**Food nutrition availability**

“Food security (is) a situation that exists when **ALL PEOPLE**, **AT ALL TIMES**, **have** **PHYSICAL, SOCIAL AND ECONOMIC ACCESS** to **SUFFICIENT, SAFE AND NUTRITIOUS** food that meets their **DIETARY NEEDS** and **FOOD PREFERENCES** for an active and healthy life.”
Latest updates - 2023

• ~691 and 783 million people in the world faced hunger in 2022.

  122 million more people faced hunger in 2022 than in 2019, before the global pandemic.

• About 29.6 % the global population - 2.4 billion people - were moderately or severely food insecure in 2022, of which about 900 million (11.3 %) were severely food insecure.

Contd..

• ~600 million people will be chronically undernourished in 2030.

  This is about 119 million more than in a scenario in which neither the pandemic nor the war in Ukraine had occurred, and around 23 million more than if the war in Ukraine had not happened.

• Increasing urbanization, with almost **seven in ten people** projected to live in cities by 2050, is driving changes in agrifood systems across the rural–urban continuum
During 2003–19, there were 372 million (95% UI 319–425) preschool-aged children and 1·2 billion (1·0–1·4) non-pregnant WRA with one or more micronutrient deficiencies worldwide.

3/4th of preschool-aged children with micronutrient deficiencies live in: S.Asia (99 million, 95% UI 80–118), sub-Saharan Africa (98 million, 83–113), or east Asia and the Pacific (85 million, 61–110;).

Over half (57%) of non-pregnant WRA with micronutrient deficiencies live in east Asia and the Pacific (384 million, 279–470) or south Asia (307 million, 255–351)
Green revolution and beyond...

History of policy and practice to achieve food security through sufficient staple food production and trade is littered with **unintended consequences for environment, society, health** - leading to an **unsustainable, unhealthy, unequal agrifood system with inadequate resilience**.

Climate change is impacting every human system

IPCC AR6 Impact and Adaptation Report 2022
Need to shift our KAP

For sustainable solutions, science-based evidence must help states and stakeholders assess trade-offs and synergies of policy and practice for food security

Old siloed thinking
Science to enhance production
For now

- disproportionate focus on production
- reducing food insecurity and malnutrition through increasing the supply of staple foods
- solutions implemented by ministries, agencies and entities involved in agriculture

New systems thinking
Science to inform decisions to minimize trade-offs and maximize synergies
For now and future generations

- optimizing gains for food security and other goals simultaneously (e.g. nutrition, food safety, climate change, water, gender equity, poverty reduction)
- cross-ministerial and cross-sector implementation

High CO2 cuts crop nutrients

Percentage under CO2 levels expected in 2050,

<table>
<thead>
<tr>
<th></th>
<th>Zinc</th>
<th>Iron</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>-9.3</td>
<td>-6.3</td>
<td>-9.3</td>
</tr>
<tr>
<td>Rice</td>
<td>-5.1</td>
<td>-3.3</td>
<td>-5.1</td>
</tr>
<tr>
<td>Maize</td>
<td>-5.2</td>
<td>-7.8</td>
<td>-5.2</td>
</tr>
<tr>
<td>Soybean</td>
<td>-4.1</td>
<td>-4.6</td>
<td>-4.1</td>
</tr>
</tbody>
</table>

Source: Nature

About 2.4 billion people currently get at least 60% of their zinc and iron from these staples
India Wasted Over 68 Million Tons Of Food In 2019: UN Report

In India, the household food waste estimate is 50 kg per capita per year, or 68,760,163 tonnes a year.

Pandemic, Russia-Ukraine war has aggravated the situation

% of the population who cannot afford a healthy diet

3 billion people cannot afford a healthy diet!

Why should we care about food systems?

- Food systems contribute to GHG emissions & environmental degradation
- Climate change is impacting every human system
- Sub-optimal diets are a top risk factor of death
- Malnutrition is universal and getting worse
- There are trade-offs in transforming food systems that come with a complex set of ethical and equity implications
- Zoonotic pandemics are not going anywhere
- Food systems are vulnerable to shocks
- Food systems are complex
Complex, yes! But if you can’t govern it, you can’t manage it

Food systems are vulnerable to shocks

Food systems contribute to GHG emissions & environmental degradation

Food systems generate 21-37% of total greenhouse gas emissions
Agriculture uses 70% of all freshwater resources
1 million animal and plant species are now threatened with extinction
Of the 400,000 food species, 12 make up 75% of the food supply
60% of marine fish stocks are maximally sustainably fished

FIGURE 2
CONCEPTUAL FRAMEWORK: ENGINE OF EQUITY FOR FSN

Consider intersectional, intergenerational, interterritorial inequity

Address inequalities within food systems

Address inequalities in other systems

Redistribution

Agency
Sustainability
Stability

Improved FSN outcomes for all

Availability
Accessibility
Utilization

Recognition

Representation

Work towards human rights, inclusive knowledges, justice

Source: Author’s own elaboration.
Critical policy shifts are necessary to support all dimensions of food security and achieve SDG 2

- Recognize need for radical transformation of food systems
- View FSN as a system interconnected with other systems and sectors
- Focus on hunger and malnutrition in all its forms
- Recognize FSN is context specific and requires diverse solutions
- Enabling Conditions: Governance and Research

Sustainable food systems that support the six interconnected dimensions of food security

2. Zero Hunger

Sustainable development: especially SDG 2 – Zero HU

Solutions lie with multi-purpose policies connected across the food system

- Changing consumer behaviour to demand better diets
- Better metrics on food consumption
- Managing food price volatility
- Technological innovation
- Improving our food environments
- Better nutrition education & food based dietary guidelines
- Cut waste
- Working with the food industry on food promotion, labelling, advertising & reformulation
- Fortification of foods, including crop biofortification
- Better food safety standards
- Healthy school meals
- Redirect subsidies
- Social protection measures such as cash transfers and food voucher schemes
Global examples - children’s health

- Brazil’s National School Feeding Programme requires 30% of the budget to be used to purchase food from family farms, and requires menus to be based on fresh or minimally processed foods.
- The Republic of Korea established Green Food Zones that regulate the food available within a 200m radius of schools. In these zones businesses may not sell food that falls above a set threshold for calories per serving, total sugars and saturated fats.

Action framework for developing and implementing public food procurement and service policies for a healthy diet (who.int) 2021

Food environment /systems – Indian solutions

- Implement economic measures to reduce the consumption of unhealthy foods through taxes, and to increase the consumption of healthy foods through subsidies. (Taxation/Finance, Niti)
- Existing public financed programs can be improved – eg reformulation of diets in MDM, ICDS and diversify foods available under PDS; prison, railways etc
- Encouraging the marketing and promotion of high quality diets whilst restricting advertising and promotion of unhealthy foods. (MoHFW, FSSAI, WCD)
- Reformulating, labelling and processing foods in ways that increase their nutritional value and safety; environment friendly (FSSAI)
- Influencing food supply chains to pay more attention to nutritious crops such as fruits and vegetables, pulses, seeds and nuts. (MoFPI, MofAg)
  - Focus: climate smart ag
- Promote access/affordability to high-quality foods everywhere like hospitals, airports, schools and workplaces. (MoE, WCD, social safety nets)
- Collecting better data on the quality of food environments (NSSO, NFHS, others)

Transforming Agri-Food Systems in South Asia (TAFSSA)

A One CGIAR Resilient Agri-Food Systems Regional Integrated Initiative

Core IDT: Timothy J. Krupnik, Purnima Menon, Prakashan Chellattan Veetil, Avinash Kishore, ML Jat, Saachi Bhalia, Aditi Mukherji, Sam Mohanty

Extended IDT: Andrew McDonald, Arun Joshi, Ashutosh Sarker, Bindiganavile Vivek, Haris Gazdar, Imran Matin, Jerry Glover, Md. Bakteer Hossain, Jai Rana, Ranjitha Puskur, Sudhanshu Singh, Zivai Murira, Pooja Pandey Rana, Krishna Joshi, Lynn Schneider, Sonia Akhter, Ben Belton, TS Amjath Babu
Three imperatives will expand the uptake of sustainable lifestyles

- Make claims locally relevant
- Broaden the dialogue
- Break the tradeoffs

Fundamental message - FAO

- Still possible to push agrifood systems along a pattern of sustainability and resilience, if key “triggers” of transformation are properly activated.
- However, strategic policy options to activate them will have to “outsmart” vested interests, hidden agendas and conflicting objectives, and trade-off short-term unsustainable achievements for longer-term sustainability, resilience and inclusivity.
Thank you!

- Care for our planet – complex but doable
- Commit to the Global Goals contextually … and Anticipate Trade-offs
- Computations should consider options for keeping the food system within environmental limits - cost, capacity, commitment from government
- Cut food waste
- Conflict of interest should be avoided
- Convergence - collaborate intersectorally to maximize entry points, minimize exit points for nutrition