Food Systems Futures & the SDGs: Can we get to zero hunger & rural prosperity by 2030

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SDG 2: End hunger, Achieve Food Security, Improved Nutrition & Promote Sustainable Agriculture

Specific Targets for 2030

2.1: End hunger & ensure access to safe, nutritious & sufficient food

2.2: End all forms of malnutrition, including child stunting & wasting by 2025

2.3: Double agricultural productivity & incomes of small scale producers

2.4: Ensure sustainable production systems & adaptation to climate change & extreme weather events

2.5: Maintain genetic diversity of cultivated plants & domesticated animals
Smallholder farms are central to achieving SDG2

Average Share of Agricultural Holdings by Land Size Class

- Latin America and the Caribbean
- Europe and Central Asia
- Middle East and North Africa
- Sub-Saharan Africa
- East Asia and Pacific
- South Asia

Source: FAO
A “Perfect Storm” of Global Threats & Challenges

- Rising urbanization and changing demographic structure of rural populations
- Changing diets & rapid rise in over-nutrition and epidemic of NCDs even as malnutrition rates remain high
- Global environmental and sustainability challenges, including climate shocks and extreme events
- Trade integration and declining competitiveness of developing country agriculture
Urbanization & Changing Diets – Implications for SDG2

- A shift from agriculture as a “way of life” to “agriculture as a business”
- “Provisioning the Cities” provides new growth opportunities for smallholders
- High transactions costs could exclude lagging regions and asset poor communities from integrating into urban food value chains
- Rising consumption of processed & convenience food could lead to increasing obesity trends in LDCs, even with gains in under nutrition
Most global burden of disease risk factors are linked to diet.
Globalization & the Declining Competitiveness of Domestic Agriculture in Sub-Saharan Africa

SOURCE: FAO calculations using FAOSTAT data on crop and livestock products trade.

Source: State of Commodity Markets 2018, FAO
Food Security Impacts of Climate Change

- **Increased cost of production** – disease ecology change in plants and animals
- **Income losses** due to yield reduction and post harvest losses
- Even crops suited for warmer climates will see a drop in yields
- **Food price fluctuations** especially higher value nutritious crops
- Diversification can have both +ve and –ve green house gas effects
- International trade can buffer domestic supplies and prices

Projected changes in agricultural production in 2080 due to climate change

Source: Commission on Sustainable Agriculture and Climate Change, 2011
Towards Sustainable Intensification

- Role of modern science and technology with “big data” tools, ICT, and precision agriculture

- Advances in renewable energy sources could contribute to efficiency of energy use and sustainable resource use

- Adaptation to smaller scales is a major challenge for research and technology design
Evolving Organization of the R&D System

- Growing number of non-traditional players in the food and agriculture innovation space.

- Continued amalgamation of bioscience companies and food industry can hamper technology access for the poor.

- Can the CGIAR continue to be a conduit for technology access, adaptation and delivery to small farm systems?
Small farm success also depends on the other SDGs

Small producer agriculture

**Poverty goals**
- Goal 1: No poverty
- Goal 8: Decent work and economic growth

**Nutrition goals**
- Goal 2: Zero hunger
- Goal 3: Good health and wellbeing

**Social goals**
- Goal 5: Gender equality
- Goal 10: Reduce inequality within and among countries

**Environmental goals**
- Goal 12: Responsible production and consumption
- Goal 13: Climate action
- Goal 15: Life on land
What are the prospects for achieving SDG2

**Ending Hunger:** possible for caloric adequacy but uncertain for access to food diversity, especially micro-nutrient rich food.

**Ending all forms of malnutrition:** declines in the incidence of child stunting & wasting, but sharp rise in obesity rates.

**Double small farm productivity:** unlikely for the least developed countries & lagging regions in emerging economies.

**Adaptation to Climate Change:** unlikely for small farms in arid zones & flood risk areas.

**Sustainable Production Systems:** possible where policies are right & where technology adaptation to smaller scales is possible.