



**The Foundation for the Economics
of Sustainability**

and



**Feasta Climate Group
and Stop Climate Chaos
joint submission to UNFCCC**

March 2016

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in collaboration with Stop Climate Chaos Ireland
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Introduction

SBSTA 40 (the 40th session of the Subsidiary Body for Scientific and Technological Advice, part of the UN Framework Convention on Climate Change) has invited Parties and admitted observer organisations to submit their view on issues relating to the following:

- *"Identification of adaptation measures, taking into account the diversity of the agricultural systems, indigenous knowledge systems and the differences in scale as well as possible co-benefits and sharing experiences in research and development and on the ground activities, including socioeconomic, environmental and gender aspects;*
- *Identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience, considering the differences in agroecological zones and farming systems, such as different grassland and cropland practices and systems."*

This submission to the UNFCCC (UN Framework Convention on Climate Change) is from the Feasta Climate Group and Stop Climate Chaos. Feasta (the Foundation for the Economics of Sustainability) is a member of Stop Climate Chaos Ireland. Feasta's aims are to identify the characteristics (economic, cultural and environmental) of a truly sustainable society, articulate how the necessary transition can be effected and promote the implementation of the measures required for this purpose.

Stop Climate Chaos is a coalition of civil society organisations campaigning to ensure Ireland plays its part in preventing runaway climate change. We have worked solely on climate change since our launch in 2007 and are the largest network of organisations campaigning for action on climate change in Ireland. Current members include development, environmental, youth and faith based organisations. They are Afri, An Taisce, BirdWatch Ireland, Climate Action Ireland Platform, Christian Aid, Comhlámh, Community Workers' Co-operative, Concern Worldwide, the Methodist Church Council on Social Responsibility, Cultivate, Eco Congregation Ireland, ECO-UNESCO, Feasta, Friends of the Earth, Gorta, Just Forests, Kimmage Development Studies Centre, Latin America Solidarity Centre, Liberian Solidarity Group, Mountmellick Environmental Group, National Youth Council of Ireland, Oxfam, Sustain West Cork, Trócaire, Vita, and VOICE.

Agreed International Policy Framework

The Paris Agreement and the Sustainable Development Goals form the context for SBSTA's work.

The preamble to the Paris Agreement emphasises "food security and ending hunger" as a "fundamental priority" of the UNFCCC:

"Recognizing the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change,"

It also acknowledges that addressing climate change requires achieving sustainable lifestyles and sustainable production and consumption:

"Also recognizing that sustainable lifestyles and sustainable patterns of consumption and production, with developed country Parties taking the lead, play an important role in addressing climate change,"

The Sustainable Development Goals include the following:

- ≡ Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- ≡ Goal 12. Ensure sustainable consumption and production patterns
- ≡ Goal 13. Take urgent action to combat climate change and its impacts
- ≡ Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- ≡ Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

The topics covered in this submission are as follows:

Productivity in the service of food security and other goals

Defining Productivity

Ensuring Food Security

Prioritising Small-Scale Farming

Prioritisation of Our Research Focus

Resource Rights

Landscape/Ecosystem Management

Consumption and Food Waste

Economic impacts of climate change on agriculture

- 1) Productivity in the service of food security and other goals

Productivity should not be treated as a goal in itself but as a means of achieving other goals. Primary amongst those other goals are food security, resilience, environmental sustainability and the protection of rural livelihoods. Production must not be allowed to obscure other key components of food security.

While production measures can be vital for assessing food security, these need to be examined in tandem with actual access to food, as well as the available nutrient absorption potential.¹

The UN Special Rapporteur on the Right to Food, Hilal Elver has noted:

“Feeding the world in times of climate change has resulted in a push for large-scale production oriented agricultural models to respond to the food demand of future generations. However, it is proven that more food production does not necessarily result in fewer people suffering from hunger and malnutrition. The world has long produced enough food, not only sufficient to meet the caloric requirements of the existing global population of over seven billion but also to meet the needs of the population expected to reach nine billion in 2050. Hunger and malnutrition are a function of economic and social inaccessibility, not production. Moreover not all of those calories go to feed humans. A third are used to feed animals, nearly 5 percent are used to produce biofuels, and as much as a third is wasted, all along the food chain.”²

Access and affordability are vital to food security. Awareness of this has fundamental implications for SBSTA’s analysis; different food production systems produce markedly different results in terms of access to food. This must not be ignored by a simple focus on per unit production.

This is not to say that productivity does not matter. The point is that the primary yardstick for measuring the impact and effectiveness of agricultural practices and technologies must be the degree to which food and nutrition security for communities most subjected to food and climate stresses is protected at a local level.

In line with the findings of the University College Cork *AgriDiet* project in Tanzania and Ethiopia, agriculture production planning must be guided by a nutrition lens.³

2) Defining Productivity

1 Agriculture At A Crossroads International Assessment of Agricultural Knowledge, Science and Technology for Development 2009
[http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20\(English\).pdf](http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf)

2Special Rapporteur on the Right to Food, Hilal Elver, in her Statement at the 70th session of the General Assembly (23 October 2015, New York)

<http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=16683&LangID=E>
3 The Policy Environment for Linking Agriculture and Nutrition in Ethiopia *AgriDiet* Working Paper 2 Tassew Woldehanna July 2014
<http://agridiet.ucc.ie/wp-content/uploads/sites/2/2014/08/Tassew-WP2-FinalReport-28Aug.pdf>

The Policy Environment for Linking Agriculture and Nutrition in Tanzania *AgriDiet* Working Paper 1 Professor Joyce Kinabo July 2014
<http://agridiet.ucc.ie/wp-content/uploads/sites/2/2014/11/Joyce-WP2-FinalDraft-update-31-oct-2.pdf>

Productivity is about production of food compared with resource inputs and greenhouse gas emissions. SBSTA must therefore analyse productivity in terms of nutrients and calories as these are what matter to food security.

It is essential that the assessment of productivity is not limited to per unit efficiency and especially that it is not measured against a yardstick of market value. To do so would both deny the importance of food which doesn't enter the market but feeds producers directly, and wrongly claim a high value for non-essential produce destined overconsuming population segments.

Measuring productivity in this manner would be contrary to, and undermine, relevant commitments in both the Paris Agreement and the Sustainable Development Goals.

3) Ensuring Food Security

It is important to be clear at the outset regarding the purpose of enhanced productivity and the primary barriers to achieving this objective. As has been noted previously, obstacles may include challenges associated with increasing per unit production, however, **hunger and malnutrition remain a function of economic and social inaccessibility**. As set out by the UN's Food and Agriculture Organisation, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".⁴

Yields have on average increased in recent decades, such that there is technically enough food produced globally for nearly everyone to be well-fed. However, this increase has not resulted in improvements in food security.⁵ This is particularly the case where the primary purpose of such increases is not associated with feeding local communities. Despite increases from 2370 to 2770 kcal/p/d since 1970, "many are still dying of want and starvation".⁶

The SBSTA assessment must therefore consider issues related to economic and physical access to food, food utilization, and their stability over time.

4) Prioritising Small-Scale Farming

The majority of the world's farmers are small scale producers. The estimated 500 million small farmers in developing countries already support 2 billion people, almost a third of humanity. They produce 70% of Africa's food supply and an estimated 80% of food consumed in Africa and Asia.⁷ Providing adequate support to small holder farmers would enhance their resilience to climate change, and contribute to world food security and poverty reduction.

Enhancing productivity in a sustainable manner, whilst achieving food security and reducing emissions, **must prioritise small scale and family farmers by supporting genuinely**

⁴ Definition agreed to at the 1996 World Food Summit.

<http://www.fao.org/docrep/003/w3613e/w3613e00.HTM>

⁵ FAO, IFAD, WFP, Reducing Poverty And Hunger: The Critical Role Of Financing For Food, Agriculture And Rural Development, 2002, p.9, www.fao.org

⁶ Since 1970, the amount of food available for every person for direct consumption has increased from 2370 to 2770 kcal/person/day. Globally, an estimated two billion people are experiencing micronutrient malnutrition, and 794 million people are calorie-deficient. TEEB for Agriculture & Food Interim Report A report by The Economics of Ecosystems & Biodiversity 2015

⁷ IFAD and UNEP (2013) Smallholders, food security and the environment. IFAD - International Fund for Agricultural Development http://www.unep.org/pdf/smallholderreport_WEB.pdf, p. 10

sustainable models of production. An appropriate framework is also needed that supports rather than undermines sustainable agricultural approaches, such as open-pollinated seed varieties, diversified cropping and low-input techniques.

The right to food should be at the heart of the approach taken, prioritising agro-ecological initiatives. These are initiatives which support small scale farmers to increase output while reducing emissions by using and recycling local natural resources and restoring degraded soils. Small holders, especially women, need to be at the heart of decision-making.⁸

The International Assessment of Agricultural Knowledge, Science and Technology for Development recommends that in order to feed 9 billion people in 2050 we need to shift towards diversified agro-ecological production as a means of sustainably increasing nutrition, protecting poorest people and communities and increasing resilience to the impacts of climate change.⁹

Agro-ecological approaches (i.e. low input diverse crops, intercropping, mulching etc) are both a pro-poor and environmentally sound form of agricultural production. It increases agricultural productivity, food and income security, helps people to withstand drought and other shocks and using sustainable approaches, reduces agriculture's contribution to climate change.

For example, in the year 2013-14 Trócaire supported over 42,500 households across eight countries to apply better techniques and technologies, including organic inputs, improved seeds and integrated soil fertility management. In Rwanda for example, the use of improved seeds and techniques by 21,053 farmers resulted in an increase from 54% to 71% in the number of households having at least two meals per day; while in the DRC, 7,514 farmers saw improved cassava yields from 2 tonnes per hectare to 7 tonnes per hectare by using improved practices and seeds.¹⁰

The 2011 UN report 'Agro-ecology and the Right to Food' shows scientific evidence that small scale farmers can double food production within 10 years in critical regions by using agro-ecological approaches.^{11 12}

5) Prioritisation of Our Research Focus

Enhancing productivity must address the need for significantly increased research, in resilient and sustainable small scale food production, especially by women producers. Only 10% of European research funding goes to agro-ecological and organic research.¹³

The Oxfam study 'Scaling-up agroecological approaches: what, why and how?' provides a detailed analysis of the shortcomings in the current research environment and changes necessary in order to better support small-scale farmers. It is noted that **much of today's**

⁸ See <http://www.fao.org/3/a-i4729e.pdf>

⁹ Nourishing the World Sustainably: Scaling Up Agro-ecology Ecumenical Advocacy Alliance Food for Life Campaign

¹⁰ See Trócaire Annual Report 2013-14 <http://www.trocaire.org/sites/trocaire/files/trocaire-finances-2013-2014.pdf>

¹¹ See para. 10 http://www.srfood.org/images/stories/pdf/officialreports/20110308_a-hrc-16-49_agroecology_en.pdf

¹² See also: Ecumenical Advocacy Alliance, Food for Life Campaign, Nourishing the World Sustainably: Scaling Up Agro-ecology, 2012

http://www.presbyterianmission.org/site_media/media/uploads/hunger/pdf/eea_nourishing_the_world_sustainably-scaling_up_acro-ecology.pdf

¹³ http://www.bartstaes.be/assets/img/upload/files/pdf/R4ORG_ExSum_web.pdf

publicly funded research does not meet the needs or priorities of peasants in low- and middle-income countries. For example, the report sets out that:

“In West Africa, the agricultural research system, which relies heavily on external funding, has developed genetically improved varieties of sorghum, millet or groundnuts which tend to be hybrids and therefore cannot be resown year after year, while often also requiring additions of chemical fertilisers and pesticides, thus increasing farmers’ dependence on purchasing and their risk of debt.

“Existing science policies, funding criteria and public private partnerships are also hindering, as opposed to supporting, agroecological research. It has been noted that a more balanced allocation of resources in agricultural research and reforms in research policy-making is needed to mainstream agroecological approaches taking into account farmers’ local knowledge.”

SBSTA should advise on the mechanisms for ensuring that research funding goes to where it will produce results for the Paris Agreement and the SDGs, as opposed to being captured by the priorities of external interests. Local communities must have a voice in the day-to-day research such that it is at a scale where smaller holders have the capacity to oversee and respond to ongoing challenges. This research must also be holistic, seeking to measure not just one but a range of factors related to food and nutritional security.

6) Resource Rights

Secure access to natural resources, in particular land and water, is a pre-requisite for small scale farmers to secure resilient livelihoods that protect them from the impacts of climate change and contribute to food security. Many farmers do not have secure access to land or water to enable investment in better agricultural practices, such as agroforestry or watershed management. Therefore, **a comprehensive rights-based approach ensuring social and environmental safeguards and promoting traditional knowledge and a gender approach is essential.**

Databases compiled since 2008 demonstrate a dramatic intensification of ‘land (and water) grabbing’.¹⁴ Although contracts for land may make no mention of water extraction, water rights are effectively bundled together with land deals and investors usually choose areas with good access to ground water or rivers.¹⁵

Globally, the Voluntary Guidelines for the Responsible Governance of Land, Fisheries and Forests¹⁶, and the Committee on Food Security principles on Responsible Agricultural Investment¹⁷, should be rapidly implemented.

7) Landscape/Ecosystem Management

As stated by the FAO:

"Production systems must be incorporated into landscapes, in ways that capitalize on natural biological processes, recycle waste and residues and create integrated and diversified farming systems. This integration can greatly reduce the pressure on the natural resources and minimize the need for external

14 Examples include GRAIN global land grabs dataset (2012) and ILC land portal www.landportal.info

15 Locke, A. and Henley, G, (2014) Topic Guide: Land, Evidence on Demand, <http://www.evidenceondemand.info/topicguideland>

16 <http://www.fao.org/nr/tenure/voluntary-guidelines/en/>

17 <http://www.fao.org/cfs/cfs-home/resaginv/en/>

inputs (e.g. energy, chemical fertilizers and pesticides) and other management interventions."

"Experiences have shown that by managing natural resources in a way that ensures the resilience of ecosystems, it will be possible to reverse natural resource degradation, safeguard agricultural productivity and maintain ecosystem services (e.g. the provision of water, pests and disease control, pollination and climate regulation). Healthy ecosystems are the basis for sustainable agriculture, forestry and fisheries. This approach will simultaneously improve the resilience of production systems and people's livelihoods".¹⁸

As recently set out by the World Bank, these approaches include better protection and management of natural habitat or vegetation, such as restoring and protecting mangroves and dunes in coastal areas; management of flood plains in larger river basins; managing forests sustainably; and farming management practices that support natural vegetation through the use of fallow systems or agroforestry, strategies which also sequester carbon in the soil.¹⁹

Of relevance in many countries in all latitudes, the drainage of large areas of peatland for agriculture (as well as for forestry and peat extraction) is leading to ongoing emissions; rewetting can end and sometimes reverse these emissions. In the Irish context, the Peatland Conservation Action Plan 2020²⁰ outlines the carbon sequestration benefits of natural peatlands, and steps to be taken to restore them.

As currently practiced, ongoing expansion and intensification of agriculture (and of other forms of human capture of biomass) are incompatible with climate change and biodiversity goals. However small scale farm and garden-scale management techniques can yield significantly greater volumes of food, and food of higher nutritional and financial value, than conventional industrial agricultural models. Methods that preserve both immediate production requirements and long term production capacity include, *inter alia*, organic farming, integrated farming and farm-scale permaculture techniques.²¹

Also in the context of wider landscape management, our current sewage systems divert valuable biomass and nutrients to groundwaters and surface waters in the form of pollution, or waste these nutrients and biomass during standard treatment processes. The nutrients from human excreta naturally belong back on the land, incorporated as soil organic carbon and growing plants. Artificial nitrogen production is a significant source of atmospheric carbon dioxide, and its use actively strips soil organic matter, minimising the ability of the soil to naturally sequester this carbon²². Such waste is unnecessary and unsustainable.

18 FAO (2013) FAO CLIMATE SMART AGRICULTURE Sourcebook . Food and Agriculture Organisation. <http://www.fao.org/docrep/018/i3325e/i3325e.pdf>

19 Hallegatte S, M Bangalore, L Bonzanigo, M Fay, T Kane, U Narloch, J Rozenberg, D Treguer and A Vogt-Schilb (2015), Shock Waves, Managing the Impacts of Climate Change on Poverty World Bank Group Climate Change and Development Series. The World Bank, Washington DC, USA.

20 Malone, S. and O'Connell, C. (2009) *Ireland's Peatland Conservation Action Plan 2020 – halting the loss of peatland biodiversity*. Irish Peatland Conservation Council, Kildare.

[<http://www.ipcc.ie/a-to-z-peatlands/peatland-action-plan/climate-change-and-irish-peatlands/>]

21 Harty F (In Press) *SECAD Water Conservation Local Development Strategy 2015-2020*. South and East Cork Area Development, Co. Cork.

22[Harty F. (2016) [Draft report: Promoting Closed Loop Agricultural Practices for Biodiversity Enhancement](http://www.feasta.org/2016/01/12/draft-report-promoting-closed-loop-agricultural-practices-for-biodiversity-enhancement/). Feasta. <http://www.feasta.org/2016/01/12/draft-report-promoting-closed-loop-agricultural-practices-for-biodiversity-enhancement/>]

8) Consumption and food waste

As SBSTA's analysis of agricultural productivity and adaptation is oriented towards food security and the production of foodstuffs required to meet caloric and nutritional needs, in the context of a sustainable production and consumption analysis, the consumption side cannot be ignored.

Food waste is an issue which spans the boundary between production and consumption.

UNEP TEEB's 'TEEB for Agriculture & Food Interim Report points out:

“Approximately one-third of the food produced globally for human consumption every year gets lost or wasted. If food waste were a country, it would be the third largest emitter in the world in terms of GHG emissions.”²³

Analysis of productivity and adaptation should take into account the options for addressing food waste, both those concerned with production and those concerned with waste at the consumer level. In the context of an overall focus on sustainable food production, it is not logical to attempt to separate them out.

Consumption must also be part of SBSTA's analysis.

As SBSTA's work is centred on the fundamental priority of food security, we expect that productivity and adaptation will be considered in terms of their ability to contribute to access to calorically and nutritionally adequate food supplies.

Similarly, as SBSTA's work is to support the goals of sustainable lifestyles and sustainable patterns of production and consumption, we expect that productivity and adaptation will be analysed in terms of their ability to contribute to sustainable patterns of consumption.

The scientific evidence is stark: agricultural emissions are rising rapidly due to a dietary shift and it will not be possible to avoid dangerous anthropogenic climate change if the dietary shift continues as currently anticipated.²⁴ In parallel, the World Health Organisation notes that the dietary shift is contributing to one of the largest public health challenges we face.²⁵

The IPPC's overview of the options for addressing the demand side of food system emissions must form part of SBSTA's consideration of agriculture.²⁶ This would enable an integrated analysis which considers productivity and adaptation in terms of their contribution to a sustainable food system operating within planetary limits to promote health and welfare.

It would not make sense for SBSTA to focus on the production or productivity of foodstuffs

23 <http://www.teebweb.org/agriculture-and-food/#>

24 Hedenus F, Wirsenius S and Johansson D J 2014 The importance of reduced meat and dairy consumption for meeting stringent climate change targets *Clim. Change* 124 79–91
<http://link.springer.com/article/10.1007%2Fs10584-014-1104-5>

25 World Health Organisation Global Strategy on Diet, Physical Activity and Health
<http://www.who.int/dietphysicalactivity/en/>

26 Particularly 11.4.3 Demand-side options for reducing GHG emissions from AFOLU of IPPC Fifth Assessment Report Working Group III <http://www.ipcc.ch/report/ar5/wg3/>

destined for overconsumption and nutritionally unbalanced consumption without seeking to address these essential parts of the food and climate challenge.

The quantities and proportions of various types of food produced are an essential characteristic of a sustainable food production system.

SBSTA should particularly consider how to enhance productivity of foods which will meet unmet nutritional needs, in a sustainable manner. Where foods are destined to overconsuming populations, SBSTA must also consider the risk that increased productivity could lead to a rebound effect and stimulate further overconsumption.

9) Economic impacts of climate change on agriculture

While we emphasise above the primacy of food security in considering the impact of climate change on agriculture, we recognise that its economic impact is also significant. In that context, we also attach as part of this submission a piece of research we commissioned on the economic impacts of climate change in Irish Agriculture, an issue which we felt was being ignored in the debate in Ireland on agriculture and climate.²⁷