Scaling-up nutrition: Bridging the great Indian hunger divide
Ghosh, Ishani and Nahar, Praveen

Suggested citation:

SCALING UP NUTRITION

Bridging the great Indian hunger divide through systemic thinking and design
HUNGER, MALNUTRITION, POVERTY & FOOD SECURITY

In India & The National Food Security Act 2013
47% of Indian children under-5 are underweight
45% of Indian children under-5 are stunted
16% of Indian children under-5 are wasted

A TALE OF TWO INDIAS
A hungry, fast growing economy

1 in 3 adult women in India is underweight
1 in 3 world’s malnourished children is an Indian
1 in 4 hungry people in the world is in India

Annual food security budget of Rs 1.25 lakh crores
World’s largest producer of pulses, milk and spices
Largest area in the world under wheat and rice cultivation
25 crore tonnes of foodgrains produced in India annually
16% of Indian children under-5 are wasted
47% of Indian children under-5 are underweight
45% of Indian children under-5 are stunted

3rd largest economy in the world
HIGH MORTALITY

MALNUTRITION CYCLE

A wicked problem

GENDER INEQUALITY

LOW SOCIAL STATUS OF WOMEN

LOW EDUCATION AND ECONOMIC STATUS

MALNUTRITION DURING PREGNANCY

LOW PRODUCTIVITY AND COGNITIVE DEVELOPMENT

EARLY CHILDHOOD MALNUTRITION

HIGH MORTALITY
NATIONAL FOOD SECURITY ACT 2013

“An Act to provide for food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity and for matters connected therewith or incidental thereto.”

TARGET

- 75% Rural Population
- 50% Urban Population

8.1 crore targetted beneficiaries
Children 6 months - 6 years of age

ICDS Integrated Child Development Scheme

Local Anganwadi Centre

Free age appropriate meal

Children 6 years - 14 years of age

MDMS Mid Day Meal Scheme

Mid Day Meal Centre

Free hot cooked fresh mid day meal
Priority households:
- 5 kg subsidised foodgrains/person/month
- 35 kg subsidised foodgrains/family/month

Antyodaya households:
- Pregnant & lactating women
- Local Anganwadi Centre
- Free age appropriate meal
- Rs 6000
- Fair Price Shops
- 5 kg subsidised foodgrains/person/month
- 35 kg subsidised foodgrains/family/month
INTEGRATING POVERTY REDUCTION AND HUNGER ALLEVIATION THROUGH SUBSIDIES AND SUPPORTING FARMERS

- Tackling poverty and hunger with subsidies and supporting farmers by controlling minimum support prices of their produce
- Tackling early childhood malnutrition with women empowerment
- Tackling the caste system with education and nutrition
National TPDS
Targeted Public
Distribution System

 Policies and Money

 State & UT TPDS Dept.

 Infrastructure, and Vigilance

 Fair Price Shops

 Grains

 FCI state grain storage

 Policies and Money

 Mandi

 Grains

 Grain Storage

 Farmers sell produce at government approved rates

 Money

 National TPDS
Targeted Public
Distribution System

 Food Corporation of India
FCI

 Policies and Money
DECODING THE FOOD SYSTEM

Exploring the layers involved
INGREDIENTS OF THE INDIAN FOOD SYSTEM

Ensuring food security with their interactions

**Foodgrains:**
production, storage, transportation, sale and disbursement

**Money:**
budgetary allocations for food security and nourishment programs, subsidies, cash transfers and monetary allowances

**Policies:**
regulations and laws to ensure and clarify the implementation of the clauses in the NFSA-2013

**Vigilance:**
mechanisms in the system to monitor it and for grievance redressal in case of wrong-doings

**Infrastructure:**
set of services and facilities that provide the supporting framework for the system

**Data:**
set of qualitative and quantitative information that helps inform the system’s economics and its management

**Administration:**
organisational structure which delineates the roles and jurisdictions of the various authorities
DETERMINANTS OF FOOD SECURITY
Ensuring food security with their interactions

There are various organisations and authorities working at the

INTERNATIONAL ➔ NATIONAL ➔ STATE ➔ LOCAL

levels with their focus on the following determinants of food security:
1. AVAILABILITY

Existence of Food: Domestic food production capacity, seasonal stock piling of food, import stocks, resilience to climate change and weather fluctuations, market access to farmers to sell at viable prices.

Determinants: agricultural viability and farmer support, rural infrastructure, ecological viability and international and national trade.
2. ACCESSIBILITY

Access to Food: storage and transportation of harvested food items to the open market/retail with direct access to the consumer.

Determinants: civil infrastructure for storage and transportation, efficient monitoring and management of stocks, unprejudiced food allocation to all.
3. AFFORDABILITY

Ability to Purchase Food: economically viable pricing policies to ensure purchasing power for all. Special incentives and subsidies to economically and geographically fragile consumer groups.

Determinants: economic status, knowledge and access of government policies, absence of the black marketeers.
4. ADEQUACY

Adequate Energy and Nutrition Intake: regularity and frequency of optimum quantities of balanced, hygienic and nutritious age/occupation-appropriate meals.

Determinants: Intra household food distribution, status of women in the family/community, purchasing power of the family, feeding practices, eating habits, food preparation and nutritional knowledge.
5. UTILISATION

Absorption of Food: appropriate utilisation of the nutrients in food in the body.

Determinants: community, household and individual hygiene, child care and maternal care, water and sanitation quality, individual health status.
## MAPPING THE FOOD SYSTEM

Analysing the various components that back and drive the food network in India

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BRIDGING THE HUNGER DIVIDE

Exploring opportunities of intervention to aid food security in India
Areas of the concern in the existing agricultural sector

- Money
- Foodgrains
- Mandi Administration
- Infrastructure
- Policies
- Farmer knowledge and IT support
- Influx of GM crops
- Climate change and loss of agricultural lands
- Unviable farming practices
- Crop losses due to unpredictable weather

Clarity to farmers about pricing policies
Timely and adequate remuneration
Information about offered prices

FCI
Areas of the concern in the existing Targetted Public Distribution System

- Lack of information for beneficiaries
- Beneficiaries exclusion
- Fraud ghost cards
- Lack of knowledge of availability
- Unhygienic storage
- Loss of grains to rodents and pests
- Diversion of grains to the black market
- Chaos during distribution
- Insufficient Stocks
- Links with only one FPS
- Inadequate household nutrition
- Inability to supplement nutrition
- Lack of knowledge of availability
- Fraud ghost cards
- Beneficiaries exclusion
- Lack of information for beneficiaries
- Inclusion of women as head of family as per NFSA 2013
- Over-charging by FPS dealer
- Cash transfer
- Insufficient Stocks
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Areas of concern in the existing Mid Day Meal Scheme

- Infrastructure
- Policies
- Vigilance

- Upgradation and evaluation of menus
- Training of cooks and helpers
- Timely supply of grains
- Supply of good quality grains
- Monitoring of material
- Scaling up services
- Remote monitoring
- Training of cooks and helpers
- Upgradation and evaluation of menus
- Adherence to regulations
- Vigilance on quality
- Monitoring of material
- Transmission of information
- Adequate quantity of food
- Adequate nutrition in food
- Food delivery and serving
- Variety of food and ingredients
- Experience of eating
- Hygiene standards of students
- Enjoyment
- Adequate quantity of food
- Adequate nutrition in food
- Food delivery and serving
- Variety of food and ingredients
- Experience of eating
- Hygiene standards of students
- Taste of food
- Discrimination
- Regularity of meals
- Variety of food and ingredients
- Experience of eating
- Hygiene standards of students
- Consistency of quality
- Access to good quality grains
- Enjoyment
- Adequate nutrition in food
- Food delivery and serving
- Variety of food and ingredients
- Experience of eating
- Hygiene standards of students
Areas of the concern in the existing Integrated Child Development Scheme

- Infrastructure
- Policies
- Vigilance

ICDS (Integrated Child Development Scheme)

- State & UT ICDS Dept.
- NGO, Anganwadi Centres

- National Nutrition Mission
  - Data transfer and remote monitoring
  - Cleanliness and hygiene of anganwadi centre
  - Basic optimum infrastructure
  - Sufficient clean water supply

- Ensure cash transfers are used for intended beneficiary
- Adequate nutrition in food
- Timely supply of supplements and food packages
- Utilisation of rations for intended user
- Collection of rations
- Appropriate environment for utilisation
- Monitoring child development
- Age appropriate nutrition in food

- Meal
- Money
- Meal
KEY SYSTEM DESIGN QUESTIONS

How can the Indian food system be designed to ensure food security?

How can nutrition be scaled up?

How can the system evolve from a charity model to a cyclic and/or self sustainable model?

How can the intended beneficiaries be empowered to help themselves to extract maximum benefits from the system?
SYSTEMIC INTERVENTION PROPOSALS

Proposals to address concerns and unmet needs in the existing system
Community Participation in Quality Control

Vigilance
Quality
Variety

Every parent of a child assigned a day in the schedule when he/she must accompany the child to school and assist and oversee the mid day meal operations.

Assistance of the parent in overlooking the activities of the cook ensures that the teachers duties are not hampered.

Incentive based community participation in the mid day meal scheme.

Mid day meal centre

Menu and Nutrition Log

Details of the food provided with photos of the meal of the day.

Daily logs for future assessments of impact

Integrate the food consumption with process of learning

Empower the knowledge bearer of the family with nutritional knowledge

Mid day meal centre

MDMS

Food and Education

MDMS

Ration Cards Updation

Link with Ration Card

Auto update

TPDS

Delivery Tools at FPS

TPDS

Standardise and optimise practices

F.S.S.
Mid day meal centre

Door to door data entry

Verification and enrolment

Beneficiary Identification

Offline and remote capture of beneficiary data, linked and verified by online server

Local Farm Network

Tiffin Programme

MDMS

TPDS

Food Sampling

e-Village Grain ATM

TPDS

Online database generation

Beneficiaries entitlement determined at FPS at the point of sale on verifying UID and biometric data, via the state database

No physical and psychological divide between the students at meal times

School canteens replace the home kitchen, and pack the mid day meal as a tiffin for the children.

Direct sourcing from farm, using monthly stipulated budget

Augment nutrition by supplementing mid day meals with fresh vegetables

Link farmers to mid day meal centres and build a supply chain network

TPDS

MDMS

Test the food sample. Broadcast test results

Generate report of food quality assessment before being serving to children

Sample

Serve

Grain ATM

Access

Refill

Refill

State godown common server

Grain ATM

Access

MDMS

MDMS

MDMS
Any Fair Price Shop or a Self Operated Vending Machine

Grain Credits on Aadhaar Account

State Government

Reimbursed Money

Multimodal FPS Network

TPDS

Data Sharing

Existing FPS

Proposed

TPDS

TPDS

Fair Price Shop

Grain Vending Machine

TPDS

Daily Mandi excess fruits which are over ripe, partially damaged etc

Collection

Collection and processing of daily fruits rejects into nutrient rich fruit bars which can be distributed across Schools & AWGs

Processing

Fruit Preservation

Supplementary Nutrition

Initiate local self-help groups to purchase food in bulk and save on overheads

Bulk Food Purchases

Community Nutrition
Moisture, Rodents, Dust, Fungus, insects, cause loss of grains and their quality at the point of consumption, because of poor storage practices.

The product is a combination of a jute and a plastic sack. It works as a bag when the individual goes to collect grains, and the double bag opening helps ease out the FPS operations. The outer layer consists of the plastic bag with a drawstring to tighten it, the inner layer between the sacks can be filled with neem leaves and other non-chemical pest diverters.

**Grain Storage**

- Drawstring pulled and outer bag tightened
- Neem leaves put in the space between the two layers

**Mobile Food Vans**

- Employ local communities to source and supply food to remote locations and destitutes

**Food Banking**

- Reduce food wastage and hunger by compiling excess food and redistributing it

**Community Nutrition**

- Source grains of member families from FCI godown
- Enlist their share of grains and volunteer in operations
- Local Community membership

**Household Nutrition**

- Instant Alerts
- Cloud Access
- Data Sharing

**Food Pooling**

- Community meals

**Community Mentoring**

- Local Community membership
- FoodCorp
- Food Banks
- Food Retailers
- Household Consumers
- Hotels etc
SYSTEM GIGA-MAP