in the global south
10. Improve governance of the CAP and its reform in terms of transparency, accountability, participation, and knowledge-uptake

A Better World

Ireland's development cooperation policy, *A Better World*, outlines four priority areas: Climate Action, Gender Equality, Humanitarian action, and Governance.

Within these priorities, food is identified as one of three intervention areas. More specifically, the policy document commits Ireland to:

- the transformation of Irish agriculture, and the associated wealth of technological and market innovation and research, as a basis for Irish engagement with global food systems and markets
- explore the potential of harnessing expertise and experience and identify synergies to add to our development cooperation
- share lessons of change with low-income countries, where relevant and appropriate, and share challenges in adapting to sustainable paths
- expand the remit of agriculture to, not only supply the required calories, but also ensure local food and nutrition security, safeguard natural resources and ecosystem services, and adapt to and mitigate climate change

Although Irish development cooperation extends to many countries across the world, the majority of Irish ODA is disbursed to Africa, thus placing development cooperation partners in Africa as key stakeholders. Further, the renewed approach to strategic relations with Africa within the European Commission, and in Ireland, highlights the relevance of the Africa Agri-Food Development Programme (AADP) and the work of the National Task Team on Rural Africa (NTTRA).

Africa Agri-Food Development Programme

The AADP is a cost-sharing grant fund to support partnerships and joint ventures between Irish and African agri-food business. The fund was piloted in 2012-2013, with an initial investment of EUR 2 million.¹⁶⁴ The fund continues operating today, with EUR 591,000 disbursed in 2020.¹⁶⁵

The objective of the fund is to “develop partnerships between the Irish Agri-Food Sector and African countries to support sustainable growth of the local food industry, build markets for local produce and support mutual trade between Ireland and Africa.”¹⁶⁶

¹⁶² Open letter to the European Commission, the Presidency of the Council of the European Union, and the European Parliament's rapporteurs on the CAP regulations calling for ambition in trilogues for a green and fair reform of the Common Agricultural Policy, 25th March 2021

¹⁶³ Pe'er, G. et al (2019) *Action needed for the EU Common Agricultural Policy to address sustainability challenges, People and Nature, Perspective*, DOI: 10.1002/pan3.10080

¹⁶⁴ DCA (n.d.) Establishment of an African Agri-Food Development Fund (AADF) to support a partnership between the Irish Agri-Food Sector and the food industry in Africa: briefing note

¹⁶⁵ DAFM press release 21 December 2020, available at: <https://www.gov.ie/en/press-release/77843-minister-mcconalogue-announces-30-million-in-international-development-assistance-for-2020-providing-life-saving-assistance-and-improving-food-security/>

¹⁶⁶ DCA (n.d.) Establishment of an African Agri-Food Development Fund (AADF) to support a partnership between the Irish Agri-Food Sector and the food industry in Africa: briefing note

The fund is based on the premise that Ireland has expertise worth sharing, particularly because *‘Ireland has grown from predominantly small scale subsistence farming, exporting primary production, to a sophisticated producer of high-end, value-added food’*¹⁶⁷ and the skills developed during this transition could be transferred to African countries.

The focus is on supporting African countries’ transition to moving ‘beyond aid’ and agricultural trade is seen as one pathway forward for this. In particular, Ireland’s approach aims to move from interventions supporting primary production to those that support *‘developing markets, infrastructure and the necessary investment climate for business.’*

This initiative reflects cross-department cooperation between the department of Foreign Affairs and Trade and the Department of Agriculture, Food, and the Marine, at least partially in line with effective ‘whole of government’ approach needed for a systems approach. According to AADP, Ireland is considered to have expertise in the following areas: food safety; animal health/veterinary; business development; production systems; training/mentoring; technology transfer; research & development; and project management.¹⁶⁸

National Task Team on Rural Africa

In response to the EU’s rural revitalisation objectives for Africa, Ireland commissioned a National Task Team on Rural Africa (NTTRA) to prepare a report on Ireland’s potential contribution to the work of the European Task Force.

The aim of the report was to *‘enhance and improve the coordination of Ireland’s existing contribution to the transformation of Africa’s agriculture and rural economy by harnessing the respective expertise of Government Departments, State Agencies, the private sector, civil society, academia and the African Diaspora’*. Irish leadership is put forward in three ways:

1. deliver a coherent national response, which harnesses the capacity of the Irish agri-food sector in its future partnership with Africa,
2. play a proactive role as the EU and the AU develop a deepening partnership,
3. strengthen Ireland’s strategic position in preparing for the 2021 Food Systems Summit.

The report subsequently saw the development of the Ireland Africa Rural Development Committee, which will be *‘responsible for the ensuring the implementation, accountability and resourcing of the NTTRA Report’s recommendations and will seek to strengthen the coordination of Ireland’s existing contribution to the transformation of Africa’s agriculture and rural economy’*.¹⁶⁹

Institutional and stakeholder overview

A first step in shining a light on the systemic forces at play in Ireland’s agri-food system is to identify the actors involved in the system; it is then important to outline the relationships among these actors, including the distribution of power, the institutional norms and constraints in which they’re operating, and the attitudes and assumptions that influence decisions.

Department of Agriculture, Food and the Marine

There are several government departments that hold direct or indirect decision-making power. The most obvious and central of these is the Department of Agriculture, Food and the Marine (DAFM).

The DAFM hold power when it comes to legislation, regulation, planning, select food safety official controls and trade certification, as well as funding allocation and distribution. The Department accounts for most of the power of defining the institutional norms and priorities for the agri-food sector, including (but not limited to) the policies, strategies, and institutions outlined below:

Policy and strategy ownership	Institutional influence
<ul style="list-style-type: none"> • Agri-food strategy 2030 • Ag-Climatise RoadMap • Organic Strategy 2019-2025 • CAP Strategic Plan • Bioeconomy Strategy • Statutory Agriculture, Forest, and Seafood Climate Change Sectoral Adaptation Plan 	<ul style="list-style-type: none"> • Teagasc • Sustainable Food Systems Ireland (SFSI) • Bord Bia (and thus Origin Green) • BIM • The Marine Institute • The Sea Fisheries Protection Agency (SFPA)

¹⁶⁷ DFA (2018), available at: <https://www.dfa.ie/irish-embassy/tanzania/news-and-events/latestnews/next-call-for-aadp-applications-launched-at-africa-ireland-economic-forum.html>

¹⁶⁸ AADP Fact Sheet: establishment of an African Agri-Food Development Fund (AADF) to support a partnership between the Irish Agri-Food Sector and the food industry in Africa

¹⁶⁹ Department of Agriculture Press Release 9th March 2021, available at: <https://www.gov.ie/en/press-release/3e2be-establishment-of-the-ireland-africa-rural-development-committee-and-the-appointment-of-mr-tom-arnold-as-the-governments-special-envoy-on-food-systems/>

Other government agencies also play important roles in Ireland's food systems domestically and abroad, as per Table 2, below.

Table 2: Other government departments influencing Ireland's agri-food system (non-exhaustive)

Department	Examples of Spheres of influence
Department of Foreign Affairs	Development cooperation strategy; Influences strategic direction and funding of Irish Aid
Department of Health	Agri-food strategy; national nutrition guidelines; food safety, and public health
Department of Culture, Heritage, and Gaeltacht	Responsible for Ireland's national reports to the Convention on Biological Diversity and for the ratification of the Nagoya Protocol
Department of Environment, Climate, and Communications	Responsible for the Climate Action and Low Carbon Development (Amendment) Bill, 2021
Department of Enterprise, Trade, and Employment,	Influences strategic direction of Enterprise Ireland and Science Foundation Ireland, and allocates funding.
Department of Rural and Community Development	Responsible for the Rural Development Programme

Sustainable Food Systems Ireland

Sustainable Food Systems Ireland (SFSI), established in 2014, is a consortium of government agencies: The Department of Agriculture, Food and the Marine, Teagasc, Food Safety Authority of Ireland, Bord Bia, and Enterprise Ireland.

The emergence of this group points to a recognition at the national level of the complexities of food systems from at least one angle. The purpose of the organisation is to make available the institutional knowledge and skills of its five owner organisations to partners internationally, to support efforts to strengthen food systems. It is a knowledge exchange and transfer organisation, working on projects in a variety of countries and regions, including Africa and the Middle East. While SFSI is based on the use of Irish inputs and skills, it does not aim to transpose Ireland's systems, but emphasises the role of core principles based on Irish experience in areas like

strategic planning, food safety, value chain development, and knowledge transfer.

An institution whose role is to coordinate knowledge transfer and ensure the knowledge created reaches those who need it is a welcome and much needed addition to a complex landscape.

SFSI was established prior to the entrenchment of the concept of a 'food systems approach' and thus it is not clear how the principles of same are established within the organisation's mission or operationalisation.

Irish Forum for International Agricultural Development (IFIAD)

IFIAD is a multi-disciplinary knowledge-sharing platform. It aims to share knowledge and good practices for the benefit of agricultural development programming and policy, specifically to support Ireland's international development objectives. Its vision is one of transformed livelihoods of people living in poverty in the developing world through initiatives which support resilient, equitable and sustainable agriculture, food and nutrition security. It endeavours to do this through the generation, sharing, and application of experience, knowledge, and innovation in agriculture for development.

Farmers Organisations

The largest farmers' organisations in Ireland are described below, along with a brief description of two additional organisations which featured on the AFS 2030 Steering Committee (Irish Co-operative Organisation Society and Irish Natura and Hill Farmers Association).

Irish Farmers Association (IFA)

The Irish Farmers Association, founded in 1955, is comprised of roughly 72,000 members. It covers the following farm sectors: cattle, dairy, grain, sheep, milk, pigs, horticulture, and potatoes. The organisation represents farmers domestically and in the European context and provides support and advisory services.

The association's National Officers Committee is composed of nine men and no women.

Irish Creamery Milk Suppliers Association (ICMSA)

Founded in 1950, the ICMSA aim to represent all farmers, with an emphasis on dairy and livestock farmers, at local, national, and regional levels. Its specific focus is on preserving the family farm structure and supporting family farmers. The association is controlled by a national council of 108 members.

The association's Executive Committee is composed of nine men and no women.

Irish Cattle & Sheep Farmers Association (ICSA)

Founded in 1922, the ICSA represents the interest of drystock and sheep farmers in Ireland. The association aims for equality, opportunity to farm, and freedom from bureaucracy. In particular, it aims to identify and respond to issues relating to the beef and sheep sectors.

The association's general structure is composed of fifteen men and two women.

Macra na Feirme

Founded in 1944, Macra na Feirme represents 10,000 young people in rural Ireland. Their aim is to support the social, economic, cultural, personal development, and well-being of young people and farmers in rural Ireland; and to represent their interests in policies, products, programmes, and services at local, national, and regional levels.

The association's Board is composed of ten men and two women.

Irish Co-operative Organisation Society

Originally founded as the Irish Agricultural Organisation in 1894, it was reorganised and renamed to the Irish Co-operative Organisation Society to reflect the expansion of the co-operative movement in Ireland. Today, the organisation has over 150,000 members, with a combined turnover of almost EUR15 billion.¹⁷⁰ The organisation has seven core categorisations for its cooperatives: multi-purpose dairy, livestock, store, trade and wholesale, services, community-oriented, culture and leisure, food, fishing and beverages, and advisory and education-related co-ops.

There are 14 men on ICOS' Dairy Committee and no women; 11 men on the Mart Committee and no women, and 11 men and no women on the Rural Business Committee.

Irish Natura and Hill Farmers Association (INHFA)

Established in 2015, the INFHA aims to represent farmers on hill designated and environmentally valuable land. It emphasises the role of family farms and aims to highlight the challenges faced by these farmers in marginalised areas of Ireland.

As of 2017, there were six men and two women on the INHFA committee (latest available information on the INFHA website).

The Environmental Pillar

Established in 2009, the Environmental Pillar is composed of 32 environmental NGOs representing the views of the Irish environmental sector, including on the AFS 2030 steering committee. The sectors covered include habitat conservation, wildlife protection, environmental education, sustainability, waste and energy issues, as well as environmental campaigning and lobbying.

The organisation's steering committee is composed of five men and three women.

¹⁷⁰ ICOS website, available at: <http://icos.ie/about/who-we-are/>



Chapter 3:

Opportunities and Challenges in Ireland's approach to a sustainable food system

This chapter investigates the opportunities and associated challenges for Ireland's transformation towards sustainable food systems. The analysis is based on a review of relevant policies – primarily the Agri-Food Strategy 2030, an identification of current sustainability gaps in Ireland, and the subsequent challenges for achieving sustainable transformation.

Opportunity 1: Sustainable financial flows

Section Roadmap: This section aims to assess Ireland's commitment to sustainable food systems by analysing domestic and global financial flows. It does so by classifying Ireland's domestic subsidies to a number of farming programmes and its Official Development Assistance (ODA) flows to low-income countries into broad categories to reflect the 'sustainability' focus of these flows.

Industrial agriculture has created a path dependency. Current agricultural economic models promote large-scale, uniform farming, with a view to scaling up, which implies investments in inputs such as machinery that would potentially no longer be relevant in sustainable/diverse farming. Thus, the cost of transition from conventional¹⁷¹ to sustainable farming would be significant, namely due to the need for alternative skills, inputs, and equipment. This is compounded by rising costs of labour and low costs of energy, which further incentivises mechanisation. In addition, agricultural research has been influenced by this focus, often geared toward large-scale farmers and a select few crop varieties.¹⁷²

One pathway for payments to agriculture to incentivise desirable environmental outcomes are results-based payments. NESC (2021) identified opportunities in recognising the variety of eco-system services that different land types can offer for those farmers that might be interested in a 'way of farming other than primary production'. Yet those options are currently available only to a limited extent due to the non-mainstream nature of results-based payments for eco-system services.^{173 174}

However, in February 2021, the Department of Agriculture announced a large-scale pilot Results-Based Programme, with a view to identifying potential upscaling opportunities and feasibility for use of the model in the next agri-environment scheme following on from the Green, Low-Carbon, Agri-Environment Scheme (GLAS). This is a promising initiative, but a critical component of this will be ensuring the co-creation of the scoring system with farmers. In addition, results-based payments can incur higher costs than other payments and, while these can work well for specific targets (for example, targeting a specific increase in keystone species numbers), broader environmental goals or sustainable agricultural practices may be more suited to conventional payment mechanisms.

¹⁷¹ The Oxford Reference defines conventional farming as 'farming practices that involve the use of chemical fertilizers, pesticides, and machinery.' While some conventional farming may be considered sustainable, a reduction in or elimination of the use of chemical fertilisers and pesticides better aligns with the concepts of sustainability, particularly in Ireland where these inputs have been detrimental to the water and air quality of the country, as outlined in the following sections.

¹⁷² iPES (2016) From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems, available at: http://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULLL.pdf

¹⁷³ 'Connectivity' is classified as both a social and an economic challenge

¹⁷⁴ NESC (2021) Challenges and opportunities for Rural Ireland and the Agricultural Sector, Research Paper 20, accessed online 22nd March 2021, available at: http://files.nesc.ie/nesc_research_series/Research_series_paper_20_UCD_Rural.pdf

Challenge 1.1: Public expenditure and incentives for farmers

A potential challenge for the three dimensions of sustainability of Ireland's agri-food strategies relates to a classic transition issue for conventional agriculture as countries find themselves 'locked-in' to current industrial models.^{175 176}

Export orientation is locked into the food systems of most developed countries with a significant agricultural sector and Ireland is no exception, with a clear prioritisation of export (described in the DAFM Annual Review, the Organic Strategy, the NTTRA, and AFS 2030). This is of particular relevance, given the scale of dairy and beef in Ireland's agri-food sector and the disproportionate role that trade plays in these supply chains (e.g. affecting production strategies, prices, and employment) and, thus, in the dietary habits of consumers.¹⁷⁷

Ireland's share of processed food imports and exports is rising and processed foods imply an increased demand for uniform commodities (maize, soybean, wheat), corn-based sweeteners, and undifferentiated vegetable oils. Large volumes of uniform commodities promote conventional, mass-scale monocultures to cater to demand. Meanwhile, many of these processed foods do not contribute to healthy diets (added sugar) nor a healthy planet (e.g. source of vegetable oils and potential links with deforestation).^{178 179}

A symptom and a driver of this-lock in are subsidies, which remain largely allocated to farms which use conventional methods and which can lack coherence with sustainability objectives. For example, while the Department of Agriculture has increased its budget for organic production between 2020 and 2021, funding for greyhound racing (also from the Department of Agriculture's budget line) also increased over the same period. This appears incoherent, given the concerning, sub-par conditions when it comes to animal welfare.

¹⁸⁰ Although the 2021 allocated funding to greyhound racing (EUR 19.2. million) is said to be conditional on improved animal welfare, it is unclear how welfare conditions will be enforced. In addition, the budget for greyhound racing is more than twice the budget allocated for horticulture (EUR 9 million) and is more than 15% higher than the budget allocated for Organic Farming (EUR 16 million).¹⁸¹ In light of the particularly low levels of organic farming in Ireland (shown in 'Opportunity 4: Sustainable Agricultural Production'), along with the ambitious EU F2F targets for same, this budget allocation does not seem coherent.

Further, Figure 5 shows the breakdown of national agricultural schemes payments in 2020, classified by their sustainability. In this case, 'sustainable' payments incorporates payments and programmes which have a principal or significant environmental objective. For example, The Green, Low-Carbon, Agri-Environment Scheme's (GLAS) main purpose is 'green, low carbon agriculture'. However, some programmes present mixed objectives, which mean they could be promoting either sustainable or conventional agricultural practices. Payments for Areas of Natural Constraint (ANC), for example, are important for maintaining and restoring areas that might otherwise be neglected within a classic market structure. At the same time, there are no environmental conditions attached to these payments and so a lesser statistical weighting is applied to these types of payments.¹⁸²

Payments that can be considered with clear sustainability goals (through agri-environmental indicators) are marked as 'principal'. Those that present a combination of goals (e.g., Targeted Agriculture Modernisation Scheme (TAMS) and ANC) are marked as 'significant'. And those that have no particular sustainability goals attached to them are marked as 'conventional'. For a more detailed overview, please refer to the Annex: Methodological Notes.

Classified this way, 81% of national Irish funding is directed toward projects that are not described as sustainable agriculture, 8% to 'significantly' sustainable, and 11% to 'principally' sustainable agriculture.

¹⁷⁵ iPES (2016) From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems, available at: http://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULL.pdf

¹⁷⁶ De Schutter, O. (2017) The Political Economy of Food Systems Reform, *European Review of Agricultural Economics*, September 2017

¹⁷⁷ FAO (2016) Trade Policy Briefs: Trade and Food Security, Brief number 17, available at: <http://www.fao.org/3/i5738e/i5738e.pdf>

¹⁷⁸ iPES (2016) From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems, available at: http://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULL.pdf

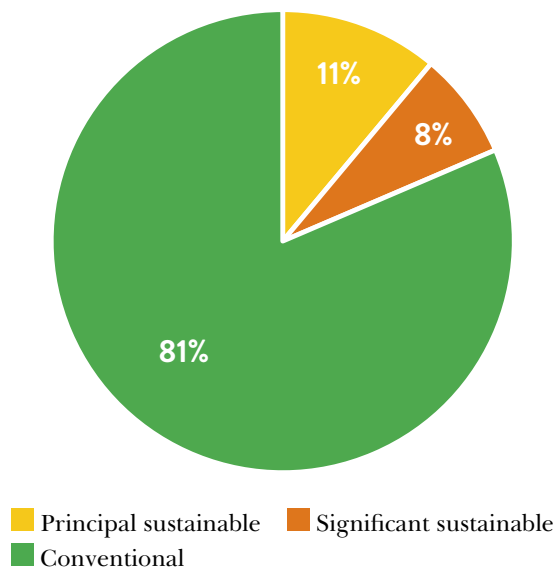
¹⁷⁹ The Lancet Commissions. (2019) Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems, available at: [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

¹⁸⁰ RTE 26th June 2019: Thousands of Greyhounds 'culled each year' for not being fast enough, accessed online 11th February 2021, available at: <https://www.rte.ie/news/ireland/2019/0626/1057535-greyhound-rte-investigates/>

¹⁸¹ DAFM press release 14th October 2020, available at: <https://www.gov.ie/en/press-release/d59a1-minister-pippa-hackett-welcomes-the-expenditure-allocation-announced-in-budget-2021/?referrer=http://www.agriculture.gov.ie/press/pressreleases/2020/october/title,151740,en.html>

¹⁸² The attributed weightings are as follows - ANC: 40%; TAMS: 50%; Sheep Welfare: 50%; Protein Aid: 50%

Figure 5: Domestic agricultural schemes payments 2020¹⁸³



Source: Gov.ie, Scheme Payments by County September to December 2020, Published 14/01/2021 <https://www.gov.ie/en/publication/5f0e9-scheme-payments-by-county-september-to-december-2020/>

* Principal sustainable= GLAS; Organics; Burren; Hen Harrier; EIP

* Significant sustainable = ANC; Sheep Welfare; TAMS; Protein Aid

* conventional = basic payments and entitlements, BEEPs, BFP, BDGP I&II; and two categories which are unidentified (GTFB and PMP), accounting for 0.4% of the total payments

NB: Sustainability is based on the intended objectives of the programme, rather than the outcomes/results.

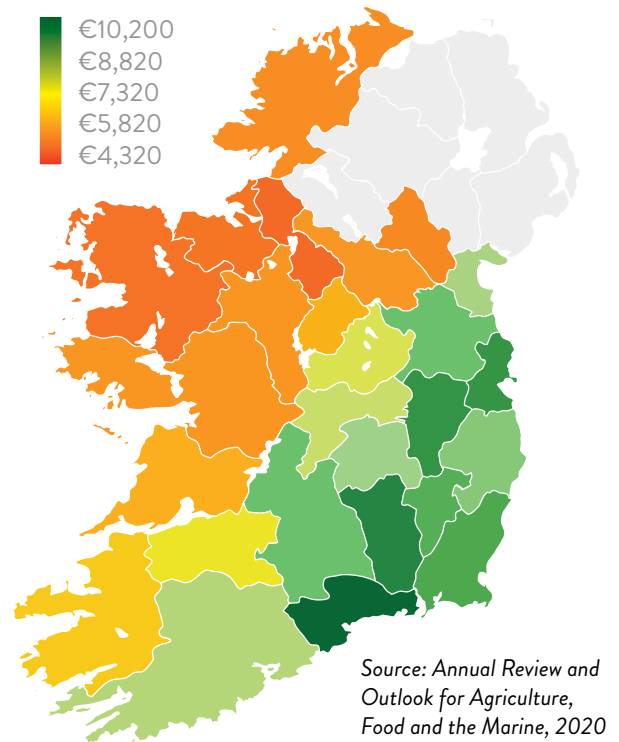
A summary overview of national payments to agriculture by region (Figure 6, below) shows the uneven distribution of subsidies to farms in the SE region, i.e., to larger dairy and tillage farms. Dairy farms in Ireland account for three and a half times more subsidy than the average for beef farms.¹⁸⁴ Tillage in Ireland (1.2 tonnes GHG emissions per hectare) produces just 14% of the GHG emissions that an average dairy farm produces, and 30% of an average beef farm. In light of the ongoing debates around the CAP architecture, it's worth noting that previous changes – namely convergence (i.e.

¹⁸³ This is an imperfect breakdown, as mentioned within those programmes considered as 'sustainable' there are likely farming methods used that could be detrimental for the environment, and within those 'conventional' programmes, there are likely to be farming methods used that work in harmony with nature. For example, BDGP relates to improving the genetics of the beef herd for improved efficiency and productivity which in itself is not unsustainable. However, the primary objective of 'efficiency' is on the lower end of the sustainability scale according to HLPE (2019). Please see the methodology note for more detailed information.

¹⁸⁴ Bord Bia (pending Teagasc, 2019), available at: [https://www.bordbia.ie/industry/news/food-alerts/2020/adapt-and-be-bold---dairy-processor-looks-to-the-carbon-neutral-farm-grid/#:~:text=The%20average%20dairy%20farm%20in,\(Teagasc%2C%202019\).](https://www.bordbia.ie/industry/news/food-alerts/2020/adapt-and-be-bold---dairy-processor-looks-to-the-carbon-neutral-farm-grid/#:~:text=The%20average%20dairy%20farm%20in,(Teagasc%2C%202019).)

flattening the payments) which took place between 2015-2019 – has meant that 1.6% of total funding between 2015-2019 was refunnelled, from farmers with higher entitlements, to those with lower entitlements.¹⁸⁵ The European Commission has proposed to continue with convergence in the next CAP, with all entitlements reaching at least 75% of national average by 2026, while the European Parliament proposes for the 75% target to be achieved by 2024. Convergence is a controversial issue, and Ireland opted not to begin the process ahead of schedule – no member state will be legally obliged to implement it until the new CAP in 2023.^{186 187} The CAP negotiations and the disproportionate allocation of funding to dairy farms highlights the policy challenges in transitioning to agricultural production that supports environmental and social sustainability outcomes.

Figure 6: Average BPS payment by county, 2020



The larger share of funding to conventional agriculture (which will not necessarily promote sustainable agricultural production) is also compounded by the fact that, in some cases, farmers are penalised for their efforts to support biodiversity. For example, when hedges and trees are planted this area can be deducted from the land eligible for grants, so farmers are penalised rather than

¹⁸⁵ Department of Agriculture, Food and the Marine, July 2019: Basic Payment Scheme: Payment Entitlements Overview

¹⁸⁶ Irish Farmers Journal, 8th November 2020: Capping, Convergence and eco schemes – final CAP talks to begin

¹⁸⁷ Irish Farmers Journal: 7th April 2021: Decisions to be made on Convergence for 2022

rewarded for their efforts – efforts that support both wildlife habitat and carbon sequestration. Indeed, under current CAP payments criteria, agricultural land has to be available for productive purposes to be deemed eligible, whereas a hedgerow or pond, for example, detracts from this ‘productive’ land and reduces the amount a farmer can receive. The upcoming CAP architecture may provide space to overcome this by extending the concept of eligible area. However, it is unclear the extent to which this will benefit Ireland’s farmers due to the largely grasslands nature of farms. There is a requirement to set aside a minimum of ‘arable land for ‘non-productive’ land. This will still be maintained in the new CAP, but landscape features may be eligible for payments only if the non-productive area is claimed as part of the Good Agricultural and Environmental Condition (GAEC) 9 (i.e. as part of the compliance measures). The Commission proposal was to extend the GAEC 9 requirement to all farms, but in the final agreement this may be reverted to arable land only, leaving the status of these areas on grassland farms unclear. Nonetheless, there is some flexibility in defining eligible land at the national level and, while this remains to be considered, Ireland could choose to include ‘non-productive’ land or landscapes features in its own definition of eligible land.

Further, while long-term trends in Irish agriculture show declining family farm numbers, Ireland is one of the few countries that has seen a small increase in family farms over the last decade.¹⁸⁸ While research shows higher yields and greater biodiversity on smaller farms (i.e. farms of less than 2 hectares), more research is needed to assess whether these benefits apply to the Irish context.¹⁸⁹ Farm size is important in mediating social and environmental outcomes. This is explored in more detail in the section on rural revitalisation.

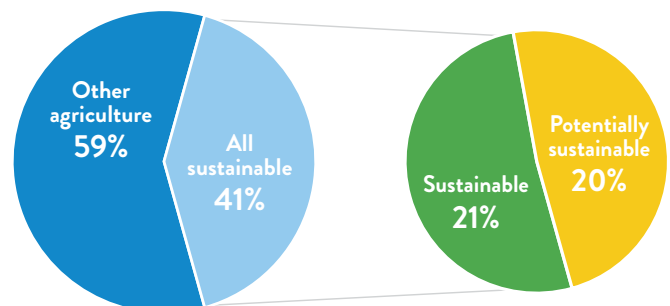
Challenge 1.2: Development cooperation flows to support sustainable food systems abroad

The same logic of supporting sustainable, rather than conventional, agricultural initiatives should apply to Ireland’s development cooperation strategies, yet the majority of Irish ODA for food and nutrition security is not clearly directed toward sustainable

initiatives. Figure 7, below, shows just 21% (USD 23.5 million) of agricultural ODA between 2016–2018 was directed toward projects described as sustainable (e.g. ‘agroecology’ or ‘sustainable agriculture’).¹⁹⁰ When combined with projects described in such a way that they could be considered *potentially* sustainable (e.g. projects aiming to increase the diversification of incomes but with no clear sustainable description), this share grows to 41% (USD 45.7 million). The remaining 59% (EUR 64.9 million) was invested in projects, with no mention of sustainability, which could comprise industrial or conventional agricultural practices. It is important to note that this is a preliminary analysis based only on the descriptions provided in the OECD Creditor Reporting System (CRS), in which project descriptions are often inadequate to draw conclusive analysis. For more information, please refer to the Annex: Methodological Notes.

Of these ‘sustainable’ projects, 86% (USD 39.6 million) were marked as comprising a significant gender component and 3% (USD 1.4 million) were classified as having a ‘principal’ gender component.¹⁹¹

Figure 7: Proportion of agricultural ODA targeting sustainable vs other agricultural approaches (total, 2016–2018)¹⁹²



Source: OECD CRS, 2016–2018 microdata, constant 2018 USD, disbursements, and author’s calculations

It is worth noting that reporting and tracking support for agroecology is a challenge for all countries and institutions. In response, the FAO has launched the Tool for Agroecology Performance Evaluation (TAPE). The initiative gathered 70 representatives of

¹⁸⁸ Alan Matthews, 1st January 2021: Farm Consolidation Continues, Cap Reform Blog, available at: <http://capreform.eu/farm-consolidation-continues/>

¹⁸⁹ Ricciardi, V. et al (2021) Higher yields and more biodiversity on smaller farms, Nature Sustainability, available at: <https://doi.org/10.1038/s41893-021-00699-2>

¹⁹⁰ Climate-Smart Agriculture (CSA) was classified as ‘potentially sustainable’ given that agroecological principles are not foundational to CSA

¹⁹¹ The DAC gender equality policy marker is based on a three-point scoring system, to qualitatively track the financial flows that target gender equality. For more detailed information, please see the methodology note.

¹⁹² The analysis identifies sustainable ODA investments as those which are described in the microdata as relating to ‘agroecology’ or ‘sustainable agriculture’ (including diversification, seeds, agroecology, and sustainability). Those identified as ‘potentially sustainable’ include investments related to resilience, local food production, ‘improved’ practices or production, integrated approaches, and transformative agriculture. Both classifications are weighted the same.

agroecology-related organisations worldwide to produce and consolidate evidence on agroecological systems' multidimensional performances.¹⁹³ Further, other studies have analysed this question in greater depth, such as Moeller, N. (2020)¹⁹⁴ and ACF, Terre Solidaire, Oxfam France (2021).¹⁹⁵

Box 2: Lessons Learned from Experiences of Drought and Cyclone Idai in Zimbabwe

As a result of the El Nino induced drought (beginning in November 2018) and the devastation of Cyclone Idai (March 2019) which affected communities across several countries in Southern Africa, Trócaire undertook a study to gain greater insight into the impact of its resilience and sustainable livelihoods programme, funded by Irish Aid, in the Southern Zimbabwean districts of Matabo(drought) and Bikita (drought and cyclone). Cyclone Idai was a climate shock that occurred during the El Nino induced drought, compounding livelihood challenges already facing communities. Strong winds, intense rains, flooding, and landslides inflicted significant damage across agricultural systems.

Overall, the study found that the communities are more familiar with preparing for and coping with drought, which occurs more frequently than cyclones and floods. However, drought resilience measures like 'pot holing' that support stronger root formation in crops were also found to have stood up well to the strong winds of cyclone Idai. An unexpected benefit of the intense rainfall being the resuscitation of wilted sorghum crops. Most of the households who participated in the study, who were using agroecological practices and growing a diverse range of crops including small grains (pearl millet, finger millet and sorghum), remained food secure, with apparently a higher capacity to prepare and cope with drought conditions compared to non-programme participants. This has heightened awareness amongst all farmers in both districts of the resilience-building properties of practices such as pot holing, contour trenches, and runoff pits to both drought and cyclone conditions, the importance of crop diversification, and the heightened risk of maize failure during drought conditions.



Athanasie Nirere, runs a successful shop and farming business with her husband in Rwanda. Photo: Alan Whelan/Trócaire.

Summary: To transform commitment to action and bolster sustainable food systems, Ireland should aim to increase its investments in programmes and projects that are most likely to have transformative impacts, meaning those that align with economic, environmental, and social sustainability goals.

Currently, 81% of national Irish funding for agriculture is directed toward projects that are not described as sustainable agriculture, 8% to 'significantly' sustainable, and 11% to 'principally' sustainable agriculture. Some farming practices that would bolster environmental health are dis-incentivised because of current CAP land eligibility criteria, thus farmers can be penalised for providing key ecosystems services; for example, by planting trees or fostering ponds on their farms.

Just 21% of Ireland's ODA for food and nutrition security between 2016-2018 was described as 'sustainable', although this portion grows to 41% when those projects described as 'potentially sustainable' are included.

Recommendations

- Mainstream the pilot Results-Based Programme, with an aim that the majority of agricultural schemes payments will be directed towards sustainable agriculture by 2030. A critical component of this will be ensuring the co-creation of the scoring system with farmers.
- Ireland explicitly recognises the principles of agroecology as a key part of the solution in building sustainable food systems. Ireland should commit to increasing the proportion of ODA spending on agriculture and food systems directed towards the scaling up and out of agroecological initiatives.

¹⁹³ FAO (2020), available at: <http://www.fao.org/agroecology/database/detail/en/c/1370030/>

¹⁹⁴ Moeller, N. (2020) Analysis of Funding Flows to Agroecology, Centre for Agroecology, Water and Resilience, Coventry University, available at: <https://www.cidse.org/2020/09/28/analysis-of-funding-flows-to-agroecology/>

¹⁹⁵ ACF, Terre Solidaire, Oxfam France (2021) Une recette à la française : une pincée d'agroécologie pour une louche d'agro-industrie, available at: https://www.oxfamfrance.org/wp-content/uploads/2021/02/AGRO_Rapport_09022021.pdf

Opportunity 2: Improved credentials, metrics, and transparency

Section Roadmap: This section outlines some of the confusion relating to Ireland's sustainability credentials. It does so by describing the narratives found in some key national institutions and contrasting these with agri-environmental data and indicators (including GHG emissions, biodiversity). Next, the section describes some of the issues with current measurements and data used to diagnose, monitor, and evaluate Ireland's environmental status. Finally, it outlines some key considerations for fair and equitable data use in light of the emerging data-driven technologies proposed as solutions for more sustainable agriculture (e.g. precision farming).

Challenge 2. 1: Substantiating Ireland's 'green' credentials

At the structural level, there are opportunities for Ireland to significantly improve its credentials when it comes to the sustainability of its food systems.

The actions and mechanisms outlined in AFS 2030, which rely on prior efforts such as those that now 'provide key tools for carbon storage and emissions abatement' (p.50), lack credibility due to a lack of effective reduction of emissions or improvement of environmental outcomes, to date. In particular, stating that 'Origin Green has been instrumental in monitoring and driving improvements in environmental sustainability' (p.74) raises questions of credibility. Research, namely from the Environmental Protection Agency (EPA), demonstrates declines in environmental sustainability, specifically when it comes to absolute Nitrogen and Phosphorous and chemical inputs; absolute emissions of GHG and NH₃ pollution, and total of water bodies in good condition.¹⁹⁶ The AFS 2030 states that grass-based food systems are essential in maintaining the 'sector's sustainability credentials' – the source of these credentials is not made explicit in the strategy; however, one might associate them with the Origin Green programme, as the strategy states that Ireland's grass-fed livestock production presents a 'natural advantage (...) reflected in the Origin Green programme' (p.31).

Origin Green, launched in 2012, was referred to as the world's first 'national food sustainability agenda'.¹⁹⁷

The programme may have delivered in marketing terms, raising the profile of the value of Ireland's food products and setting the scene for greater export opportunities for Ireland's producers. As a standards-based voluntary certification mechanism with advisory services, incentives for farmers and decision tools, it has the potential to drive improvements. However, their credibility in delivering on environmental sustainability in the agricultural sector, specifically to 'help the Irish food and drink industry to produce food more sustainably', is questionable.¹⁹⁸ In particular, the idea that since its launch, the 'Irish food industry has made great progress towards the aim of driving sustainable food production'.¹⁹⁹

On a per capita basis, Irish agricultural emissions are among the highest in Europe (as of 2017),²⁰⁰ and, while Origin Green was launched in 2012, GHG emissions from agriculture have shown a rising trend (+8.7%) between 2015 and 2019.²⁰¹

In further contradiction of statements that suggest Ireland's cattle farming is more sustainable than other countries, Table 3 compares GHG emissions from food systems in Ireland with other top-dairy producing countries. Ireland's share from agricultural production is significantly higher than its top-dairy producing peers: 19% higher than the second ranking country (the Netherlands) and 36% higher than the two lowest ranking countries (Germany and Italy). While this may be explained by Ireland's higher proportion of agriculture compared to other countries, it does raise questions in terms of Ireland's reputation as a sustainable food producer and Ireland's contributions to global GHG emissions reductions targets.

¹⁹⁶ The EPA (2020), available at: <https://www.epa.ie/ghg/agriculture/>

¹⁹⁷ Interview with Andrew Cotter, Bord Bia CEO, via The Business Report, available at: <http://www.the-businessreport.com/article/first-national-food-sustainability-agenda/>

¹⁹⁸ Farming Independent 6th October 2020 *Irish agriculture's 'green' reputation not supported by evidence* – EPA chief, accessed online 27th March 2021, available at: <https://www.independent.ie/business/farming/news/farming-news/irish-agricultures-green-reputation-not-supported-by-evidence-epa-chief-39591957.html>

¹⁹⁹ Origin Green (n.d.) Progress Update Report accessed online 27th March 2021, available at: <https://www.origingreen.ie/globalassets/origin-green/og-publications/origin-green-progress-update-report-lr.pdf>

²⁰⁰ Central Statistics Office (2017), available at: <https://www.cso.ie/en/releasesandpublications/ep/p-eii/eii19/greenhousegasesandclimatechange/#:~:text=Agriculture%20was%20the%20sector%20with,of%20the%20total%20in%202017.>

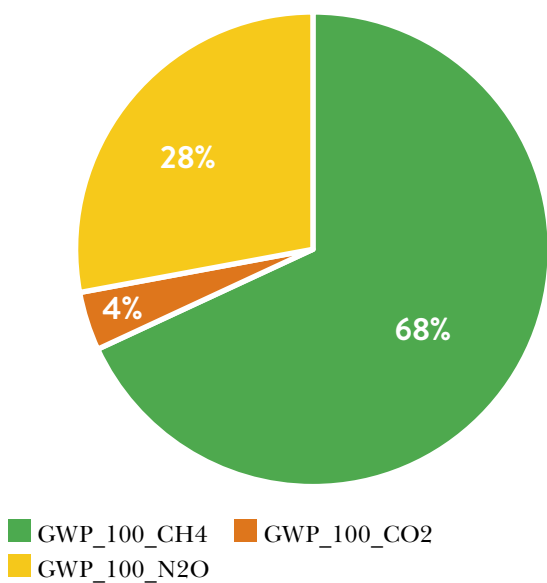
²⁰¹ The EPA (2020), available at: <https://www.epa.ie/ghg/agriculture/>

Table 3: Share of GHG emissions from food sectors in top dairy producing EU countries (excl. UK), 2015

Food system stage	Ireland	Netherlands	France	Germany	Poland	Italy
Consumption	1%	2%	1%	3%	3%	3%
End of Life	2%	5%	8%	6%	4%	10%
LULUC (Production)	4%	3%	7%	5%	13%	1%
Packaging	3%	4%	4%	11%	9%	11%
Processing	4%	10%	6%	8%	9%	6%
Production	77%	58%	54%	41%	51%	41%
Retail	5%	12%	11%	16%	7%	18%
Transport	4%	6%	8%	10%	5%	11%
Total	100%	100%	100%	100%	100%	100%

Source: Crippa, M. et al. (2021), *Food systems are responsible for a third of global anthropogenic GHG emissions*, Supplemental data: Table 7, available at: <https://www.nature.com/articles/s43016-021-00225-9#Sec25> and author's calculations

The vast majority (68%) of these Irish production related emissions relate to CH₄ (methane), as highlighted in Figure 8, below.

Figure 8: Emissions from food production, breakdown by gas in Ireland (2015)²⁰²

Source: Crippa, M. et al. (2021), *Food systems are responsible for a third of global anthropogenic GHG emissions*, Supplemental data: Table 7, available at: <https://www.nature.com/articles/s43016-021-00225-9#Sec25> and author's calculations

²⁰² The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO₂). The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. For more information, please see: <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

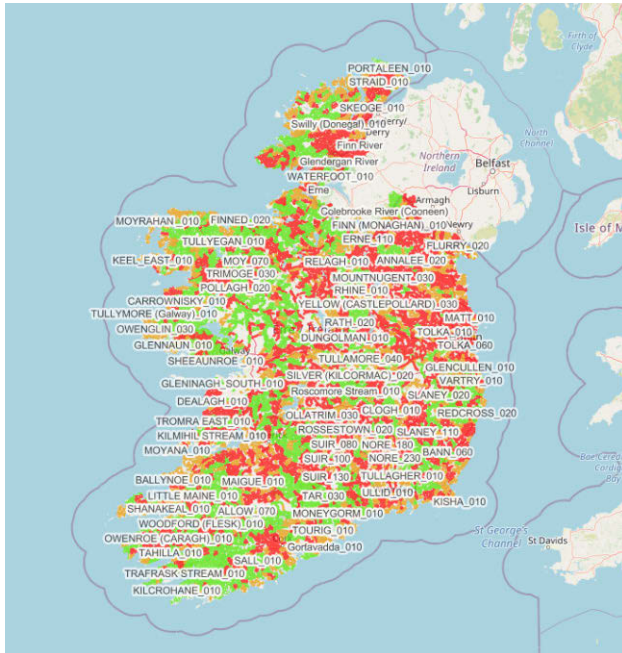
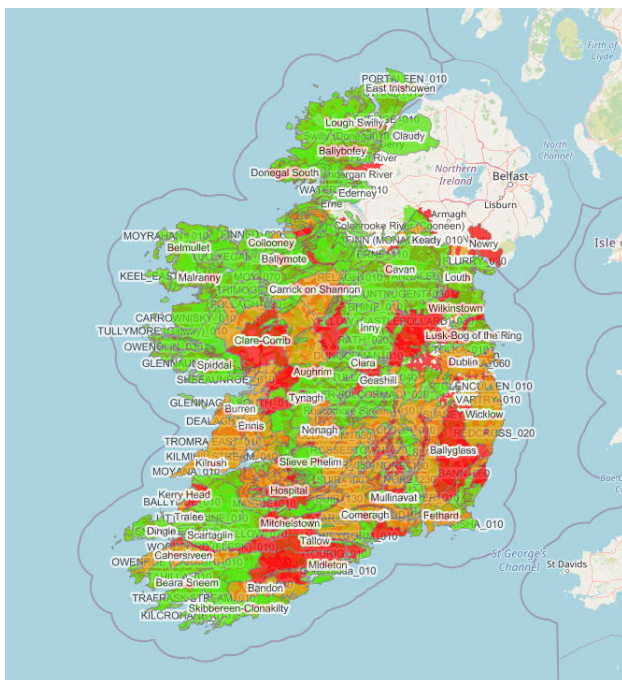
Agriculture is responsible for 90% of Nitrous Oxide (N₂O) emissions in Ireland, with largest tranche of these emissions (38%) due to inorganic fertilisers.²⁰³

Yet, Origin Green's latest sustainability progress update report outlines 'key results' that did not in fact describe results but outputs; for example, the number of trees planted or the proportion of farms conducting soil testing. This suggests that Origin Green is lagging behind in the trends toward a results-based approach. The following paragraphs further demonstrate the discrepancies between Origin Green's claims of sustainability and the negative environmental outcomes in Ireland.

The quality of water and biodiversity intactness in Ireland is far from exemplary. Nutrient concentrations are too high, with over one third of rivers and a quarter of lakes failing to meet environmental quality standards; and nitrate is increasing in nearly half of Ireland's river sites.²⁰⁴ Figure 9, below, further shows potential for these trends to worsen, highlighting the high levels of risk associated with Ireland's river and groundwater systems.

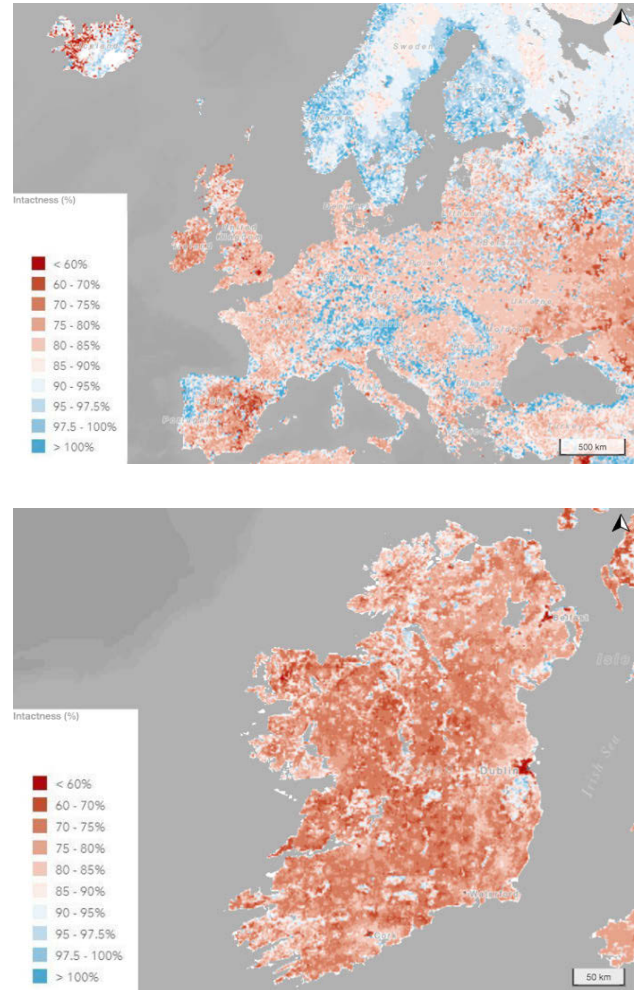
²⁰³ Teagasc (2020), available at: <https://www.teagasc.ie/publications/2020/agricultural-nitrous-oxide-emissions-how-animal-excreta-and-fertiliser-management-fit-together.php#:~:text=Agriculture%20produces%2090%25%20of%20N,slurry%20storage%20and%20land%20spreading>

²⁰⁴ EPA (2020) Water Quality in 2019: An Indicators Report, available at: <https://www.epa.ie/pubs/reports/water/waterqua/Water%20Quality%20in%202019%20-%20an%20indicators%20report.pdf>

Figure 9: Ireland's high level of water bodies risk**Figure 9a:** River waterbody risk**Figure 9b:** Ground waterbody risk

Source: Environmental Protection Agency Maps: <https://gis.epa.ie/EPAMaps/Water> ; The maps represent the risk for each waterbody of failing to meet their Water Framework Directive (WFD) objectives by 2027, which includes achieving 'good status' for all waters

Although this is just one measure of sustainability, it is worth noting, as Ireland sees particularly high rates of biodiversity intactness loss compared to most of its European peers. The most biodiverse intact areas are found in Wicklow and south Dublin and in the North West (note: population density differences in both regions), per Figure 10, below.

Figure 10: Biodiversity intactness in Ireland

Source: UN Biodiversity Lab

The contradictions between Origin Green statements and the scientific evidence erodes trust between the public and the institution. This is demonstrated, for example, in the Stop Climate Chaos and Environmental Pillar's call to 'discontinue Bord Bia's Origin Green Programme because of the conflict of interest between the marketing aims of the programme and the role of Bord Bia in producing their own sustainability assessments and metrics.' Indeed, the current context is vulnerable to being associated with greenwashing, which jeopardises Ireland's reputation at home and abroad, therefore also putting economic sustainability in peril.

The AFS 2030 aims to address this issue in its action number 3 under Goal 7 of the Mission: A Climate Smart, Environmentally Sustainable Agri-Food Sector 'The metrics and evidence base from Origin Green need to be improved. A framework for delivering this involves building on Origin Green participant companies performance and metrics on sustainability, and the associated quality assurance programmes at farm level, especially in the key areas of climate, animal health and welfare, the circular

bioeconomy, and incorporating measures from Ag-Climatise. (...) Metrics need to be market relevant and able to stand up to independent, critical scrutiny.’ (p.74).

This is a critically important exercise for legitimacy, as well as to ensure meaningful environmental protection and enhancement. Yet, as a programme of Bord Bia, Origin Green will be influenced by the agency’s strategic direction which does not clearly place environmental sustainability in its top four strategic priorities, which are: Driving Success & Growth in the Market; Insight to Power Growth; Building Reputation for Growth; and Leading Through People.²⁰⁵ In its statement of strategy, Bord Bia describes Origin Green as ‘Origin Green as a key differentiator in a market of increasing clutter’ and as a ‘a world-class beacon of sustainability’. Bord Bia’s conceptualisation of sustainability is also questionable in terms of its alignment with a meaningful transition to a sustainable food system: *By ‘Sustainable’ we have two things in mind: a nod to our sustainability leadership through Origin Green, and also an acknowledgement that our role is to build value for our stakeholders over the long-term, avoiding the ephemeral and short-lived ‘fashions’ that can distract.’* The narrative reflects a greater focus on economic sustainability rather than environmental or social sustainability, which undermines Ireland’s efforts in this regard.

While Origin Green is described for its ‘pivotal role in driving differentiation at a customer and consumer reputational level’, there is inadequate attention on the substance behind Origin Green’s role in delivering on sustainability targets. The Statement of Strategy asserts the intention to ‘constantly build the programme’s ability to deliver verifiable results by means of calibration and benchmarking, and extending the programme’s coverage in areas of EU focus such as water, waste and nitrates. We will follow this through with a comprehensive means of measuring its contribution at an aggregate level - notably its social impact.’ It is unclear what ‘calibration and benchmarking’ implies in this context, but currently – in the final year of this statement of strategy – there has been no progress demonstrated in ensuring that Origin Green is substantially tracking environmental impacts.

Given the mismatch between Bord Bia’s narrative, the agency’s inherently economic-driven mission (as a trade agency) and a systems approach, it is difficult to imagine that it will adequately support a transparent and legitimate transformation in Ireland’s agri-food sector.

Thus, for credibility and social sustainability (trust), and to ensure meaningful progress on environmental sustainability, it is worth considering the launch of a new and independent body to develop and track agreed sustainability output metrics.

In addition, government could aim to enact legislation to deter misleading or unclear advertising at retail level. For example, in France, on the 25th March 2021, the penalty for greenwashing was increased from 50% to 80% of the cost of the marketing of a deceptive commercial practice.²⁰⁶

Challenge 2.2: Clarifying and harmonising metrics

Before engaging with challenges on the data and evidence base, it is important to remember that calls for ‘evidence-based’ policy making cannot be expected to rely on the scientific evidence provided by the hard sciences only. The role of policy-makers is to draw on the evidence and formulate policies that align with each society’s values. Indeed, it is important to differentiate between what *is* and what *ought* to be (or positivism vs normative approaches).²⁰⁷ While experts are essential to establishing a diagnostic of the current situation – both environmental and social – it is up to the elected officials to identify appropriate pathways to achieving a scenario that caters for the values and morals held by the citizens. This is especially poignant when it comes to sustainable food systems, which call for sustainable economic, environmental, and social sustainability – the social component is at risk of being overwhelmed by environmental data which is much easier to quantify.

Data for diagnosis

There are several indices relating to food security available, in particular since the 2007/8 and 2009/10 food price spikes / food crisis. These serve different purposes but there is no national consensus on which one should be used for ex-ante and ex-post decision-making. Examples of these indices include, the Economist Intelligence Unit’s (EIU) Global Food Security Index,²⁰⁸ the EIU/Barilla Sustainability,²⁰⁹ and, more recently, the GAIN and John Hopkins Global Food Systems Dashboard.²¹⁰

²⁰⁵ Bord Bia 2019-2021 Statement of Strategy, Building Differentiation, Winning Growth

²⁰⁶ Assemblée Nationale 25 Mars 2021, Lutte Contre Le Dérèglement Climatique - (N° 3995), N O 5419 (Rect)

²⁰⁷ Hume (1739) A Treatise of Human Nature by David Hume, reprinted from the Original Edition in three volumes and edited, with an analytical index, by L.A. Selby-Bigge, M.A. (Oxford: Clarendon Press, 1896)

²⁰⁸ <https://foodsecurityindex.eiu.com/>

²⁰⁹ <https://foodsustainability.eiu.com/>

²¹⁰ <https://foodsystemsdashboard.org/>

While the consultations undertaken during this research suggest that these indices are not relied upon during the decision-making processes, they are referred to globally and in national media; in particular, the EIU food security index. For example, the Irish Examiner, Bloomberg, the Irish Times, and Farming Independent have reported on Ireland's top-ranking status in terms of 'feeding its people'.^{211 212 213 214} While Ireland may be top-ranking on these indices, these are global aggregates that do not always accurately reflect the reality at national level. In addition, they do not account for the impact of food production on agri-environmental indicators, such as water quality or biodiversity.

Further, the narrative of 'feeding people' does not consider the nutritious quality of the food. This affects the reality of 'affordability', particularly in a food systems approach, in which the food consumed should not be based on caloric intake only (for which there is an abundance of cheap high-carbohydrate/sugar foods) but the cost of *healthy* diets. In the EIU index, the affordability of food is based on indicators such as the change in average food costs, population under the poverty line, agricultural import tariffs, food safety net programmes, and market access and financial services.

So, while Ireland ranks first worldwide in terms of affordability of food according to the EIU food security index, other data show that some families in Ireland spend one third of their take-home income on food.²¹⁵

If indices are to be used for evidence-based decision-making, then an index based on food systems analysis is required.

A first attempt at providing an overview of food systems is found in the Global Food Systems Dashboard.²¹⁶ The dashboard provides an overview of the food system drivers, food supply chains, food environments, individual factors, consumer behaviours, and diets and nutrition.

However, the utility of this dashboard for national policy making remains partially limited by the lack of national level data. It is worth noting there are ambitions to further develop this Dashboard at the country level and the Irish government could demonstrate leadership by engaging in this process.

Data for monitoring, evaluation, and target-setting

When it comes to environmental sustainability, there is no commonly accepted set of metrics to define Ireland's pathway to achieving efforts towards sustainability, whether those relate to climate change or sustainable food systems. While Origin Green sets out several indicators in its progress reports, these do not align with any scientifically established framework.

Agricultural productivity

In terms of agricultural productivity, classic agricultural metrics include:

- total yields of specific crops/livestock
- productivity per worker
- total factor productivity (total outputs relative to total land and labour inputs)

Farm viability is determined using cost-benefit analyses (CBA) which don't include ecological, social, and cultural variables; these CBA are also typically linear and do not provide space for the complexity of food systems and the subsequent feedback loops

Benton and Bailey (2019)²¹⁷ highlight the inefficiency of current food systems by estimating efficiency levels of, at most, 41% efficient,²¹⁸ where the efficiency is based on the amount of food grown to feed people. They outline how the current understanding of efficient agricultural systems are at odds with today's reality and point to the 'paradox of productivity' in the rising waste at every step of the value chain, the public health impacts, as well as the environmental degradation of our current food systems. Indeed, the agricultural production stage of the food process produces 9 million tons of food waste on farms (i.e. food loss).²¹⁹

²¹¹ Bloomberg, 26th September 2017: *Ireland Tops U.S. as the Country Best Able to Feed Its People*, available at: <https://www.bloomberg.com/graphics/2017-food-security/>

²¹² Irish Examiner, 27th September 2017: *Ireland the best country for food security*, available at: <https://www.irishexaminer.com/business/arid-20459775.html>

²¹³ Farming Independent, 16th October 2018: *Ireland slips to second in the world for food security*, available at: <https://www.independent.ie/business/farming/news/world-news/ireland-slips-to-second-in-the-world-for-food-security-37425858.html>

²¹⁴ The Irish Times, 23rd February 2021: *Ireland holds second place in world food security rankings*, available at: <https://www.irishtimes.com/business/agribusiness-and-food/ireland-holds-second-place-in-world-food-security-rankings-1.4492926>

²¹⁵ Safe Food (2019) What is the cost of a healthy food basket in the Republic of Ireland in 2018?

²¹⁶ <https://foodsystemsdashboard.org/>

²¹⁷ Benton TG, Bailey R (2019) The paradox of productivity: agricultural productivity promotes food system inefficiency. *Global Sustainability* 2, e6, 1–8, available at: <https://doi.org/10.1017/sus.2019.3>

²¹⁸ (on an energy basis)

²¹⁹ Fusions (2016) Estimates of European Food Waste Levels, available at: <http://www.eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf>

GHG emissions

When it comes to identifying pathways forward and scenarios for reducing GHG emissions, there are several factors that can result in different results:

- the target year
- the reference year (baseline)
- how agriculture is defined

A challenge in the Irish context is that there appears to be no consensus on the first two factors. Ag-climate, for example, uses 2018 as a reference year, whereas 1990 and/or 2005 are more commonly used (e.g. in the IPCC). Further compounding the confusion are measurements of GHG emissions against monetary values. For example, Teagasc states that, in terms of value (relative to revenue generation), dairy farms account for close to half of the GHG emissions per Euro of output generated compared to cattle farms.²²⁰

In terms of defining agriculture, in its national GHG accounting system, the Irish government, in line with the UNFCCC and EPA classifications, distinguishes between emissions from agriculture and LULUCF (land use and land use change and forestry), in contrast to the IPCC, which aggregates these sectors into the 'AFOLU' category (agriculture, forestry, and other land use). This is potentially detrimental to taking action because, ultimately, the responsibility for both of these emissions comes from the same land manager: the farmer.²²¹

Beyond GHG emissions

A major opportunity arises with systemic transformation toward sustainable food production and consumption patterns. Currently, numerous agricultural practices and modes are disadvantaged in the current performance measurement systems. The current output measures of yield and productivity per worker favour large scale industrial monocultures.

By definition, diversified agriculture aims to produce a diversity of outputs and tend to deliver numerous environmental and social deliverables as well. Current measurement systems do not account for these deliverables, including the high nutrient content of outputs, the reduced health risks (e.g. through reduced pesticides), adaptation benefits (increased resilience of farmers to shocks), ecosystems services, resource

efficiency (e.g. carbon sequestration, water and energy use), and the potential additional job creation (and quality of the work).²²²

Benton & Bailey (2019) propose moving away from the classic Total Factor Productivity (TFP) measurement of efficient food production, based on labour, capital, land, and chemicals to consider the Total System Productivity (TSP). They do this by building off the concept of 'Total Resource Productivity', which includes natural capital, and further captures healthcare costs associated with agriculture, such as air pollution or dietary-related ill health and waste-disposal costs. Further, rather than measuring yield as a primary output measure, productivity would be measured based on the number of people nourished. Indeed, the performance of a food system should be evaluated against its capacity to nourish people in a way that does not compromise future generations' access to a safe and healthy environment, rather than providing calories regardless of the nutritional quality of these calories.

In Ireland, the primary approach to improved agricultural practices relies on the concept of sustainable intensification. Intensification is based on an increased use and efficiency of resources.²²³ While this may yield results in terms of GHG emissions, it does not provide space to acknowledge the importance of mixed and diverse agricultural landscapes for the conservation of wild biodiversity.²²⁴ Indeed, sustainable intensification is only part of a multi-pronged approach to sustainable food systems and food security.²²⁵ It therefore needs to be complemented with a comprehensive overview and understanding of the benefits of agriculture, not just for food production, but also for biodiversity, health outcomes, and social and cultural elements.

Several approaches emerge, of which True Cost Accounting (TCA) is perhaps the most clearly defined to date.²²⁶ TCA goes beyond classic financial metrics to consider broader human, social, and environmental impacts which become documented in both qualitative and quantitative ways. Although monetisation is not

²²⁰ Teagasc (2019) Measuring sustainability of agricultural emissions, TRESEARCH, Summer 2019, Volume 14: Number 2

²²¹ CAP Reform Blog, Alan Matthews March 26th 2020: Climate Measures in Agriculture, available at: <http://capreform.eu/climate-measures-in-agriculture/>

²²² IPES (2016) From Uniformity to Diversity, a paradigm shift from industrial agriculture to diversified agroecological systems.

²²³ Struik, P.C. & Kuyper, T.W. (2017) Sustainable intensification in agriculture: the richer shade of green. A review, *Agronomy for Sustainable Development* 37(39).

²²⁴ Anja Gassner et al. (2020) Making the post-2020 global biodiversity framework a successful tool for building biodiverse, inclusive, resilient and safe food systems for all, *Environ. Res. Lett.* 15 10100

²²⁵ Campbell, B.M. et al. (2016) Sustainable intensification: What is its role in climate smart agriculture? *Current Opinion in Environmental Sustainability* 8, 39-43, available at: <https://doi.org/10.1016/j.cosust.2014.07.002>

²²⁶ Baker, L. et al. (2020) Prospects for the true cost accounting of food systems, *Nature Food* 1, 765-767

always desirable, it can be a useful tool for policy-making, and TCA provides some opportunities for this. For example, the value of ecological integrity, cultural customs, and food traditions is difficult to monetise and yet is of central importance to social sustainability. First, measurements occur and then impacts are described and valued – both qualitatively and quantitatively – across human, social, natural, and produced capital.

Several countries are currently using TCA at policy level, including Brazil, China, Columbia, India, Indonesia, Kenya, Malaysia, Tanzania, and Thailand. Participatory mechanisms bring stakeholders together to identify agricultural land use policies that would benefit from the valuation of ecosystems services. These assessments are geared toward more equitable and sustainable food systems sectors.

TCA is not meant to generate specific solutions, but provides the basis upon which decision-makers can move from analysis to action, by identifying appropriate pathways forward to leverage synergies and mitigate trade-offs. Ireland's agri-food decision-making could benefit from including this framework in policy processes.

Fair and equitable data collection and analysis

In light of the focus on innovation, knowledge-sharing, and technological advances for sustainable food systems, the rights of farmers and citizens need clear consideration. Ethical practices need to be embedded in responsible data collection and analysis.

Many of the tools, methods, and platforms of data collection and analysis for Food Security and Nutrition and public policy-making more generally are in the hands of the corporate sector, including agribusiness. This can entrench imbalances of power through asymmetry of access to information. While access to and the use of data has changed the business models and behaviour of well-resourced actors, those with fewer resources receive the same, limited access to information.²²⁷ Further, proprietary restrictions make it increasingly difficult to use data for peoples' needs, due to property rights and intellectual property systems (the section on *A Global Just Transition* explores these proprietary restrictions in more detail).²²⁸

²²⁷ GODAN (2016) Responsible Data in Agriculture, available at: https://www.godan.info/sites/default/files/documents/Godan_Responsible_Data_in_Agriculture_Publication_lowres.pdf

²²⁸ Contribution of the CSM WG on Data to e-consultation on the scope of the HLPE Report on Data collection and analysis tools for food security and nutrition, 21st March 2021, available at: http://www.csm4cfs.org/wp-content/uploads/2021/03/CSM_contributions-to-e-consultations-on-scope_HLPE-Report-on-Data.pdf

For example, precision farming is said to support improved decision making and optimise farmer's activities.²²⁹ Yet most precision farming applications are employed to highlight capital-intensive farming systems and most of the access to technologies and data remains in the hands of large-scale farmers and service providers.

The CSM working group on data identify several challenges with current data collection and analyses, some of which are outlined below:²³⁰

- Digitalisation of agriculture can lead to de-skilling and loss of local knowledge, as more decisions are made without the most affected by lack of food and nutrition security.
- Data extractivism and wider digital and technological divide among all the actors in the food systems could only be avoided if data infrastructures are public.
- Indigenous Peoples, women, peasants and family farmers, workers throughout food systems, fisherfolk, pastoralists and consumers need to be able to voice strong opinions in processes of digitalisation and retain agency of their data.
- The way in which statistics are processed may discard variabilities and differences that characterise the contexts within which small scale farmers, indigenous peoples, peasants and family farming units thrive.
- Data is information and knowledge that is abstract from social context. Power relations and inequalities can often be reproduced through data, based on who is collecting data, from what sources it is collected, through what methods, and for what purpose.
- Public decision-making should be premised on statistical data that is available and accessible to the public.
- Data collection is limited to a small number of crops and food production activities that often benefit the industrial food system. Little accurate data exists about the peasant food web. Peasants grow around 7,000 crops, but most data collection centres on only 150 crops.
- Quantitative data and indicators have often been given greater authority in decision-making, but in the context of food and nutrition security not all forms of knowledge can be quantified.

²²⁹ Contribution of the CSM WG on Data to e-consultation on the scope of the HLPE Report on Data collection and analysis tools for food security and nutrition, 21st March 2021, available at: http://www.csm4cfs.org/wp-content/uploads/2021/03/CSM_contributions-to-e-consultations-on-scope_HLPE-Report-on-Data.pdf

²³⁰ Contribution of the CSM WG on Data to e-consultation on the scope of the HLPE Report on Data collection and analysis tools for food security and nutrition, 21st March 2021, available at: http://www.csm4cfs.org/wp-content/uploads/2021/03/CSM_contributions-to-e-consultations-on-scope_HLPE-Report-on-Data.pdf

Technological innovations which rely on data need to empower users to be active users rather than passive data subjects and apply the ‘do no harm’ principle to ensure that the data does not facilitate or exacerbate for example issues of inequality.

Summary: While Ireland’s agricultural production may be considered less destructive for the environment in contrast to large-scale industrial agriculture in other countries, narratives that claim that Ireland’s food is ‘produced sustainably’ or that the Irish food industry has made great progress towards ‘driving sustainable food production’ are difficult to validate when assessing agri-environmental indicators. This is highly detrimental to establishing trust along the food supply chain and can undermine Ireland’s credibility, therefore putting at risk future trade opportunities, as consumers (domestically and abroad) increasingly demand transparent, ethical food production.

In addition, for transparency and substance, Ireland would benefit from harmonising its use of metrics across government agencies; and developing more ambitious and comprehensive measurements of sustainability; for example, moving beyond yield as a primary indicator of efficiency. Further, in light of Ireland’s role, domestically and abroad in terms of knowledge transfer and innovation, Ireland would benefit from underlining all technological solutions with clear and fair data use principles.

Recommendations

- Agree appropriate sustainable agri-food metrics, following input from national and international experts and relevant stakeholders, and located within evolving international norms. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution to nourishing humans and bolstering environmental outcomes (biodiversity, diverse landscape, healthy habitats). This important task should be under the remit of an independent body, with no conflicts of interests – see Recommendation 22.
- Ensure the provision of metadata, methodological notes, and sources for all government publications. Harmonise definitions and conceptualisations of key food systems concepts across government departments. Align with open and fair data principles.

Opportunity 3: An inclusive just transition

Section Roadmap: This section aims to assess Ireland’s approach to inclusivity in light of commitments made to a just transition and narratives, suggesting Ireland’s strengths in multistakeholder approach for the development of its agri-food strategies. It does so primarily by analysing the composition of the AFS 2030 steering committee, the *A Better World* policy, and the National Task Team on Rural Africa (NTTRA), to better understand the degree of representation and meaningful participation of key stakeholders.

A just transition to a sustainable future includes participatory decision-making; indeed, procedural justice means citizens and relevant stakeholders should be included in the decision-making process and policy implementation.²³¹ Further, the benefits of such a system should be equitably distributed, as outlined in the AFS 2030: “A fair food system should see both costs and rewards being borne more equitably across all links in the food chain”.

The European Centre for Development Policy Management (ECDPM, 2021) considers Agri-Food 2030’s predecessors – Agri-Vision 2015, Food Harvest 2020, and Food Wise 2025 – as examples of effective multi-stakeholder approach and implementation methodologies, namely for its ‘joined up’ thinking across government and industry. The Department of Agriculture, Food, and the Marine’s (DAFM) Annual Review and Outlook 2020 describes a comprehensive and broad engagement strategy:

The process [to develop AFS 2030] began in 2019 with a public consultation to ascertain the views of all stakeholders (...). In order to facilitate further engagement and discussion on the future strategy, a national stakeholder consultation event was held at the Aviva Stadium in Dublin. This ‘Open Policy Debate’ saw almost 400 delegates coming together to hear from the Taoiseach, Minister for Agriculture, Food and the Marine and plenary speakers from across the globe on some of the key challenges and opportunities facing the sector in the decade ahead.’ (p.28)

In addition, the DAFM organised four National Dialogues between April and May 2021 to help inform the final AFS 2030. While Ireland’s approach to developing its agri-food policies demonstrates a greater

²³¹ Sabato, S. & Fronteddu, B. (2020) *A Socially Just Transition through the European Green Deal?* European Trade Union Institute (ETUI) Research Paper- working paper 2020.08, available at SSRN: <https://ssrn.com/abstract=3699367> or <http://dx.doi.org/10.2139/ssrn.3699367>

level of engagement with its citizens than many other countries, it has yet to provide equal representation to the three areas of social, economic, and environmental sustainability within a food systems approach. Further, the extent to which the submissions from delegates were integrated into the strategy design is hard to ascertain. This is particularly relevant in light of the criticisms raised on the UN FSS' structure and forms of recruitment and public engagement, which are said to be lacking in 'basic transparency and accountability, fail to address significant conflicts of interest, and ignore human rights'.²³² Indeed, opportunities for meaningful participation are argued to have become hollow in light of the 'diffuse and opaque design' of the UN FSS. Prioritisation of the voices of the most vulnerable is deemed inadequate, resulting in the risk of the most powerful and well-resourced participants dominating the agenda.²³³

Thus, one indicator of the inclusiveness of the decision-making process might be found in assessing the representation on the Steering Committees of these strategies. The 2020 Annual Review states that:

'In November 2019, the Minister established a committee representative of the sector' (p.28)

Aligning an effective multistakeholder approach with the principles of the HLPE's six dimensions of a sustainable food system, and commitments to the EU Farm to Fork strategy, means a multistakeholder approach should be supportive of agency, and inclusive and representative of all stakeholders, including the most vulnerable. In line with the principles of a just transition and the HLPE's conceptualisation of agency within sustainable food systems, the following sub-sections explore representation in the development of Ireland's Agri-Food Strategy 2030.

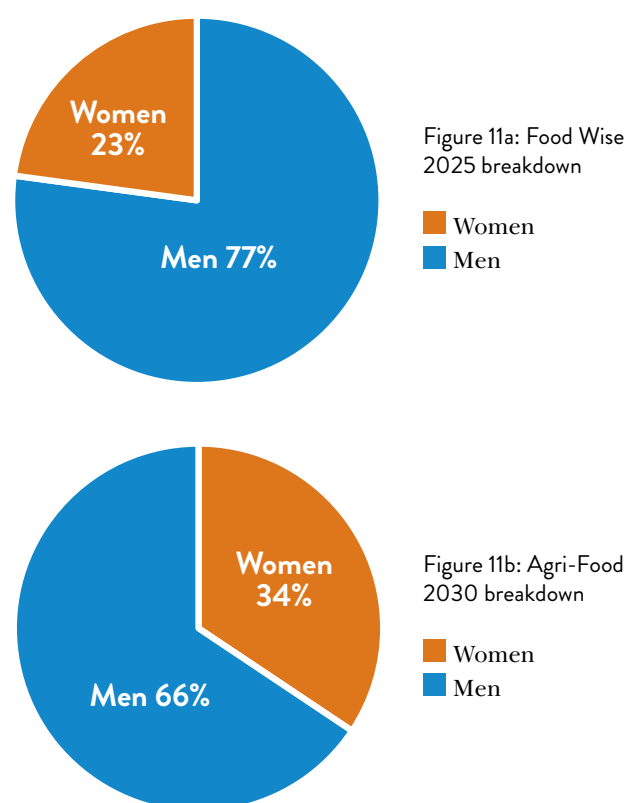
Challenge 3.1: Gender representation

The gender composition of the steering committees is one way of considering inclusiveness of decision-making processes. In 2016, there were 121,100 men-headed family farm holders and 16,000 women-headed family farms.²³⁴ This represents a decrease of 8% in women-headed family farms since 2010, which is particularly

noteworthy, given that between 2000 and 2010, there had been a 14.9% increase in women-headed family farms.²³⁵ In addition, more than 25% of farm workers were women, as of 2016. So, while they may not own the farm, they constitute a significant portion of the farm workforce.²³⁶ Further, women in Ireland represent key stakeholders in food systems, not only as consumers, but in their role as carers, accounting for 51% of the Irish adult population. Importantly, they have formal and informal jobs along the entire food system.²³⁷

DAFM has demonstrated considerable efforts to include women in decision-making processes at home. While there are still roughly two men for every woman on the current committee, this represents an improvement on the previous agri-food strategy (Food Wise 2025), which saw three men to every one woman (highlighted in Figure 11, below).

Figure 11: Gender breakdown of steering committee (previous and current strategy comparison)



Source: Food Wise 2025, Agri-food 2030 (draft) and author's calculations

²³² Canfield, M., Anderson, M.D., McMichael, P. (2021) UN Food Systems Summit 2021: Dismantling Democracy and Resetting Corporate Control of Food Systems, Frontiers in Sustainable Food Systems Policy and Practice Reviews, published: 13 April 2021 doi: 10.3389/fsufs.2021.661552

²³³ Canfield, M., Anderson, M.D., McMichael, P. (2021) UN Food Systems Summit 2021: Dismantling Democracy and Resetting Corporate Control of Food Systems, Frontiers in Sustainable Food Systems Policy and Practice Reviews, published: 13 April 2021 doi: 10.3389/fsufs.2021.661552

²³⁴ Central Statistics Office Farm Structure Survey 2016, available at: <https://www.cso.ie/en/releasesandpublications/ep/p-fss/farmstructuresurvey2016/>

²³⁵ Central Statistics Office Agricultural Census 2010

²³⁶ Central Statistics Office Farm Survey 2016, available at: <https://www.cso.ie/en/releasesandpublications/ep/p-fss/farmstructuresurvey2016/da/foli/>

²³⁷ Central Statistics Office Census 2016: Age and sex composition, accessed online 11th February 2021

If women are to be equitably included in agricultural transformation and sustainable food systems, their voices need to be amplified and the right questions need to be asked to understand the needs and objectives of women in rural areas or of those engaging in agricultural activities, i.e., it should not be assumed that women want or do not want to be integrated into the farming sector without adequate consultation.

Box 3: An existing initiative supporting women in rural Ireland - ACORNS

The Accelerating the Creation of Rural Nascent Start-ups (ACORNS) initiative was developed and designed in response to a call from the Department of Agriculture, Food and the Marine and is funded under the Rural Innovation and Development Fund. It is currently in its 6th year and, although it is not focused specifically on agri-food, it aims to support early stage women entrepreneurs in rural Ireland.

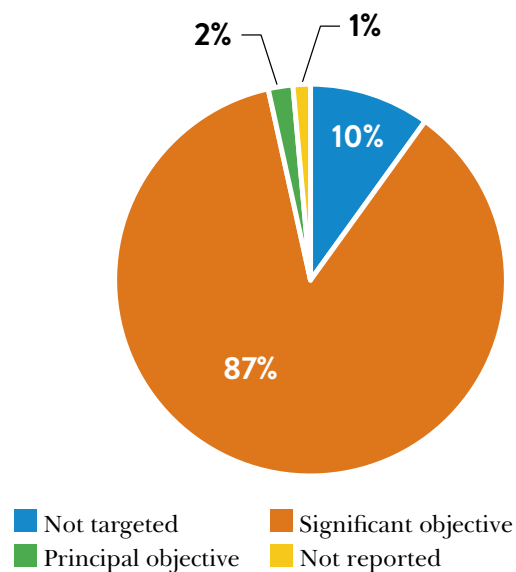
Between 2015 and 2020, 243 female entrepreneurs in rural Ireland have taken part in the six month part-time development programme. Participants across the first four of the five cycles reported an increase in annualised sales of between 21% and 97%, as well as an increase in the number of exporters. Of particular importance for rural revitalisation, the initiative has also supported employment with additional employees (both full time and part time) hired during the support programme's lifetime. For example, 13 full-time employees and 19 part-time employees were hired during the ACORNS 3 cycle, with 19 part-time employees hired during ACORNS 4. ACORNS 5 took place during lockdown, so it did not have the same incremental additions to employment and sales that had been recorded previously. However, three in every four participants pivoted during the cycle to avail of identified opportunities to sustain themselves through the pandemic. Across the five completed cycles, all participants reported that participation in ACORNS was of value to their business. 95% reported that they made a decision for their business and 97% felt nearer to achieving their ambitions as a result of their participation on the programme. ACORNS 6 is now underway. There are currently over 150 previous participants still actively involved in the ACORNS Community.

Source: *acorns.ie* and email correspondence with the ACORNS director

Globally, in terms of its engagement with low-income countries, Ireland's broad development cooperation and specific food systems narrative emphasises gender equality, specifically promoting the rights and wellbeing of small-scale women farmers.

One way of assessing Ireland's prioritisation of gender equality in its development cooperation is through the portion of ODA marked as having a principal or significant gender component. Only 2% of its ODA to agriculture had a 'principal objective' of gender quality, although 87% of the ODA disbursed between 2016-2018 was tagged as having gender equality as a 'significant objective', with 10% of same not having any gender components, as per Figure 12.²³⁸

Figure 12: Prioritisation of gender equality in ODA to agriculture 2016-2018

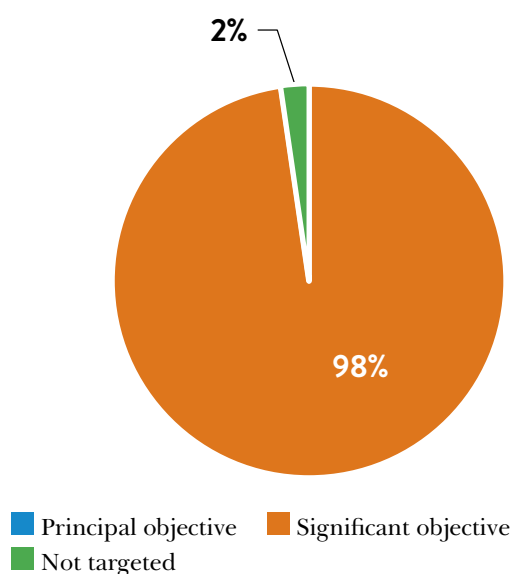


Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

Further, in light of the importance of gender equality to nutrition outcomes (i.e., women's empowerment as a pathway to successful nutrition outcomes), it's worth noting that, in 2018, no projects reported were classified as having gender equality as a principal objective (as per Figure 13), although the vast majority (98% or USD 19.8 million) were 'gender-sensitive', meaning gender equality was a significant component of those projects. This gender-sensitive approach aligns with Ireland's multi-sectoral approach to mainstreaming nutrition, which focuses on underlying determinants of malnutrition, including gender inequality.

²³⁸ This is likely an underestimate due to reporting issues. For more information, please see methodology note

Figure 13: Prioritisation of gender in nutrition ODA (2018 only)

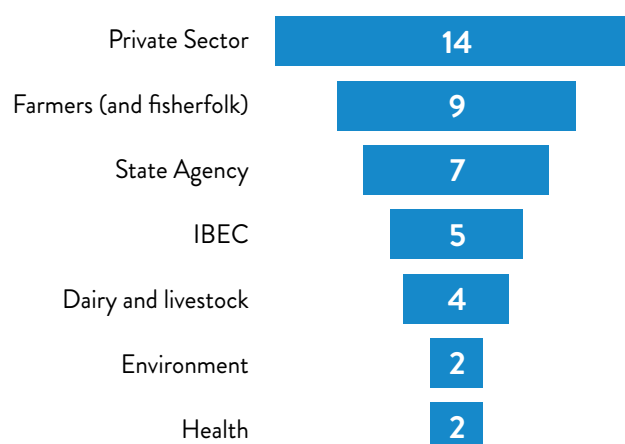


Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

Challenge 3. 2: Representation by sector and company size

The extent of sectoral representation is questionable in light of the breakdown of the Agri-Food 2030 strategy committee. Indeed, Figure 14, below, highlights a disproportionate representation from private sector interests.²³⁹ Of the 32 individuals on the steering committee, 14 had ties with the private sector and 5 spoke for IBEC, which represents the interests of large agri-food industry in Ireland. Sectors with, for example, an 'environment' specific or health specific focus only had two representatives, of which one of the environmental representatives is a state agency and one of the health representatives is also linked to a large private farm. Meanwhile, forestry was only spoken for through a representative from the sawmill industry, and it is unclear which institution, if any, was to represent the social sustainability component of a sustainable food system. While the aggregation in Figure 14 does not reflect a traditional sectoral and institutional breakdown which might compare for example private, public, and third sector representation, its purpose is to highlight the disproportionate private and state representation, as well as the prominence of certain sectors over others.

Figure 14: Sectoral representation in Irish agri-food decision making processes



Source: Agri-food 2030 (draft), company websites

It is also worth noting that, despite farmers' interests being represented by several organisations, NESCI (2021) identified an issue of 'farmer confidence attributed to perceived lack of involvement in the decision-making process with reactive rather than proactive attitudes'.²⁴⁰ This may reflect the heterogeneity of farmers and, thus, merits further research.

Forestry is by far the largest non-agricultural activity undertaken by farmers in Ireland, with 8,000 households engaged in the sector in 2016.²⁴¹ AFS 2030 specifies the need for multifunctional and diverse tree species (including native riparian woodland), yet, engagement with the forestry sector remains largely focused on timber production.

Introducing trees in agriculture has numerous benefits, including an increased availability of micronutrient-rich fruits, vegetables, and nuts. Second, depending on the tree species, trees in agricultural land can increase the resilience of farmers in the face of increasing extreme weather events, from drought to flooding – both of which the Irish agri-food sector is vulnerable to. In addition, trees can improve benefits ecosystem and human health; for example, through soil fertility, reduced emissions and improved air quality.²⁴² However, it is imperative to consider the type of tree species, as some

²³⁹ In the graph, the total number of representatives is greater than the number of individuals as several individuals are described as representing two institutions (e.g. both a research institution and a private sector institution).

²⁴⁰ NESCI (2021) Challenges and opportunities for Rural Ireland and the Agricultural Sector, Research Paper 20, accessed online 22nd March 2021, available at: http://files.nesci.ie/nesci_research_series/Research_series_paper_20_UCD_Rural.pdf

²⁴¹ Central Statistics Office Farm Survey, 2016, 'other tables', available at: <https://www.cso.ie/en/releasesandpublications/ep/p-fss/farmstructuresurvey2016/da/ot/>

²⁴² Rosenstock, T.S. et al (2019) Planetary Health Perspective on Agroforestry in Sub-Saharan Africa

trees can be detrimental for soil health, such as conifers. In addition, it cannot be presumed that tree planting will increase net ecosystem carbon storage, as demonstrated by one study in Scotland where the planting of native tree species onto heather moorland and peaty soils did not lead to an increase in net ecosystem carbon stock 12 for 39 years after planting.²⁴³

The MacKinnon Report²⁴⁴ points to low political will in Ireland for serious action in the forestry sector, never mind in the crossover between forest ecosystems and agriculture. The report made clear recommendations to bolster political will and public support for sustainable forestry management, including ‘*considering an elevated status for the Minister responsible for forestry*’ and ‘*including Forestry in the Department’s name*’. This is especially important in light of the report’s identification of ‘antipathy’ towards forestry from farmers in Ireland. Although it’s more than political will that will be needed, the formation of the tri-party government, particularly with the Green party’s involvement, would have been an opportune moment to enact these recommendations. Still, it is worth noting that efforts are being made in this direction. Under the DAFM Afforestation Grant and Premium Scheme, oak, sycamore, and cherry trees (as well as 15% fruit and nut trees, and other species open for consideration), up to EUR 6,220 per hectare, has now been made available.

Also absent from the conversation are consumers. While consumers represent a heterogeneous group, more active involvement is needed to ensure buy-in to sustainable food systems, as well as to ensure policies adequately represent consumer demand. As noted in chapter 1, 3.5% of Irish people are severely food insecure. As a leading voice in sustainable food systems, this does not reflect well on Ireland, and points to the need for much greater coherence across government policies. Yet there is no clear space carved out for the voices of these groups to be represented. Active consumer platforms are needed to adequately represent consumers’ interests and priorities.

Box 4: Marginalised voices - Asylum Seekers

There are numerous food insecure communities in Ireland, including the homeless populations, Travelers, and low-income families. This box focuses on one example of vulnerable groups in Ireland. Asylum seekers are one of the most disenfranchised and forgotten vulnerable groups. These members of Irish society are provided with a very limited weekly stipend (EUR 38.80 per adult)²⁴⁵ and placed in often-geographically remote direct provision centres, easily becoming marginalised. The privatisation of direct provision centres compounds this issue. With profit as primary motivation, the private sector entity has very little incentive to improve the welfare conditions of its residents, including when it comes to the provision of nutritious, healthy, and culturally appropriate food. The right to culturally acceptable and adequate food is ‘indivisibly linked to (...) the dignity of the human person’.²⁴⁶ While private sector involvement is not automatically mutually exclusive from welfare and wellbeing, asylum seekers in Ireland do not appear to benefit from a privatised direct provision system.

One NASC (2014) study found that food in direct provision centres in Cork, was not satisfactory, and did not represent people, culture, and religious needs. Worse, the study found that the food system in direct provision centres has a negative impact on families and children, and is negative for health.²⁴⁷

Voices from Direct Provision in Ireland express the challenges experienced with their food environment:²⁴⁸

“I am living in St. Patrick’s Direct Provision Centre in County MONAGHAN 6 years with my 3 kids. Me and the children share one room and every day we have to walk to the canteen for food and now with Covid-19 we line up in the rain sometimes for hours. This is the chicken they give for dinner daily. Sometime it is smelling and not cooked well (a new chef they have in the kitchen). We have complained to the Manager but he claims we are seeing things or trouble makers at the centre. This food is not healthy for my kids because they vomit most of the time. We are afraid because sometimes you complained and the Manager calls Tulsa on you as a bad parent at the centre.”

²⁴³ Friggens, N.L. et al (2020) Tree planting in organic soils does not result in net carbon sequestration on decadal timescales, *Global Change Biology*, DOI: 10.1111/gcb.15229

²⁴⁴ A report commissioned by the Department of Agriculture, Food and the Marine (the Department) in August 2019 to examine the process for approving afforestation proposals and the linked issues for other forestry related operations; and to make recommendations which will address any issues identified and which will improve the process.

²⁴⁵ Citizens Information: Direct Provision Centres, available at: https://www.citizensinformation.ie/en/moving_country/asylum_seekers_and_refugees/services_for_asylum_seekers_in_ireland/direct_provision.html

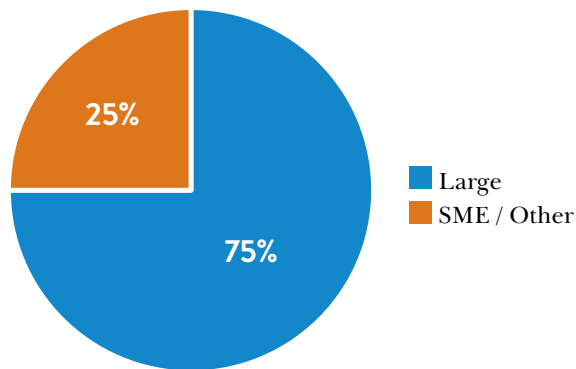
²⁴⁶ HLPE (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

²⁴⁷ Barry, K. (2014) *What’s Food Got To Do With It: Food Experiences of Asylum Seekers in Direct Provision*, NASC, the Irish Immigrant Support Centre

²⁴⁸ Abolish Direct Provision online, voices from direct provision centres, available at: <https://www.directprovision.org/copy-of-voices-in-dp>

Finally, of the twelve private sector entities on the AFS 2030 (including the Burren Programme), nine were large companies, compared to just two ‘SMEs’ (a consulting firm and a venture capital fund), as demonstrated in Figure 15, below.

Figure 15: Large private sector entities are disproportionately represented ²⁴⁹



Source: Agri-food 2030 (draft), company websites (Large company: >250 employees, as per OECD) and author's calculations

These large companies receive the majority of the agri-food pie profits in Ireland, yet there are 13 SMEs for every one large company. The causal relationship between the disproportionate distribution of agri-food value to large companies and their influence on strategies such as the AFS 2030 cannot be established here. However, other studies have demonstrated the policy influence of large food systems actors, often to the detriment of society's most vulnerable and to the natural habitat.^{250 251}

It can be argued that competition stemming from consolidated agri-business landscapes is argued to provide the most transformative innovation.²⁵² For example, the creation of global cool chains was made available by innovations in refrigeration and food-freezing technologies, which have substantially increased the availability of a much wider variety of foods, across much larger geographical distances. At the same time, it's worth noting that these refrigeration technologies are major contributors to GHG emissions from retail, which has seen a 300% increase in levels of emissions between 1990 and 2015.²⁵³

Political and power imbalances in the food system have been further entrenched (and in some cases, created) since neo-liberal economic policies forged the global economic systems, namely through the privatisation of public goods and more recently in the consolidation of agri-food businesses²⁵⁴ – a trend that is also prevalent in Ireland's agri-food landscape.²⁵⁵ The power imbalances that come with ever-consolidating and larger companies can be felt domestically in the space given to large (and in two instances, foreign) agri-food companies compared to citizens or communities on decisions relating to the Irish food system, as illustrated in the AFS 2030 steering committee.

The EU F2F deals with 'empowerment' through the commitment to greater transparency for the consumer, with a view to increasing their power to make informed choices, namely through adequate labelling. However, power in the food system is a much more complex issue relating to inequalities of decision-making and inherent in global trade architecture and regulation,²⁵⁶ described in more detail in the section, *Contributing to a Just Global Transition*. The consumer has very little power, especially if it is limited to reading labels. Kenny & Sage (2020)²⁵⁷ eloquently outline the issue:

"In the make-believe world of consumer sovereignty and free choice, food is always and everywhere a commodity purchased by 'rational economic actors'. This narrative serves however, to reinforce the individual focus that bedevils food, social and public health policy, crowding out the notion that food is also a public good." (Kenny & Sage, 2020, p.2)

In summary, the AFS 2030 steering committee composition does not adequately reflect a food systems approach, as economic interests are disproportionately represented, to the potential detriment of environmental and social interests.

²⁴⁹ Technically, SMEs includes farmers however due to a lack of disaggregation of the data, identifying the portion of farmers represented in this category is not possible. Please see methodology note

²⁵⁰ OECD (2006) *Promoting Pro-Poor Growth in Agriculture*, Paris: Development Assistance Committee, Organisation for Economic Cooperation and Development

²⁵¹ Dufield, G. (2000) *Intellectual Property Rights, Trade and Biodiversity*, London: Earthscan

²⁵² Nolan, P., Zhang, J., and Chunhang, L. (2007) *The Global Business Revolution and the Cascade Effect*, New York: Palgrave MacMillan

²⁵³ Crippa, M. et al (2021) Food systems are responsible for a third of global anthropogenic GHG emissions, Supplemental data

²⁵⁴ De Schutter, O. (2017) *The Political Economy of Food Systems Reform*, *European Review of Agricultural Economics*, September 2017

²⁵⁵ PWC Corporate Finance, June 2015, Food and Agribusiness disposals, mergers, and acquisitions

²⁵⁶ Oxfam (2018) *Ripe for Change, Ending Human Suffering in Supermarket Supply Chains*, accessed online 11th February 2021, available at: https://www-cdn.oxfam.org/s3fs-public/file_attachments/cr-ripe-for-change-supermarket-supply-chains-210618-en.pdf

²⁵⁷ Routledge Handbook of Food as a Commons 1st edition (2020) Kenny, T. & Sage, C. *Food surplus as charitable provision: obstacles to re-introducing food as a commons*, in Part IV: Commoning from below: Current examples of commons-based systems.

Challenge 3. 3: Representation from development partners

The consultation process for *A Better World* included five public consultation meetings and a broader consultation process.²⁵⁸ However, it is not clear that representatives from the Global South were adequately engaged with.

The NTTRA committee was composed of six women and ten men; and the majority of members were government or state agency representatives (38%), as shown in Figure 16a. While this is a more equal gender breakdown, key stakeholders and actors in this process are partners in African countries, including smallholder farmers and women. Yet, there was just one representative from Africa – a diplomat from the consulate of Uganda. NGOs and civil society representatives included GAIN, Self-Help Africa, and one independent consultant with climate justice as an area of expertise.

There were no representatives of the primary production sector in Africa, despite the intention of the NTTRA ‘to enhance Ireland’s existing contribution to the transformation of Africa’s agriculture and rural economy’. Without consulting primary producers, agricultural and rural transformation risks being top-down and may fail to consider the needs and cultural specificities of Africa’s small-scale farmers. Each food system is different and a key component of a rights-based approach to food is that of the power of individuals to choose what their food systems produce and what they eat.²⁵⁹

Figure 16: NTTRA committee composition

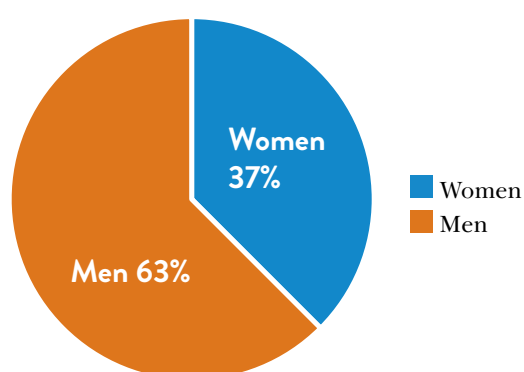
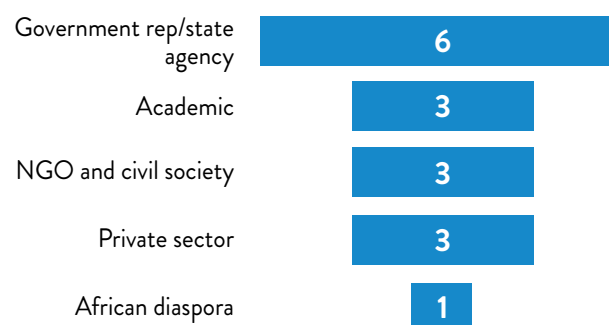


Figure 16a: Gender breakdown

Figure 16b: Institutional representation



Source: NTTRA Report (2020) and author’s calculations

Summary: Ireland has a strong basis when it comes to participative agri-food policy-making processes, with extensive consultations prior and during the development of its strategies. It has also made progress since the consultation process for the former agri-food strategy (Food Wise 2025); for example, in terms of better gender representation.

However, gender imbalances remain and, importantly, private sector and state bodies maintain a much larger presence, in decision-making processes, than environmental and social sustainability representatives, and marginalised food systems stakeholders such as lower-income groups and asylum seekers in Ireland. In addition, although it is more complicated, greater efforts could be made to ensure the voices of low-income country partners are integrated into policy making.

Finally, as Ireland moves forward in its efforts towards sustainable food systems, and in line with the concepts of agency outlined in the HLPE reports, it is worth raising the issue of the Environmental Pillar’s withdrawal from the AFS 2030 process. Given the complexities and divergent interests of various groups involved in food systems, it would be worth considering mediation processes to maintain the integrity of participative processes, in the event of such strong disagreements.

Recommendation

- 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.

²⁵⁸ <https://www.irishaid.ie/about-us/policy-for-international-development/getinvolved/>

²⁵⁹ HLPE (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

Opportunity 4: Improved agricultural practices

Section Roadmap: This section aims to explore Ireland's ambitions in relation to sustainable agricultural practices, relating to livestock, in particular. It does so by assessing the targets outlined in the AFS 2030 and exploring the question of Ireland's dependency on livestock farming.

The AFS 2030 states that *'the world needs to make a profound shift towards more sustainable policies and actions'*. Among its goals are the restoration and enhancement of biodiversity, good water quality and healthy aquatic ecosystems, and diverse and multi-functional forests.

Through the interlinkages made in this strategy, there is a significant (and urgent) opportunity to improve the environmental outcomes of agricultural production in Ireland, especially in light of the current role this production plays in contributing to GHG emissions and degraded biodiversity and landscapes, and poor water and air quality in Ireland, as described in the previous sections. In addition, the recently published Climate Bill lays strong ground for Ireland to move in the right direction, with a commitment to reduce the country's

GHG emissions by 51% before 2030, as compared to 2018. A significant step for agriculture is the subsequent and forthcoming allocation of 'carbon budgets', which will determine the extent that each sector in Ireland should contribute to this reduction.

Ultimately, Irish agriculture's contribution to the stated GHG emissions reduction will be operationalised in the country's Ag-Climate Roadmap (a living document), which currently outlines the objectives and targets, as described in Table 4, below. The roadmap will be updated following the carbon budget allocation, which is expected to take place through the Summer of 2021. To contribute and align with the new target of 51% GHG emissions, Ag-Climate will need a dramatic increase in the scale of ambition.

To achieve a 'climate neutral food system' by 2030, all components of the food system need to be accounted for. However, as per Table 5 below, production is the clear driver of CH₄ and N₂O emissions (96% and 98%, respectively). At the same time, it's worth noting that combined, packaging, processing, and the retail stage of food distribution and consumption account for 41% of all food sector CO₂ emissions.

Table 4: Ag-climate current vision, objectives, and specific targets (non-exhaustive)

Vision	Objectives/tasks	Commitments, targets, actions
By 2050, we want to develop a climate neutral food system compatible with the Paris temperature goals, whereby the climate impact of biogenic methane is reduced to zero and remaining agricultural emissions are balanced by removals through land use and a significant contribution to renewable energy.	Reduce GHG emissions from the sector. Methane from enteric fermentation and nitrous oxide are the dominant GHGs from agriculture.	40-50% reduction in nitrous oxide emissions associated with fertiliser use, equivalent to a reduction in the overall level of nitrogen fertiliser, from a high of 408,000 tons in 2018, to 325,000 in 2030 (and 350,000 tonnes by 2025).
	Increase the carbon sequestration and carbon storage potential of Ireland's land use sector.	90% of livestock manure applied by Low Emission Slurry Spreading (LESS) Technology by the end of 2027.
	Reduce nutrient loss to the environment and contribute to improved water quality and biodiversity.	350,000 ha of organic production by the end of the decade.
	Meet our ammonia emissions reduction targets.	Under the National Emissions Ceiling Directive, Ireland has an ammonia target of 107,500 tonnes in 2030.
	Build sustainable, resilient food production and land use management systems that meet these climate and environmental obligations.	Establish world class expertise in ruminant methane emissions within grazing systems.
	Increase afforestation levels and maximise the contribution of existing forests to climate change mitigation and adaptation.	Increase afforestation levels to 8,000 ha per year. Construct 125 km of new forest roads per year to facilitate the mobilisation of biomass and harvested wood products, encouraging the transition to a low carbon economy.
	Reduce the management intensity of at least 40,000ha of peat based agricultural soils to reduce CO ₂ loss.	Identify grasslands on carbon rich soils (and determine their drainage status) that are suitable for water table management to reduce carbon losses. Implement a pilot scheme on reduced management intensity to serve as "proof of concept" for scaling up to a larger agri-environmental scheme.

Source: Ag-Climate

Table 5: Ireland's GHG emissions by food stage and gas, 2015 (GWP 100)

	CH4	CO2	N2O	F-Gases
Consumption	0%	4%	1%	n/a
End of Life	2%	0%	1%	n/a
LULUC (Production)	0%	20%	0%	n/a
Packaging	0%	16%	0%	n/a
Processing	1%	18%	0%	n/a
Production	96%	15%	98%	n/a
Retail	0%	7%	0%	100%
Transport	0%	19%	0%	n/a
Total	100%	100%	100%	100%

Source: Crippa, M. et al. (2021), Food systems are responsible for a third of global anthropogenic GHG emissions, Supplemental data: Table 7, available at: <https://www.nature.com/articles/s43016-021-00225-9#Sec25> and author's calculations

Box 5: Farming for nature in the West - Ireland's Burren Programme

The Burren Programme (BP) - successor to the BurrenLIFE project, which was awarded the title of 'best ever LIFE programme' in 2017 - and the subsequent European Innovation Partnerships (EIPs) across Ireland offer actionable tools and approaches for transformative agricultural change in Ireland and across Europe. The goal of the Burren Programme was to 'restore balance between farmers and the landscape', and the main objectives were to:

1. Ensure the sustainable agricultural management of high nature value farmland in the Burren
2. Contribute to the positive management of the Burren landscape and the cultural heritage of the Burren
3. Contribute to improvements in water quality and water usage efficiency in the Burren

Contrary to conservation approaches in the early and mid-1990s – experienced as 'top down', lacking in context-specificity and as a threat to farmers – the Burren Programme took a co-creation approach to solution finding and implementation. It represents a successful, bottom-up collaboration between farmers, scientists, and regional, national and EU authorities. It provides space for farmers to be acknowledged, supported, and rewarded for, providing a range of measurable 'ecosystem services', sustaining habitats and species, water quality, and cultural heritage.

The BP employs a hybrid approach, consisting of results-based payments and funding for complementary 'conservation-support' actions. To date, outcomes and impact include:²⁶⁰

- Increase of overall 'landscape health' score, from an average of 6.8 in 2010, to 7.6 in 2020
- EUR 9.4 million paid to farmers, complemented by EUR 2 million in co-funding from farmers
- EUR 5.8 million paid for ecosystem services (i.e. results rather than just actions)
- EUR 23 million generated in the local economy, supporting an average of 20 local jobs each year
- Social cohesion impact activities such as training days, monthly tea talks, and an annual farming festival

The key lessons learned for engaging with farmers are summarised below.

Lesson	Comments
Local	Approach and solutions need to be context specific and practically relevant - Research and design done locally with farmers, managed locally. Local Management Committee. Support from DAFM and NPWS, lessons replicated through EIP-AGRI projects such as BRIDE project, Hen Harrier; local approach allows better buy in, more relevant actions, and better ability to address and resolve issues
Results-Based Payments	Perceived as a game changer. Provides an incentive while enabling more freedom to farm. Encourages innovation and a greater diversity of approaches. Fair and transparent - pay not just for actions but for outcomes.
Flexible design	Freedom to farm and adapt to weather, disease, local conditions etc. Ability to adapt to context specific needs, for example by designing scorecards to address local priorities.
Minimise bureaucracy for farmers	Minimal paperwork, simple farm plans, simple application processes. Support of a local team to secure permissions to undertake works and to liaise with DAFM in case of administrative difficulties.
Positive language, inclusive incentives	Inclusive of farmer's input and voice. To change the world, let's start changing the way we talk about it. 'Farming for Nature' - identify and celebrate the farmers across Ireland who look at enhancing cultural and natural value of land. Value of the practical knowledge the farmers have about the habitat. Yearly award ceremony, farm walks to share learning - PEER LEARNING. How to manage land for nature.
Continuity	Farmers need long term funding support

Source: BurrenBeo Webinar 16th April 2020

²⁶⁰ AECOM 2020 Evaluation of the Burren Programme, commissioned by the Department of Agriculture, Food and the Marine, available at: <https://assets.gov.ie/98196/f13c1130-66d6-4da2-af34-378c92ccb571.pdf>

Challenge 4. 1: Clarity and credibility of current targets

A key challenge with the various agri-food and relevant climate action strategies is a lack of clarity around the means of achieving climate change goals, in particular the lack of specificity around sectoral targets, and the subsequent potential lack of ambition of these targets. An important step in defining these targets will be the national carbon budget allocation, as described above.

The AFS 2030 highlights that a strategy is ‘*worthless without proper implementation and monitoring*’ (Executive Synthesis, p.11). The detailed implementation plan will be published with the final strategy, following the consultation process. Given the importance of the Ag-Climate roadmap as a source of tangible targets throughout the Strategy, its finalisation presents an opportunity to update and improve upon Ag-Climate targets, and to incorporate same into the AFS process.

First, there are no clear measures, for example for increasing afforestation and doubling the sustainable production of biomass from forests, or for quotas on inputs and outputs. As a result, there is a lack of credibility associated with the AFS 2030 intentions to produce ‘detailed plans’, particularly in light of the time elapsed since the EU climate target for Ireland was decided (2009), as well as the National Emissions Ceiling Directive (NECD).²⁶¹ However, this is also important in the opposite direction. Indeed, increasing afforestation needs specific expertise to ensure the right trees are being planted to achieve healthy biodiversity and landscapes, and climate change mitigation goals. Second, the proposed trajectories are not always credible. For example, plans to level off methane emissions with a subsequent slow reduction are insufficient in light of the high based levels. In addition, plans to reduce emissions rely on technology that has yet to be tested or created. For example, those relating to methane and ammonia mitigation technologies.

The EU Farm to Fork strategy (F2F) outlines a target of 25% agricultural land under organic production by 2030 (on average across all EU states). Ireland ranks among the lowest in the EU for organic agricultural production (fourth last), with just 2.6% of its agricultural land under organic production, placing Ireland more than 3 times lower than the EU average and more than 9 times lower

than Austria, the highest-ranking country.²⁶²

In response, Ireland’s Ag-Climate roadmap commits to achieving 350,000 hectares of agricultural land under organic production by 2030, which would mean organic production would account for roughly 8% of Ireland’s agricultural land, as shown in Figure 17, below.

This would be more than a five-fold increase in the area under organic production in Ireland and demonstrates political will to aligning with EU policies and achieving sustainable agricultural production. Yet, even if Ireland were to fulfil this commitment by 2030, the country would be above today’s EU average (7.5%) by just 0.5%.²⁶³ Further, this assumes no other EU member states will increase their organic production, so in all likelihood, Ireland would remain below the EU average. The target needs to be placed within a context where demand for organic produce in Ireland remains relatively low and so would need to see an increase to justify more organic production. Latest figures suggest an increase in demand of 10.5% for organic food in Ireland, in 2017, while the main barriers to the consumption of organic products include price, a lack of sales promotions, and limited product ranges,²⁶⁴ which suggests demand could be stimulated to justify continued increases in organic production in Ireland. This is particularly relevant in light of the strong response to the reopening of the Organic Farming Scheme, which, if all applicants were to convert, would see a 20% increase of organic farmers in Ireland.²⁶⁵

Ag-Climate also outlines an ammonia target of 107,500 tonnes by 2030 under the NECD. While this demonstrates a non-negligible shift from Business as Usual (BAU), as highlighted in the figure below, this target brings ammonia levels to the same as those in 2014, as shown in Figure 18. Given that 99% of ammonia emissions come from agriculture in Ireland,²⁶⁶ a clear pathway forward in terms of agricultural practices and modalities (including financing) need to be outlined. A more ambitious target may have been to reduce ammonia levels to 2010, at which point national

²⁶¹ EPA (2020) Ireland’s Air Pollutant Emissions 1990-2030, available at: <https://www.epa.ie/pubs/reports/air/airemissions/irelandairpollutantemissions2018/EPA-Air-Pollutant-Emissions-website.pdf>

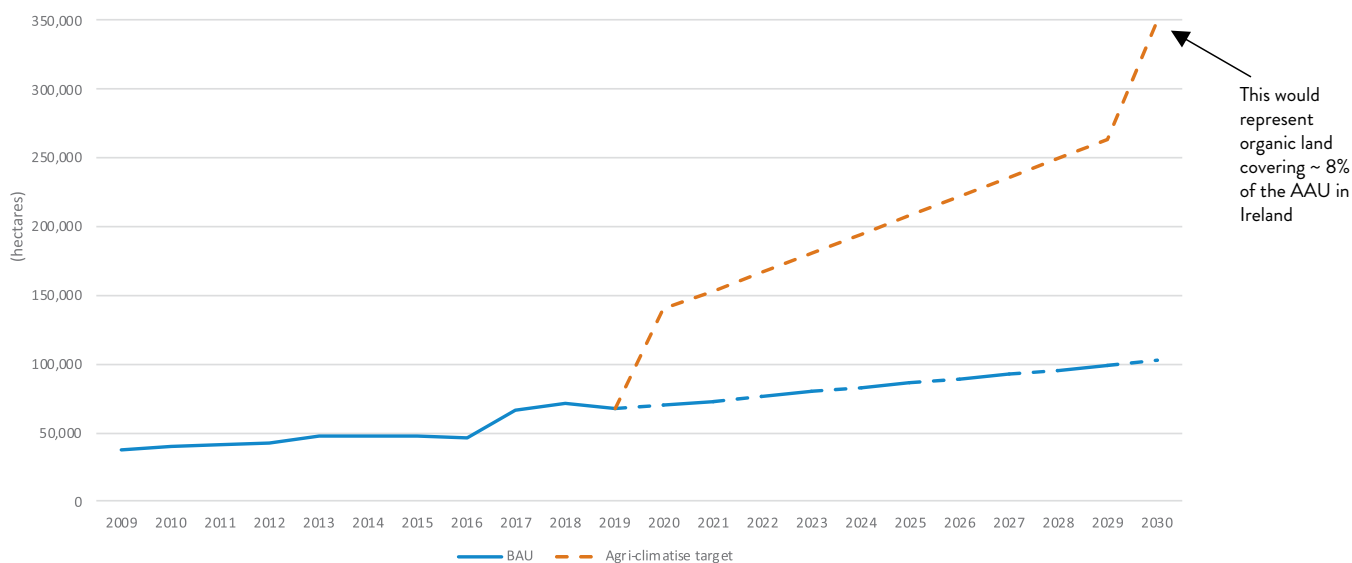
²⁶² Mowlds, S. 23rd September 2020, We need a Green New Deal for our climate and our health, Green News, available at: <https://greennews.ie/we-need-a-gnd-for-climate-and-health/>

²⁶³ Based on AAU excluding commonage

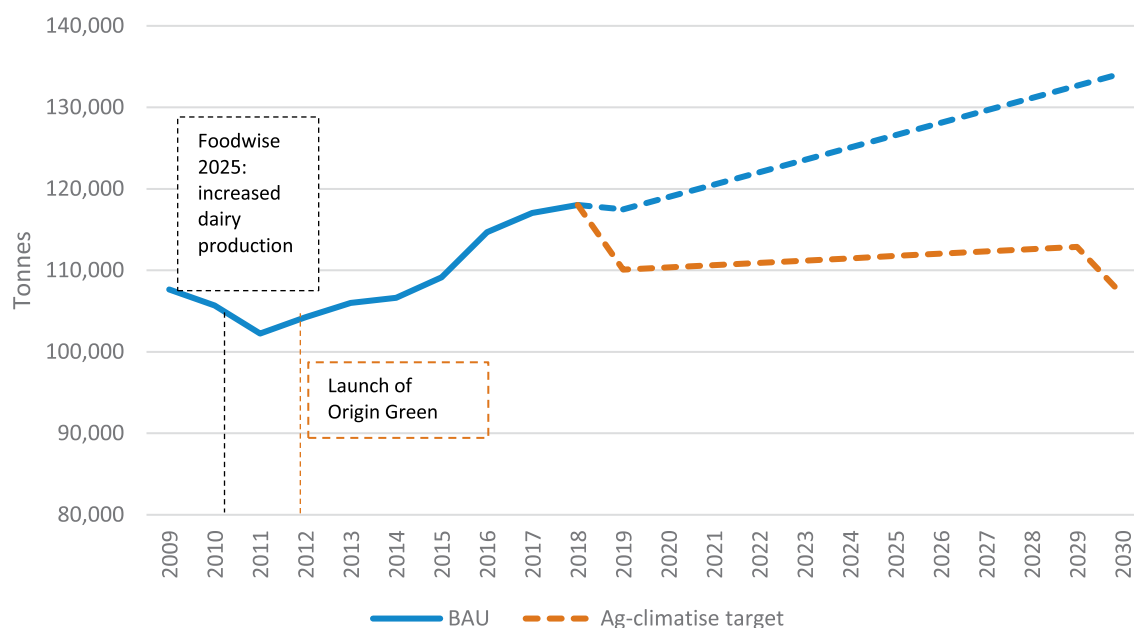
²⁶⁴ Department of Agriculture, Food and the Marine: Review of Organic Food Sector and Strategy for its Development 2019-2025

²⁶⁵ Department of Agriculture, Food and the Marine Press Release 6th May 2021, available at: <https://www.gov.ie/en/press-release/38451-minister-hackett-announces-strong-response-to-organic-farming-scheme/?s=03>

²⁶⁶ Teagasc Media Article, 4th July 2020, Ammonia emissions in agriculture: sources, importance and mitigation, available at: <https://www.teagasc.ie/publications/2020/ammonia-emissions-in-agriculture-sources-importance-and-mitigation.php#:~:text=In%20Ireland%20agriculture%20is%20responsible%20for%2099%25%20of%20all%20ammonia%20emissions.>

Figure 17: Organic crop area - Business as Usual vs Ag-Climate target

Source: Eurostat organic crop area in utilised agricultural area, excluding kitchen gardens, Ag-climate strategy

Figure 18: Ammonia from agriculture - Business as Usual vs Ag-Climate target

Source: Eurostat, Ammonia emissions from agriculture (source: EEA) [SDG_02_60]

agricultural policy (along with the EU removal of quotas in 2015) led to the rising dairy herd numbers and a subsequent increase in ammonia emissions.

It is also important to note that, while this target would bring Ireland within the ceiling of the NECD, context-specific targets are required. For example, certain ammonia 'hot spots' (such as pig or poultry farms) will continue to emit high levels of ammonia and, importantly, this can degrade local biodiversity and can affect the health of local residents through the air particles produced from ammonia gas. Indeed, one study

found that 50,000 European deaths per year could be prevented by reducing ammonia by 50%.²⁶⁷ Ultimately, ammonia emissions are likely to remain an issue under industrial agricultural systems. Thus, local assessments and actions are key to comprehensively tackling the emissions relating to ammonia, as well as the negative impacts of agriculture on biodiversity.

²⁶⁷ Pozzer, A. and Tsimpidi, A. P. and Karydis, V. A. and de Meij, A. and Lelieveld, J. (2017). Impact of agricultural emission reductions on fine-particulate matter and public health. *Atmospheric Chemistry and Physics* 17(20), 12813-12826

Moving beyond output measures such as organic production towards broader sustainability approaches like regenerative agriculture can support synergistic achievement of biodiversity, nutrition, and environmental and public health goals.²⁶⁸

Finally, there are no mandatory measures in place to ensure this reduction of ammonia emissions. The DAFM, along with Teagasc, have produced a Code of Good Practice, but this is a voluntary mechanism without funding.²⁶⁹

Challenge 4.2: Dependency on high-emitting sectors (dairy and beef)

*“A climate action plan that ignores modal shift in agriculture is not credible. A climate action plan that proposes massive herd cuts is not realistic. However, it must be signalled in this plan that Government will open a dialogue with rural communities to discuss what policies and measures can be developed which could offer alternatives to herd-based systems that would maintain or even boost farm incomes” – DCAE, 30th May 2019.*²⁷⁰

One of the greatest challenges for Ireland’s decision-makers is going to be in developing a roadmap to ensuring environmental, social, and economic sustainability of agricultural production. Solutions proposed by the AFS 2030 include:

- Promote greater integration of the dairy and beef sectors, especially in relation to the production of beef coming from the dairy sector.
- Under the auspices of the 2030 process, produce a detailed plan by Q2 2022 to manage the sustainable environmental footprint of the dairy sector.
- Continue the move to higher-quality, value added dairy produce, positioning Irish dairy as a premium grass-fed product.
- Build a strategy for the development of new markets for Irish organic dairy products and encourage participation at farm level.
- Develop and support dairy calf-to-beef systems.
- To further protect waters from agricultural pollution, all systems of agriculture (Dairy, Beef, Tillage etc.) will manage and mitigate the losses of phosphorous and sediment to water.

²⁶⁸ Giller, E. K. (2021) Regenerative Agriculture: An agronomic perspective, *Outlook on Agriculture*, Sage journals, 50(1), 13-25, DOI: <https://doi.org/10.1177/0030727021998063>

²⁶⁹ An Taisce Submission to the Climate Change and Bioenergy Policy Division of the DAFM, 20th June 2019.

²⁷⁰ This quote is taken from an email exchange, obtained via a FOI request, regarding the development of the Climate Action Plan

The country’s roadmap to climate neutrality – Ag Climatise – is based on plans to increase organic production of dairy by 10% per year until 2025.²⁷¹ Over the last ten years, Ireland has seen a 38.3% rise in dairy cows, and a 66.9% increase in milk production.²⁷² Neither AFS 2030 nor Ag-Climatise clearly outline ambitions to reduce herd numbers.

At the same time, as of 2018, 91% of Irish agricultural CH₄ emissions came from cattle (35% dairy, 56% beef).

²⁷³ Agricultural methane in Ireland is responsible for an ongoing contribution to global warming equivalent to 30 years of current energy CO₂ emissions.²⁷⁴ These CH₄ emissions demonstrated a decreasing trend between 2005 and 2011, at which point a sharp increase occurred. This rise is associated with government policy endorsement of sectoral agricultural strategy, i.e., plans to expand milk production under Food Wise 2025, and is expected to continue rising. During the 2013 – 2018 period, as milk production rose, so did levels of nitrogen by 15.7%.²⁷⁵ ²⁷⁶ This ‘national climate policy failure’ since 2010 has ‘undone 20 years of mitigation effort’, seriously undermining efforts for sustainable food systems.²⁷⁷

At the same time, dairy farming is more lucrative than other agricultural activities, including beef and, as such, is much more attractive for current farmers and new entrants. Yet, there are numerous arguments to be made in favour of reducing herd sizes, especially for those focused on achieving reduced GHG emissions. Particularly in light of the portion of agricultural GHG emissions that come from these sectors, the energy and input requirements for cattle (including feed)²⁷⁸ and their increasing numbers over the last decade in Ireland and the subsequent increase in ammonia emissions, as described above.

At the same time, it is important to note the value of grasslands in sequestering carbon: some estimates suggest that grasslands have between 15- 30% of the

²⁷¹ Via the Organic Strategy 2019-2025

²⁷² EPA (2020) Ireland’s Provisional Greenhouse Gas Emissions 1990-2019

²⁷³ EPA (2020) Ireland’s Provisional Greenhouse Gas Emissions 1990-2019

²⁷⁴ Price, P. & Mullen, B. October 2020 Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

²⁷⁵ Price, P. & Mullen, B. October 2020 Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

²⁷⁶ Department of Communication, Climate Action, and the Environment: National Energy & Climate Plan 2021 – 2030

²⁷⁷ Price, P. & Mullen, B. October 2020 Assessing methane (CH₄) from Irish agriculture in climate policy 2005–2020 using the GWP100 and GWP* greenhouse gas (GHG) equivalence metrics Working Paper, October 2020.

²⁷⁸ EPA (2006) Climate Change: Development of Emission Factors for the Irish Cattle Herd, ERTDI Report 46 - Special Report - O’Mara.

Earth's carbon in their soil.²⁷⁹ An EPA (2017) study suggested that grasslands are the soil with the second greatest potential for carbon sequestration. The research also pointed to the need for a larger soil database of Irish soils is now required to quantify more accurately the potential of carbon sequestration.²⁸⁰ In addition, grazing livestock can improve carbon and nitrogen cycling in certain landscapes.²⁸¹ However, importantly, the carbon sequestration potential of grasslands depends on the grazing regime. While a reduction in herd numbers would not automatically imply improved soil health, an increase in herd numbers would not align with sustainable grazing management.

At government level, the focus is on sustainable intensification. For Teagasc, much of the answer lies in 'farm efficiency', i.e., producing food with fewer inputs. Farm efficiency is proposed through measures such as beef genomics, improved animal health, extending the grazing season, and use of sexed semen, the incorporation of clover into grasslands, low emissions slurry spreading, and the use of protected urea, as well as improved energy use efficiency, bioenergy and anaerobic digestion, and the use of the dairy Economic Breeding Index (EBI). In addition, Teagasc propose low-emission fertilisers, reducing crude protein in bovine and pig diets, fatty acids supplementation to reduce methane, drainage of poorly drained mineral soils, and adding amendments to manures during storage.²⁸² AFS 2030 emphasises Teagasc's 'Signpost Farms' initiative to promote the uptake of measures in the Marginal Abatement Cost Curves (MAACs). However, even if every farmer implemented this, the yearly GHG emission reduction would remain below the 7% annual target set out in the Climate Action and Low Carbon Development (Amendment) Bill, 2021 (the range in 2030 emissions projections in the referenced analyses could be between 19.45 and 21.75Mt CO₂e by 2030).²⁸³ Further, Teagasc's approach is heavily reliant on technological innovation to the detriment of social innovation. Yet, social innovation is a prerequisite for solving problems

such as discrimination, poverty, or pollution. It relates to changes in social relations, behaviour, norms, and values. Social innovation is considered essential, as both an instrument and a process to ensure a transition towards more sustainability,²⁸⁴ while technology-driven solutions can deepen pre-existing inequalities in society.

Further, animal feed presents a significant challenge for sustainable agriculture. First, what animals eat will directly affect the soil, water, and biodiversity quality. Second, feed imports are often sourced from monocultural farming practices which are associated with environmental degradation, from loss of biodiversity to deforestation, and social injustices.²⁸⁵ The AFS 2030 currently focuses on annual chemical nitrogen use (which should not exceed 325,000 tonnes by 2030), yet the strategy does not consider reactive nitrogen input in animal feed. The role of the private sector in making animal feed more sustainable is described in Box 6, below.

This emphasises the need for greater research into the potential of grasslands to contribute to climate change mitigation efforts, especially given Ireland's significant natural grasslands landscape. While, initial research from the EPA suggests that the scope is limited for such negative emissions technologies in Ireland, and that significant reduction in emissions will remain the primary method of meeting climate change commitments²⁸⁶; the required research could focus on solutions that, do not rely on technology as a primary solution, but turn to alternative agricultural approaches instead, including regenerative agriculture.

Importantly, there is also reason to believe that the trade-off between sustainable farming and economic profitability may be over-estimated. For example, one study in the UK (including in Northern Ireland) on upland and marginal livestock farms, showed that reducing output to a level where stock is grazed on land (without the use of artificial fertilisers) increased profit (or reduces losses) through significant savings of variable costs. This approach to farming can also support sustainable agri-environmental outcomes by reducing pressure on the land, especially beneficial on over-grazed lands.²⁸⁷

²⁷⁹ Fauna & Flora International: Beyond Forests – Has the carbon storage potential for grasslands been overlooked? available at: <https://www.fauna-flora.org/news/beyond-forests-carbon-storage-potential-grasslands-overlooked#:~:text=Some%20estimates%20suggest%20grasslands%20have,tied%20up%20in%20their%20soil!>

²⁸⁰ Kiely, G. et al (2017) Research Report: SoilC – Feasibility of Grassland Soil Carbon Survey, (2011-CCRP-DS-1.4) EPA Research Report, available at: http://www.epa.ie/pubs/reports/research/land/EPA%20RR225_web.pdf

²⁸¹ Wang et al. (2016) Grazing improves C and N cycling in the Northern Great Plains: a meta-analysis, *Nature Scientific Reports* 6, Article number 33190 (2016)

²⁸² Teagasc (2018) Return of the MAAC, 13(3), available at: <https://www.teagasc.ie/media/website/publications/2018/11-Return-of-the-MACC.pdf>

²⁸³ Teagasc (2018) Return of the MAAC, Autumn 2018, 13(3)

²⁸⁴ Bock, B. B. (2012) Social innovation and sustainability; how to disentangle the buzzword and its application in the field of agriculture and rural development, *Studies in Agricultural Economics* 114(2012), 57-63, available at: <http://dx.doi.org/10.7896/j.1209>

²⁸⁵ D'Orico, P. et al, (2019) Food Inequality, Injustice, and Rights, *BioScience*, 69(3), 180-190, available at: <https://doi.org/10.1093/biosci/biz002>

²⁸⁶ EPA (2020) IE-NETs: Investigating the Potential for Negative Emissions Technologies (NETs) in Ireland, available at: https://www.epa.ie/pubs/reports/research/climate/Research_Report_354.pdf

²⁸⁷ Clark, C. et al (2019) Less is more: Improving profitability and the natural environment in hill and other marginal farming systems, available at: <https://www.arc2020.eu/wp-content/uploads/2019/12/Hill-farm-profitability-report-FINAL-agreed-15-Nov-19.pdf>

Further, dairy represents an important source of income for many farmers in Ireland as demonstrated above. In line with the cultural components of social sustainability also, it is worth considering the historical attachment to cattle in Ireland (further described in the section *Rural Revitalisation*, below). In line with a just transition for all workers, including farmers, the synergies between reducing herd numbers and farmers' wellbeing needs to be considered. The government's key agri-food policies, including the Climate Action and Low Carbon Development (Amendment) Bill, 2021, would benefit from explicitly including a participative approach to shifting Ireland's largely herd-based farming toward more sustainable practices. This will support a just transition for farmers and support ownership of the transition, thus increasing the likelihood of both immediate and long-term uptake.

It is clear that herd numbers will need to be decreased in Ireland in order to achieve environmental commitments: this is at least partially demonstrated in the rise of emissions linked with increasing dairy. However, it is much less clear what an optimal number of cattle would be. In addition, much more insight has yet to be gained from 1) technological solutions to the challenges, and 2) social innovation and farming with nature approaches (e.g. regenerative farming) and their impact on reducing GHG emissions and bolstering the habitat. The latter needs much greater research to understand the value of afforestation, reforestation, and grasslands and to identify the optimal pathways forward for land use in Ireland.

Box 6: The Feed Behind our Food

Some estimates suggest that the global demand for animal feed will require roughly 280 million hectares of additional land, in a landscape where competition for land is already significant.²⁸⁸ Further, the net cultivated area, globally, has grown by 12% over the last 50 years to the detriment of forest, wetland, and grassland habitats. Future feed must increase land efficiency and support biodiversity restoration, rather than threaten it. In addition, the global livestock industry is responsible for 14.5% of GHG emissions, of which 45% are caused by feed production and processing. Finally, of the total water consumption in animal production, 98% is associated with feed crops, and irrigation of these crops consume 12% of the global groundwater and surface water.²⁸⁹

The Irish Grain and Feed Association (IGFA) describes three principal motivations for a move towards more sustainable feed. First, nearly half of the global agricultural land is used for livestock feed production, and 22% of the capture from fisheries is used for animal feed.²⁹⁰ Second, changing attitudes of consumers means more transparency about the sustainability of feed crops will bolster trust in companies that act on feed. Third, there are commercial benefits to sourcing alternative animal feeds that might be less dependent on land, water, and at-risk species, including brand loyalty and, linked to the second point, customers' willingness to pay for a premium.

The IFGA highlights the role of various participants in the animal feed system, from retailers and food service to feed companies, traders, producers, and processors. They put forward three criteria to start the conversation on shared sustainability standards:

- Restorative land use and biodiversity practices: land management practices should build soil health and increase biodiversity.
- Minimise greenhouse gas emissions: using Life Cycle Analysis assessments, feed should significantly reduce emissions compared to the industry average.
- Take a circular approach: feed should make use of crops (e.g. forages) and co-products from food production that are inedible by humans.
- Minimise pollution: air and water pollution, namely relating to fertiliser use, should be minimised.
- Minimise fish stock depletion.
- Minimise freshwater consumption: feed's water footprint should be measured and made efficient so that reserves are not depleted and water for humans is prioritised.
- Promote animal health and nutrition: promote high quality feed for healthier animals, with less need of antibiotic therapy.
- Support human rights and welfare: ensure decent working conditions and fair wages.
- Financially viable: this applies to both feed producers and livestock farmers and represents a key challenge for new, alternative feeds undergoing commercialisation.

Source: Feed Compass, *The Feed Behind our Food, Time to Act on Feed*, available at: <http://www.igfa.ie/resources/FeedBehindOurFood.pdf>

²⁸⁸ Feed Compass, *The Feed Behind our Food, Time to Act on Feed*, available online via the IGFA, available at: <http://www.igfa.ie/resources/FeedBehindOurFood.pdf>

²⁸⁹ Feed Compass, *The Feed Behind our Food, Time to Act on Feed*, available online via the IGFA, available at: <http://www.igfa.ie/resources/FeedBehindOurFood.pdf>

²⁹⁰ Feed Compass, *The Feed Behind our Food, Time to Act on Feed*, available online via the IGFA, available at: <http://www.igfa.ie/resources/FeedBehindOurFood.pdf>

Box 7: Food Waste in Ireland

In Ireland, roughly 1 million tonnes of food is wasted every year and less than half is recycled into biogas and compost, or reused for animal feed within the EU. Roughly 17% of this waste originated in the commercial sector, of which 75% came from retail, accommodation, food service, and workplace canteens.²⁹¹ Roughly 20,000 tonnes of this food waste from offices end up in the municipal waste stream every year.²⁹²

Of the waste that goes to landfill in Ireland, nearly 40% is organic waste, most of which is food waste. One estimate suggests that the average Irish household is wasting between EUR400-1,000 worth of food each year.²⁹³

Policies can reduce this waste by creating the right incentives for producers (losses) and consumers (waste). Policies that support sustainable consumption and production patterns also bolster healthy diets. However, those policies, particularly those that promote 'plant-forward' diets need to emphasise the need for a cap of starchy staple foods (e.g. at 50% of total dietary energy requirements). At household waste level, policies can include awareness campaigns advocating for change through education and communication strategies.²⁹⁴

Ireland's National Waste Plan commits to halving food waste by 2030, waste segregation infrastructure for apartment dwellers, and to sustainable food waste management options for all homes and businesses.²⁹⁵ Retailer marketing strategies have shown to drive food waste yet initial considerations for introducing bans on, for example, 'two-for-one' deals was met with significant opposition within government.^{296 297} A ban on this type of marketing would need to be carefully designed to avoid penalising low-income households and, ideally, should be complemented by marketing strategies that provide 'deals' on high quality food. In France, 20% of retailers' shelves may be legally bound to be dedicated to refill stations in an effort to reduce the packaging and plastics waste incurred.²⁹⁸

Food Cloud has also emerged as a key player in providing solutions to food waste issues in Ireland. However, food banks are not deemed an adequate long-term solution. First, the nutritional value of food provided by food banks (mainly processed foods) is not deemed sufficient quality to support healthy diets.²⁹⁹ For example, a study conducted in Cork City showed a disconnect between health concerns and the choice of food provided by charities due to the latter's limited mandate.³⁰⁰ Second, the accessibility of food banks depends on their location, opening hours, and eligibility criteria.³⁰¹ Further, food banks can 'depoliticise' hunger, which can detract from the underlying causes of food insecurity, poverty or waste (unsustainable production/retail practices), and thus from efforts for the right to food.^{302 303}

Ultimately, the redistribution of food surplus is a supply-driven solution growing in the context of a model which 'brokers' activities between the food industry and charities, in contrast to a 'challenger' model characterised by 'radical politics' and collective means of accessing and sharing food.

Regardless of the measures taken to address food waste, research shows that a considerable wastage of resources is inherent in the current industrial models. Thus, systemic shifts toward sustainable production (including agricultural production) and consumption patterns would offer fundamental progress in this area.

²⁹¹ EPA (2019) Reducing Commercial Food Waste in Ireland Authors: Sarah Broderick and Colum Gibson; 2015-RE-MS-6, EPA Research Report 282

²⁹² Stop Food Waste.ie (EPA), available at: <https://stopfoodwaste.ie/wp-content/uploads/2018/04/whats-in-web-version.jpg>

²⁹³ Stop Food Waste.ie (EPA), available at: <https://stopfoodwaste.ie/wp-content/uploads/2018/04/how-much-web-version.jpg>

²⁹⁴ FAO, IFAD, UNICEF, WFP and WHO. (2020) The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO, available at: <https://doi.org/10.4060/ca9692en>

²⁹⁵ Department of Communications, Climate Action and the Environment: A Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025

²⁹⁶ EU Fusions (2014): Drivers of current food waste generation, threats of future increase and opportunities for reduction.

²⁹⁷ Independent 8th September 2020: Proposed ban on two-for-one offers in shops condemned in the Dáil

²⁹⁸ The Times, 1st April 2021: Supermarkets in France forced to ditch plastic and set up 'refill stations' selling unpackaged goods

²⁹⁹ Placzek, O. (2021-02-10) Socio-economic and demographic aspects of food security and nutrition, OECD Food, Agriculture and Fisheries Papers, No. 150, OECD Publishing, Paris, available at: <http://dx.doi.org/10.1787/49d7059f-en>

³⁰⁰ Kenny, T. & Sage, C. (forthcoming) Surplus food redistribution and healthy, sustainable diets: Exploring the contradictions of charitable food provisioning, *International Journal of Sociology of Agriculture*

³⁰¹ Placzek, O. (2021-02-10) Socio-economic and demographic aspects of food security and nutrition, OECD Food, Agriculture and Fisheries Papers, No. 150, OECD Publishing, Paris, available at: <http://dx.doi.org/10.1787/49d7059f-en>

³⁰² Placzek, O. (2021-02-10) Socio-economic and demographic aspects of food security and nutrition, OECD Food, Agriculture and Fisheries Papers, No. 150, OECD Publishing, Paris, available at: <http://dx.doi.org/10.1787/49d7059f-en>

³⁰³ Routledge Handbook of Food as a Commons 1st edition (2020) Kenny, T. & Sage, C. *Food surplus as charitable provision: obstacles to re-introducing food as a commons*, in Part IV: Commoning from below: Current examples of commons-based systems.

Summary: Ireland's AFS 2030 presents substantial opportunities for transformative change, in particular by signalling a change in direction for agri-food policies in Ireland. Some clear targets demonstrate tangible ambitions; for example, the target to increase five-fold the portion of agricultural land under organic production. However, more detailed provisions could have been included; for example, to show how enforceability will be implemented. In addition, other targets could be deemed lacking in ambition, such as targets to reduce ammonia emissions to 2014 levels rather than the lower levels found in 2010.

Approaches to livestock and dairy farming could also be bolstered by taking a comprehensive approach, beyond technology-driven solutions. However, the details of this approach are understandably not present in the Strategy, as forthcoming policy processes (e.g. the carbon budget allocation) will determine the levels of ambition needed in agriculture. Further, forthcoming research will support an evidence-based decision-making process that would incorporate all three dimensions of sustainability when it comes to livestock and herd numbers.

In addition, greater emphasis could be placed on regenerative approaches rather than sustainable intensification, as the former provides greater space for the comprehensive perspective required for transformation towards sustainable food systems.

Recommendations

- Update Ag-Climate in 2021 to reflect new national commitments to reducing GHG emissions to be set out in the forthcoming climate budgets. Aim to reduce ammonia emissions to 2010 levels. Include a greater emphasis on policies to stimulate demand for organic produce in Ireland.
- Include clear mechanisms for accountability and enforcement of targets set out in national policies.
- Immediately 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.

Opportunity 5: Contributing to a just global transition

Section Roadmap: This section aims to address Ireland's role as a potential global leader in sustainable food systems. It does so by analysing key development cooperation policies and approaches, ODA flows,

and, where feasible, describes the potential impacts of Ireland's trade relationships with low-income countries.

The EU F2F and Ireland's own strategies (including for example *A Better World*) highlight the need to 'leave no one behind' in a transition to sustainable food systems. Both the EU and Ireland's policies lean towards an approach that aims to 'lead by example' in terms of sustainability and agricultural production. The F2F strategy, for example, contends that '*European food is already a global standard for food that is safe, plentiful, nutritious and of high quality. Now European food should also become the global standard for sustainability*' (p.4), while *A Better World* states that '*the transformation of Irish agriculture, and the associated wealth of technological and market innovation and research, is a basis for Irish engagement with global food systems and markets*' and therefore, Ireland should 'share lessons learned with developing countries' (p.27).

The actions and targets in the section relating to policy coherence between domestic and global policies for sustainable food systems are perhaps the least precise in the entire strategy.

The AFS 2030 offers four actions to ensure policy coherence between Ireland's domestic food related policies and its development cooperation and foreign policies:

1. Promote food and nutrition security, and SFSs, 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 SFS 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.

Although AFS 2030 states 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 reflected in its approach to global sustainable food systems. AFS 2030 deems that the Irish experience of agricultural and rural transformation is of relevance to countries at different stages of their transformation process. Yet this transformation process is usually framed in the context of achieving 'modernised' systems – systems that have led to the incentivisation of monocultures and large-scale biodiversity decline, as demonstrated throughout the previous sections.

A more ambitious commitment to policy coherence could have been entrenched in the Agri-Food Strategy. The Policy Coherence for Development (PCD) agenda emerged in the EU when it became apparent that EU aid to family agriculture in Africa was partially ‘cancelled out’ by the EU’s exports of cheap and subsidised agricultural products.³⁰⁴ Ireland could demonstrate leadership in this regard by entrenching legal PCD provisions in its policies. Belgium, for example, is currently developing operational provisions to ensure that legal obligations relating to PCD are translated into practice. The Belgian system considered various institutional mechanisms, such as an inter-ministerial conference on PCD, an interdepartmental working group, a PCD advisory council, and a regulatory impact assessment test.³⁰⁵

The actions and deliverables in AFS 2030 related to policy coherence do not address challenges relating to a just and fair transition that ‘leaves no one behind’. The deliverable ‘achieve the UN aid target’ of 0.7% of GNI is not hunger nor food systems-specific. Further, even if ODA to tackle hunger is increased, there is no clear commitment to ensure this is directed towards *sustainable* and *just* food systems rather than pursuing investments to conventional agricultural initiatives. Finally, a more ambitious objective would be to play a leadership role, beyond high profile events such as the UN Food Systems Summit; for example, by demonstrating leadership for SDG 2 through 2030. This would imply leadership on each of the SDG’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...and that progressively improve land and soil quality”, as well as SDG 2.5 on genetic diversity.

Challenge 5. 1: Leadership by and for whom?

As the world’s first effort to establishing a national food systems action plan, AFS 2030 demonstrates Ireland’s leadership. Ireland has also demonstrated leadership globally when it comes to food safety, particularly in terms of traceability and transparency. It was among the first countries in Europe to establish a national Food Safety authority. More recently, Ireland’s image as a

leader in this regard was bolstered as the first country to identify and draw attention to the fact that beef burgers sold by some major retailers contained horsemeat, via the Food Safety Authority of Ireland’s monitoring and subsequent data publication.³⁰⁶

In recent years, Ireland has also increased efforts to better understand and track antimicrobial resistance. In 2017, Ireland launched its National Action Plan on Antimicrobial Resistance 2017 – 2020 (iNAP). It is ‘*Ireland’s One Health Strategy which recognises that humans and animals share the same environment and that joint action is needed to deal with the AMR threat to public health, animal health and the environment*’. In 2019, the state institution, Teagasc, launched the first nationwide dataset on antimicrobial use in Irish pig production.³⁰⁷ Although here again, this initiative was criticised as bringing increasing pressure on Irish farms.³⁰⁸ In addition, EU officials pointed to a lack of targets, indicators, or outcome-based monitoring within the iNAP.

However, it is important to note that Ireland’s leadership, when it comes to animal health, is sometimes conflated with animal welfare. These are different issues, with different solutions, and Ireland’s image as a leader, when it comes to animal health in the strict sense of reducing disease, should not detract from commitments towards animal wellbeing and welfare.

Further, Ireland has a strong reputation as a development cooperation partner, particularly when it comes to tackling hunger and malnutrition. This is demonstrated in Ireland’s prioritisation of food and nutrition security in its ODA disbursements, which have been significantly above the DAC average since the food price crisis in 2007/2008, as per Figure 19, below. The figure is based on the OECD (2012) conceptualisation of food and nutrition security, which includes, for example, all ODA to agriculture, forestry, fishing, agro-industries, basic nutrition, and rural development. For more detailed information, please refer to the Annex: Methodological Notes.³⁰⁹

³⁰⁴ Advisory Council on Policy Coherence for Development, Report of the Advisory Council on Policy Coherence for Development for the period 26 June 2014 – 26 June 2019, available at: http://www.ccpd-abco.be/wp-content/uploads/2019/05/APCD_Opinion_PCDBilan_EN.pdf

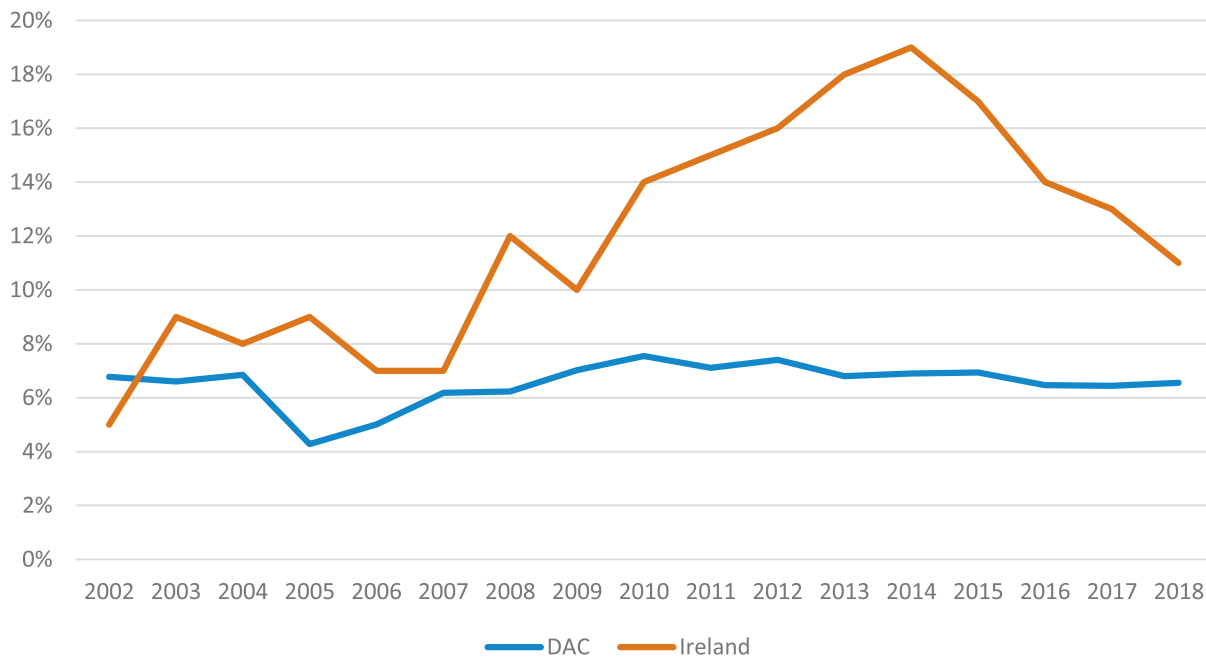
³⁰⁵ Advisory Council on Policy Coherence for Development, Report of the Advisory Council on Policy Coherence for Development for the period 26 June 2014 – 26 June 2019, available at: http://www.ccpd-abco.be/wp-content/uploads/2019/05/APCD_Opinion_PCDBilan_EN.pdf

³⁰⁶ Irish Times 14th January 2014: Ireland’s role in horsemeat scandal boosts its image: *Ireland’s role in identifying horse in beef products has boosted its image*

³⁰⁷ Teagasc (2019) *Antimicrobial use and resistance in Irish pig farms*, TRResearch, Summer 2019, 14(2)

³⁰⁸ The Irish Examiner 30th April 2020: Ireland’s commitment to control of antimicrobial resistance is a positive example for other states, say EU officials

³⁰⁹ It is worth noting that there are several differing conceptualisations of ODA for FNS in the literature. For example, the EU Commission produced a report that shows different trends for Ireland’s ODA (available at: https://www.donorplatform.org/files/content/Media/Agenda_2030/Publications/P4212_DEVCO_EU_4th_ENGLISH_WEB_300dpi.pdf). However, the purpose codes and raw data were not made publicly available and thus replicating the analysis was a challenge. The conceptualisation used in this report is nonetheless based on an authoritative OECD source, and provides a broad overview of the various components of food and nutrition security.

Figure 19: Ireland vs DAC share of ODA for food and nutrition security in total ODA

Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

However, the premise of 'leadership abroad' is founded on narratives that suggest Ireland has successfully transitioned to an economically viable, sustainable agricultural system. However, as outlined above, there are several reasons to question the validity of this statement. In addition, importantly, Ireland is exemplified for its approach to developing agri-food strategies that include comprehensive multistakeholder processes. While Ireland has made efforts in this direction, there was still inadequate representation from developing country partners in the formulation of key policies (as outlined in the section, *an inclusive just transition*, of the report). In addition, the withdrawal of the Environmental Pillar from the AFS 2030 process highlighted gaps between involvement and influence over the strategy, pointing to a potential need for mediation processes to be in place for the multistakeholder approach to be effective.

According to Ireland's Origin Green initiative and its A Better World policy, the country's areas of agricultural expertise lie in food safety and traceability; sustainability; animal health and welfare; extension services and knowledge transfer; research and innovation. Yet, the sections above raised questions regarding the credibility of Ireland's achievements in terms of environmental sustainability.

In addition, when it comes to animal welfare, Ireland's approach is also questionable. The push to increase the dairy herd in recent years has meant that large numbers

of male calves are slaughtered after 10 days because they are deemed 'worthless',³¹⁰ while others are transported to the European continent in concerning welfare conditions.³¹¹ In 2019, 196,000 calves were exported from Ireland falling to 143,000 in 2020. As a result, in 2020, 30,000 calves were sent to slaughter (compared to 19,000 in 2019) – this is approximately equivalent to the increase in number of calves born in 2020 compared to 2019 (roughly 34,882),³¹² meaning nearly all additional calves born in 2020 were sent to slaughter, further highlighting the inefficiency of continuous rising livestock numbers. And this is likely an underestimate of the number of slaughtered animals, as it excludes slaughters from local authority slaughterhouses.³¹³ Further, it's worth noting that a formal complaint against the Department of Agriculture, Food, and the Marine has been lodged at the EU Commission for 'failures to

³¹⁰ Irish Examiner, 5th December 2019, Almost 30,000 male calves slaughtered at 10 days old last year, available at: <https://www.irishexaminer.com/news/arid-30968607.html>

³¹¹ The Guardian, 6th March 2021, Cows might fly: Ireland to jet calves to Europe to cut travel time, available at: <https://www.theguardian.com/environment/2021/mar/06/ireland-to-jet-calves-to-europe-to-cut-travel-time>

³¹² AgriLand Farming, 6th January 2021, Total calf births exceed 2.35 million head for 2020, available at: <https://www.agriland.ie/farming-news/total-calf-births-exceed-2-35-million-head-for-2020/>

³¹³ This data was sourced from a database maintained by Ethical Farming Ireland as there is no national centralised database for same. The organisation sources their data from Bord Bia: Live Cattle Exports, available at: <https://www.bordbia.ie/farmers-growers/prices-markets/cattle-trade-prices/live-cattle-exports/> and from: Department of Agriculture, Food and the Marine, available at: <https://www.gov.ie/en/collection/605aa-beef-kill-figures-weekly-reports-2020/>

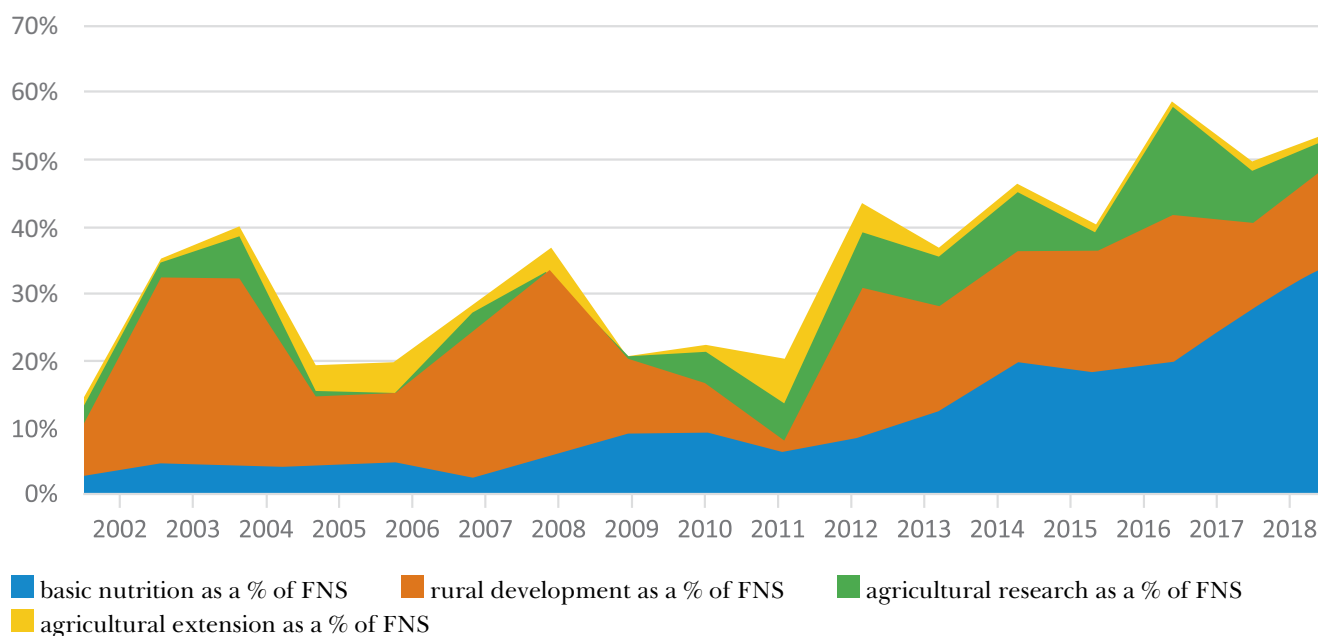
take appropriate action in relation to potential breaches [relating to animal welfare] by ferry companies whose authorisations we argue should be revoked.³¹⁴

Further, when it comes to transforming commitment to action and prioritising key sectors such as research and development, Ireland doesn't appear to prioritise agricultural research and extension in its ODA, with an average of just 1.2% of all ODA allocated to agricultural research, and 0.1% to extension services between 2014–2018. Yet, agricultural interventions are more effective where there is adequate access to extension services.³¹⁵

Figure 20 highlights the prioritisation of these and other key components of food systems (nutrition and rural development) as a portion of total ODA to FNS. Nutrition has been given increasing prioritisation over the last decade, while the portion of ODA for agricultural research has increased at a much slower rate.

Finally, as mentioned above in the section relating to expenditures, Ireland's ODA for food systems needs to be promoting sustainable and just approaches to food system transformation. Figure 21, below, shows the portion of Ireland's ODA allocated to agricultural activities based on the objectives described in the microdata.³¹⁶

Figure 20: Prioritisation of nutrition, rural development, agricultural research and extension in Irish ODA to FNS (share of total FNS ODA, %)

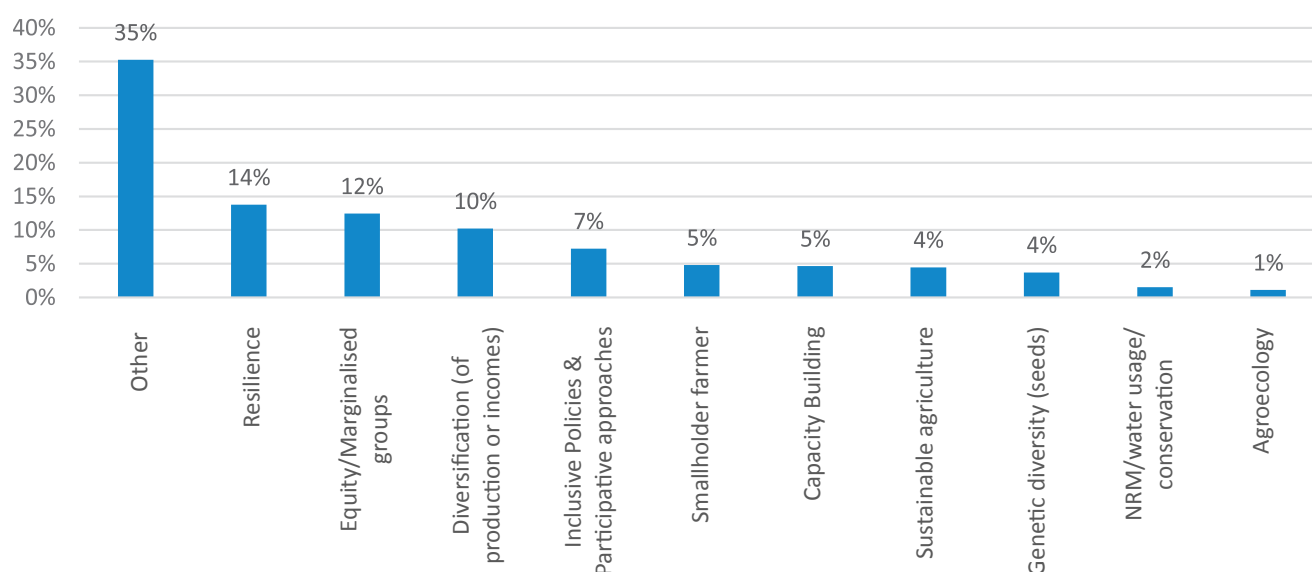


Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

³¹⁴ The Journal.ie, 31st March 2021: Vulnerable unweaned calves need protection in our export trade, available at: <https://www.thejournal.ie/readme/live-export-calves-opinion-5392127-Mar2021/>

³¹⁵ CERES2030: Sustainable Solutions to End Hunger, Summary Report, available at: https://ceres2030.org/wp-content/uploads/2021/03/ceres2030_en-summary-report.pdf

³¹⁶ The categories were developed using a framework analysis, based on the data drawn from Ireland's reporting to the OECD CRS and aiming to align with the HLPE (2019) principles of agroecology. However, the analysis would benefit from further research which seeks to classify the ODA based on the different 'poles' identified in HLPE (2019). This would require significant additional investigation, beyond the scope of this study, and engagement with Irish Aid to avail of qualitative data to complement the OECD data which currently provide inadequate levels of detail to conduct a robust analysis.

Figure 21: Irish ODA to food and nutrition security 2016-2018 – category breakdown

Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

Just 1% of the ODA reported over the course of the three years was described as 'agroecology', with 4% described as 'sustainable agriculture'. However, the lack of adequate descriptions does not allow for a conclusive analysis, as those described as 'sustainable' may also include conventional approaches (e.g. relating to agro-industries).

Similarly, many of the projects included in the 'other' category do not provide adequate information to allow for classification as sustainable or transformative agriculture. However, there is reason to believe these projects may promote conventional agriculture, with some of the descriptions pointing to 'increased production' or building 'economic opportunity', but with no mention of social nor environmental sustainability. Improved reporting on these projects would allow for more precise analysis, follow-up, and evaluation of Ireland's commitment to sustainable food systems.

A significant portion of the ODA disbursed was described as targeting equitable approaches and marginalised groups, and inclusive policies (12% and 7%, respectively), pointing to meaningful efforts for supporting the most disenfranchised, in line with the principles of a just transition,³¹⁷ the HLPE Report 14,³¹⁸ and the

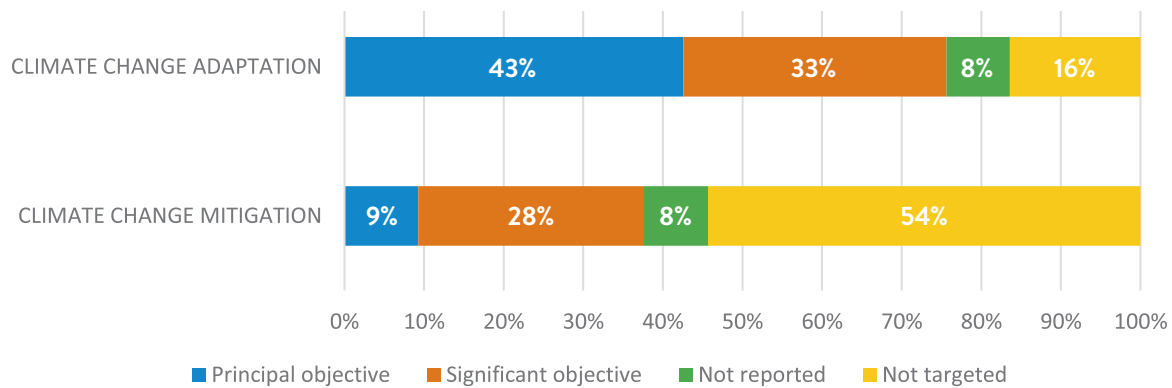
IPES (2021)³¹⁹ conceptualisation of the principles of agroecology, which include securing social equity and a focus on smallholder farmers.

Finally, in line with *A Better World's* emphasis on Climate Action, it's worth assessing the proportion of projects which prioritised climate change adaptation and mitigation, as per Figure 22 below. While 76% of Irish ODA to agriculture, forestry, and fisheries between 2016-2018 targeted climate change adaptation (as a principal or significant objective), just 37% targeted climate change mitigation efforts, while more than half of the projects had no mitigation objective. This could reflect Ireland's focus on supporting smallholder farmers in the face of potential adverse impacts from climate change.

³¹⁷ ILO (2015) Guidelines for a just transition towards environmentally sustainable economies and societies for all

³¹⁸ HLPE. (2019) Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

³¹⁹ IPES (2021) A unifying framework for food systems transformation A call for governments, private companies & civil society to adopt 13 key principles

Figure 22: Ireland's prioritisation of climate change in ODA for agriculture, forestry, and fisheries (2016-2018)

Source: OECD CRS (QWIDS), Constant 2018 USD, Disbursements, and author's calculations

Challenge 5. 2: Knowledge transfer - who benefits?

Knowledge transfer in an unequal and unfair global landscape

If Ireland is to fulfil its commitments to end hunger by 2030 (SDG 2), to the Convention on Biological Diversity,³²⁰ and to responsible investment in agriculture and food systems (via its membership to the UN FAO CFS),³²¹ then contentious issues relating to intellectual property, knowledge sharing, and traditional knowledge need to be addressed, with due consideration for human rights and climate justice. This is particularly relevant in the context of genetic diversity (SDG 2.5), seeds, and food sovereignty.

There are three types of Intellectual Property Rights (IPR): Trademarks, copyrights, and patents. Patents can be granted if the invention is: novel, involved an inventive step, and has industrial application.³²² The TRIPS Agreement is the first internationally standardised legal framework for intellectual property rights (IPR).³²³ The goal in standardising IPR systems is to reduce trading costs for international business and encourage innovation by protecting the rights of the innovator.

These mechanisms are meant to provide incentives for creativity and innovation.^{324 325} To become a WTO member, a country must comply with the rules within this legally binding framework, at the risk of trade sanctions.^{326 327}

However, it is unclear how these legal mechanisms benefit low-income countries or their smallholder farmers. To illustrate the imbalance in agri-business knowledge, biotechnology patents can be used as a proxy indicator. The graph below (Figure 23) shows trends in biotechnology patents between 2005 and 2017 (latest available data). While China's share of patents has increased substantially over the last 15 years, there are no low-income countries on this list. In fact, in 2017, 76% of patents relating to biotechnology came from just 5 high-income countries (the US, Japan, China & Chinese Taipei, Korea, and Germany).³²⁸ Ireland held 0.2% of the patents in 2017.

³²⁰ See Ireland's 6th National Report to the Convention on Biological Diversity: <https://www.cbd.int/doc/nr/nr-06/ie-nr-06-en.pdf>

³²¹ The CFS Principles for Responsible Investment in Agriculture and Food Systems (RAI) were approved by the 41st Session of CFS on 15 October 2014. The Principles offer important guidance to companies engaged in agriculture at local, national and international levels, available at: <https://www.google.com/search?q=who+has+ratified+The+CFS+Principles+for+Responsible+Investment+in+Agriculture+and+Food+Systems&oeq=who+has+ratified+The+CFS+Principles+for+Responsible+Investment+in+Agriculture+and+Food+Systems&qs=chrome..69i57.3912j0j9&sourceid=chrome&ie=UTF-8>

³²² European patent law.

³²³ Downes, G. (2004) TRIPS and food security: Implications of the WTO's TRIPs Agreement for food security in the developing world, *British Food Journal*, 106(5), 366-379, doi: 10.1108/00070700410531598

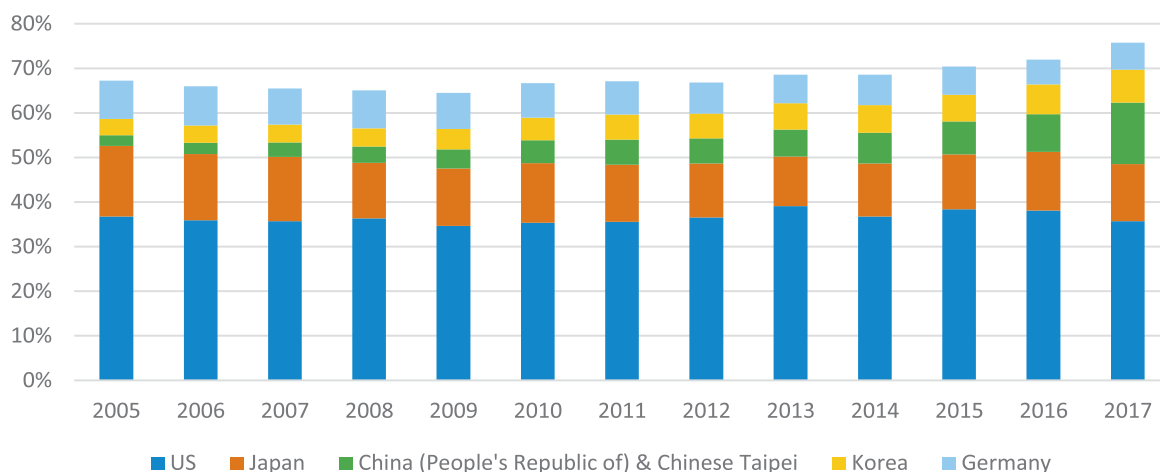
³²⁴ Dutfield, G. (2000) *Intellectual Property Rights, Trade and Biodiversity* London: Earthscan

³²⁵ WTO (2015) *Understanding the WTO*, Fifth Edition, Geneva: WTO accessed online 29th December 2016, available at: https://www.wto.org/english/thewto_e/whatis_e/tif_e/understanding_e.pdf

³²⁶ Downes, G. (2004) TRIPS and food security: Implications of the WTO's TRIPs Agreement for food security in the developing world, *British Food Journal*, 106(5), 366-379, doi: 10.1108/00070700410531598

³²⁷ WTO (2015) *Understanding the WTO*, Fifth Edition, Geneva: WTO accessed online 29th December 2016, available at: https://www.wto.org/english/thewto_e/whatis_e/tif_e/understanding_e.pdf

³²⁸ (counting China and Chinese Taipei's shares together)

Figure 23: Share of biotechnology patents in total - top five countries (%)

Source: OECD Stat, Patents by Technology database available at: https://stats.oecd.org/viewhtml.aspx?datasetcode=PATS_IPC&lang=en Total count of patents (estimated - non estimated) provides the count of all patents by country; number of patents, and author's calculations

Article 27.3 (b) of the TRIPS Agreement means countries have to protect plant varieties using patents or other systems such as plant-breeders' rights (PBRs), or a combination of both. Particularly contentious, the article has been under review since 1999 in part due to some member countries' concerns of the impacts on development, food security, the environment, culture, and morality.³²⁹ Moral issues relate to spiritual and cultural barriers to the patenting of living organisms. Other issues relate to the impact for the broader livelihoods of communities in low-income countries: "food security of local communities in most developing countries depends largely on their saving, sharing and replanting seeds from the previous harvest, the possibility of having to pay fees for engaging in such activities, (...) would negatively affect small rural producers and result in social imbalances" (WTO, 2006, p. 22).³³⁰

In low-income countries, a farmer's livelihood is often based on being able to sell, exchange, and develop seeds best suited for their agro-ecological context.³³¹

^{332 333} Prior to the TRIPS Agreement, most low-income

countries had very weak patent laws for food products, as these were considered fundamental to a society's needs.³³⁴ The next paragraph offers a brief summary of how SDG 2's targets are negatively affected by the current TRIPS regime.

- SDG 2.1: Oligarchic type market control puts smallholder farmers at risk of increased costs of inputs.
- SDG 2.2: Privatisation of biodiversity can lead to reduced genetic diversity and availability of diverse and nutritious diet for smallholder farmers.
- SDG 2.3: Agricultural productivity is constrained by the new agricultural practices. The WTO principles presume all stakeholders have equal market access, but smallholder farmers are much more limited in their access to key market information. The relationship of dependency with foreign entities can discourage the use of sustainable agricultural practices. Less market integration due to oligarchic control also means farmers will be receiving lower incomes for their efforts.
- SDG 2.4: The privatisation of biodiversity also implies the risk of costly legal action, as well as a dependency on foreign entities for inputs. Further, ecologically unsustainable agricultural practices associated with this privatisation degrade land and soil quality.

³²⁹ WTO (2006) Review of the Provisions of Article 27.3(B), Summary of Issues Raised and Points Made, Council for Trade-Related Aspects of Intellectual Property Rights, 9 March 2006, IP/C/W/369/Rev.1

³³⁰ WTO (2006) Review of the Provisions of Article 27.3(B), Summary of Issues Raised and Points Made, Council for Trade-Related Aspects of Intellectual Property Rights, 9 March 2006, IP/C/W/369/Rev.1

³³¹ WTO (2006) Review of the Provisions of Article 27.3(B), Summary of Issues Raised and Points Made, Council for Trade-Related Aspects of Intellectual Property Rights, 9 March 2006, IP/C/W/369/Rev.1

³³² GRAIN (1998), Conflicts between the WTO regime of intellectual property rights and sustainable biodiversity management: Global Trade and Biodiversity in Conflict Issue no.1, April 1998, accessed online 20th March 2017, available at: <https://www.grain.org/article/entries/20-trips-versus-cbd>

³³³ GRAIN, AFSA (2018) The Real Seed Producers: Small scale farmers save, use, share and enhance the seed diversity of the crops that feed Africa <https://grain.org/en/article/6035-the-real-seeds-producers-small-scale-farmers-save-use-share-and-enhance-the-seed-diversity-of-the-crops-that-feed-africa>

³³⁴ Downes, G. (2004) TRIPS and food security: Implications of the WTO's TRIPS Agreement for food security in the developing world, *British Food Journal*, 106(5), 366-379, doi: 10.1108/00070700410531598

- SDG 2.5: Under TRIPS, large corporations can appropriate knowledge to benefit research on new plant varieties, without compensating communities who may have nurtured the organism over generations, rather than “ensuring equitable sharing of benefits”.

In this context, ‘knowledge transfer’ objectives, which do not consider just principles of food sovereignty and context-specific needs, cannot credibly be considered as supportive of a just and fair transition to sustainable food systems. Indeed, a central issue is the narrow definition of what can be considered as ‘scientific’ knowledge to inform decision-making, whereby traditional knowledge is often side-lined. This is especially relevant in light of the European Commission’s launch of the High Level Expert Group to ‘assess the needs, options, impacts, and possible approach for an International Platform for Food Systems Science’, which should address gaps in the provision of food system science and evidence.³³⁵ This evidence base will be incomplete and biased towards current industrial agriculture if it does not adequately integrate and value traditional knowledge.

One way of addressing the imbalances of power under the TRIPS agreement is through the Nagoya Protocol. The aim of the protocol is *‘the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.’*³³⁶ Although Ireland signed on to the Protocol nearly 10 years ago, it has not yet been ratified in the Dáil (Irish Parliament). According to Ireland’s 6th National Report to the Convention on Biological Diversity, the Irish authorities have been preparing national legislation to implement the EU ABS Regulation (no. 511/2014) and, subsequently, intended to ratify the Protocol.³³⁷ The 6th National Report was submitted in 2019 and, two years later, there appears to be no progress in this regard.

In light of the UN Food Systems Summit’s mission toward inclusivity, it would be beneficial for Ireland to demonstrate progress towards the ratification of the Nagoya Protocol.

Knowledge transfer between different agricultural and economic contexts

There is very little explicit consideration in current Irish policies of the differences between agriculture and food systems in low-income countries and those in Ireland. The ecological context and cultural preferences are different, and the starting point is different for low-income countries who face much more stringent and restrictive trade barriers. Ireland’s agricultural evolution has been made possible by economic development that led to a significant reduction of agriculture as a proportion of national GDP and, importantly, a considerable reduction in the number of people relying on agriculture for their livelihood. Ireland’s population density is relatively low and the average farm size is relatively high in global terms (national average of 32.4 hectares in 2016³³⁸), in contrast with many low-income countries, where small farms of 2 hectares or less are prominent. In low-income countries, many people still depend on the food grown to eat. In most cases, agriculture still accounts for a large portion of the GDP and estimates suggest that up to 65% of populations in low-income countries depend on agriculture.³³⁹ An export-driven model is thus not applicable for many low-income countries.

In addition, the Irish agricultural model is not transferable in light of the vastly different climatic and land conditions. For example, when it comes to dairy production in low-income countries, most meat production happens across large unmanaged areas of communal grazing land, where rainfall is often well below that of Ireland. Where rainfall is more prevalent, small farm sizes and cut-and-carry regimes would prevent the type of managed pasture production that happens in Ireland.

It is thus imperative to distinguish between the types of knowledge transfer that Ireland can effectively offer to low-income countries. While some acquired skills in Ireland are needed in low-income countries (e.g., veterinary services, milk processing, cheese production, and marketing), the Irish model of agriculture is clearly not transferable to low-income countries.

³³⁵ European Commission News 17th February 2021, New High Level Expert Group to assess need for an International Platform for Food Systems Science, available at: https://ec.europa.eu/info/news/new-high-level-expert-group-assess-need-international-platform-food-systems-science-2021-feb-17_en

³³⁶ Nagoya Protocol On Access To Genetic Resources And The Fair And Equitable Sharing Of Benefits Arising From Their Utilization To The Convention On Biological Diversity, Article 1

³³⁷ Department of Culture, Heritage and the Gaeltacht (2019), Ireland 6th National Report to the Convention on Biological Diversity, available at: <https://www.cbd.int/doc/nr/nr-06/ie-nr-06-en.pdf>

³³⁸ Central Statistics Office Farm Structure Survey (2016), available at: <https://www.cso.ie/en/releasesandpublications/ep/p-fss/farmstructuresurvey2016/kf/>

³³⁹ World Bank (2016) *Who are the Poor in the Developing World?* Policy Research Working Paper 7844, World Bank Group Poverty and Equity Global Practice Group, available online at: <https://www.worldbank.org/en/poverty/who-are-the-poor-in-the-developing-world>

The absence of consideration for the context-specific nature of food systems is in fact counter-productive to the ‘systems approach’ put forward in the AFS 2030.

Sustainable Food Systems Ireland is emerging as a key institution for knowledge transfer between Ireland and low-income countries. The NTTRA emphasises SFSI’s role in Ireland’s engagement with Africa, namely in playing ‘an important role in supporting rural development programmes in Africa’ (p.36). The SFSI summary strategy 2021-2023 (full strategy not yet available)³⁴⁰ states that their goal is ‘to offer the expertise of Ireland’s Government agri-food organisations internationally, to help partner countries to strengthen food security, sustainability, productivity, and safety.’

There are two potential challenges for SFSI in effectively completing its mission to strengthen food security and sustainability internationally.

The first relates to the potential trade-off between Irish trade interests and those of low-income country partners. Indeed, without sufficient representation of the interests of low-income countries, there is a risk that Ireland’s engagement becomes primarily focused on trade issues, rather than development. For example, in terms of outcomes, the SFSI strategy points primarily to the benefits for Ireland’s reputation and market access:

‘It [SFSI] works on a commercial basis to the benefit of both public and private Irish organisations and in support of Ireland’s trade objectives’ and it enhances ‘the international reputation of Ireland’s agriculture and food sectors’ and has done so by ‘directly and positively influencing the perception among clients about Ireland’s agrifood systems, and contributing to efforts to secure market access for Irish produce in new markets in North Africa and the Middle East’.

The image of SFSI as a means to bolster Ireland’s reputation is further affirmed in Minister McConalogue press release on 31st March 2021: ‘SFSI **provides a brand** to share our Irish Government expertise in food systems with partner countries internationally, on a **commercial basis**’ (emphasis added).

Second, despite SFSI’s mandate to promote factors that underpin Ireland’s agri-food modernisation (including extension systems, knowledge transfer, food safety, and multistakeholder planning), there is no clarity on what a success factor is. The lack of clarity relating to Ireland’s credentials as exemplary in terms of sustainable food

systems described in the previous section, as well as the general lack of consensus on what a food systems approach implies, represents a challenge for SFSI to incorporate the principles of a sustainable food system into its approach. For example, there are no clear indications that, when knowledge exchange services are provided, key principles of development or sustainability – such as the SDGs, agroecology, or sustainability – are embedded. This is compounded by the fact that SFSI are a demand-oriented organisation and are funded as such. This means that the client needs to have an explicit demand for these components of sustainability for SFSI to have the mandate to integrate these principles.

In light of the complexity of food systems, and the inherent coordination challenges associated with same, SFSI could play a crucial role in bridging knowledge gaps within domestic institutions and in contributing to global knowledge sharing. However, the success of the institution – especially in terms of development cooperation goals – will depend on the principles upon which it is founded. As a consultancy organisation, it must align with Irish domestic and foreign policies. As such, it is crucial for the Irish government to provide a clear set of food systems principles that should underpin SFSI’s engagement with low-income countries.

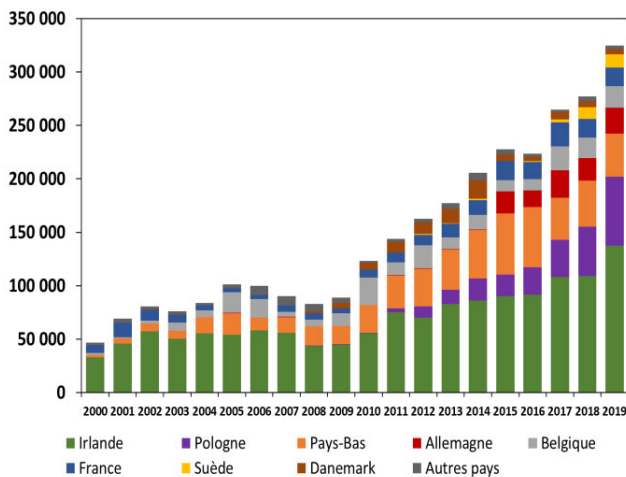
Challenge 5.3: A ‘shift in strategic relationship with Africa’: who benefits?

As described in the section above, the DAFM and the Department of Foreign Affairs (DFA) are already coordinating activities, with a view to mutually beneficial dynamics between Irish and African agri-businesses through AADP and the NTTRA recommendations. Yet, subsidy-fuelled agri-food export growth can have a negative impact on farmers in low-income countries, which highlights the importance of ensuring all objectives are adequately considered. In the example below, trade objectives may be disproportionally considered to the detriment of development cooperation goals of ensuring a sustainable and robust ‘local markets and infrastructure’.

In some contexts, the expansion of agricultural products to low- and middle-income countries are having negative socio-economic and environmental impacts. As noted above, one of the main trading partners involved in Ireland’s increased growth agri-business exports is Nigeria. In fact, Ireland is one of the main exporters of fat-filled milk powders across West Africa, as per Figure 24, below.

³⁴⁰ https://www.sfsi.ie/wp-content/uploads/2021/03/SFSI_Strategy_Summary_190321-V2.pdf

Figure 24: Ireland is by far the largest exporter of dairy products to West Africa



Source: COMTEXT/Traitement SMART-LERECO via CIRAD (2020), *Lait, Commerce et Développement au Sahel, Impact Socioéconomiques et Environnementaux de l'Importation des Melanges MGVS Européennes en Afrique de l'Ouest*

The increase of milk powder exports from Ireland and Europe to West Africa since 2015 has increased competition pressure on farmers in West African countries. Such subsidised imports disincentivise Governments from investing enough in developing and facilitating local markets. Many countries in West Africa, including the continent's biggest economy, Nigeria, have already taken action to curb the rising tide of milk imports and implemented policies to support farmers and protect indigenous milk production. Still, dairy farmers say the competition is so intense that it is too little too late. For example, Nigeria's imports of fat-filled milk powder have quadrupled in the last 17 years, already negatively affecting local dairy markets.³⁴¹

What's more, government officials, small-scale dairy owners and livestock farmers in West Africa argue the powdered imports are nutritionally inferior and environmentally damaging. The palm oil it contains comes typically from plantations in Malaysia and Indonesia — the root cause of deforestation and species loss there.³⁴² Milk plays an important role in dairy farming families, as it contributes to food and nutrition security and a regular income for them, especially women who are the main actors in the sector. Almost all farm families sell milk, mainly when it is abundant in the rainy seasons, but the amount of processed milk is



Dairy farmer Fatou Sidibe from Burkina Faso tends to her livestock. Photo Pablo Tosco/Oxfam

low. The processing done by farmer family businesses, or mini-dairies, is done with local milk, but throughout most of the year the processing is done from milk powder (various dairy products such as pasteurised milk or yogurt can be made from milk powder or local milk, or a mixture of the two). This leads to an increase of dependence on imports. Yet, there are no provisions in the AFS 2030 to ensure exporting companies have to support the development of the local dairy industry and targets for how much milk they will source locally.

In line with ECDPM³⁴³ recommendations for policy coherence in food systems, efforts toward new relationships with African countries should bolster local markets rather than putting them at risk. Where African countries are consumers, programmes such as AADP should aim to identify the impacts and needs at the local level and allocate ODA accordingly (e.g. for improved infrastructure and shorter supply chains). There is currently no data provided on the impact of AADP on local markets and nutrition outcomes. Without this evidence, it is difficult to ascertain the value of AADP for farmers and consumers in recipient countries.

Coherence between department objectives needs to be better aligned. The AADP and the NTTRA show Ireland's first attempts at evolving alongside a changing global landscape. Indeed, collaboration between the Department of Foreign Affairs (Irish Aid) and the

³⁴¹ Politico (12th August 2020) The EU milk lookalike that is devastating West Africa's dairy sector, available at: <https://www.politico.eu/interactive/the-eu-milk-lookalike-that-is-devastating-west-africas-dairy-sector/>

³⁴² Politico (12th August 2020) The EU milk lookalike that is devastating West Africa's dairy sector, available at: <https://www.politico.eu/interactive/the-eu-milk-lookalike-that-is-devastating-west-africas-dairy-sector/>

³⁴³ ECDPM (2021) Adopting a sustainable food system approach: implications for Ireland's development programming and policy influencing. Discussion Paper no. 288

Department of Agriculture, Food, and the Marine can support aims toward a more mutually beneficial relationship with African countries, in line with evolving development cooperation landscape.³⁴⁴ However, a primary objective of the DAFM is the identification of new markets for Irish agri-business: *'As Irish food producers seek new markets, opportunities also arise for investment in low-income'*³⁴⁵ while a primary objective of ODA is to reduce poverty and hunger, in this case by supporting *'sustainable growth of the local food industry, build markets for local produce'*.³⁴⁶ Yet, as shown above in the case of West Africa, Irish agri-food imports are potentially having a negative effect on local markets and nutritional outcomes and there appears to be no mechanism to ensure coherence between these objectives. Thus, engagement with African countries should consider impact assessments that identify mutually beneficial initiatives which prioritise the recipients of ODA, rather than domestic agri-businesses.

Further, as an FAO member, Ireland can defend the role of the CFS in food security governance and adopt its recommendations into national laws and policy frameworks.³⁴⁷ For example, at the UN FSS and beyond, Ireland can advocate for the following objectives in food systems governance: advance and defend human and peoples' rights, food sovereignty and food systems as commons and public goods; for putting public interest first – dismantle corporate power, regulate corporations and financial capital; and to democratise public institutions and multilateralism. Beyond the multilateral system, Ireland can advocate for the implementation and strengthening of FAO's Responsible Investments in Agriculture and Food systems (RAI) domestically and in global contexts. Indeed, the RAI are criticised for being weak in terms of human rights and have been called upon to strengthen the principles against potential 'unscrupulous' investors.³⁴⁸ Ireland could also advocate for the provision in the ECOWAS Milk Strategy that at least *'25% of the volumes of milk processed by the different categories of dairy industries should come from*

local livestock'.³⁴⁹ Complementary legislation to ensure private sector compliance with a sustainable food systems approach needs to be brought forward (for example, effective Human Rights and Environmental Due Diligence legislation), to ensure that companies are legally obliged to fulfil human rights and environmental obligations throughout their supply chain.

Finally, if Ireland is serious about becoming a global leader in sustainable food systems it, not only has to change its own production model, but work to change the global and EU policy framework, so unsustainable production around the world is phased out. This will ensure that Irish farmers are not put at a competitive disadvantage as a result of moving to more sustainable production methods and that measures to reduce emissions in Ireland do not inadvertently cause 'carbon leakage' – the idea that reductions in production in Ireland could result in other countries with less stringent sustainability regimes increasing their production and thus resulting in no global reduction of emissions. There are a number of policy mechanisms that could be explored to achieve this – carbon border adjustment taxes, standardised measures of embedded carbon in end products, trade deals with enforceable climate action provisions, appropriate investor rules etc. In a globalised economy, no one country can successfully reform its production model on its own without global reform. Ireland can leverage its membership to the EU – which has considerable influence in shaping this agenda globally – to advocate within the EU for even more ambition in this area.

Summary: The section's analysis found that, while Ireland has a strong reputation when it comes to tackling hunger, partially evidenced in its support of the UN FSS, recent policy narratives (e.g. relating to the AADP) suggest a risk of diverging from core development principles. Indeed, greater emphasis appears in the narrative on the use of development cooperation as a tool to benefit Irish businesses and trade, rather than emphasising support to low-income countries to achieve locally-owned sustainable food systems based on their specific climatic, cultural, and nutritional needs.

The section also highlights Ireland's global leadership in terms of food safety and ODA disbursements to food and nutrition security – which have remained consistently higher (as a portion of their total ODA)

³⁴⁴ Mawdsley, E. (2015) DFID, the Private Sector and the Re-centring of an Economic Growth Agenda in International Development, *Global Society*, 29(3), 339-358, DOI: 10.1080/13600826.2015.1031092

³⁴⁵ <http://www.dci.gov.ie/media/irishaid/allwebsitemedia/20newsandpublications/publicationpdfsenglish/aafdf.pdf>

³⁴⁶ <http://www.dci.gov.ie/media/irishaid/allwebsitemedia/20newsandpublications/publicationpdfsenglish/aafdf.pdf>

³⁴⁷ Oxfam (2019) Gender Inequalities And Food Insecurity: Ten years after the food price crisis, why are women farmers still food-insecure?

³⁴⁸ Oxfam International, 15th October 2014: Oxfam response to UN Committee on World Food Security Endorsement of Principles, available at: <https://www.oxfam.org/en/press-releases/oxfam-response-un-committee-world-food-security-endorsement-principles>

³⁴⁹ ECOWAS (2019) Regional Offensive for local milk value chains promotion in West Africa, available at: http://www.hubrural.org/IMG/pdf/angl_projet_de_rapport_final_ym_rev2-3.pdf

than their DAC peers since 2007. In addition, the data suggest that this ODA prioritises resilience and climate change adaptation, and, importantly, marginalised groups, inclusive policies, and smallholder farmers, thus aligning with at least some of the principles of an agroecological approach.³⁵⁰

In light of Ireland's emphasis on knowledge transfer to developing countries, there exists an opportunity to demonstrate greater leadership by increasing its investments to agricultural research, extension, and education, with the progressive alignment of investments in these areas in support of the scaling up and out of innovative approaches for sustainable food systems, especially those based on agroecological approaches, as proposed by the recently endorsed CFS policy recommendations on this matter.³⁵¹ In addition, Ireland should ratify the Nagoya Protocol and advocate at global and regional levels for strengthened equity within the WTO system and greater value to be attached to traditional knowledge in evidence-based decision making; and to ensure the appropriate recognition of this for indigenous peoples.

Finally, the section highlighted the potential risks of policy incoherence between Ireland's development cooperation trade goals through the example of exports of dairy products in West Africa. Coherence between department objectives needs to be better aligned. Engagement with African countries should consider publicly available impact assessments that identify mutually beneficial initiatives, which prioritise the recipients of ODA, rather than domestic agri-businesses.

Recommendations

- Mainstream a food systems approach in all institutions and organisations involved in development cooperation, including the human rights and food sovereignty components. Specifically, ensure transparency of all public funding to demonstrate the mutual benefits of funding and ensure same is not disproportionately benefitting Irish businesses to the detriment of local markets in low-income countries.

- 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 bottom-up approaches.
- Ratify the Nagoya protocol. Advocate for greater acknowledgement of traditional knowledge as a key part of the evidence-base for decision making regarding food systems. Advocate for more inclusive and fair policy and agricultural trade spaces, including a reform of the TRIPS agreement to eliminate oligarchic type market control of agri-businesses and the privatisation of biodiversity.
- Work to ensure Irish agri-business entrench principles of policy coherence in all engagements with low-income countries, especially the principle of 'do no harm'. Ensure that Irish agri-business undertake a real strategic shift towards collecting locally produced produce from local family farms in export markets. For example, explore mechanisms to ensure Irish exporters reach the ECOWAS target of 25% of local milk collection by 2025. Put in place necessary supports to enable increases in local production within export countries.
- Introduce effective Human Rights and Environmental Due Diligence legislation to ensure private sector compliance with sustainable food systems approaches. Such legislation will ensure that companies are legally obliged to fulfil human rights and environmental obligations throughout their supply chain. To this end, Ireland should actively support and contribute to the development of an ambitious, effective and binding UN treaty on business and human rights, to regulate the activities of transnational corporations and other business enterprises.
- Advocate for changes at EU and global level to relevant policy frameworks to ensure unsustainable food production around the world is phased out and sustainable methods of production are supported.
- Ensure Ireland's efforts for global leadership extend beyond high level events such as the UN Food Systems Summit. Ireland can provide leadership, for example, towards the achievement of SDG 2, including by building on its strong relationship with the Rome-based agencies to reinforce the mandate and role of the Committee on World Food Security.

³⁵⁰ Namely, the principles as described by IPES (2021): A unifying framework for food systems transformation A call for governments, private companies & civil society to adopt 13 key principles

³⁵¹ Policy recommendations on agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition, available at: <http://www.fao.org/3/nf777en/nf777en.pdf>

Box 8: Regreening the Sahel - A quiet agroecological revolution.³⁵²

Across large areas of the Sahel region of West Africa, one of the poorest and most environmentally precarious areas of Africa, a decades-long revolution in agroecology has produced remarkable results in improving food security and reversing environmental degradation. What farmers have achieved in 30 years across the Sahel, one of the most fragile zones on the planet, has been described as *'the greatest agroecological success story in Africa, and perhaps anywhere'*.³⁵³ It demonstrates how environmental health is the basis of sustainable development, food security, and poverty reduction; without fertile soil, no life is possible.

Sahelian farmers, driven to desperation by the great droughts of the early 1970s and the 1980s, have ingeniously modified traditional agroforestry, water, and soil management practices to restore the fertility of their land. In Burkina Faso, local farmers – of whom the 78-year-old Yacouba Sawadogo, winner of a Right Livelihood Award in 2018 (considered 'the Alternative Nobel Prizes'), is perhaps the most famous – experimented with *zai*, which are planting pits containing manure to retain moisture and nutrients, and with stone bunds known as *diguettes* to hold back rainwater and allow it to soak into the soil. Farmers like Sawadogo deliberately set about leading the spread of successful techniques to their neighbours and then further afield, by creating farmer-to-farmer spaces, schools, and networks, supported in their efforts by a wide range of international non-governmental organizations (NGOs).

The results have improved food security for some three million people; increases in household gross incomes, by an average of 18–24%; the reversal of environmental degradation and desertification across some 6m hectares of land (an area three times the size of Wales); and around 200m new trees being grown, with a production value of over USD260m. Improvements in nutrition may, in turn, help build resilience to future health pandemics.

Climatically, the changes have meant decreased soil erosion, reduced wind speed, decreases in local temperatures and increases in rainfall, along with greater biodiversity. There is also some evidence that such techniques can reduce conflict locally, both through the process itself – i.e. the negotiations between potentially competing groups that successful agroecology entails – and as a result of increasing the size of the 'resource cake' available to all.

Opportunity 6: Rural revitalisation

Section Roadmap: This section aims to outline Ireland's approach to rural revitalisation in its agri-food policies. It does so by assessing the AFS 2030's approach to empowering consumers and by assessing the distribution of value of Ireland's export-driven approach to agri-food. The section also aims to outline some of the key cultural and social sustainability components of a sustainable food system in Ireland.

AFS 2030 aims to *'improve the social sustainability of primary producers'*. The well-being of primary producers and rural communities is considered through the lens of generational renewal, gender balance, education and training, and health and safety, including mental health.

Social sustainability means a food system's activities contribute to the advancement of *'important socio-cultural outcomes, such as nutrition and health, traditions, labour conditions, and animal welfare'*.³⁵⁴ As such, the impacts of social sustainability relate to: added value distribution (gender, youth, indigenous people); cultural traditions; nutrition and health; workers' rights and safety; animal welfare; and institutions.

A NESC (2021) study³⁵⁵ outlined ten key challenges for rural Ireland identified by a group of experts. The top-ranking challenge was 'climate', but this was also the only environment-related challenge identified in the top ten list, with seven of the ten relating to economic challenges (production, market, profitability, Brexit, employment, connectivity, and consumer), while three related to social challenges (succession, ageing, and connectivity).³⁵⁶

³⁵² C. Reij, G. Tappan and M. Smale. (2009) Re-greening the Sahel: farmer-led innovation in Burkina Faso and Niger. This forms chapter 7 of IFPRI (2009). Millions Fed: Proven Successes in Agricultural Development, D.J Spielman and R. Pamdya-Lorch (eds), and is based on a much longer report by the same authors from 2009: Agroenvironmental transformation in the Sahel: Another kind of "Green Revolution". IFPRI discussion paper 00914, November 2009. 22 C. Reij, G. Tappan and M. Smale.

³⁵³ C. Reij, G. Tappan and M. Smale. (2009) Re-greening the Sahel: farmer-led innovation in Burkina Faso and Niger. This forms chapter 7 of IFPRI (2009). Millions Fed: Proven Successes in Agricultural Development, D.J Spielman and R. Pamdya-Lorch (eds), and is based on a much longer report by the same authors from 2009: Agroenvironmental transformation in the Sahel: Another kind of "Green Revolution". IFPRI discussion paper 00914, November 2009. 22 C. Reij, G. Tappan and M. Smale.

³⁵⁴ FAO (2018): Sustainable food systems Concept and framework, available at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

³⁵⁵ NESC (2021) Challenges and opportunities for Rural Ireland and the Agricultural Sector, Research Paper 20, available at: http://files.nesc.ie/nesc_research_series/Research_series_paper_20_UCD_Rural.pdf

³⁵⁶ 'Connectivity' is classified as both a social and an economic challenge

A pre-requisite for rural revitalisation is the promotion of rural economies. Rural markets and urban farmers' markets need space, storage, cleaning services, and official encouragement and support. In addition, communications, transport connectivity, and affordable housing are needed to foster local commercial activities and to incentivise those seeking to move to rural areas.

In March 2021, Ireland launched its first Rural Development policy since 1991 (although there was an Action Plan established in 2017).³⁵⁷ This is an important step towards the prioritisation of revitalising Ireland's rural space and points to comprehensive, joined-up thinking across government. Over the past 20 years, rural development policy in Ireland has largely been considered through the lens of its agri-food strategies, which gave disproportionate weight to the role of agriculture in the development of rural areas.

Analysis of the Rural Development Policy is beyond the scope of this report but the agri-food strategy remains relevant to the analysis in terms of its impact on connecting producers with consumers, aligning with the EU Farm to Fork's emphasis on short supply chains, and the link between food, landscapes, heritage, and culture.

Challenge 6. 1: Empowered and connected producers and consumers

There is inadequate attention in the AFS 2030 for the prioritisation of local production and supply of food, yet the F2F strategy clearly state ambitions toward the promotion of shorter supply chains and enabling local food production.

As previously mentioned, although there is ample scope for diversification in Irish agriculture, the emphasis on export in Ireland's agri-food strategy remains predominant, potentially to the detriment of bolstering local supply and production of accessible, affordable, fresh and nutritious foods. At the same time, cultural attachments to specific types of agriculture (namely livestock) may also present barriers to diversification. Nonetheless, AFS 2030 commits to supporting 'the establishment of additional Producer Organisations in farming'.

Further, NESF (2021) emphasise the need for increased transparency across the food chain when it comes to food pricing and the social contract surrounding CAP.

The Beef Task Force and the provision for a retail regulator are provided as examples of steps in the right direction but are not deemed sufficient to address power imbalances in the food supply chains, with transnational corporations dominating the market, which creates further disconnect between producers and consumers.

Sumelius & Vesala (2005) consider social sustainability *'in terms of social capital that is maintained and generated in horizontal networks built on trust and reciprocity'*, and through 'equity and community viability'.³⁵⁸ Organic production is offered as one mode of production for 'alternative food systems' and local as a mode of distribution. The aforementioned target to increase organic production in Ireland may thus contribute to social sustainability of food systems.

However, organic production remains an output indicator and cannot be presumed to lead to social sustainability outcomes. Organic agriculture could be a starting point for a broader regenerative approach. Regenerative agriculture supports the production of highly nutritional food, high yields, free from biocides, and promotes soil health. Importantly, it requires an intimate relationship between manager/participants of the system and the system itself, and generates increased levels of employment. National planning thus needs a high degree of local and regional self-reliance to close nutrient-flow loops.³⁵⁹ It is also worth mentioning that one study in Italy suggests fewer cases of COVID-19 contagion in areas where agriculture is diversified, in contrast to areas with highly industrialised agriculture.³⁶⁰ Further, farmers, producers, and consumers would benefit from investments in infrastructure and inputs that support local communities in creating the spaces to connect producers with consumers. Particularly in light of the high-cost of housing and rent in Ireland, this could include low-cost loans and access to training for social entrepreneurial activities.

More specifically, given the significant focus on agriculture in the Rural Development Programme funding allocation under CAP Ireland could consider significantly increasing its investment in the LEADER programme, which includes initiatives to promote short

³⁵⁷ Department of Rural and Community Development, 29th March 2021: Rural Development Policy 2021-2025 – Our Rural Future, available at: <https://www.gov.ie/en/publication/4c236-our-rural-future-vision-and-policy-context/>

³⁵⁸ Sumelius, J. & Vesala, K.M., (2005) Approaches to Social Sustainability in Alternative Food Systems, *Ekologiskt Lantbruk* nr 47 December 2005, *Baltic Ecological Recycling Agriculture and Society (BERAS)* No. 6

³⁵⁹ Giller, E. K. (2021) Regenerative Agriculture: An agronomic perspective, *Outlook on Agriculture*, *Sage journals*, 50(1), 13-25, available at: <https://doi.org/10.1177/0030727021998063>

³⁶⁰ Agnoletti, M., Manganelli, S. & Piras, F. October 2020, COVID-19 and rural landscape: the case of Italy, *European Central Bank*, No. 2478/ October 2020

food supply chains and alternative food production including artisan, micro and small food producers, regional product development and improved marketing, product quality, and business skills.

Finally, the most pressing task for the Irish government is to follow through on its commitment in the Programme for Government to accelerate the roll-out of the National Broadband plan. Without adequate connectivity, Ireland's rural populations will remain at a disadvantage when it comes to commercial and social activities.

Challenge 6.2: Heritage, culture, and social cohesion

In 2010, UNESCO classified food as 'intangible cultural heritage' (criteria based on style and manner of consumption). While AFS 2030 recognises the concept of 'heritage', it is mentioned just three times throughout the strategy in the context of livestock as an 'important part of agricultural heritage', of native woodlands' as a part of Ireland's natural heritage (chapter 3), and 'heritage grains' (e.g. malt barley) as a means of economic diversification.

For rural communities especially (but also for national and foreign tourists), land is not just about production and cannot be considered in isolation of other elements of nature; indeed, *'land is embedded in territory, which includes water, air, forests, plants, animals, fish, other living creatures, culture, sacred sites, ceremonies and practices'*. Thus, agricultural reform needs to be rooted in the concept of 'territory', upon which social and political relationships depend.³⁶¹

Ireland's food identity is complex and understudied. Mac Con Iomaire (2018) calls for a 'recognition of foodways as significant in Ireland's intangible cultural heritage'.

While Ireland has been recognised for the quality of its 'raw materials' when it comes to food, the same cannot be said for its cuisine. Yet, a concerted effort is being made at the national level – and can be deemed to be at least partially achieved – to shift this image. Importantly, Irish chefs and restaurants securing international awards has contributed to a reversal of Irish cuisine's 'less-than-glowing' reputation.³⁶²

These cultural and heritage aspects are important, namely because they can play a role in identity formation and social cohesion.³⁶³ Food is a political and 'social act, and an aspect of people's intimate life that goes beyond biology, and is interrelated with culture'. For example, dietary practices can be determined by the norms in each society. Social cohesion – or a lack thereof – is closely linked to inequalities and vulnerabilities in food systems such as access to healthy and sustainable food and working conditions.

Summary: There is inadequate attention in the AFS 2030 for the prioritisation of local production and supply of food, yet the F2F strategy clearly state ambitions toward the promotion of shorter supply chains and enabling local food production. Currently, just 43 large firms account for the majority (84%) of agri-food export wealth in Ireland. While there are numerous food security, availability, and diversity benefits to international trade and exports, more emphasis on the potential for local and shorter supply chains to bolster rural revitalisation through local economies and social cohesion is needed. This is especially pertinent, given the high volumes of imported fruit and vegetables which could be grown locally, in contrast to the low levels of horticultural production (see Figure 26 in the following section).

Greater emphasis in Ireland's agri-food decision-making processes could be placed on the value of food as a central component of the country and each community's social fabric. More research into the history of food in Ireland, as well as greater investment in local food networks, could strengthen the social sustainability of food systems.

Recommendations

- Ensure adequate investment is made to support rural economies. Urgently implement government commitments to large-scale broadband access. Invest more in programmes that can bolster local supply chains (e.g. LEADER)
- Invest more in fresh, nutritious, and local produce. Increase subsidies for horticultural development to reduce reliance on imported fruit and vegetables.
- Invest more in Ireland's food identity. Increase funding for research into Ireland's food history. Create a food subject in schools to educate students on healthy diets and cooking options, the links between agriculture and human and environmental health, as well as to promote domestic approaches to reduce food waste at the household level.

³⁶¹ Spannier, J. (Forthcoming) Think Piece, Territorial Perspectives on Food: Mapping the debate and sketching ways forward, Mercator Foundation, FIAN International, Oxfam Solidariteit-Solidarité and FIAN Ecuador

³⁶² Mac Con Iomaire, M. (2018) Recognizing food as part of Ireland's intangible cultural heritage, *Journal of Ethnological Studies*, 56(2), available at: <https://doi.org/10.1080/04308778.2018.1502402>

³⁶³ Quintero-Angel, M. et al (2019) The cultural transmission of food habits, identity, and social cohesion: A case study in the rural zone of Cali-Colombia, *Appetite*, 139(1), 75-83

Opportunity 7: Emphasising nutrition

Section Roadmap: This section aims to outline some of the nutrition-related challenges faced by Irish residents and policy-makers. It does this by distilling the narratives around the cost of food and describing the approaches taken to regulation and nutrition.

AFS 2030's Mission 3 aims to ensure a supply of food that is 'safe, nutritious and appealing; trusted and valued at home and abroad'. It aims to do this by: prioritising coherent food and health policies for improved health outcomes, enhancing customer trust by providing evidence of safe, ethically responsive food systems, creating value added in food through insight, innovation and product differentiation, and by developing market opportunities at home and abroad.

The links between diets and nutritional outcomes are clear, and include strengthened immune systems, reduced overweight, and improved development of the brain.^{364 365} The importance of nutrition in preventing and alleviating illness is also clear. For example, one recent study in Switzerland showed that, among 645 individuals hospitalised with chronic heart failure, those who received regular hospital food had close to a doubled risk of mortality within 30 days, compared to those who were given a personal nutrition plan.³⁶⁶ On the other hand, unhealthy diets can cause noncommunicable diseases such as cardiovascular disease, type 2 diabetes, and certain cancers. In fact, 2.7 million deaths are attributable to diets low in fruits and vegetables, for example causing roughly 19% of gastrointestinal cancer and 31% of coronary heart disease, while at least 2.6 million people die every year due to overweight or obesity.³⁶⁷ Further, evidence emerging since the COVID-19 pandemic has emphasised the urgency of improving food environments and diets. One study suggests that the mortality rates from COVID-19 were at least 10 times higher in countries where at least 50% of the population were overweight.³⁶⁸ In addition, poor diets are a key risk factor

for non-communicable diseases, such as cardiovascular disease and diabetes,³⁶⁹ which in turn aggravate the risks associated with COVID-19.³⁷⁰

In Ireland, 57% of the population is overweight, pointing to a population that is overfed but undernourished. Irish people consume more sugar-sweetened beverages (SSBs) and sodium than its Northern-European counterparts.³⁷¹ High levels of processed food, including processed meat and SSBs, contribute to poor nutritional outcomes, such as obesity.

In 2014, 7.3% of men and 5.1% of women suffered from diabetes in Ireland (with a slight increasing trend since 2010); and, as of 2015, 23% of men and 16% of women in Ireland experienced raised blood pressure.³⁷² Further, the prevalence of anaemia in women has been on the rise since 2008, with the highest prevalence found in pregnant women (21.5%) as of 2016. As of 2014, a significant portion of Irish adolescents did not consume the recommended daily vegetable and fruit intake, as per Table 6. This represents a higher portion than teenagers in Northern Europe, and globally.^{373 374}

Table 6: Adolescent diets in Ireland (school-going children)

Consumed less than recommended daily intake of vegetables:	44%
Consumed less than recommended daily intake of fruit:	41%
Drank soft drinks at least once a day:	11%

Source: GFSD country profile

Challenge 7.1: Economic access to healthy diets

A key issue that promoted and now enables conventional agricultural approaches is based on the premise that food insecurity is largely related to a lack of physical and economic access to food and, therefore, increasing supply of cheap food became an obvious solution. However, this failed to consider the quality of the food, the capacity of a population to absorb its nutrients, and the environmental costs associated with producing it (and thus the effect on future generations' food security).

³⁶⁴ WHO April 2020, Healthy Diets fact sheet, available at: <https://www.who.int/news-room/fact-sheets/detail/healthy-diet>

³⁶⁵ Huffman, S.L. et al (2011) Essential fats: how do they affect growth and development of infants and young children in low-income? A literature review, available at: <https://pubmed.ncbi.nlm.nih.gov/21929635/>

³⁶⁶ Hersberger, L. et al (2021) Individualized Nutritional Support for Hospitalized Patients with Chronic Heart Failure, *Journal of the American College of Cardiology*, 77(18), 2307-2319

³⁶⁷ World Health Organisation Fact Sheet: Unhealthy Diets & Physical Inactivity, June 2009, available at: https://www.who.int/nmh/publications/fact_sheet_diet_en.pdf

³⁶⁸ World Obesity Federation, March 2021, COVID 19 and Obesity: The 2021 Atlas, The Cost of Not Addressing the Global Obesity Crisis, available at: <https://www.worldobesityday.org/assets/downloads/COVID-19-and-Obesity-The-2021-Atlas.pdf>

³⁶⁹ Branca, F. et al (2019) Transforming the food system to fight non-communicable diseases, *BMJ*, 364: l296

³⁷⁰ WHO Working Group, 6th April 2020, COVID-19 and NCDs: Conceptual framework for the WHO NCD/WIN Technical Working Group

³⁷¹ Global Food Systems Dashboard country profile

³⁷² Global Food Systems Dashboard country profile

³⁷³ And this is a conservative estimate based on a sample of school-going students.

³⁷⁴ Global Food Systems Dashboard country profile

The most common narrative is that, in Ireland, like other high-income countries, nutrition does not represent a challenge. The Institute for International and European Affairs (2015), for example, affirm Ireland's place as a global leader in nutrition and food security – Ireland is part of a portion of the world's population that is 'not in any short or long-term risk of food and nutrition security'.³⁷⁵ Indeed, when considering indicators such as strict caloric (vs micronutrient) deficiencies reflected in the prevalence of undernourishment or of stunting/wasting, Ireland ranks among the most food secure in the world.

However, national data offers a more nuanced and insightful information on food affordability in Ireland. The cost of a healthy diet in Ireland accounts for up to 51% of a household's food expenditure.³⁷⁶ Thus, while, on the one hand, this points to Irish household capacity to absorb a potential increase in the price of food, on the other hand, it is important to disaggregate by income grouping and context. For example, low-income households in urban areas can spend 34% of their total income on food, with the figure being 36% for rural households.³⁷⁷

These nuances are especially important for policy-makers seeking to address the trade-offs between the unsustainable low price of food and the potential impact of measures that would increase the price of food, such as environmental regulation on agricultural production which could increase the cost of production, and thus the price of food.

For example, True Cost Accounting (described in the *Opportunity 2: Improved credentials, metrics and transparency*) would ultimately incur an increase in the price of food. For those in lower income brackets, policies such as cash transfers could alleviate the burden of increased food prices. While it is not guaranteed that these cash transfers would be spent on healthy food, Ireland is already committing to educational programmes on nutrition and healthy diets. In parallel with adequate social welfare, these could lead to improved consumption of healthy diets.

Challenge 7. 2: Providing fresh, nutritious, and local produce in an export-driven model

Diverse and intraspecific ecosystems are at the basis of sustainable agricultural practices, which includes sustainable soil management to provide crops with the micro and macro-nutrients for a complete diet.³⁷⁸ An agricultural practice that works in harmony with its ecosystem must go beyond organic to include diversity at the 'output' and 'outcome' stages, meaning a diverse array of contextually appropriate crops and measures designed to increase food security and maximise ecosystems health. Aside from the inextricable links between healthy diets and obesity, the HLPE highlight the multifaceted nature of adequate utilisation which applies to countries of all income-groupings, namely, hidden hunger (micronutrient deficiencies), poor dietary diversity, diseases that hinder nutrient absorption, access to information on nutrition, and gender division of labour.³⁷⁹

The lack of diversity in agriculture contributes to a growing malnutrition burden as food manufacturers formulate products derived from low cost high-calorie commodities which contributes to the growth of obesogenic processed foods.³⁸⁰

The link between health outcomes and agriculture are (largely) absent from Ireland's agri-food strategies, yet, *what* is being produced – and *how* – will determine what's made available on the shelves for consumers. The absence of recognition of these linkages translates into a misalignment between the export-oriented crops produced and the dietary gaps of the Irish population. Indeed, the primacy of export markets over local markets means that the choice of *what* to produce will be determined based on export market trends rather than (even partially) based on the nutritional needs of the country's citizens and residents.

Yet, in Ireland, less than 2% of crop production is dedicated to fresh vegetables,³⁸¹ despite the HSE's recommendation to increase servings up to seven per day.³⁸² Just 0.3% of crop production is dedicated to 'permanent crops for human consumption', which generally yield a higher added value

³⁷⁵ IIEA (2015) Towards a Sustainable Agriculture: A Workshop on Global and EU Medium and Long-term Policies

³⁷⁶ FAO, IFAD, UNICEF, WFP and WHO. (2020) The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO, available at: <https://doi.org/10.4060/ca9692en>

³⁷⁷ Safe Food (2019) What is the cost of a healthy food basket in the Republic of Ireland in 2018?

³⁷⁸ FAO (2015) Healthy Soils are the Basis for Healthy Food Production, FAO, Rome, available at: <http://www.fao.org/3/a-i4405e.pdf>

³⁷⁹ HLPE. (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

³⁸⁰ Benton TG, Bailey R (2019) The paradox of productivity: agricultural productivity promotes food system inefficiency. *Global Sustainability* 2, e6, 1–8, available at: <https://doi.org/10.1017/sus.2019.3>

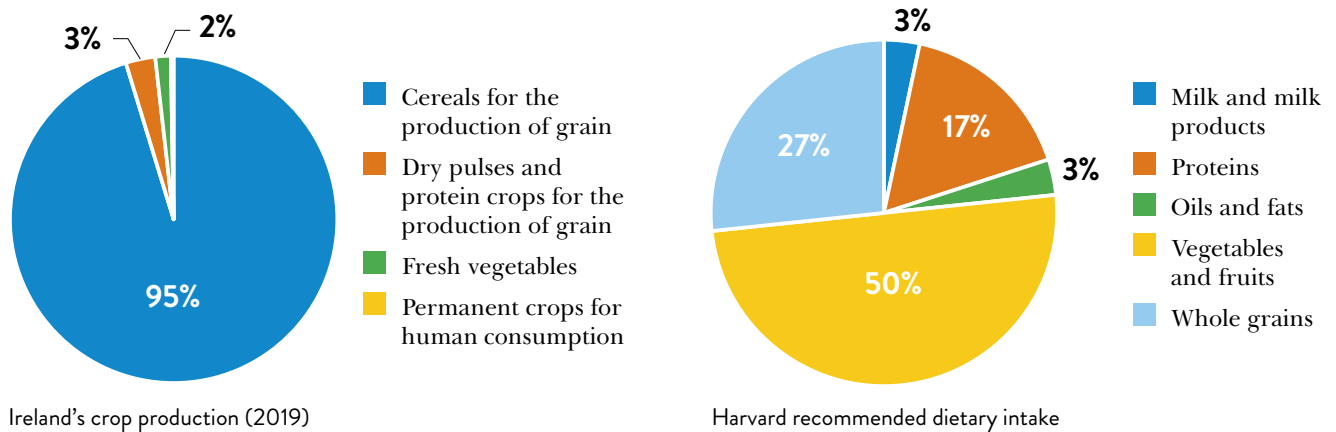
³⁸¹ Eurostat: Includes all brassicas, leafy and stalked vegetables, vegetables cultivated for fruit, root, tuber and bulb vegetables, fresh pulses, other vegetables harvested fresh (not dry) and strawberries.

³⁸² HSE Healthy Eating Guidelines, available at: <https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/health/healthy-eating-guidelines/>

per hectare than annual crops. Crops also play an important role in shaping the rural landscape (e.g. orchards) and help balance agriculture within the environment. However, more than 95% of production is dedicated to annual cereal crops for food, feed, seed, and industrial purposes.

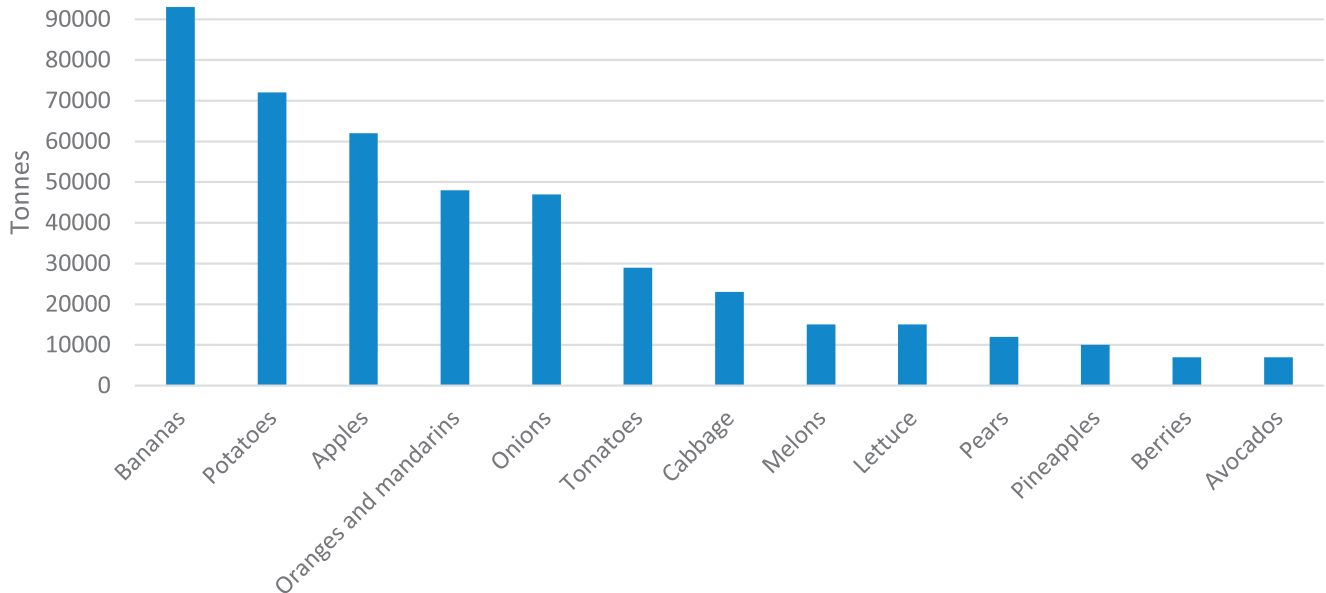
Figure 25, below, provides an indicative illustration of the discrepancy between what Ireland produces and recommended dietary intake – on arable land only, i.e., excluding agricultural land used for livestock.³⁸³

Figure 25: What Ireland produces vs dietary needs



In fact, Ireland imports thousands of tonnes of fruit and vegetables each year – including items that could be grown in the Irish climate, such as apples, pears, and potatoes, as per Figure 26, below.

Figure 26: Ireland's Fruit and Vegetable Imports, 2017 (tonnes)



Source: Central Statistics Office (2017): Ireland's Trade in Goods, Food 2017: <https://www.cso.ie/en/releasesandpublications/ep/p-ti/irelandstradingoods2017/food2017/>

³⁸³ Arable land represents only a small portion (<7%) of land, hence the 'illustrative' nature of these graphs

Challenge 7. 3: Regulating industry

AFS 2030 points out that regulatory and voluntary codes of practices are needed, yet at the same time it suggests that industry self-regulation has resulted in good progress, in particular when it comes to product reformulation. While the private sector/food industry have significant potential to address nutrition challenges, it is highly questionable to assume that self-regulation will produce the necessary health outcomes in Ireland. From an institutional perspective, the incentives of a private sector company differ from public institutions. For example, with unhealthy diets globally costing at least 5% of global GDP matters (or should matter) to public institutions that will be bearing the costs of this, namely through increased healthcare costs, whereas a private entity would have no need to factor this into decision-making without enforceable regulation.

The Irish food and beverage industry rely on product reformulation as a key strategy to tackle obesity. A report prepared for the National Clinical Programme for Obesity and the Minister for Health in 2019 identified six fundamental flaws in the February 2019 Food Drink Ireland report which described improvements in dietary patterns resulting from industry-led reformulation initiatives.³⁸⁴ The review found that the Food Drink Ireland report:

- inferred a causal relationship between industry-led food reformulation and decreases in sugar, salt, saturated fat, and energy intake.
- selectively used points of time and products, which leads to a high risk of selection bias.
- blurred the difference between a marketing research report and a scientific report.
- aggregated decreases in salt, sugar, and saturated fats across categories and this masks the uneven nature of reformulation strategies;
- introduced a status quo bias, normalising the 2005 starting point.
- assumed that any progress in dietary change was solely as a result of industry voluntarism, demoting the work of public health and government policy

In the Irish context, corporate power has been shown to promote a food system that prioritises capital, namely

through ‘selective openness’.³⁸⁵ Fraser (2020) examines Irish food and beverage behaviour specifically relating to childhood obesity and the political debates around the country’s sugar tax. Between September 2015 and August 2018, the most prominent lobbyists in Ireland were IBEC, the IFA, and Macra na Feirme. IBEC is especially prominent as a lobbyist in the food sector, its main intended result being to ensure market access, including the need to ‘minimise economic disruption (...) to the Irish meat sector’. The author shows that, for IBEC, the responsibility for healthy diets needed to be distributed and specifically, that responsibility should lie with consumers to make healthy choices. IBEC did, however, acknowledge the need for ‘responsible marketing’. According to IBEC, solutions lie in government investment in sports clubs, home economics and green spaces. Industry’s role in healthy diets is thus minimised while at the same time emphasising its needs for minimal regulation for matters on reformulation matters. There is no recognition in this narrative of the responsibility of industry to stop or drastically reduce its production of obesogenic foods.

Challenge 7. 4: Ensuring adequate nutrition outcomes – reformulated products and plant-based diets

AFS 2030 emphasises the nutritional value of meat and dairy products, while the Environmental Pillar and SWAN call for new Healthy Eating Guidelines compatible with the ‘latest science on reducing consumption of meat and dairy-rich produce in line with human and planetary health’ (p.30).³⁸⁶ Chapter 1 highlighted that Europeans consume more than 2.5 times the recommended intake of meat in their diets, and the health and environmental value of reducing the consumption of meat and dairy products is abundantly clear from recent studies.^{387 388}

However, it’s important to consider the basis of the ‘plant-based diet’ to understand its potential effects of same on nutrition and environmental outcomes.

³⁸⁵ Fraser, A. (2020) Ghosts in the vending Machine: Expressing corporate power in Ireland’s food and drinks industry via the territorialization of selective openness, *Human Geography* 00(0) 1-13, DOI: 10.1177/1942778620978212

³⁸⁶ Stop Climate Chaos, Environmental Pillar, SWAN (2021) A new Agricultural and Food Production Policy for Ireland: Priorities and Recommendations for Government, March 2021

³⁸⁷ The Lancet Commissions. (2019) Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems, available at: [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

³⁸⁸ Poore, J., & Nemecek, T. (2018) Reducing food’s environmental impacts through producers and consumers. *Science*, 360(6392), 987-992.

³⁸⁴ Campbell, N. et al, 11th November 2019, Reformulating Reformulation: A Technical Appraisal and Policy Context for the 2019 FDI report on the Impact of UltraProcessed Food Reformulation in Ireland

This is especially true, in light of the AFS 2030 focus on reformulating products as a pathway to improving nutrition outcomes, where plant-based diets might rely on this reformulation process to provide meat ‘alternatives’.

However, reformulated products come with their own sustainability challenges, both environmental and social. Environmentally, reformulation is associated with much greater packaging and processing requirements than locally produced, fresh foods. The GHG emissions from processing and packaging are highlighted in Table 3 (section *Improved credentials, metrics, and transparency*, above). The following sections focus on the health (social sustainability) implications of reformulated food.

First, in terms of nutrition outcomes, it’s important to differentiate between the drivers of nutrition-related health outcomes. The Lancet (2019)³⁸⁹ article often cited in the context of plant-based diets asserts that ‘refined carbohydrates (e.g., white bread, polished rice, or corn and sugar) are typically the major contributors’ to poor health outcomes. And while processed meat (beef, pork, and lamb) was associated with increased risk of death from any cause and cardiovascular disease, consumption of unprocessed meat was weakly associated with cardiovascular disease only.

This is an important nuance, especially when considering replacing meat with processed plant-based alternative, which could be highly processed. Indeed, it’s worth emphasising that the challenge relates to over-consumption, which can be applied to all food. Further, it is clear that animal-sourced foods are an important food source for key nutrients, especially for young children in resource-constrained settings. For example, a recent study showed between 9%-16% declines in stunting where sustained intake of animal-sourced foods was possible.³⁹⁰

Second, the bioavailability/biodigestibility of reformulated foods is unclear. Indeed, due to lower digestibility, lower essential amino acid content (especially leucine), and deficiency in other essential amino acids plant-based proteins have less of an anabolic effect than animal proteins. This is especially important to consider if these are being suggested as protein alternatives to meat.³⁹¹

Third, current industry discussions around reformulated food and plant-based diets tend to focus on foods that do not promote healthy diets. This is illustrated in how plant-based products appear in the narratives. For example, a recent presentation by a large company in the food industry on plant-based products provided a visual for four products, only one of which would not be classified as ‘junk food’, as per Figure 27, below.

Figure 27: Plant-based products promoted during a food science event



Source:
Wageningen
University Student
Challenges
Webinar – ‘Creating
plant-based
products that work:
biotechnology &
flavour’ Thursday,
March 25 2021

³⁸⁹ The Lancet Commissions. (2019) Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems, available at: [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

³⁹⁰ Zaharia, S. et al. (2021) Sustained intake of animal-sourced foods is associated with less stunting in young children, *Nature Food*, 2, 246–254

³⁹¹ Berrazaga, I. et al. (2019) The Role of the Anabolic Properties of Plant- versus Animal-Based Protein Sources in Supporting Muscle Mass Maintenance: A Critical Review, US National Library of Medicine National Institutes of Health, *Nutrients*, 11(8), 1825, doi: 10.3390/nu11081825

Product reformulation has numerous challenges and potential negative effects that can be counter-productive to a sustainable food system and health outcome goals. Nutrition science development, how it is used, and who owns it is important because it is a primary source for national nutrition guidelines which play a prominent role in what ends up on citizens' plates. Nutrition guidelines influence industry's production, citizens seeking to implement healthy diets, and determines what public institutions provide (such as schools and hospitals).³⁹²

Box 9: Agency, dietary guidelines, and 'sustainable' procurement

Dietary guidelines and nutrition policies influence important institutions at the national level, often affecting the most vulnerable in society the most. For example, social safety nets, school food policies, care-homes, health professional associations, and even more pervasively, consumers, as guidelines can influence the labelling and food industry.³⁹³ They also influence the decisions made by those attempting to remain or become healthy. For example, the Healthy Ireland Survey 2017 found that 42% of the overweight population and 52% of the obese in Ireland were eating less fat in an attempt to lose weight.³⁹⁴

Agency in food systems means citizens have the capacity to: *"make their own decisions about what foods they eat [...] and to engage in processes that shape food system policies and governance"*.³⁹⁵ Yet, accessing and understanding the evidence-base and logic used to produce Ireland's guidelines proves challenging.

For example, the HSE's (2020) guidelines for 1–4-year-olds in Ireland states that these relied on *'nutrition experts in Ireland and are based on Irish and international evidence'* yet these are not made explicit within the guidelines nor on the relevant websites, as of February 2021.³⁹⁶ In fact, the Nutrition Standards for schools appear to be based on those from Northern Ireland, which implies UK-based decision-making processes. *'These Nutrition Standards are adapted from the Standards published to support the Food in Schools Policy in Northern Ireland.'*³⁹⁷ It is thus unclear how Irish citizens' agency is considered in this decision-making process.

³⁹² For an in-depth case study of the effect of dietary guidelines on food consumption and national institutions, see N. Teicholz (2017) *The Big Fat Surprise: Why Butter, Meat & Cheese Belong in a Healthy Diet*, Simon & Schuster publishing

³⁹³ The Nutrition Coalition, available at: <https://www.nutritioncoalition.us/>

³⁹⁴ <https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/health/healthy-eating-guidelines/nutrition-standards-for-food-and-beverage-provision-for-staff-and-visitors-in-healthcare-settings.pdf>

³⁹⁵ HLPE. (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

³⁹⁶ HSE (2020) Healthy Eating for 1-4 year olds

³⁹⁷ HSE Healthy Ireland: Nutrition Standards for School Meals

Finally, it's worth noting that these guidelines promote white sliced pan bread, breadsticks, and plain rice cakes for Ireland's youngest eaters. These recommendations miss the opportunity to encourage food and snacks that can provide vital micronutrients, from vitamins to minerals, found for example in fruit and vegetables, nuts, or wholegrain foods.

Ireland's dietary guidelines for 1–4-year-old children promoting 'empty calories'



Source: HSE Dietary Guidelines for 1–4-year-olds, 2020

Thus, sustainable diets, including plant-based diets need to consider the appropriate nutrition and environmental outcomes. A shift to sustainable diets does not need to rely on product reformulation. Rather, sustainable diets should include minimally processed whole foods, a reduction in frequency of consumption of meat and dairy products, and an urgent emphasis on the need for a reduction in refined carbohydrates.

In addition, to address the nutrition and health related issues in Ireland, as well as the current high levels of household food waste, the development of a food-specific subject in primary and/or secondary schools in Ireland was put forward during the second National Dialogue on the 26th April 2021. Indeed, such a subject could promote improved diets and reduced food waste through cooking classes, nutrition science, and more broadly in reconnecting citizens with the food on their plates.

Summary: The section showed that, while a healthy diet is largely accessible in Ireland, it represents a significant portion of spending for lower-income groups and higher for certain demographics (e.g. some rural households). If Ireland were to demonstrate leadership and apply True Cost Accounting to the agri-food decision-

making processes, then such decisions would need to be accompanied with robust social safety programmes to offset a potential increase in the price of food.

The section also outlined some of the inadequacies of current regulatory and health approaches – including self-regulation by industry and reformulated products as a solution for healthier diets. Box 9, above, highlighted the need for greater attention to be placed on national dietary guidelines, particularly with a view to aligning with the HLPE’s conceptualisation of *agency* in sustainable food systems. The issues of corporate ownership in nutrition research, ill-informed policy-making, and the risks of perceiving food reformulation as a solution were illustrated.

Recommendations

- Establish clear targets to redirect responsibility for regulation firmly in the public sphere. Restrict or ban the (online) marketing of foods high in trans-fat, salt, or added sugars to children and adolescents up to 19 years.
- Explore pathways forward to support the increase in the cost of food (e.g. via True Cost Accounting), alongside appropriate social safety net measures.
- Increase funding to nutrition research in Ireland, with a view to the majority of the nutrition-related evidence-bases and research being owned by the public sector.



Charlotte Mukagenzi and Mukamana Frida, members of the Turengere Ibibukikige Cooperative, Ngdrorero, Nyamagabe, Rwanda.
Photo: Alan Whelan/Trócaire

Chapter 4:

Transformative policy shifts

This chapter highlights the necessary policy making infrastructure that needs to be put in place to drive the change recommended in this report, building on the efforts of the AFS 2030 and national food dialogues. It draws on the findings in chapter 3 to summarise the opportunities and gaps in Ireland's approach to structural transformation through the lens of the HLPE (2020) four policy shifts and enabling conditions for transformative change (see Table 1).³⁹⁸ It also draws on the Kania, J., et al. (2018)³⁹⁹ breakdown of the structural changes required for systems change through policies, practices, and resource flows.

Ireland's agri-food policy processes have been developing in a particularly turbulent time due to various external and internal factors, including Brexit, COVID-19, the influence of the EU Green Deal, the timing of new and updated policies (e.g. AFS 2030, the Rural Development Programme), a new tri-party government formed in 2020, and domestic litigation measures leading to the Climate Action and Low Carbon Development (Amendment) Bill, 2021.

There has been considerable effort in these new policies to promote transformative change in Ireland. In particular, AFS 2030 is a pioneering attempt at creating a national food systems action plan, incorporating elements of agricultural, health, and environmental policies in one place.

The following sections aim to summarise the structural gaps in Ireland's approach by assessing the extent to which policies, practices, and resource flows respond to the HLPE (2020) transformative policy shifts. The final section outlines key considerations for governance and research.

Working toward a radical transformation of food systems as a whole to improve food and nutrition security and achieve Agenda 2030

Stronger Measures to Uphold the Right to Food and Other Human Rights

Measures to ensure human rights and agency include 'the provision of legal and institutional frameworks that guarantee access to resources and empower citizens to exercise agency as food system participants' (HLPE, 2020, p.41)⁴⁰⁰

Relationships and connections

Relations and connections will influence systemic change through 'quality of connections and communication occurring among actors in the system, especially among those with differing histories and viewpoints'.⁴⁰¹

In food systems, there are a myriad of relationships and connections to consider: between government and civil society, food producers and retailers, consumers and producers, but also relationships between agricultural practices and nature.

The Agri-Food Strategy 2030 makes efforts to connect a diverse range of stakeholders and demonstrated progress in terms of diversity of stakeholder representation, namely in terms of gender representation

³⁹⁸ HLPE. (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

³⁹⁹ Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

⁴⁰⁰ HLPE. (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

⁴⁰¹ Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

on the steering committee. Yet there are numerous factors affecting the quality of these relationships.

First, historically, agri-food strategies have not delivered on environmental promises (e.g. Food Wise 2025), so the quality of the connection between the Department of Agriculture, Food and the Marine and those representing environmental interests was already tenuous, founded in a relationship with eroded trust.

Second, the quality of communication may not have been a central enough component of the agri-food strategy's development. Indeed, such a fundamental shift in paradigm requires all stakeholders – particularly those involved in immediate decision-making – to be on the same page when it comes to the overarching goal and implications of such a paradigm shift. Yet, the implications of a food system approach remains obscure for many stakeholders involved in the process.

Third, the interests of all stakeholders will not always align in immediate harmony. For example, while environmental advocates may see the need for radical and immediate solutions in light of the climate and biodiversity crises, demands for Ireland's agri-environmental strategy's targets to be based on evidence rooted solely in the hard sciences could jeopardise the economic and social goals of a sustainable food system if potential subsequent negative outcomes are not adequately considered and addressed. An obvious example of this pertains to Ireland's herd numbers. While scientific evidence drawn from the hard sciences points to the clear need for a reduction in dairy herd numbers, the economic and social impacts of such an approach would be challenging. Negative social and economic impacts thus need to be offset by alternative pathways for developing rural enterprise and employment opportunities.

Power Dynamics

Systemic change is influenced by power dynamics such as *'the distribution of decision-making power, authority, and both formal and informal influence among individuals and organizations.'*⁴⁰²

Unsurprisingly, in the Irish agri-food landscape, the Department of Agriculture, Food and the Marine is a central institution. They decide on the allocation of funding and the composition of steering committees for strategies and policies (for which no formal ex-ante selection criteria are established). They also influence

the strategic direction of other key institutions such as research and innovation institutions (including Teagasc and SFSI).

Large businesses also hold considerable influence in decision-making processes, evidenced in part by their involvement in decision-making processes; for example, through significant representation on steering committees. Of the private sector entities on the Agri-Food 2030 Strategy Steering Committee, 83% were large companies.

There is also more power allocated to the larger agricultural sectors in terms of representation in decision-making processes; for example, of dairy producers compared to horticulturalists or family farmers. On the Agri-Food Strategy 2030 Steering Committee, there were four dairy representatives, compared to just two representatives, each for health (one of which also represented the interests of a private farm enterprise) and the environment (one of which is a State agency).

Key segments of Ireland's population – especially typically under-represented populations – are not adequately represented in Ireland's food systems dialogues. These include asylum seekers, the traveller community, consumers, and sectors such as forestry and organic farming. The need for greater gender diversity in farming was also raised in policies and by NGOs, and while progress was made since Ireland's last agri-food strategy, there are still two men for every one woman on the current Agri-food strategy 2030. It's also worth noting the significant gender imbalances within decision-making entities of farmer organisations, as noted in Chapter 2.

The imbalance of representation from the environmental and social sectors on the Agri-Food Strategy steering committee does not provide space for the three components of a sustainable food system – economic, social, and environmental – to be adequately integrated into a transformative approach to Ireland's agri-food landscape.

At the global level, there were no formal consultations with developing country partners for the formulation of the A Better World policy, and the NTTRA included one representative – a diplomat – from Uganda. While there were two NGOs on the committee, greater effort could have been made to engage directly with partners in low-income, such as smallholder farmer organisations. Further, just 2% of ODA disbursed to agriculture in 2018 had a principal gender equality objective which would reflect the highest level of prioritisation of women

⁴⁰² Kania, J., Kramer, M. Senge, P. (2018) The Water of Systems Change, FSG

in agricultural initiatives, 10% did not have any gender components; at the same time, 87% of these had a 'significant' gender equality component. However, it is important to note that this is likely an underestimate of Ireland's prioritisation of gender equality, due to internal challenges with reporting to the OECD CRS system, elaborated upon in the *transparency* section, below. It is worth noting that the challenges relating to adequate reporting of gender equality in development cooperation projects is common across most donors.⁴⁰³

Finally, it is worth noting that the Environmental Pillar withdrew from the AFS 2030 process in March 2021, as it perceived the draft Strategy to be perpetuating the '*business-as-usual model of intensification pursued for the last 10 years*'.⁴⁰⁴ Since the withdrawal, the Environmental Pillar participated in one meeting with ministers and the chair of the Agri-Food Strategy, but this does not reflect an endorsement of the Strategy. To date, this remains the only consultation held with the Environmental Pillar since its withdrawal, while the Strategy was published on the 17th April 2021. This multi-stakeholder process would thus benefit from including provisions for mediation processes to ensure such discord can be adequately and transparently dealt with. This is particularly relevant in light of the criticisms raised on the UN Food System Summit's structure and forms of recruitment and public engagement, which are said to be lacking in 'basic transparency and accountability, fail to address significant conflicts of interest, and ignore human rights'.⁴⁰⁵

More Regenerative and Resource Efficient Food Practices

Sustainable food practices emphasise '*the quality of production methods, rather than just the quantity of its outputs*'.⁴⁰⁶

In theory, the AFS 2030 aims to place equal prioritisation on environmental, social, and economic sustainability. However, the lack of commitment to a

modal shift in agriculture undermines the environmental priorities. In addition, the concept of social sustainability is not clearly addressed in the Strategy. Government policies could aim for greater clarity in this regard. For example, the stated objectives of increasing milk production do not include adequate elaboration on how this might be done while reducing herd numbers.

A key challenge when it comes to shifting practices in agriculture relates to livestock numbers. What is clear is that livestock numbers cannot continue to increase if environmental ambitions are to be achieved. However, the extent to which the number of cattle needs to be reduced has yet to be established. Another important challenge relates to negative agricultural policy drivers; under current land eligibility criteria, farmers can be penalised rather than rewarded for bolstering habitat and biodiversity. Addressing these incoherencies could incentivise farmers in becoming the 'first responders to the climate and biodiversity crises' and improve landscape health.

The target for increasing organic production in Ireland is considerable – aiming to increase the land under organic production by more than five times its current levels, by 2030 – yet this would still place Ireland below the EU average. Further, land under organic production is an output not an outcome indicator. Outcome indicators include, for example, improvements in biodiversity, water and air quality, and health outcomes such as reduced obesity.

Meanwhile, the target to reduce ammonia emissions – for which Ireland is in breach of the EU NECD – would bring Ireland's ammonia emissions down to levels found in 2014. While this brings Ireland within the bounds of the NECD, a more ambitious target might have aimed to reduce levels of ammonia to those in or prior to 2010, at which point government agri-food policy promoted a significant increase in dairy production, leading to rapid increases in ammonia emissions. In addition, local assessments and actions are key to comprehensively tackling the emissions relating to ammonia, as well as the negative impacts of agriculture on health biodiversity. Finally, there are no clear enforceability measures in place to ensure this reduction of ammonia emissions. The Department of Agriculture, Food and the Marine, along with Teagasc, have produced a Code of Good Practice, but this is a voluntary mechanism without funding.⁴⁰⁷

⁴⁰³ Grabowski, A & Essick, P., (2020) Are they Really Gender Equality Projects? An examination of donors' gender-mainstreamed and gender-equality focused projects to assess the quality of gender-marked projects, Oxfam Research Reports.

⁴⁰⁴ Environmental Pillar Press Release 25th February 2021: The Environmental Pillar withdraws from the problematic 2030 Agri-Food Strategy Committee, available at: <https://environmentalpillar.ie/the-environmental-pillar-withdraws-from-the-problematic-2030-agri-food-strategy-committee/>

⁴⁰⁵ Canfield, M., Anderson, M.D., McMichael, P. (2021) UN Food Systems Summit 2021: Dismantling Democracy and Resetting Corporate Control of Food Systems, *Frontiers in Sustainable Food Systems Policy and Practice Reviews*, published: 13 April 2021 doi: 10.3389/fsufs.2021.661552

⁴⁰⁶ Kania, J., Kramer, M. Senge, P. (2018) *The Water of Systems Change*, FSG

⁴⁰⁷ An Taisce Submission to the Climate Change and Bioenergy Policy Division of the DAFM, 20th June 2019.

Sustainable intensification – a commonly proposed solution among government institutions – does not inherently offer the transformative shifts needed to restore Ireland’s dwindling biodiversity, water, and air quality. Intensification is based on an increased use and efficiency of resources.⁴⁰⁸ While this may yield results in terms of GHG emissions, it does not provide space to acknowledge the importance of mixed and diverse agricultural landscapes for the conservation of wild biodiversity.⁴⁰⁹ Indeed, sustainable intensification is only part of a multi-pronged approach to sustainable food systems and food security.⁴¹⁰ It, therefore, needs to be complemented with a comprehensive overview and understanding of the benefits of agriculture, not just for food production, but also for biodiversity, health outcomes, and social and cultural elements. Other practices including regenerative agriculture and rewilding need greater research to assess their viability in the Irish context, including in different regional contexts.

Another challenge relates to the concept of ‘efficiency’ of agricultural production and food systems. As discussed in chapter 3, the efficiency of a food system depends on how it is measured. One example of the inefficiency of current food systems based on the amount of food grown to feed people highlights that these systems are, at most, 41% efficient.⁴¹¹ Importantly, in the efficiency discussions and in Ireland’s approach to sustainability there may be an overreliance on technological innovation, to the detriment of social innovation. Social innovation relates to changes in social relations, behaviour, norms, and values. Social innovation is considered essential as both an instrument and a process to ensure a transition towards more sustainability.⁴¹² In addition, larger firms and farms are more likely to be able to afford technological solutions which may undermine the viability of smaller farms. This is particularly pertinent in light of research suggesting that smaller farms can produce higher yields and more biodiversity.⁴¹³

One way to entrench systems thinking into agri-food decision-making processes is to incorporate True Cost Accounting in the process. This approach is gaining traction in other countries and provides the basis upon which decision-makers can move from analysis to action, by identifying appropriate pathways forward to leverage synergies and mitigate trade-offs.

Resources

Public sector investment in food systems is fundamental to systemic change on several levels.

First, in Ireland, a shift towards sustainable food systems would benefit from the reallocation of funding to support practices that benefit economic, environmental, and social goals. A good example of this relates to relatively recent government investments in High-Value Nature farming such as the Burren Programme and other EIPs; as well as ambitions to increase organic agricultural production and initiatives such as ACORNS.

However, for optimal coherence, these initiatives need to be accompanied by a shift away from funding agricultural practices that are counteracting sustainability measures, including direct payments. Indeed, an illustrative analysis suggests that 81% of current DAFM funding is allocated to conventional approaches, 8% to initiatives with a significant sustainable component, and just 11% to initiatives with a principally sustainability objective. In addition, most national payments are allocated to large dairy farms, responsible for the majority of GHG emissions from agriculture in Ireland.

Further, just 21% of Ireland’s ODA to agriculture, forestry, and fisheries specifically targeted agricultural initiatives described as ‘sustainable’ (including agroecology), while 59% was allocated to agricultural projects with no clear sustainability objective. Despite this, it is important to note that Ireland’s ODA has a strong emphasis on supporting marginalised and vulnerable populations, namely through the promotion of equity, which aligns with the HLPE (2019) principles of agro-ecology. Finally, of the sustainable projects, just 1% was marked as having gender equality as a principal component, although 86% were marked as comprising a significant gender component.

More Diverse Food Production and Distribution Networks

Reshaping food production and distribution networks means moving towards ‘leading them towards more diverse and distributed ownership and control in order to bolster their resilience’.⁴¹⁴

⁴⁰⁸ Struik, P.C. & Kuyper, T.W. (2017) Sustainable intensification in agriculture: the richer shade of green. A review, *Agronomy for Sustainable Development* 37(39)

⁴⁰⁹ Anja Gassner et al. (2020) Making the post-2020 global biodiversity framework a successful tool for building biodiverse, inclusive, resilient and safe food systems for all, *Environ. Res. Lett.* 15, 10100

⁴¹⁰ Campbell, B.M. et al (2016) Sustainable intensification: What is its role in climate smart agriculture? *Current Opinion in Environmental Sustainability*, 8, 39-43, available at: <https://doi.org/10.1016/j.cosust.2014.07.002>

⁴¹¹ (on an energy basis)

⁴¹² Bock, B. B. (2012) Social innovation and sustainability: how to disentangle the buzzword and its application in the field of agriculture and rural development, *Studies in Agricultural Economics* 114(2012), 57-63, available at: <http://dx.doi.org/10.7896/j.1209>

⁴¹³ Ricciardi, V. et al (2021) Higher yields and more biodiversity on smaller farms, *Nature Sustainability*, available at: <https://doi.org/10.1038/s41893-021-00699-2>

⁴¹⁴ HLPE. (2020) Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

Ireland's agri-food system strategies are export-oriented, to the detriment of diverse and local food production and distribution networks, and the provision of local, fresh food.

This is reflected, for example, in the disproportionate national payments to large dairy farms. Family and small farms are on the decline in Ireland. Meanwhile, large companies gain much greater shares of the agri-food pie than SMEs in Ireland. In 2016, 43 large companies in Ireland accounted for 84% of the value of agri-food exports, while 589 SMEs accounted for 16% of that value. The viability of small farms is unclear in the long-term, with diversification emerging as a pre-requisite for survival, yet research suggests that smaller, organic and alternative farming can bolster environmental outcomes (as mentioned in the previous section) and social cohesion.⁴¹⁵ Thus, Ireland's rural landscape would benefit from increased investment in more diverse production and distribution networks, for example by increasing funding to the LEADER programme.

Organic agriculture could be a starting point for a broader regenerative approach. Regenerative agriculture supports the production of highly nutritional food, high yields, free from biocides, and promotes soil health. Importantly, it requires an intimate relationship between manager/participants of the system and the system itself, and generates increased levels of employment. National planning thus needs a high degree of local and regional self-reliance to close nutrient-flow loops.⁴¹⁶

While the AFS 2030 brings health and nutrition to the table, the link between health outcomes and agriculture are (largely) absent from Ireland's agri-food strategies, yet, *what* is being produced – and *how* – will determine, to an extent, what's made available on the shelves for consumers. The absence of recognition of these linkages translates into a misalignment between the export-oriented crops produced and the dietary gaps of the Irish population. Indeed, the primacy of export markets over local markets means the choice of *what* to produce will be determined based on export market trends rather than (even partially) based on the nutritional needs of the country's citizens and residents.

In Ireland, less than 2% of crop production is dedicated to fresh vegetables, while the second and third highest volumes of fruit and vegetable imported in 2017 were

potatoes (72,000 tonnes) and apples (62,000 tonnes) – produce that could be grown domestically.

Policies that emphasise the connections between agriculture and health are required. A first step in this direction is the incorporation of the biome into food systems thinking, partially illustrated in Teagasc's 'Farm to Gut' approach. Taking it a step further would include from 'soil to gut', as discussed during one UN Food Systems Summit National Dialogue.⁴¹⁷ Including the biome as a factor in policies provides space for the symbiosis between the various systems at play. For example, while sustainable intensification may reduce GHG emissions and increase output, it is not guaranteed to benefit soil health. This, in turn, affects both environmental indicators (e.g. biodiversity) and social indicators (e.g. fewer nutrients in the soil mean fewer nutrients in the food consumed by humans).

Food and nutrition security as a system interconnected with other systems and sectors

AFS 2030 cross references tens of policies and sectors, including mental health in rural areas and labour conditions for farm workers. However, gaps remain when it comes to the interlinkages and interdependencies between agriculture and health (highlighted in the previous section), and trade and food security.

Coordinate Food Policies Across a Range of Systems and Sectors

The HLPE (2020) highlights the value of implementing the principles of Responsible Investments in Agriculture and Food Systems (RAI) to ensure it respects environmental, social, and economic goals. Ireland's ODA investments point to a strong emphasis on social justice through its focus on equity, and marginalized and vulnerable populations.

However, principle 10 of the RAI emphasizes the importance of *assessing and addressing impacts and promoting accountability*. The Department of Agriculture and the Department of Foreign Affairs are working together towards Ireland's shifting strategic relationship with Africa, but transparency and accountability are inadequate. For example, Ireland's AADP programme, which provides funds for Irish business to engage with African businesses, has no explicit and publicly available monitoring and evaluation framework.

⁴¹⁵ Sumelius, J. & Vesala, K.M., (2005) Approaches to Social Sustainability in Alternative Food Systems, *Ekologiskt Lantbruk* nr 47 December 2005, Baltic Ecological Recycling Agriculture and Society (BERAS) No. 6

⁴¹⁶ Giller, E. K. (2021) Regenerative Agriculture: An agronomic perspective, *Outlook on Agriculture, Sage journals*, 50(1), 13-25, available at: <https://doi.org/10.1177/0030727021998063>

⁴¹⁷ Led by MBJ and Stewart Gee Consulting: Independent Dialogue on the trade-offs in meeting Ireland's climate change commitments while developing its agri-food sector, sessions held in April 2021

In addition, the links between Irish trade exports and sustainable food systems are inadequately outlined, particularly when it comes to an equitable and fair-trading landscape. For example, in West Africa, exports from Irish companies – that have been subsidised by Irish government and arguably cost the Irish landscape in terms of water quality and GHG emissions – have proven detrimental for local markets. On top of the negative effects this can have in low-income countries, there has been no consideration for the environmental or public good costs of Ireland's food imports and exports.

A whole-of-government approach might see cross-departmental support to ensure, for example, that key principles of development cooperation and policy coherence are implemented in collaborative exercises such as AADP, including engaging stakeholders effectively and ensuring analysis and assessment of policy and financing impacts.⁴¹⁸ The Irish government might also coordinate with the private sector to promote the integration and implementation of principles such as Responsible Agricultural Investments or the West Africa Dairy Campaign's call for at least 20% of the raw materials used in a company's production and processing units to be sourced locally.

Finally, in Ireland, roughly 1 million tonnes of food are wasted every year and less than half is recycled into biogas and compost, or reused for animal feed within the EU. Yet, there are no clear pathways forward for addressing this issue at the production and retail level in Ireland's agri-food policies.

Governance and Research

Governance

In light of the complexity of food systems and the diversity of stakeholders involved, Ireland's agri-food system transformation would benefit from a central body to engage, coordinate, and ensure accountability. This is particularly relevant, given the need for adaptive and iterative processes to deal with the feedback loops inherent to complex adaptive systems. Indeed, for every solution enacted, there are likely to be trade-offs and, importantly, unpredictable and unknown factors emerging.

Thus, an independent body may foster greater cooperation across sectors and communities. Although it is not immediately clear what form or structure such a

central authority might take, there are several factors to consider and examples to draw on.

First, a central body should be housed in a relatively neutral institution, where the interests of all stakeholders can adequately be accounted for. This would, for example, preclude the Department of Agriculture, Food and the Marine from this role. Interestingly, the Farm to Fork strategy is led by DG Sante within the European Commission, which may support integrated thinking when it comes to agricultural production and nutrition outcomes.⁴¹⁹

Second, a coordinating institution would need to have a clear mandate to influence government policy making. An example of such an architecture can be drawn from Ireland's National Climate Change Advisory Council which feeds into Irish policy through recommendations that government are legally bound to consider, with the obligation of providing a clear reasoning in the event that the Council's recommendations are not implemented. Another example can be found in the Scottish government's Good Food Commission, which was established to provide advice to the Cabinet Secretary on the existing and future challenges facing Scotland's food culture and how these might be addressed.⁴²⁰

Third, a central food systems authority would need to go beyond current approaches to representation to ensure adequate representation of all stakeholders for a just and rights-based approach to food systems transformation. As mentioned above, adequate representation for a sustainable food system means including equal representatives from economic, social, and environmental interests. This could be done by building off the National Dialogues implemented in the lead up to the UN Food Systems Summit, and pursuing such dialogues beyond the Summit. It could also consider innovative approaches that leverage digital tools to capture the heterogeneous views, interests, and priorities of all citizens, including consumers, farmers, and asylum seekers. It should also consider including elements of the deliberative democracy model used by citizen assemblies.

Fourth, this independent body could act as an ombudsman to ensure policy coherence between domestic and foreign policies relating to agri-food systems. As a member of the EU, Ireland is committed

⁴¹⁹ NESC online organisation, available at: <https://www.nesc.ie/our-organisation/>

⁴²⁰ Scottish Government website: Food Commission, available at: <https://www.gov.scot/groups/food-commission/#:~:text=The%20Good%20Food%20Nation%20Scottish,consultation%20analysis%20report%20that%20followed.>

⁴¹⁸ OECD, Recommendation of the Council on Policy Coherence for Sustainable Development, OECD/LEGAL/0381

to policy coherence through the Maastricht Treaty (1992), the Lisbon Treaty (2009), and the European Consensus on Development (2017). Specifically, Article 208(1) of the Treaty on the Functioning of the EU commits countries to assess systematically the likely effects of different policy initiatives on developing countries. An independent authority in Ireland could draw on the *Better Regulation Package* to ascertain the potential impact of domestic policies on low-income countries. Specifically, the EU's Tool number 34 could be drawn upon to ensure an adequate assessment of the impacts of Ireland's policies on low-income countries, and to implement measures to ensure, at a minimum, the principle of 'do no harm' is applied and, preferably, to ensure synergies are created to bolster global food and nutrition security. Further, an independent body could aim to foster dialogue between Irish companies exporting to low-income countries and government representatives from these countries. This engagement could ensure the identification of potential issues arising in the trade of Irish company goods and produce, as well as opportunities for these companies to contribute to the local economies and welfare of low-income countries.

Given the low levels of adherence to the principles of Policy Coherence for Development among EU member states, this is an opportunity for Ireland to demonstrate leadership for sustainable food systems. In particular, Ireland could raise this issue and advocate for improved integration of these principles in all domestic policies and approaches to agri-food systems. Ireland's role in building sustainable and just global food systems would also benefit from improved regulatory frameworks, including mandatory Human Rights and Environmental Due Diligence legislation, to ensure that the commercial links to the global food economy do not undermine Ireland's international development commitments to sustainable development.

Transparency & credibility

Transparency

Coordination in complex systems can benefit from informality due to their inherent dynamic state. Indeed, informality may provide space for the flexibility required for the efficient consideration of feedback loops within the systems and subsequent adaptive decision-making.

At the same time, informality puts accountability and transparency at risk. If there are no formal mechanisms to track and follow-up on commitments made and decision-making processes, then trust can be eroded. This puts the social sustainability of the policy at risk, which needs buy-in and uptake from all stakeholders.

Some immediate and simple steps could be taken by government to improve its transparency. These include ensuring references and methodological notes for all publications. For example, the DAFM Annual Outlook Review 2020 contains figures that do not match with those of the Central Statistics Office farm survey data. The Annual Outlook reports 164,000 people employed in agri-business in 2019, whereas the Central Statistics Office Statistical Yearbook 2018 states that, as of 2016, 265,400 were employed on Irish farms alone. Consultation with the Central Statistics Office confirmed that this difference cannot be attributed to the different years under analysis, nor to the differences in survey classifications between the Central Statistics Office labour force and the Farm Structure survey. The provision of clear references, along with a methodological note in the DAFM Annual Outlook Survey, could avoid confusion and enhance transparency. In addition, a centralised database would be beneficial for all payments and subsidies – one that provides the data in accessible, downloadable format, with adequate meta-data.

Another example pertains to the National Task Team on Rural Africa's report, which states that EUR 66 million was allocated to food and nutrition security in Africa. While there was a breakdown provided in the report, these figures did not clearly align with the data provided in the OECD's Creditor Reporting System (CRS), which is populated through self-reporting by donor agencies, in this case, by Irish Aid. This is likely due to differences in classifications of ODA for food and nutrition security, which incurs inclusion and exclusion errors in subsequent analyses. This is a common CRS reporting challenge, whereby different member states report their ODA differently, based on national understandings of what food and nutrition systems are composed of. One way of overcoming this challenge is by providing a clear breakdown of the methodology used (e.g. how the ODA was imputed), along with metadata on the CRS purpose codes used, and making the raw data easily accessible with each publication.

It would also be useful to ensure definitional harmony and consensus across government departments. For example, in contrast to the NTTRA's reporting of EUR 66 million invested to end hunger in 2018, the government's SDG Hub reports Irish ODA to agriculture only (EUR 25.2 million) as representative of its development efforts toward achieving SDG 2, thus excluding important sectors of food systems and underestimating Ireland's total efforts.

Similarly, information relating to Ireland's AADP fund is largely inaccessible. While this is partially explained by an ongoing migration of websites, transparency measures could include a list of business entities in receipt of Irish government funding, along with a robust and publicly available monitoring and evaluation mechanism. Indeed, without this information, it is difficult to independently assess the impact of this initiative and the benefits that may be arising, specifically for the businesses in low-income countries targeted by the programme.

Within Ireland, the EPA provides exemplary data accessibility, which could be used as a source of inspiration for other government agencies seeking to improve their transparency. Further, there are principles of Open Data that the government could aim to align with:⁴²¹

1. data must be **complete**; all public data are made available.
2. data must be **primary**; data are published as collected at the source, with the finest possible level of granularity, not in aggregate or modified forms
3. data must be **timely**; data are made available as quickly as necessary to preserve the value of the data.
4. data must be **accessible**; data are available to the widest range of users for the widest range of purposes.
5. data must be **machine processable**; data are reasonably structured to allow automated processing of it.
6. access must be **non-discriminatory**; data are available to anyone, with no requirement of registration.
7. data formats must be **non-proprietary**; data are available in a format over which no entity has exclusive control.
8. data must be **license-free**; data are not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed as governed by other statutes.

In addition, compliance should be reviewable, meaning a contact person must be designated to respond to people trying to use the data, to respond to complaints about violations of the principles, and an administrative

or judicial court must have the jurisdiction to review whether the agency has applied these principles appropriately.

There is also a significant challenge in Ireland when it comes to the credibility of agricultural sustainability claims. The lack of national and global consensus on what 'sustainable' agriculture means is one factor, but more specifically, to Ireland, this challenge is compounded by a lack of clarity on the metrics used to assess and promote Ireland's sustainable image. For example, Teagasc's measurement of GHG emissions against monetary values compounds confusion and puts Ireland's credibility at risk. It states that, in terms of value (relative to revenue generation), dairy farms account for close to half of the GHG emissions per Euro of output generated, compared to cattle farms. The value of such measurements is minimal for decision-makers seeking to take a systems approach which needs to consider the value of agri-food systems beyond production and productivity measures.

The AFS 2030 commits to improving the metrics and evidence base of Origin Green. This is a critically important exercise for legitimacy, as well as to ensure meaningful environmental protection and enhancement. It would be thus worth emphasizing transparency in the process of developing these metrics and in their subsequent monitoring and follow-up. In light of Bord Bia's inherently economic-driven interests, an alternative independent body may be better positioned to credibly develop appropriate metrics and ensure adequate tracking and follow-up of same. Such an exercise may be included in the remit of the aforementioned central authority/food council.

Finally, but of significant importance, given the focus on technological innovation, there is insufficient attention paid to fair and equitable data use. Many of the tools, methods, and platforms of data collection and analysis for food and nutrition security and public policy-making more generally are in the hands of the corporate sector, including agribusiness. This can entrench imbalances of power through asymmetry of access to information. Technological innovations which rely on data need to empower users to be active users, rather than passive data subjects, and apply the 'do no harm' principle to ensure that the data does not facilitate or exacerbate issues of inequality, for example.

Research

Domestically, research is concentrated in a few institutions, which are heavily influenced by the Department of Agriculture, Food and the Marine's

⁴²¹ Tauberer, J. Open Government Data: The Book, Open Government Data Definition: The 8 Principles of Open Government Data, Second Edition: 2014, available at: <https://opengovdata.io/2014/8-principles/#:~:text=Data%20Must%20Be%20Timely%20Data,allow%20automated%20processing%20of%20it.>

strategic vision.⁴²² Globally, knowledge transfer is one-directional and rooted in systems that have traditionally benefited rich countries and large companies. Ireland's approach to a new strategic relationship with Africa, namely through its knowledge transfer, does not adequately consider the context-specific nature of food systems.

Ireland's research institutions would benefit from a clear mandate to:

- 1) Promote and integrate local and traditional knowledge in research and solution seeking exercises.
- 2) Invest more in research on local and traditional crops for greater diversity of production, diets, and resilience to the impacts of climate change.
- 3) Invest more in nutrition research to create balance between public and private ownership of the latest nutrition knowledge and science.

Further, future dialogues and decision-making processes would benefit from expanding the research in this report. In particular, it would be beneficial to map all policies and initiatives along with the relevant institutions involved in transforming Ireland's agri-food landscape. This would provide a basis for a systems analysis, as well as for tracking and accountability of deliverables.

In addition, further research into Ireland's ODA would be useful to understand how commitments are being transformed into action and to identify more granular opportunities and gaps in Ireland's development cooperation approach. This research could align with recent studies such as Moeller, N (2020)⁴²³ and ACF, CCFD-Terre Solidaire, Oxfam France (2021).⁴²⁴

More broadly, research into alternative agricultural approaches, including nutrition-driven agriculture, would support future decision-making processes in achieving a soil-to-gut approach to food systems.

Finally, a better understanding of how all stakeholders can be represented would be bolstered by research into farmers' needs and priorities, as well as to leverage digital innovations to better capture the interests of the

heterogeneous groups of stakeholders involved in the food system, including more active consumer platforms.

Recommendation

- Establish a national sustainable food systems body that provides space for the voices of all stakeholders – including the most marginalised in Irish society – to be heard and integrated into decision-making. Ensure adequate mediation processes are in place to manage potential barriers to consensus. This body should have a clear mandate to influence government policy making; be tasked with ensuring adequate representation of all communities and from social, environmental, and economic sectors; ensure coherence across all policies; and develop adequate sustainability metrics for Ireland's food system components (from agriculture to retail) founded in scientific evidence and social and economic realities.

⁴²² Buckley, M., Henchion M., & O'Reilly, P. (2007) Interactions in Ireland's Food Innovation System, DOI: [10.22004/ag.econ.6586](https://doi.org/10.22004/ag.econ.6586)

⁴²³ Moeller, N. (2020) Analysis of Funding Flows to Agroecology, Centre for Agroecology, Water and Resilience, Coventry University, available at: <https://www.cidse.org/2020/09/28/analysis-of-funding-flows-to-agroecology/>

⁴²⁴ OACF, Terre Solidaire, Oxfam France (2021) Une recette à la française : une pincée d'agroécologie pour une louche d'agro-industrie, available at: https://www.oxfamfrance.org/wp-content/uploads/2021/02/AGRO_Rapport_09022021.pdf

Annex 1:

Amalgamated recommendations

Recommendation 1: Mainstream the pilot Results-Based Programme, with an aim that the majority of agricultural schemes payments will be directed towards sustainable agriculture by 2030. A critical component of this will be ensuring the co-creation of the scoring system with farmers.

Recommendation 2: Ireland explicitly recognises the principles of agroecology as a key part of the solution in building sustainable food systems. Ireland should commit to increasing the proportion of ODA spending on agriculture and food systems directed towards the scaling up and out of agroecological initiatives.

Recommendation 3: Agree appropriate sustainable agri-food metrics following input from national and international experts and relevant stakeholders and located within evolving international norms. These metrics should aim to go beyond the classic measures of agricultural productivity to assess food systems against their contribution to nourishing humans and bolstering environmental outcomes (biodiversity, diverse landscape, healthy habitats). This important task should be under the remit of an independent body with no conflicts of interests – see Recommendation 22.

Recommendation 4: Ensure the provision of metadata, methodological notes, and sources for all government publications. Harmonise definitions and conceptualisations of key food systems concepts across government departments. Align with Open Data principles.

Recommendation 5: 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.

Recommendation 6: Update Ag-Climatise in 2021 to reflect new national commitments to reducing GHG emissions to be set out in the forthcoming climate budgets. Aim to reduce ammonia emissions to 2010 levels. Include a greater emphasis on stimulating demand for organic produce in Ireland.

Recommendation 7: Include clear mechanisms for accountability and enforcement of targets set out in national policies.

Recommendation 8: Immediately 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.

Recommendation 9: Mainstream a food systems approach in all institutions and organisations involved in development cooperation, including the human rights and food sovereignty components. Specifically, ensure transparency of all public funding to demonstrate the mutual benefits of funding and ensure same is not disproportionately benefitting Irish businesses to the detriment of local markets in low-income countries.

Recommendation 10: 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 bottom-up approaches.

Recommendation 11: Ratify the Nagoya protocol. Advocate for greater acknowledgement of traditional knowledge as a key part of the evidence-base for decision making regarding food systems. Advocate for more inclusive and fair policy and agricultural trade spaces, including a reform of the TRIPS agreement to eliminate oligarchic type market control of agri-businesses and the privatisation of biodiversity.

Recommendation 12: Work to ensure Irish agri-business entrench principles of policy coherence in all engagements with low-income countries, especially the principle of ‘do no harm’. Ensure that Irish agri-business undertake a real strategic shift towards collecting locally produced produce from local family farms in export markets. For example, explore mechanisms to ensure Irish exporters reach the ECOWAS target of 25% of local milk collection by 2025. Put in place necessary supports to enable increases in local production within export countries.⁴²⁵

Recommendation 13: Introduce effective Human Rights and Environmental Due Diligence legislation to ensure private sector compliance with a sustainable food systems approaches. Such legislation will ensure

⁴²⁵ ECOWAS (2019) Regional Offensive for local milk value chains promotion in West Africa, available at: http://www.hubrural.org/IMG/pdf/angl_projet_de_rapport_final_ym_rev2-3.pdf

that companies are legally obliged to fulfil human rights and environmental obligations throughout their supply chain. To this end, Ireland should actively support and contribute to the development of an ambitious, effective and binding UN treaty on business and human rights, to regulate the activities of transnational corporations and other business enterprises.

Recommendation 14: Advocate for changes at EU and global level to relevant policy frameworks to ensure unsustainable food production around the world is phased out and sustainable methods of production are supported.

Recommendation 15: Ensure Ireland's efforts for global leadership extend beyond the UN Food Systems Summit. Ireland can provide leadership, for example, towards the achievement of SDG 2, including by building on its strong relationship with the Rome-based agencies to reinforce the mandate and role of the Committee on World Food Security.

Recommendation 16: Ensure adequate investment is made to support rural economies. Urgently implement government commitments to large-scale broadband access. Invest more in programmes that can bolster local supply chains (e.g. LEADER).

Recommendation 17: Invest more in fresh, nutritious, and local produce. Increase subsidies for horticultural development to reduce reliance on imported fruit and vegetables.

Recommendation 18: Invest more in Ireland's food identity. Increase funding for research into Ireland's food history. Create a food subject in schools to educate students on healthy diets and cooking options, the links between agriculture and human and environmental health, as well as to promote domestic approaches to reduce food waste at the household level.

Recommendation 19: Establish clear targets to redirect responsibility for regulation firmly in the public sphere. Restrict or ban the (online) marketing of foods high in trans-fat, salt, or added sugars to children and adolescents up to 19 years. Policies that promote this, particularly those that promote 'plant-forward' diets, need to emphasise the need for a cap of starchy staple foods (e.g. at 50% of total dietary energy requirements).

Recommendation 20: Explore pathways forward to support the increase in the cost of food (e.g. via True Cost Accounting), alongside appropriate social safety net measures.

Recommendation 21: Increase funding to nutrition research in Ireland, with a view to the majority of the nutrition-related evidence-bases and research being owned by the public sector.

Recommendation 22: Establish a national sustainable food systems body that provides space for the voices of all stakeholders – including the most marginalised in Irish society – to be heard and integrated into decision-making. Ensure adequate mediation processes are in place to manage potential barriers to consensus. This body should have a clear mandate to influence government policy making; be tasked with ensuring adequate representation of all communities and from social, environmental, and economic sectors; ensure coherence across all policies; and develop adequate sustainability metrics for Ireland's food system components (from agriculture to retail) founded in scientific evidence and social and economic realities.

Annex 2: Methodological note

This report sought to assess Ireland's policy landscape to identify opportunities and gaps for a shift towards sustainable food systems. In addition, the research sought to understand the ambition of Ireland's policies in light of narratives pointing to Ireland's sustainable approach to agriculture. The authors employed mixed methods research, combining qualitative and quantitative research methods, as well as a series of consultations with key experts and stakeholders in the field. This note describes the methodology and approach for figures and charts.

The report was informed by a review of grey literature, including key policy documents and data relating to the European Green Deal, namely the F2F strategy, Ireland's Agri-Food Strategy 2030 (draft for consultation), its predecessor, Food Wise 2025, the Programme for Government 2020, A Better World, the National Task Team on Rural Africa Report, the Department of Agriculture, the Marine and Food's Annual Outlook report 2020. The primary quantitative data sources used are outlined in the table below.

Table MN1: Primary sources of data

Data source	Database URL/Notes
The OECD Creditor Reporting System	QWIDS database: https://stats.oecd.org/qwids/ CRS database: https://stats.oecd.org/Index.aspx?DataSetCode=crs1
The UN Biodiversity Lab	The UN Biodiversity Lab is an online platform that allows policymakers and other partners to access global data layers, upload and manipulate their own datasets, and query multiple datasets to provide key information on the Aichi Biodiversity Targets and nature-based Sustainable Development Goals: https://www.unbiodiversitylab.org/
The Environmental Protection Agency	River and Groundwater risk maps: https://gis.epa.ie/EPAMaps/Water GHG emissions from agriculture: https://www.epa.ie/ghg/agriculture/ Air pollutants (report): https://www.epa.ie/pubs/reports/air/airemissions/irelandsairpollutantemissions2018/EPA-Air-Pollutant-Emissions-website.pdf
Gov.ie publications	Including press releases and datasheets: https://www.gov.ie/en/publication/5f0e9-scheme-payments-by-county-september-to-december-2020/ ; https://www.gov.ie/en/press-release/6d27e-mcconalogue-seeks-european-commission-approval-for-the-10th-amendment-of-the-rural-development-programme/
Irish Central Statistics Office	Trade by Enterprise Characteristics (2016): https://www.cso.ie/en/releasesandpublications/ep/p-stec/servicestradebyenterprisecharacteristics2016/ Farm Structure survey (2016): https://www.cso.ie/en/releasesandpublications/ep/p-fss/farmstructuresurvey2016/kf/ Ireland's Trade in Goods, Food (2017): https://www.cso.ie/en/releasesandpublications/ep/p-ti/irelandstradeingoods2017/food2017/
Crippa, M. et al (2021)	From the Nature Food Article 8 th March 2021: Food systems are responsible for a third of global anthropogenic GHG emissions (Table 7) https://www.nature.com/articles/s43016-021-00225-9#Sec25
Eurostat	For analyses relating to <i>organic crop area in utilised agricultural area excluding kitchen gardens and ammonia emissions from agriculture</i> , a simple linear trend analysis was applied and data was extrapolated to show Business as Usual (BAU) and Ireland's target trajectories towards 2030. To address missing data for the analysis relating to trends in area under organic production in Ireland, data were interpolated for the years 2010 and 2011. https://ec.europa.eu/eurostat/data/database
Global Food Systems Dashboard	Ireland's country profile: https://foodsystemsdashboard.org/countrydashboard
OECD Stat	For total count of patents by country: https://stats.oecd.org/viewhtml.aspx?datasetcode=PATS_IPC&lang=en

To complement the desk research, confidential consultations were carried out between the 8th March and the 16th April 2021 with 21 experts and stakeholders from academia, government, domestic and global NGOs, and farming and trade sectors. These took the form of semi-structured interviews, with the following over-arching questions:

- What do you perceive as the challenges and opportunities for Ireland's role in building sustainable food system, domestically and globally?
- What do you perceive as the challenges and opportunities for effective and inclusive coordination mechanisms that provide space for accountability and transparency?
- What mechanisms should a central authority (e.g. a food council) rely on and how should such an entity be structured?

In addition, where relevant, during each consultation specific queries were raised relating to each interviewee's area of expertise and relating to data, monitoring and evaluation, and internal mechanisms for decision-making.

Conceptual basis

For the purposes of the report, the concept of a sustainable food system was rooted in the FAO (2018) conceptualisations of food systems:

The FAO (2018)⁴²⁶ defines a food system as one encompassing:

“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”.

A Sustainable Food System is defined as one that:

*“delivers food security and nutrition for all in such a way that the economic, environmental and social bases to generate food and nutrition for future generations are not compromised”*⁴²⁷

In addition, the analysis relied on the policy shifts required for transformation described in the HLPE (2020) 15th report *Food security and nutrition: building a global narrative towards 2030*, summarized in the table below.

Table MN2: Four policy shifts and enabling conditions for sustainable food systems

Policy starting point	Policy shift required
Exclusive focus on increasing agricultural supply in a context of population growth.	Working toward a radical transformation of food systems as a whole to improve food and nutrition security and achieve Agenda 2030.
Viewing Food and Nutrition Security as a sectoral issue.	Viewing FSN as a system interconnected with other systems and sectors.
Exclusive focus on reducing hunger and undernutrition.	Focus on hunger and malnutrition in all its forms, in their complex relation to one another.
Focus on finding globally applicable food and nutrition security solutions.	Understanding that food and nutrition security is context-specific, requiring diverse solutions.
Enabling conditions	
Governance	Multilateral cooperation and coordination; implement global guidelines; coordination across different scales (from local, to national, and global). Representative participation (including through targeted financing); uphold the right to food.
Research	Emphasise research for critical and emerging issues (1) anticipating the inter-connected future of urbanization and rural transformation; (2) conflicts, migrations and FSN; (3) inequalities, vulnerability, marginalized groups and FSN; (4) impacts of trade on FSN; (5) agroecology for FSN in a context of uncertainty and change; (6) agrobiodiversity, genetic resources and modern breeding for FSN; (7) food safety and emerging diseases; (8) from technology promises towards knowledge for FSN; and (9) strengthening governance of food systems for an improved FSN.

Source: adapted from HLPE (2020) Report 15: *Food security and nutrition: building a global narrative towards 2030*

⁴²⁶ FAO (2018) Sustainable food systems: Concept and framework, available at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

⁴²⁷ FAO (2018) Sustainable food systems: Concept and framework, available at: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>

Of relevance – particularly to the analyses on representation throughout the report – is the updated conceptualisation of food and nutrition security in the HLPE (2020) report. Until 2020, the commonly accepted conceptualisation of food and nutrition security encompassed just four components: *availability, access, utilisation, and stability*. The HLPE (2020) report expanded this to include two components: *agency and sustainability*.

Agency: capacity of individuals or groups to make their own decisions about what foods they eat, what foods they produce, how that food is produced, processed, and distributed within food systems, and their ability to engage in processes that shape food system policies and governance.

Sustainability: long-term ability of food systems to provide food security and nutrition in a way that does not compromise the economic, social, and environmental bases that generate food security and nutrition for future generations.

These additional concepts provide space for analysis of the intricate interdependencies between the food system's components to be considered, i.e., for a systems approach to be taken with appreciation for the complexity of food systems. They also allow consideration for the principles of a just transition, namely through procedural justice '*engage in processes that shape food system policies and governance*'; and distributional justice through concepts of fairness and therein the consideration for future generations.

Further, the report draws on the core principles of an agroecological approach to frame the concept of *sustainability* in an economic, environmental, and social context, as outlined below.

Table MN3: HLPE (2019) Principles of Agroecology

Overarching principle	Principles
<i>Improve resource efficiency</i>	<ul style="list-style-type: none"> • Recycling • Input reduction
<i>Strengthen resilience</i>	<ul style="list-style-type: none"> • Soil health • Animal health • Biodiversity • Synergy • Economic diversification
<i>Secure social equity/ responsibility</i>	<ul style="list-style-type: none"> • Co-creation of knowledge • Social values and diets • Fairness • Connectivity • Land and natural resource governance • Participation

The concepts of a just transition and the right to food are also integral to the framing of sustainable food systems, in line with commitments made at the EU and at national levels.

Just Transition

To achieve social equity, a just transition needs to integrate distributional and procedural justice into decision-making processes. Distributional justice means that opportunities and costs of a transition should be shared in a fair way; procedural justice means citizens and relevant stakeholders should be included in the decision-making process and policy implementation.⁴²⁸ Value is measured based on a citizen's (rather than a consumer's) values and preferences. Emphasis is placed on the assumption that different choices will be made depending on whether they are driven by an individual's values (as a citizen, part of a community) or their individual preferences (as a consumer).^{429 430}

⁴²⁸ Sabato, S. & Fronteddu, B. (2020) *A Socially Just Transition through the European Green Deal?* European Trade Union Institute (ETUI) Research Paper- working paper 2020.08, available at SSRN: <https://ssrn.com/abstract=3699367> or <http://dx.doi.org/10.2139/ssrn.3699367>

⁴²⁹ Vatn, A. (2009) An institutional analysis of methods for environmental appraisal, *Ecological Economics*, 68(8-9), 2207-2215

⁴³⁰ Bell, K. (2015). Can the Capitalist Economic System Deliver Environmental Justice? IOP Science, Environmental Research Letters, DOI: 10.1088/1748-9326/10/12/125017

Interdependence is the basis for analysis: decisions made by one agent can affect another's choices, which can lead to conflict. In order to manage or avoid these conflicts, regulations are put in place to provide a framework for prioritisation of each agents' interests. This approach is about solving problems, which generates winners and losers, hence the concept of social justice becoming central.^{431 432 433}

Right to Food & Food Sovereignty

ActionAid (2020) argue that a just transition must include a food system that, not only benefits nature and the climate, but also ensures 'the right to food for all'.⁴³⁴

"The right to adequate food is realized when every man, woman and child, alone or in community with others, has the physical and economic access at all times to adequate food or means for its procurement" - General Comment 12 (Committee on Economic, Social and Cultural Rights, CESCR, 1999).

Ireland commits to the right to food through article 45.2 of its constitution;^{435 436} as a party to the Universal Declaration of Human Rights (article 25); and as a party to the International Covenant on Economic, Social and Cultural rights, which affirms: *"States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food..."*.

Food sovereignty means *"the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity. We have the right to produce our own food in our own territory. Food sovereignty is a precondition to genuine food security."*⁴³⁷

The following sections describe the specific methodology and approach used for each figure in the report.

Figure 5: Domestic agricultural schemes payments 2020

DAFM payment scheme data were sourced from the DAFM press release on 14th January 2021.⁴³⁸ The data were provided in an Excel sheet with no metadata.

The projects were classified based on an adaptation of the Rio Markers approach.⁴³⁹ This means that a scoring system using three values was used, whereby financial flows were categorised and weighted according to whether sustainability is a 'principal', 'significant' objective of the funding, or not targeted.

The term 'sustainability' here incorporates payments and programmes which have a principal or significant environmental objective. For example, GLAS' main purpose is 'green, low carbon agriculture'. However, some programmes present mixed objectives, which mean they could be promoting either sustainable or conventional agricultural practices. Payments for Areas of Natural Constraint (ANC), for example, are important for maintaining and restoring these areas that might otherwise be neglected within a classic market structure. At the same time, there are no environmental conditions attached to these payments and so we apply a lesser weighting for these types of payments. The weightings applied to each subsidy are outlined in Table MN4, below.

Payments that can be considered with clear sustainability goals (through agri-environmental indicators) are marked as 'principal'. Those that present a combination of goals (e.g., TAMS, ANC) are marked as 'significant'. And those that have no particular sustainability goals attached to them are marked as 'conventional'.

⁴³¹ Vatn, A. (2009) An institutional analysis of methods for environmental appraisal, *Ecological Economics*, 68(8-9), 2207-2215

⁴³² Bell, K. (2015) Can the Capitalist Economic System Deliver Environmental Justice? IOP Science, Environmental Research Letters DOI: 10.1088/1748-9326/10/12/125017

⁴³³ GRAIN (1998) TRIPS Review, available at: <https://www.grain.org/fr/article/entries/311-the-trips-review-takes-off>

⁴³⁴ ActionAid (2019) Principles for a Just Transition in Agriculture, available at: https://actionaid.org/sites/default/files/publications/Principles%20for%20a%20just%20transition%20in%20agriculture_0.pdf

⁴³⁵ Article 45.2: "That the citizens (all of whom, men and women equally, have the right to an adequate means of livelihood) may through their occupations find the means of making reasonable provision for their domestic needs."

⁴³⁶ <http://www.fao.org/right-to-food-around-the-globe/countries/irl/en/#:~:text=The%20Constitution%20of%20Ireland%20has,1989%20by%20way%20of%20ratification.>

⁴³⁷ Via Campesina, Via Patel, R. (2009), available at <https://www.tandfonline.com/doi/full/10.1080/03066150903143079>

⁴³⁸ <https://www.gov.ie/en/publication/5f0e9-scheme-payments-by-county-september-to-december-2020/>.

⁴³⁹ OECD DAC Rio Markers for Climate: Handbook, available at: https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf

Table MN4: Sustainability classification of DAFM Payments

Scheme	DAFM tag	Purpose/sector	Applied weighting
GLAS	Agri-environment	climate change, biodiversity, habitats protection, sustainable farming	1
Organics	Agri-environment	organic food production	1
Burren	Locally led programme	conservation; quality livestock	1
Hen Harrier	Locally led programme	biodiversity, conservation	1
EIP	EIPs	partnerships; environment	1
BPS	Basic payments and entitlements	agriculture, income support	0
ANC	Areas of Natural Constraint	disadvantaged areas; livestock maintenance	0.4
TAMS	Agri-environment	inputs; buildings and equipment	0.5
Sheep Welfare	Beef and sheep	animal welfare	0.5
Protein Aid	Basic payments and entitlements	legumes; crop-feed; beans peas and lupins, environment (reduced import, nitrogen-fixing)	0.5
BEEPS	Beef and sheep	economic and environmental efficiency; data; decision-making; welfare management	0
BFP	Beef and sheep	COVID	0
BDGP I & II	Beef and sheep	technology and genomics for livestock	0
GTFB	unknown	unknown	0
PMP	unknown	unknown	0

Figure 7: Proportion of agricultural ODA targeting sustainable vs other agricultural approaches (total, 2016-2018)

Donors report their aid activities on a more detailed level though “short” and “long” descriptions which constitute micro data. Micro data was accessed from the CRS, in order to assess what types of activities were being described as supportive to agroecological initiatives.

Data were analysed for the years 2016-2018 inclusive, filtered by the OECD CRS purpose code ‘Agriculture, Forestry, and Fishing’, along with ‘agro-industries’. The dataset was composed of a total of 561 rows (2018: 151 project rows; 2017: 211 project rows; 2016: 199 project rows).

An initial analysis was based on Gliessman’s five levels of transformative agriculture was attempted. However, the level of detail of reporting in Irish ODA microdata was insufficient to adequately classify the projects in these five levels and the scope of the research assignment did not allow for the in-depth consultation process required to complement the OECD CRS data.

Instead, the author relied on the HLPE (2019)⁴⁴⁰ detailed description of the principles of agroecology as a proxy for sustainable agriculture, categorising the projects in three tiers as described below.

Key concepts classifying a project as tier 1 principally sustainable include:

- Diversification of agricultural practices
- Agroecology
- Sustainable agriculture
- Community-based approaches (including for seed production)
- ‘Environmentally friendly’ agriculture
- Genetic plant diversity
- Horticulture
- Protective measures (soil, ecosystems, etc...)

⁴⁴⁰ HLPE. (2019) Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

Key concepts classifying a project as tier 2 significantly sustainable include:

- Diversification of incomes (this can't always be presumed to be done sustainably, but aligns with potential pathways toward sustainability such as diversified crop production)
- Diversification of diets (this can't always be presumed to be done sustainably, but aligns with potential pathways toward sustainability such as diversified crop production)
- Resilience
- Integrated approaches
- Climate-smart agriculture (CSA principles can align with agroecological approaches, but not systematically)
- Adoption of agricultural technologies (this could include a mixed bag of sustainable and conventional approaches)
- Improved livestock production (this could include a mixed bag of sustainable and conventional approaches)
- A focus on equity for marginalised, vulnerable, and disenfranchised populations, for example ethnic minorities, land ownership, seed certification, smallholder farmers
- Participation
- Agricultural artisan and cottage industries (although this could be directed toward conventional products, the projects could take a sustainable pathway to resilience such as diversified practices or production)

Projects classified as tier 3 'other agriculture' included:

- Projects with descriptions pointing to agricultural activities with no explicit mention of environmental or social sustainability
- All projects with minimal or inadequate descriptions (see limitations). For example, USD 150,000 to Nigeria via Misesan Cara in 2018 was described as 'MISSIONARY SISTERS OF HOLY ROSARY ENHANCE ACCESS TO VOCATIONAL C'.
- Policy and advocacy activities

Each project was thus classified as having a 'principal' or 'significant' focus on sustainability, in line with the Rio Markers approach. Meaning, if a project objective is defined as 'tier 1', then it is marked as 'principal'. If a project is classified as 'tier 2', then it is marked as

'significant', and those classified as 'tier 3' were marked as 'other'. Thus, a project is considered as 'principally' sustainable if it targets same directly, meaning the primary purpose of the initiative is to develop or bolster sustainable agricultural practices as defined by HLPE (2019); it is considered 'significant' if it targets sustainability indirectly, meaning initiatives that promote the potential for improved agricultural practices through, for example, measures that support farmers' resilience.

Each project description was analysed manually to identify key concepts that would form a principal or significant sustainable agriculture activity.

Figures 12 & 13: Gender Markers

To establish the prioritisation of gender and climate change, the OECD Development Assistance Committee (DAC) gender and climate change mitigation and adaptation markers were used.

The DAC gender equality policy marker is based on a three-point scoring system, to qualitatively track the financial flows that target gender equality. This allows the OECD to identify gaps between DAC donors' policy commitments and financial commitments.

Principal (marked 2) means that gender equality is the main objective of the project/programme and is fundamental to its design and expected results. The project/programme would not have been undertaken without this objective.

Significant (marked 1) means that gender equality is an important and deliberate objective, but not the principal reason for undertaking the project/programme, often explained as gender equality being mainstreamed in the project/programme.

Not targeted (marked 0) means that the project/programme has been screened against the gender marker but has not been found to target gender equality.

Figures 14, 15, & 16: Representation in agri-food decision making processes

Data were sourced from list of the draft AFS 2030 steering committee composition, the former agri-food strategy (FoodWise 2025) and the NTTRA report's committee composition. Company sizes were classified based on the OECD (2017)⁴⁴¹ definition:

Small and medium-sized enterprises (SMEs) employ fewer than 250 people. SMEs are further subdivided into micro

⁴⁴¹ OECD (2017) Entrepreneurship at a Glance, available at: <https://doi.org/10.1787/22266941>

enterprises (fewer than 10 employees), small enterprises (10 to 49 employees), medium-sized enterprises (50 to 249 employees). Large enterprises employ 250 or more people

Figure 17: Organic crop area

Data for the Figure 17 Organic crop area – Business as Usual vs Ag-Climatise target were sourced from Eurostat dataset: Organic crop area (fully converted area) [TAG00098], downloaded on 17th December 2020. The dataset provides data on hectares of utilised agricultural area (excluding kitchen gardens) that are fully converted to organic farming.

The timeframe was chosen based on the Ag-Climatise target, which aims for ‘350,000 hectares of organic production by 2030’. Latest available data were for the year 2019.

A simple linear trend was established based on data from 2009-2019 ($y = 3238.3x + 31080$). Due to missing data, data were interpolated for the years 2010 and 2011. Data were then extrapolated to establish the required trend from 2020 through 2030 ($y = 13778x - 25570$).

Figure 18: Ammonia from agriculture

Data for the Figure 18: Ammonia from Agriculture Business as Usual vs Ag-Climatise target were sourced from the Eurostat dataset: Ammonia emissions from agriculture (source: EEA) [SDG_02_60]. The indicator measures the amount of ammonia (NH₃) emissions as a result of the agricultural production. The EU inventory on air pollution compiled by the European Environment Agency (EEA) under the Convention on Long-range Transboundary Air Pollution (LRTAP Convention) is fully consistent with national air pollution inventories compiled by the EU Member States.

Ammonia emissions per hectare are calculated using the total utilised agricultural area (UAA) of the relevant year as denominator. Latest available data are for the year 2018.

A simple linear trend was established based on data from 2009-2018 ($y = 1518.1x + 100779$). Data were then extrapolated to establish the required trend from 2019 through 2030 ($y = 282.77x + 106956$).

ODA for Food and Nutrition Security

Data were sourced from the OECD’s CRS database. The objective of the CRS Aid Activity database is to provide a set of readily available basic data that enables analysis on where aid goes, what purpose it serves, and what policies it aims to implement, on a comparable basis

for all DAC members. Data are collected on individual projects and programmes. Focus is on financial data but some descriptive information is also made available.

In the CRS, data on the sector of destination are recorded using 5-digit purpose codes. A purpose code is a list of codes, names, and descriptions used to identify the sector of destination of a contribution.

For the purposes of this piece, disbursements were considered (rather than commitments), with a view to reflecting the partner countries’ (recipients) perspectives. This means that the data show funds actually received rather than commitments made the donor that year. The unit of measurement is constant (2018) United States Dollars in millions. This was not converted to Euros to facilitate cross-country comparisons, particularly in light of forthcoming global conversations (namely the UN Food Systems Summit).

As described in the report, food and nutrition security comprises numerous components and cannot be reduced to agriculture only. As such, ODA analysis throughout (with the exception of Figures 8 and 9, which focused on ODA to agriculture and nutrition only, respectively) was based on the following broad categories: agriculture, forestry, and fisheries; rural development; nutrition; and agro-industries. This classification is adapted from OECD (2012)⁴⁴² and The Brookings Institution (2015).⁴⁴³ As per the table below, some purpose codes were excluded. For example, purpose code 52021: Food Assistance is beyond the scope of the report as it focusses on humanitarian support.

⁴⁴² OECD (2012) Brochure on Aid for Food and Nutrition Security, Development Cooperation Directorate

⁴⁴³ Brookings Institution (2015) Ending Rural Hunger: Mapping Needs and Actions for Food and Nutrition Security

Table MN5: OECD DAC purpose codes for Irish ODA to Food and Nutrition Security

Purpose code	Description	Notes
12240	Basic nutrition	Micronutrient deficiency identification and supplementation; Infant and young child feeding promotion including exclusive breastfeeding; Non-emergency management of acute malnutrition and other targeted feeding programs (including complementary feeding); Staple food fortification including salt iodization; Nutritional status monitoring and national nutrition surveillance; Research, capacity building, policy development, monitoring and evaluation in support of these interventions [Use code 11250 for school feeding and 43072 for household food security].
	Agriculture, Forestry, Fishing	
	Agriculture	
31110	Agricultural policy and administrative management	Agricultural sector policy, planning and programmes; aid to agricultural ministries; institution capacity building and advice; unspecified agriculture.
31120	Agricultural development	Integrated projects; farm development.
31130	Agricultural land resources	Including soil degradation control; soil improvement; drainage of water logged areas; soil desalination; agricultural land surveys; land reclamation; erosion control, desertification control.
31140	Agricultural water resources	Irrigation, reservoirs, hydraulic structures, ground water exploitation for agricultural use.
31150	Agricultural inputs	Supply of seeds, fertilizers, agricultural machinery/equipment.
31161	Food crop production	Including grains (wheat, rice, barley, maize, rye, oats, millet, sorghum); horticulture; vegetables; fruit and berries; other annual and perennial crops [Use code 32161 for agro-industries].
31162	Industrial crops/export crops	Including sugar; coffee, cocoa, tea; oil seeds, nuts, kernels; fibre crops; tobacco; rubber [Use code 32161 for agro-industries].
31163	Livestock	Animal husbandry; animal feed aid.
31164	Agrarian reform	Including agricultural sector adjustment.
31165	Agricultural alternative development	Projects to reduce illicit drug cultivation through other agricultural marketing and production opportunities [see code 43050 for non-agricultural alternative development].
31166	Agricultural extension	Non-formal training in agriculture.
31181	Agricultural education/training	
31182	Agricultural research	Plant breeding, physiology, genetic resources, ecology, taxonomy, disease control, agricultural bio-technology; including livestock research (animal health, breeding and genetics, nutrition, physiology).
31191	Agricultural services	Marketing policies & organisation; storage and transportation, creation of strategic reserves.
31192	Plant and post-harvest protection and pest control	Including integrated plant protection, biological plant protection activities, supply and management of agrochemicals, supply of pesticides, plant protection policy and legislation.

Purpose code	Description	Notes
31193	Agricultural financial services	Financial intermediaries for the agricultural sector including credit schemes; crop insurance.
31194	Agricultural co-operatives	Including farmers' organisations.
31195	Livestock/veterinary services	Animal health and management, genetic resources, feed resources.
	Forestry	
31210	Forestry policy and administrative management	Forestry sector policy, planning and programmes; institution capacity building and advice; forest surveys; unspecified forestry and agro-forestry activities.
31220	Forestry development	Afforestation for industrial and rural consumption; exploitation and utilisation; erosion control, desertification control; integrated forestry projects.
31261	Fuelwood/charcoal	Sustainable forestry development whose primary purpose is production of fuelwood and charcoal. Further transformation of biomass in biofuels is coded under 32173.
31281	Forestry education/training	
31282	Forestry research	Including artificial regeneration, genetic improvement, production methods, fertilizer, harvesting.
31291	Forestry services	
	Fishing	
31310	Fishing policy and administrative management	Fishing sector policy, planning and programmes; institution capacity building and advice; ocean and coastal fishing; marine and freshwater fish surveys and prospecting; fishing boats/equipment; unspecified fishing activities.
31320	Fishery development	Exploitation and utilisation of fisheries; fish stock protection; aquaculture; integrated fishery projects.
31381	Fishery education/training	
31382	Fishery research	Pilot fish culture; marine/freshwater biological research.
31391	Fishery services	Fishing harbours; fish markets; fishery transport and cold storage.
32161	Agro-industries	Staple food processing, dairy products, slaughter houses and equipment, meat and fish processing and preserving, oils/fats, sugar refineries, beverages/tobacco, animal feeds production.
43040	Rural development	Integrated rural development projects; e.g. regional development planning; promotion of decentralised and multi-sectoral competence for planning, co-ordination and management; implementation of regional development and measures (including natural reserve management); land management; land use planning; land settlement and resettlement activities [excluding resettlement of refugees and internally displaced persons (72010)]; functional integration of rural and urban areas; geographical information systems.
Excluded		
52010	Food assistance	Supply of edible human food under national or international programmes including transport costs, cash payments made for food supplies; project food assistance aid and food assistance aid for market sales when benefiting sector not specified. Excludes food security policy and administrative management (43071), household food security programmes (43072), and emergency food assistance aid (72040). Report as multilateral: i) food assistance aid by EU financed out of its budget and allocated pro rata to EU member countries; and ii) core contributions to the World Food Programme.

Purpose code	Description	Notes
Not included because no Irish ODA is reported to these codes		
43071	Food security policy and administrative management	Food security policy, programmes and activities; institution capacity strengthening; policies, programmes for the reduction of food loss/waste; food security information systems, data collection, statistics, analysis, tools, methods; coordination and governance mechanisms; other unspecified food security activities.
43072	Household food security programmes	Short or longer term household food security programmes and activities that improve the access of households to nutritionally adequate diets (excluding any cash transfers within broader social welfare programmes that do not have a specific food security, food acquisition, or nutrition focus which should be reported under code 16010).
43073	Food safety and quality	Food safety and quality policies, programmes and activities, including food inspection and certification; strengthening food safety/quality capacities and development of standards along the value chain; monitoring/surveillance and laboratory capacities; and delivery of information, communication, education.

This broader categorisation of ODA for FNS allows for a greater overview of the country's prioritisation and helps mitigate potential inclusion and exclusion errors. For example, some donors may report nutrition ODA under other 'health' codes than 'basic nutrition', and thus would not be captured.

Figure 20: Prioritisation of nutrition, rural development, agricultural research and extension in Irish ODA to FNS (share of total FNS ODA, %)

These sectors were chosen based on their relevance to achieving sustainable and just food systems and in light of the focus on Irish policies on knowledge transfer, innovation, and R&D. Investments in nutrition, rural development, research, and extension are identified as crucial elements for innovative and inclusive approaches to sustainable food systems.

To establish the prioritisation of each of these components, as well as trends, the share of ODA allocated to these sectors of the total FNS ODA was outlined.

Figure 21: Irish ODA to food and nutrition security 2016-2018 – category breakdown

Using the same dataset used for Figure 7, the purpose of this analysis was to elaborate at a more granular level on Irish ODA allocated to Agriculture, Forestry, and Fisheries between 2016-2018.

The categories were developed using a framework analysis, based on the data drawn from Ireland's reporting to the OECD CRS and aiming to align with the HLPE (2019) principles of agroecology. Thus, the frequency of key words

associated with agroecological principles were identified to establish 11 categories: agroecology, NRM, water usage and conservation, sustainable agriculture, capacity building, smallholder farmers, inclusive policies and participative approaches, diversification (of production or incomes), equity/marginalised groups, resilience, and 'other'.

Figure 22: Ireland's prioritisation of climate change in ODA for agriculture, forestry, and fishers (2016 – 2018)

As described above, for the climate change markers (Rio Markers), a scoring system of three values is used, in which official development finance activities reported to the DAC CRS are screened and "marked" as either (i) targeting the conventions as a "principal" objective (score "2" 4) or (ii) as a "significant" objective (score "1"), or (iii) not targeting the objective (score "0"). These markers indicate donors' policy objectives in relation to each development finance activity:

An activity can be marked as "**principal**" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated as fundamental in the design of, or the motivation for, the activity. In other words, the activity would not have been funded (or designed that way) but for that objective.

An activity can be marked as "**significant**" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated but is not the fundamental driver or motivation for undertaking and designing the activity. The activity has other prime objectives but has been formulated or adjusted to help meet the relevant environmental concerns.

The score “**not targeted**” (“0”) means that the activity was examined but found not to target the objective in any significant way. For activities that have not been assessed with the Rio markers in mind, the “0” value are not used, but rather the marker field should be left empty. This way, there is no confusion between activities that do not target the objective (score = “0”), and activities for which the answer is not known (score = “null”). This important distinction has implications for statistical presentations of Rio marker data

Limitations

The report was to rely on an analysis of the Agri-Food Strategy 2030 as a primary source yet the delays in publishing the strategy (made available for public consultation on the 17th April) limited the scope of the analysis.

Throughout the report, several time periods are used. This is due to differences in latest available data and the scope of the research. For example, the analysis of Ireland’s ODA – in particular those assessing the sustainability – would benefit from a greater time span (e.g. a ten-year time frame), but the analysis was done manually, as noted above, which limited the number of years that could be analysed. The analysis would benefit from further research which seeks to classify the ODA based on the different ‘poles’ identified in HLPE (2019). This would require significant additional investigation, beyond the scope of this study, and engagement with Irish Aid to avail of qualitative data to complement the OECD data, which currently provide inadequate levels of detail to conduct a robust analysis.

On the gender analysis of ODA, during the analysis, it became apparent that numerous projects that could have been marked as ‘principal’ gender equality were marked as ‘significant’, thus under-estimating Ireland’s commitment and actions for this goal. For example, in 2017, roughly USD 120,000 was disbursed through civil society in Sierra Leone to support ‘*Poor and vulnerable women increase and diversify production enabling their house holds to consume a more nutritious diet*’, yet this was marked as significant, rather than principally targeting gender equality. The inadequacy of many ODA descriptions (microdata) and the subsequent classification of same as ‘conventional’ yields non-negligible potential for exclusion errors. Thus, the volumes invested in sustainable practices are likely to be underestimated. To mitigate this, the author has approached the analysis as generously as possible (e.g. the inclusion of ‘agricultural cottage industries’ as a potential sustainable agricultural activity and the broad scope of purpose codes analysed, beyond agriculture, forestry and fisheries as described above). Finally, ‘sustainable

agriculture practices’ are not adequately defined within the long descriptions and could relate to non-agroecological practices.

No additional efforts were made to investigate project descriptions. For example, in 2016 USD 240,000 was disbursed to a project described as ‘*Natural Resources Agriculture Niassa - We Effect: Food Security and Nutrition: 100% DISBURSEMENT OF 2016 COMMITTED FUNDS*’. Although this doesn’t provide enough information to ascertain whether the project may have had an agroecological or sustainability component, a simple online search shows that the project relates to the Niassa Agricultural Development Project (NADP) in Mozambique. Detailed analysis to this extent was beyond the scope (namely time frame) of the current research assignment, but would be a useful exercise for future research.

In some cases, projects were described in a way that could be deemed as having contradictory objectives in terms of agroecological transformation. For example, this 2018 project description which refers to both ‘intensification’ and ‘diversification’ which are not typically complementary approaches: ‘*Increased Smallholder Skills And Knowledge to Benefit Nutritionally And Economically from Intensified and Diversified Agricultural Production*.’ In these cases, the project was classified based on the keyword most closely associated with agroecological transformation. Therefore, there may also be inclusion errors, leading to an over-estimate of ODA flows. However, this is likely mitigated, given the number of projects excluded based on a lack of detail provided in the long description (micro data).

The assumption that women represent marginalised groups, although this is not always the case, could lead to overestimates. Similarly, there is an assumption that youth and poor farmers represent marginalised groups. Further, there is an assumption that support for seeds and seed certification aligns with HLPE (2019) concept of locally adapted varieties, which may not be the case. This analysis makes no attempt to assess the quality of the projects classified as sustainable or potentially sustainable. Finally, the scope of the study did not allow for an adequate analysis of the fisheries and seafood sectors, which is absent from the report.

Finally, the domestic analysis would also have benefitted from greater insights into the research and development landscape in Ireland. However, particularly in light of the complexity of funding mechanisms, this was beyond the scope of the research report. Similarly, a mapping of all funding mechanisms would bolster the institutional analyses.

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