The challenges for food: international implications

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Disclaimer: personal analysis amplifying some of the report’s messages

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Food security occurs when all people at all times have access to sufficient, safe and nutritious food that meets their dietary needs and preferences for an active and healthy life.

... the only barrier between us and anarchy is the last nine meals we’ve had. It may be taken as axiomatic that a starving man is never a good citizen.

AH Lewis, 17 October 1896, Denver Post, “Further Facts in the Case of Mark Hanna,” pg. 6, cols. 6-7

“9 meals from anarchy” & “hunger challenge” food security: is the short term supply of food assured to allow people to eat when they are hungry?

“market-led” food security: can the market supply the sorts of food people like to eat, cheaply? The cheap-food focus ignores the costs externalised to the environment and health systems.

“Sustainable” food security: can the market supply food that people like and want, and that underpins a healthy diet, and is supplied sustainably (i.e. costs are not levied on health and environment)?
Global analysis

“GLOBAL FOOD SYSTEMS TODAY ARE UNSUSTAINABLE FOR BOTH PEOPLE AND THE PLANET.”
The food system

Environment – atmosphere, weather and climate

Environment – land and water

Social environment

production

sourcing

packaging

transport

Market and retail

processing

Access

Affordability

choice

wellbeing

health

nutrition

waste
Focus on lowering price has consequences

Food prices decline as yields increase

- World Bank Real Food Prices
- Period: 1973-1975
- Post-2007
As yields increase, waste increases faster

CO₂ in waste (Mt CO₂e) = 1 1 38 - 1 383 cereal tonne/ha + 958.9 cereal tonne/ha^2

Men with diabetes 1980-2014

What we should be eating

- Cereals & Starches 49%
- Fruits & Vegetables 20%
- Milk & Milk products 8%
- Protein: Meat, Fish, Eggs & Beans 20%
- Oils & Fats 3%

What we are actually producing

- Cereals & Starches 47%
- Fruits & Veg 11%
- Milk & 4%
- Meat, Fish, Eggs & Beans 11%
- Oils & Fats 11%
- Sugar 16%

Sources: Evan Fraser, Guelph, FBS analysis, 2015
Per capita footprint of intensification

- 0.7-0.85 ha land
- 776 m³ water
- 15.3 kg N
- 299 kg CO₂eq
- 9 g antimicrobials
- 284 g of pesticide active ingredient
- 3.33 poultry + 0.54 cattle/sheep

http://dx.doi.org/10.1016/j.apgeog.2014.11.024
GHG emissions by service (50.6 Gt CO2e total)

- Personal travel: 30%
- Commuting: 3%
- Freight: 9%
- Washing: 9%
- Thermal comfort: 15%
- Lighting: 10%
- Communications: 5%
- Textiles: 3%
- Industrial equip.: 3%
- Construction: 1%
- Agri-food: 3%
- Waste: 3%

Baizeli et al. (2013)
By concentrating only on agricultural outputs and their efficiency we have created a food system that is highly inefficient.
Global connectivity through trade: there are risks in both movements of goods and price connectivity.
FIG. 1: Time dependence of FAO Food Price Index from January 2004 to May 2011. Red dashed vertical lines correspond to beginning dates of “food riots” and protests associated with the major recent unrest in North Africa and the Middle East. The overall death toll is reported in parentheses [26–55]. Blue vertical line indicates the date, December 13, 2010, on which we submitted a report to the U.S. government, warning of the link between food prices, social unrest and political instability [56]. Inset shows FAO Food Price Index from 1990 to 2011.
Food system resilience depends on many factors.

- Weather shocks
- Pests, diseases
- Input shocks
- Regulatory shocks
- Geopols and trade

Intensification pressure (demand growth, resource competition)

System shocks increasing

Markets, market rules and policies: Concentration, power, WTO, transparency

Internal feedbacks: Speculation, stock levels, trade policy changes (export bans, panic buying)

Impact: prices spikes and volatility

(Homer-Dixon et al. 2015; Puma et al. 2015; Marianela et al. 2016; Philippe et al. 2016; Tadasse et al. 2016; Challinor, Adger & Benton 2017; Challinor et al., 2018)
By concentrating only on agricultural outputs and their efficiency we have created a food system that is highly inefficient.
“Business as usual”

- Continued focus on productivity ("sustainable intensification") as prime driver of agriculture
- More, cheaper, food; more waste and ill health
- Drives more climate change; greater impacts on yields
- Creates greater need for land for climate mitigation
- Intensifies competition for land, water, energy, inputs
- Less biodiversity, more uniformity, erosion of soils and natural capital
- Less resilience to perturbations (locally or through global markets)

“Business unusual”

- Greater focus on addressing the demand side: move towards system efficiency - healthy diets, sustainable (low waste) food systems
- Greater recognition of values associated with food, not just price, higher farm-gate prices; less but better consumption, better health
- Different diets driving more diversified agriculture; allowing more circular ag (e.g. mixed farms)
- More multi-functional landscapes (fewer monocultural landscapes)
- Efficient food system makes space for BECCS
- More rural employment
- More resilient landscapes and food systems
EUROPE’S ACTIONS - INTERNATIONAL DIMENSIONS
What can Europe do? Science, analysis & policy leadership

- Food systems’ approaches to systemic transformation (HorizonEurope)
  - How (S&T, social, economic)?
- Addressing the challenges of producing food sustainably to feed everyone healthily
  - Farming systems, crops, amount of livestock etc
- Policy coherence and alignment (Food2030)
  - Trade, Health, CAP and environment policy aligned
- Reducing incentives for consumptive-based lifestyles, valuing “less but better”
- Better trade policy
  - More and more cheaply is not better for society
  - Food system resilience and trade networks
- Aid: science and technology to build climate smartness for the developing world
- Aid: stronger climate leadership
Thank you!

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Opening and introduction to IAP: Volker ter Meulen
Introduction to EASAC FNSA project: Robin Fears
Claudia Canales: Key findings
Aifric O’Sullivan: Food, nutrition and health
Tim Benton: International implications of EASAC’s work