Sustainable Food Systems in a Global Economy: Eurasia and Beyond

Shenggen Fan | Director General
International Food Policy Research Institute

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Key Messages

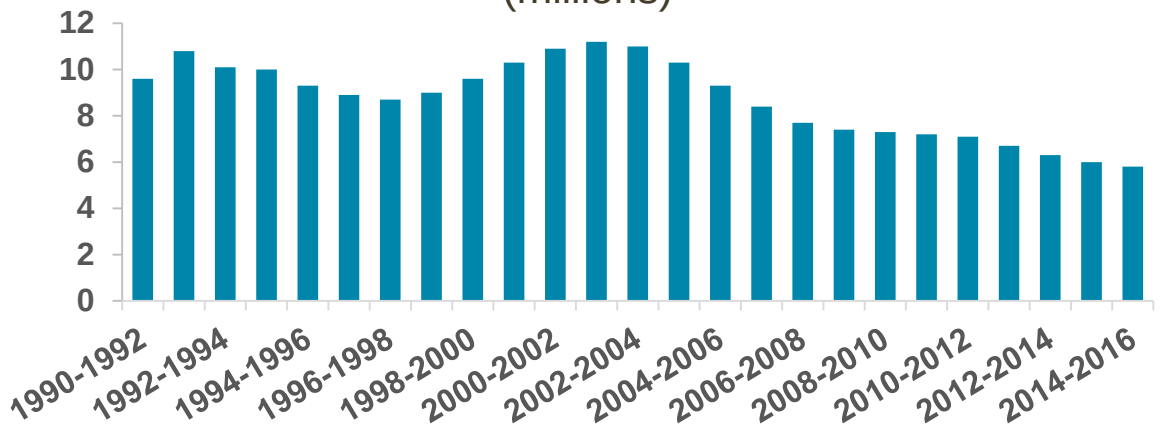
1. Despite progress, multiple burdens of malnutrition persist

2. The global food system is increasingly vulnerable

3. Reshaping of the global food system to be sustainable and healthy is crucial

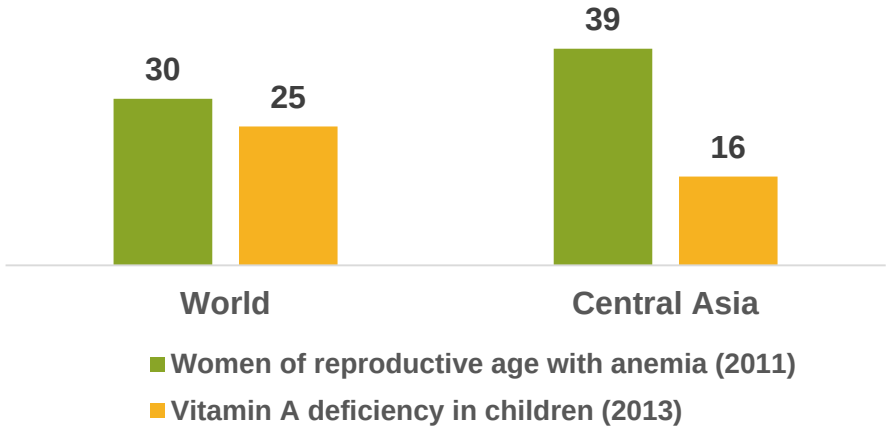
Despite progress, multiple burdens of malnutrition persist

Number of people undernourished, Eurasia (millions)



Source: FAO 2017

Prevalence of anemia and Vitamin A deficiency (%)



Source: GNR 2016

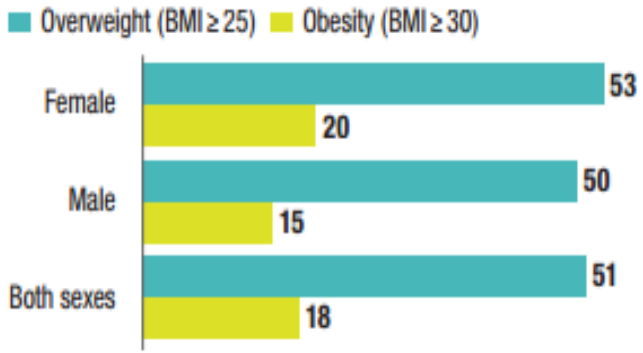
Of children under 5 in Central Asia

12.5% are stunted

10.7% are overweight

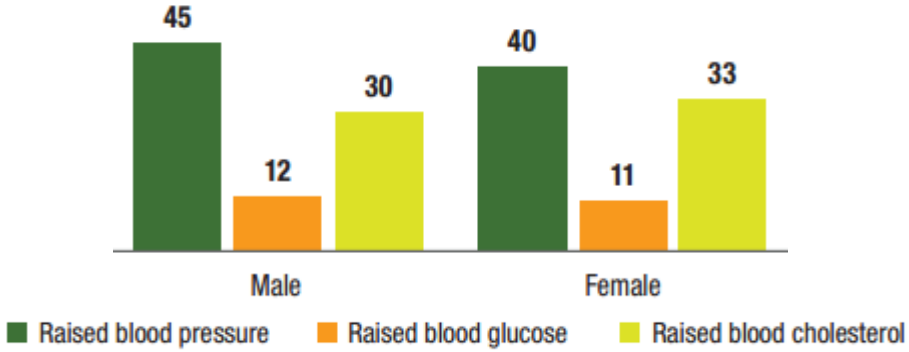
Source: UNICEF/WHO/WB 2017

Prevalence of adult overweight and obesity in Central Asia (%)



Source: GNR 2016

Diet-related NCD risk factors in Central Asia (%)



Source: GNR 2016

The global food system is increasingly vulnerable

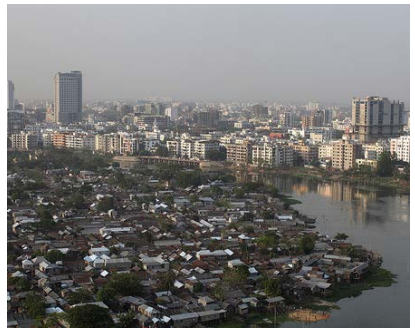
Climate change, extreme weather events

Rising middle class, urbanization, changing diets

Agriculture-related risks, food safety scandals

Growing land, water constraints

Persistent conflicts



Increased inequality

Picture sources: Ngo Trung; USDA; Goyette; UNDP; Niehaus

A new global food system needed to achieve multiple SDGs

New food system

Nutrition- & health-driven

Productive & efficient

Environmentally sustainable & climate-smart

Inclusive

Business friendly

Over half of SDGs relate to food security and nutrition

Reshaping of the global food system to be sustainable and healthy is crucial

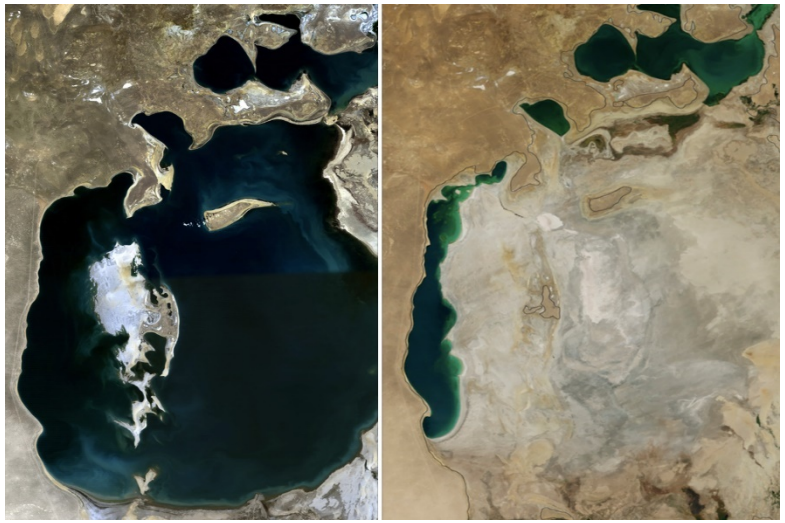
Environmentally sustainable & climate-smart

Agriculture has large environmental footprint

Agriculture uses:

Source: Farming First 2012

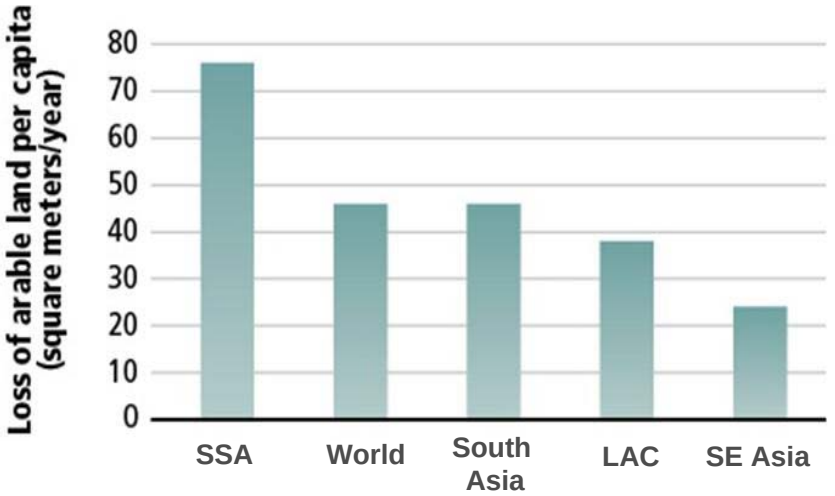
Water stress: the Aral Sea



1989 2014

Source: Harvard International Review 2017

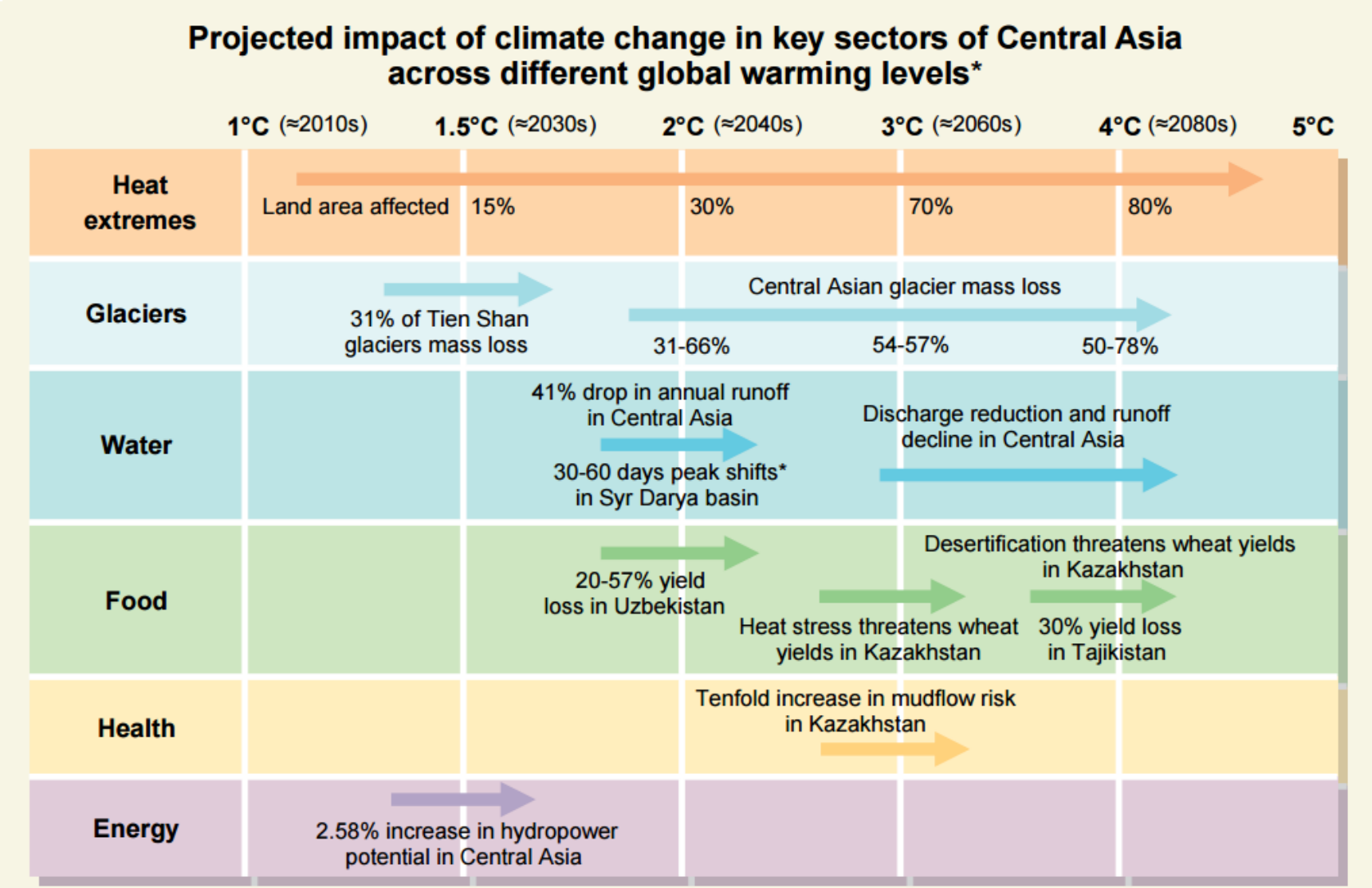
Annual loss of per capita arable land in developing countries, 1961–2009



Source: FAO 2011

Environmentally sustainable & climate-smart

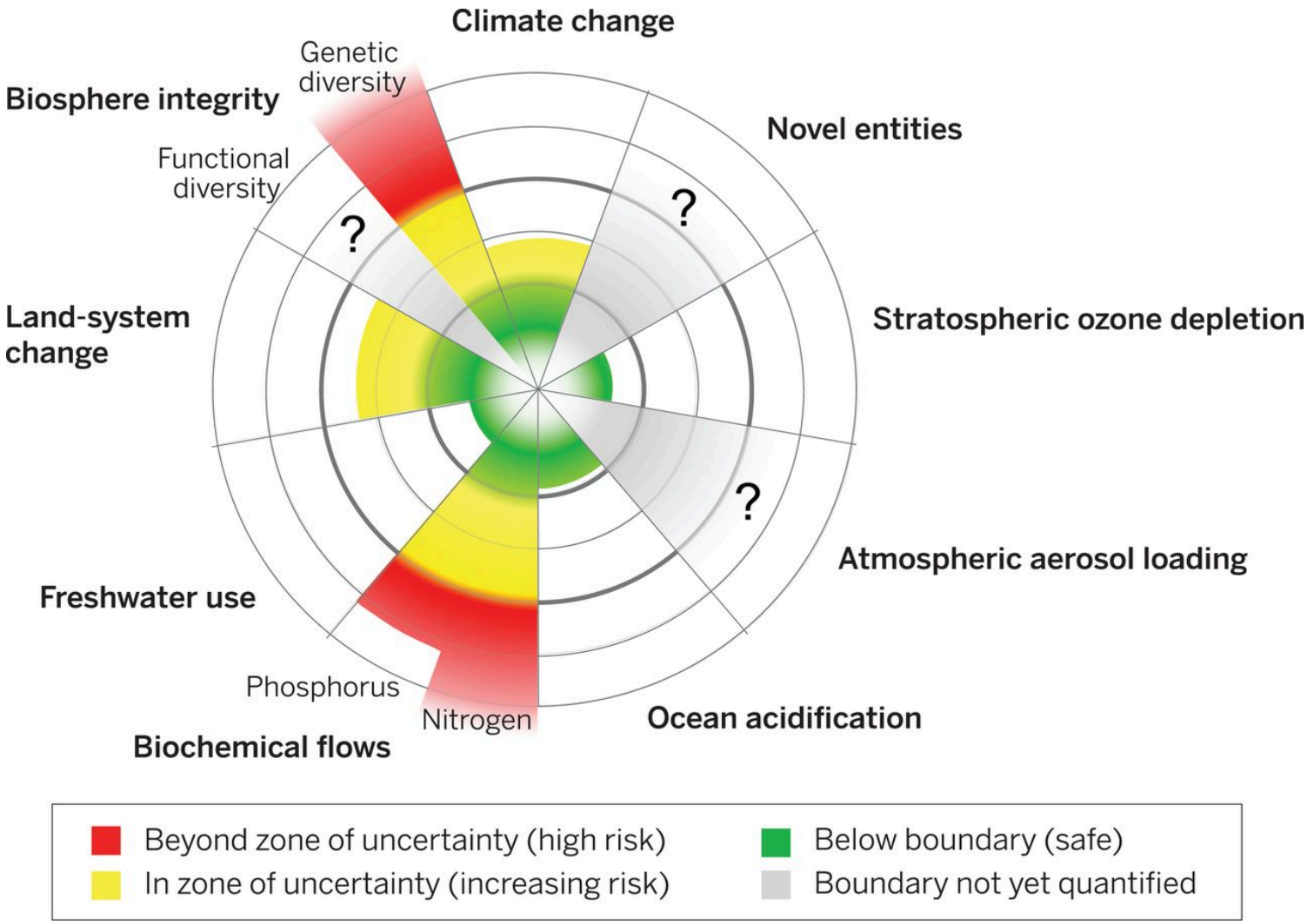
AND climate change affects agriculture and agri-food systems



Source: Reyer et al. 2015, UNEP 2017

Environmentally sustainable & climate-smart

Agriculture pushing planetary boundaries



Source: Steffen et al. 2016

Environmentally sustainable & climate-smart

Promote sustainable intensification

- **Involves more outputs (esp. nutrition) with more efficient use of all inputs (on a durable basis)**
- **Reduces environmental impact, builds resilience, increases natural capital and flow of environmental services**

Precision agriculture has great potential

- Groundwater irrigation in Fergana Valley can improve soil salinity, health and resilience of water, land, and ecosystems (Karimov et al. 2014)

Drought-tolerant potatoes in Central Asia

- Testing varieties grown in water deficit and severe drought conditions (CIP 2015)

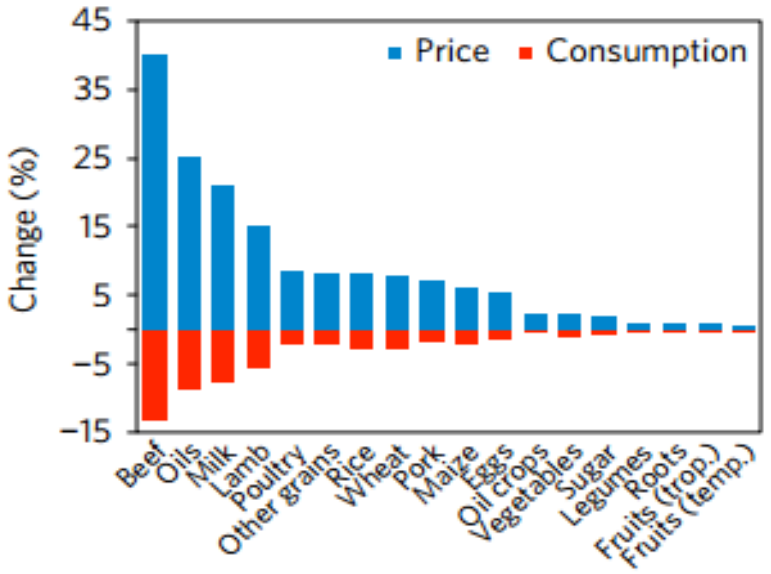
Conservation of Fruit Tree Diversity in Central Asia Project

- Helped farmers produce drought-tolerant strains of fruit
- Farmers expanded orchards into degraded areas
- Restored landscapes improved grazing for animals

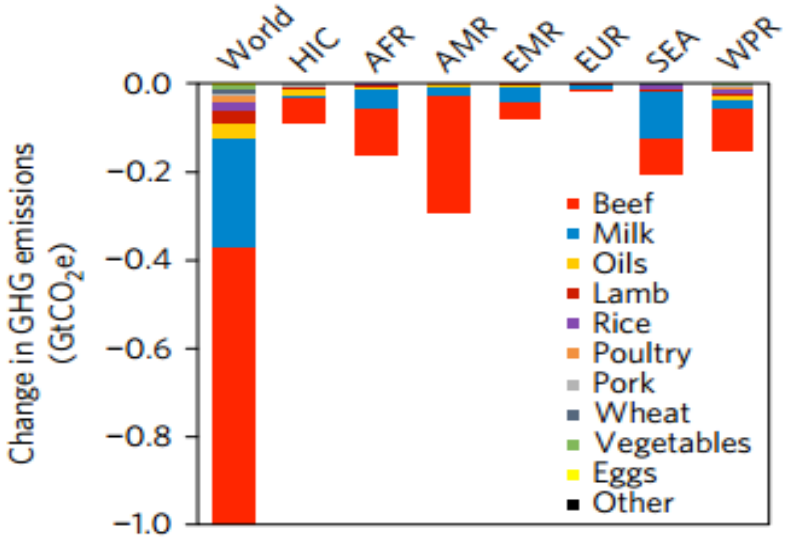
Environmentally sustainable & climate-smart

Promote policy innovations: Carbon tax to reduce emissions

Changes in prices and consumption by food commodity (%)



Change in GHG emissions by food commodity and region (in GtCO2e)



- Taxing emissions-intensive foods (e.g. meat and dairy) could reduce GHGs by 9% and avoid more than 100,000 deaths in 2020
- Subsidizing fruits and vegetables for low-income consumers to compensate for income lost can avoid more than 500,000 deaths in 2020

Source: Springmann et al. 2016

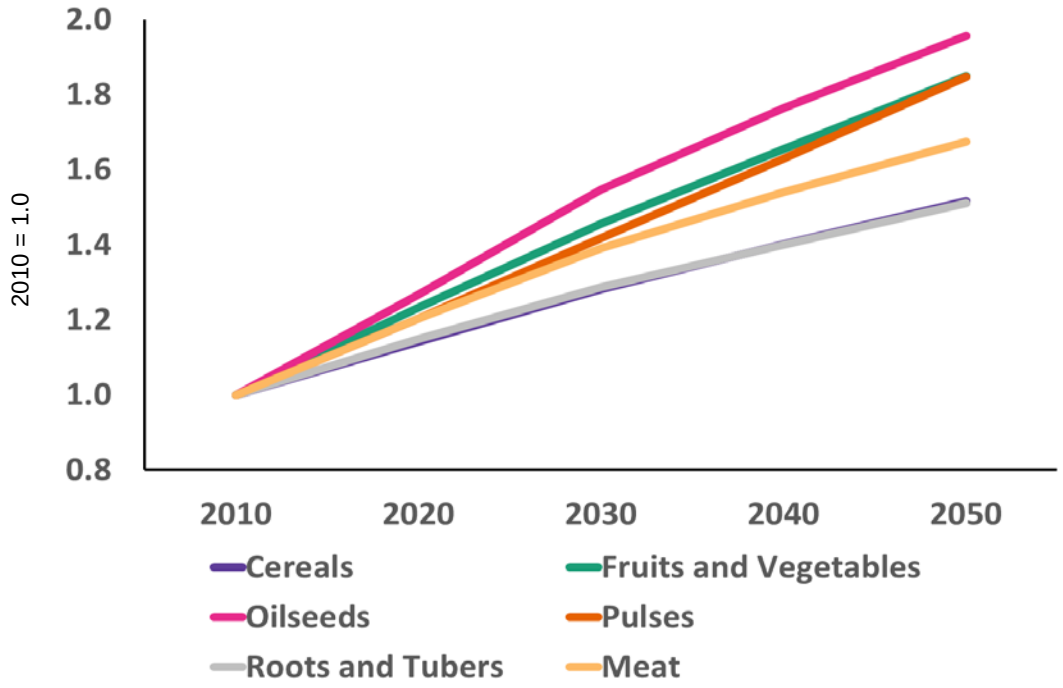
Productive and efficient

Need for increased productivity

Food production in developing countries must double by 2050

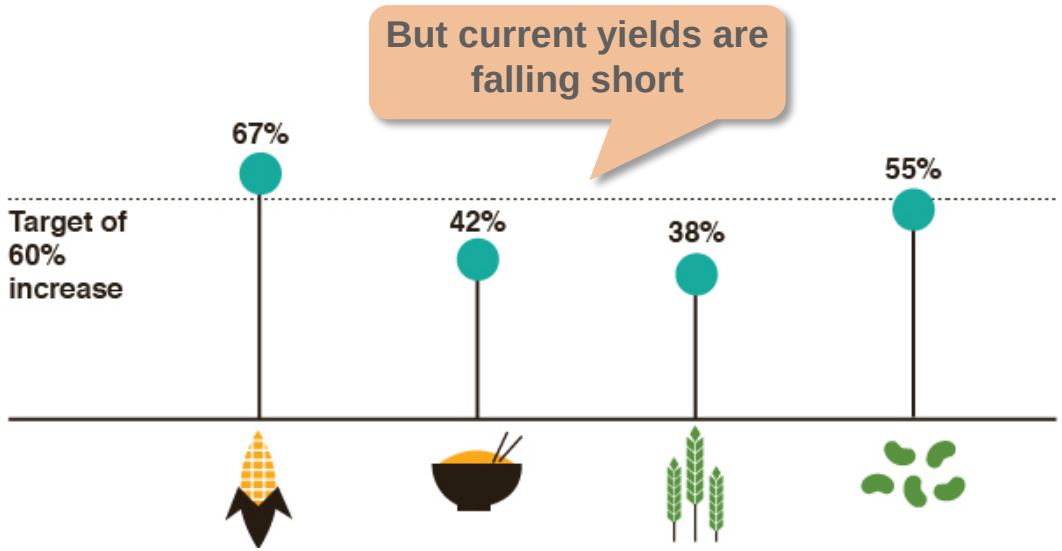
Source: FAO 2009

Growth in total global food demand



Source: Wiebe and Rosegrant 2015

Yields of maize, rice, wheat, soybean need to increase by 60% by 2050 to meet demand



Source: CCAFS 2015

Productive and efficient

Target investments to boost productivity

IFPRI's Agritech Toolbox

- Models yield impacts of the adoption of 10 key technologies
  - For maize, wheat and rice by 2050
  - Projects changes in harvested area, food production, trade, global food prices, hunger and malnutrition
- Helps develop investment strategies to scale up agricultural technologies in food insecure AND breadbasket regions

Productive and efficient

Reduce food loss and waste

33% of all food is lost or wasted—primarily fruits, veg., roots, tubers

- **Developing countries**: Losses at production level
  - Invest in infrastructure, transportation, and packing industries to prevent food losses
- **Developed countries:** Waste at retail / consumer level
  - Educate consumers at retail level about food availability and appearance to reduce food waste

Picture sources: IFPRI; KUKA; IFPRI

Nutrition- and health-driven

Advance nutrition-driven agricultural technologies

- **Support technologies that promote diversification of food production (e.g. vegetables, pulses, fruits)**
  - E.g. Nepal prioritizes crop production diversity, which is linked to diet diversity and improved child nutrition outcomes
    (UNSCN 2013, Shively and Sununtnasuk 2015)
- **Advance frontiers for nutrition-driven technologies, e.g. biofortification**
  - Increasing nutrient density through plant breeding, agronomic practices

Iron beans

Vit. A maize

Iron pearl millet

Zinc wheat

Vit. A cassava

Vit. A orange sweet potato

Zinc rice

Nutrition- and health-driven

Promote nutritious, sustainable diets: “Carrot and stick” approach

- **Integrate nutrition education into social safety nets to boost nutritional outcomes** (Hoddinott, Ahmed, et al. 2015)
  - AND provide access to agric. support to further improve food security, livelihoods (Berhane et al. 2014)
  - **Uzbekistan**: approved national program and action plan for healthy nutrition & established national education and clinical center to address nutrition

- **Tax nutrient-poor foods and subsidize nutrient-rich foods**
  - Convert subsidies from staple crops (e.g. wheat) to investments for more nutritious crops (e.g. vegetables) (Tiffin and Arnoult 2010)

- **Ensure food prices reflect full costs and benefits of natural resource use**
  - E.g. Water footprint per calorie for beef is 20x larger than for cereals and pulses

Inclusive

Empower women in agriculture

Women produce less not because of inefficiency or inability—they lack equal access to resources

- **Reform institutions to strengthen resource rights**
  - **Romania**: Complementing EU Support for Agricultural Restructuring Project (CESAR) organizes meetings and info sessions on registration processes for vulnerable groups (e.g. Roma women) (World Bank 2013)
- **Improve access to inputs and credit**
  - **Armenia**: Rural Finance Facility set up by government to provide loans to family enterprises with women as founders, employees, and suppliers (IFAD 2013)
- **Provide agric. training and information**
  - **Bosnia and Herzegovina:** Livestock and Rural Finance Development Project helps women improve production, marketing and distribution of dairy (IFAD 2013)

Picture source: ADB 2010

Inclusive

Strengthen rural-urban linkages

Rural-urban linkages help propel economic development, food security, and nutrition

- Improve policy coordination between rural and urban areas
- Support efficient and inclusive rural-urban value chains
- Leverage towns and intermediate cities to facilitate economic and social links
- Improve targeting of public investment
- Promote social protection in rural and urban areas

Inclusive

Support smallholders and develop youth

Support inclusive marketing in food value chains

– Link smallholders to modern agri-food value chains

Uzbekistan Horticultural Support Project

Goals

- Target small scale actors in horticultural value chain
- Focus on modernization of privatized horticulture sector

Benefits

- About 12,000 households
- Over 2,000 jobs Surkhandarya region
- Enhanced resilience of rural households

Source: IFAD 2012

Develop young farmers

- Land, capital, and skill-building are crucial to develop next generation of farmers
- Improve rural infrastructure to increase access to services, goods, jobs, and leisure
- Young people + opportunity = “Youth dividend”

Source: Brooks, Zorya, and Gautam 2012

Business friendly

Fix the fundamentals

- **Develop rural infrastructure**
  - Improving roads, rail, & electricity can reduce # of hungry by 57m and avoid malnourishment of 4m children in 15 years (Rosegrant et al. 2015)
  - Access to WASH is strongly linked to child stunting reduction (Smith & Haddad 2014)
- **Improve access to ICTs**
  - Price information via SMS to farmers = higher prices, income, and consumption (Torero 2014)
- **Strengthen institutional and regulatory frameworks**
  - Promote land rights and efficient land markets
  - Improve food safety monitoring with capacity strengthening along the value chain and more resources for monitoring agencies

Business friendly

Promote open, transparent, and fair trade

- **Eliminate distortionary trade policies**
  - Harmful trade policies e.g. import tariffs and export bans, hurt the poor and hinder efficiency of agricultural markets
- **Fill domestic gaps with appropriate imports**
  - Asian and African countries can help fill domestic gaps
  - Increase technology transfer, technical assistance, investments via South-South cooperation channels
    - E.g. Joint ventures, cooperation contracts, public-private partnerships
- **Create global and regional grain reserves**
  - Located in poor, food importing countries

Photo sources: Chernov; wikicommons, Project-m

To reshape global food systems for a sustainable future,

we must work together