

Food System Transformation Under Climate Change

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Key points



- Food System is a relatively new concept with numerous definitions
- It is a multi-dimensional concept-including value chains ranging producers to consumers, (not just) calories, but dietary considerations ranging from junk food to nutritious healthy food;
- A dynamic concept entailing dietary transition, influenced by population and income growth, rural-urban transition, changes in tastes and preferences, increased use of processed food, trade, food losses in processing, storage
- Per Capita Food Consumption increased from 1990 to 2015
- But the rate of poverty and hunger declined since 2015 slowed.
- In the mean time consumption of Ultra-Processed Foods has increased.
- Increasingly Dual Burden of Hunger and Obesity
- Growth of Non-Communicable Diseases—Diabetes, Cancer, Heart
- COVID has increased poverty and hunger by an unprecedented 20 percent in 2020i—
- Increase in childhood stunting and wasting, in maternal mortality, and obesity, poverty and food insecurity. South Asia and Sub-Saharan Africa have been the worst hit. Social protection prevented poverty from increasing further
- Prospects for meeting SDG 2 target of zero hunger by 2030 is now very bleak
- There are huge differences in per capita calorie consumption across countries/regions



Climate Change and Agriculture



Agriculture is hugely affected by climate change—

- temperature increase, extreme weather, variable rainfall, floods and droughts
- Loss of cultivable land due to increased droughts
- Decline in crop yields

Agriculture also hugely contributes to climate change through Land use changes, deforestation, methane from cultivation of rice and livestock production

Both Climate change and Dietary Transition in food Systems call for Transformational Change

“Unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach”. IPCC 2021



What Do We Mean by Transformational Change?

- Fundamental change in systems relevant to climate action with large-scale positive impacts that shift and accelerate progress towards climate neutral, inclusive, resilient, and sustainable development pathways (TCLP)

Measuring transformational change requires evidence on

- Impact at Scale
- Behavior change
- Inclusion

In reality little concrete evidence of transformational change being adopted in MDB investments Source: J. Puri, IFAD



What Does Transformational Changes in Food Systems Require



- Increase investment in Science and Technology to increase resilience in agricultural production
- More production with less inputs
- Active Use Fiscal Policies
 - Carbon taxes—
 - Taxes on Junk Food and Sugary Drinks
- Elimination of Subsidies on fossil fuels
- Regulation to Improve Food Safety and Quality
- Food labelling
- Alternative Energies--Solar and Wind Technologies
- Enhance Public Education
- Create Consumer demand
- Recruit Civil Society and Private Sector as partners

How Can Digital Technologies Help



- Farm machinery automation
- Global Positioning System (GPS), yield monitors, autonomous guidance systems; variable-rate input application technologies (VRTs), sensors, robots
- Using artificial intelligence
- Big Data Enabled:
Combining data from multiple technologies, millions of acres for real-time transfer of site-specific recommendations
- Information technologies
- Internet, mobile technologies and devices
- Computational technologies
- Data analytics, machine learning, cloud computing: capacity to gather, store, analyze large volumes of on farm,
- Weather and market data in real time

Implications for the future

- Increase Household Access to Nutritious foods
- Create consumer demand for healthy foods, reducing food losses
- Boost nature positive production at scale
- Achieve equitable increase in production
- Build resilience in production to climate change



Investment and Other Needs Going Forward



- Annual investment requirements for ten transitions estimated to be between \$300-\$350 Billion
- Funding gap ranging from US\$125 billion to a maximum of \$2,100 billion to achieve three central goals of agri-food system transformation:
 - 1. achieving food security and nutrition,
 - 2. eradicating poverty and 3. strengthening livelihoods, and
 - 3 ensuring the sustainable management of natural resources.
- Legal, infrastructural, institutional and human capital needs



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THANK YOU