Healthy and Sustainable, Food for the Future

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IUNS Climate and Nutrition Task Force
## Summary of Direction, Magnitude, and Certainty of Projected Climate impacts on Health (IPCC, 2007; 2014)

<table>
<thead>
<tr>
<th>Negative Impact</th>
<th>Positive Impact</th>
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<tr>
<td><strong>Very High Confidence</strong>&lt;br&gt; <em>Effects on geographic range &amp; incidence of malaria</em></td>
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<td><strong>High Confidence</strong>&lt;br&gt; <em>Undernutrition &amp; consequent children developmental disorders</em></td>
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<td><em>Injuries, deaths, disease - Extreme events (heatwaves, floods, droughts, fires, etc)</em></td>
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<td><em>Cardio-respiratory diseases - poor air quality</em></td>
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<td><em>Cold-related deaths</em></td>
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<td><strong>Medium Confidence</strong>&lt;br&gt; <em>Diarrheal diseases</em></td>
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Climate change and Food Production 2003-80
Increasing Temperature and CO2

"A key culprit in climate change – carbon emissions – can also help agriculture by enhancing photosynthesis in many important (...) crops such as wheat, rice, and soybeans. The science, however, is far from certain on the benefits of carbon fertilisation."

This map represents the case of beneficial carbon fertilisation processes.

Source: Cline W., 2007, Global Warming and Agriculture.
Impacts of climate change on food production (Springmann et al. Lancet & PNAS 2016)

- Fruits & Veg: -35.8 g/cap/day; more in WPR, HIC
- Red meat: -3.9 g/cap/day; more in HIC, AMR, WPR, EUR
- kcal available: -289 kcal/cap/day; more in AFR, SEA, WPR
Comparison to other health impacts of climate change (WHO, 2014) and to other climate scenarios (Springmann et al. Lancet 2016)
Effects of Carbon Dioxide on Protein & Minerals

US Global Climate Change Research Program- Climate and Health Assessment 2015

Meinshausen et al. 2013

doubling of CO2 concentration from preindustrial levels

THINK YOUR COUNTRY DOESN’T HAVE A NUTRITION PROBLEM?
THINK AGAIN.
Countries are making some headway on reducing undernutrition, but it’s far too slow. And overweight and obesity are getting worse, not better. For more GNR data, visit globalnutritionreport.org/the-data/.

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CHILD STUNTING

- 2 billion people don’t get enough vitamins and minerals
- 749 million people don’t get enough calories
- 161 million children are chronically undernourished

WE HAVE A BIG PROBLEM WITH UNDERNUTRITION

OBESITY

WE HAVE A BIG PROBLEM WITH OVERWEIGHT & OBESITY

1.9 billion adults are overweight or obese
1 in 12 adults has type 2 diabetes
42 million children are overweight
Current Food Systems

**Global diet:**

- Lack of fruits & vegetables
- Increased sugars, fats, salt and processed/refined foods
- Energy rich but nutrient poor
Food systems GHG emissions

Agriculture is the largest contributor of non-CO₂ GHGs.

Food systems emissions contribute 19-29% of total GHG emissions.

There are high contrasts between low consumption and high consumption dietary patterns around the world.

LOW CONSUMPTION DIET

- 2,100 calories per day
- 10% animal products

1.43-4.48 kg CO₂e/cap/day

HIGH CONSUMPTION DIET

- 2,800 calories per day
- 33% animal products

3.7-6.1 kg CO₂e/cap/day

CCAFS, 2016
global planet temperature rise below 2° above pre-industrial levels
Food systems
Potential for Mitigation

• Food systems’ GHG emissions could rise up to 80% due to the increased consumption of animal products (Hedenus et al. 2014; Springmann et al. 2016; Tilman and Clark 2014).

• Food-related GHG could account for 1/2 of all emissions allowed by targets for keeping the global rise in Temp < 2°C by 2050 (Hedenus et al. 2014; Springmann et al. 2016).
TACKLING CLIMATE CHANGE COULD BE THE GREATEST GLOBAL HEALTH OPPORTUNITY OF THE 21ST CENTURY

The Lancet, June 2015
Global diets link environmental sustainability and human health

Tilman & Clark, Nature 2014

Effect of diets on annual per capita GHG emissions

- Per capita reductions of GHG:
  - 30% for the Mediterranean
  - 45% Pescetarian
  - 55% Vegetarian diet
Reduction of in relative risk of health conditions relative to conventional-omnivorous diets (Tilman & Clark, 2014)
# Sustainability criteria - Food Based Dietary Guidelines

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<th>Germany</th>
<th>Brazil</th>
<th>Sweden</th>
<th>Qatar</th>
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<tbody>
<tr>
<td><strong>Fruits</strong></td>
<td>Choose mainly plant-based foods. Enjoy five portions of fruit and vegetables daily</td>
<td>Eat foods mainly of plant origin. Chose seasonal and locally grown produce</td>
<td>Eat lots of fruit and vegetables (at least 500g per day) Choose high fibre vegetables</td>
<td>Eat vegetables with most meals, including snacks. Aim for 3–5 servings of vegetables and 2–4 of fruits every day</td>
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<tr>
<td><strong>Meat</strong></td>
<td>Eat meat in moderation. White meat is healthier than red meat.</td>
<td>Try to restrict the amount of red meat</td>
<td>Eat less red and processed meat (&lt; than 500 g of cooked meat a week). Only a small amount of this should be processed.</td>
<td>Choose lean cuts of meat. Limit red meat (500g per week) Avoid processed meats.</td>
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Marketing Sustainable options

Better Buying Lab
innovating strategies for enabling consumers to choose more sustainable foods.

Current areas of research and innovation:

• Compelling language to describe plant-based foods
• Popularizing plant-forward “power dishes”
• Establishing science-based targets and environmental metrics

betterbuyinglab.org
EU circular economy
• Innovative research to reduce food loss & waste at each stage of the food supply chain without compromising safety
• EU strategy circular economy – common methodology for quantifying and reporting food waste
• A common EU target for recycling 75% of packaging waste by 2030;

case studies (Nestlé, Kellogg’s, IKEA, Tesco) flwprotocol.org
The Business Case for Reducing Food Losses & Waste

- Measuring waste
- Training staff
- Improving inventory management
- Changing packaging
- Selling imperfect produce
- Creating new products
- Reducing waste management costs
- Avoiding cost of food not sold

- Every $1 invested yielded $14 in return

champions123.org
What is a Science-Based Target?

Science-based targets specify how much and how quickly companies need to reduce their GHG emissions.

Example target from General Mills:
Reduce absolute emissions 28% across entire value chain by 2025, using a 2010 base year.

more targets at sciencebasedtargets.org
Becoming Standard Practice among Leading Companies

As of March 20, 2018:

- **356** companies joined
- **45** food & bev companies, including:

![Logos of companies](image-url)
A changing climate towards responsible consumption and production

Should be a label indicating a product’s **carbon footprint mandatory?**

SOURCE OF DATA – EUROBAROMETER 2009

Base all respondents % EU 27
Food Purchase Decisions of US Millennial Households Compared to Other Generations

Demand healthier and fresher food and spending less of their expenditures on food at home (FAH)

Consume foods outside 30% more than other generations

Millennials purchase more ready-to-eat foods

Wealthier - buy more primary/unprocessed ingredients, reducing processed foods & carbohydrates like pasta and increasing purchases of fruit and vegetables.

Devote the smallest share of food expenditures to grains, white meat, and red meat.

USDA, 2017
Research needs – Climate mitigation & Diets

• Millennials - consumers’ trends and acceptability worldwide
• Drivers for dietary shift strategies behavior change towards plant based diets
• Assessment of vegetarian or vegan meat alternatives from different production technologies.
Deconstructing environmental sustainability for health and nutrition

NUTRITION AND THE SDGs
CENTRAL TO THE 2030 AGENDA

Global prioritization of nutrition has never been higher and requires cooperation of all actors.

War and conflict are major underlying factors of nutrition insecurity.

Soil degradation and reduced biodiversity threaten our ability to grow food.

Better nutrition reduces population pressure on the world's oceans.

Sustainable food systems reduce greenhouse gas emissions.

Responsible food consumption and production reduces food waste and loss.

Sustainable cities require integrated urban and rural food systems.

Reducing current nutrition inequalities will lessen income inequalities.

Enhanced nutrition through the lifespan supports learning and later innovation potential.

Good nutrition results in higher labour productivity, greater mental capacity and longer, healthier lives.

Without a sufficiently nutritious diet, learning ability and focus are greatly impaired.

Improving the nutrition of girls, women and children improves schooling, reducing gender inequalities.

Ensuring good nutrition requires access to safe water and sanitation.

Good nutrition for all increases demand for healthy food, requiring clean, renewable energy sources.

Malnutrition in all its forms lowers economic productivity and unnecessarily increases healthcare costs.

UNITED NATIONS DECADE OF ACTION ON NUTRITION
National Determined Contributions
Tirado, Dillon, Hart, 2017

% of Countries with sector in INDCs

- Health: 83%
- Agriculture: 96%
- Food insecurity: 61%
- Diet: 0%
- Nutrition: 19%
- Food waste: 88%
- Feed: 63%
Sustainable Diets for Healthy People and a Healthy Planet

United Nations System Standing Committee on Nutrition
A transition to more plant-based diets lead to lower GHG emissions and reductions in diet-related NCDs.

Food-based dietary guidelines & sustainability criteria key to change dietary patterns towards more sustainable diets.

Nutrition and Dietary patterns should be considered in national processes under the UNFCCC, NAPs, and NDCs & financing.

Indicators of co-benefits of sustainable diets for IPCC & Scientific Body for Scientific and Technological Advice (SBSTA).

Coherent public policies production to consumption across sectors to ensure access to sustainable and healthy diets for all.