

GENDER & NUTRITION INTERSECTIONS IN INDIA: QUANTITATIVE AND QUALITATIVE EVIDENCE

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INDIA'S NUTRITION OUTCOMES

- India has consistently recorded a higher proportion of malnourishment and hunger in women and children.
- As per NFHS 5 (2019-21), every second woman in reproductive age and nearly two in three children (6-59 months age group) had anaemia (haemoglobin levels below 11.0 g/dl)
- From 2015-16 to 2019-21, there is a mild decline in chronic energy deficiency (BMI<18.5) – which is supplemented by a notable increase in obesity in adult women.
- In under 5 group, one in three children were suffering from stunting, one in five children reported wasting, and every tenth child in India was suffering from acute malnourishment (IIPS, 2021).

GENDER AND NUTRITION: COMPLEX PATHWAYS OF GENDER TO NUTRITION

DETERMINANTS (UNICEF 2020)

- Access to nutrition gets influenced by gender and social groups— through direct and systemic exclusion (Sims 2021, Bhattacharya 2020)
- Mothers' BMI, short stature and lack of antenatal care is linked to child's birth weight and BMI (Kader and Perera, 2014)
- Better nutrition outcome through increased health seeking behavior, access to services and higher self-esteem (Berti et al. 2015; Mainuddin et al. 2015; Lailulo et al. 2015)
- Education of mothers (secondary level and higher), women's nutritional knowledge have been observed to reduce child under nutrition (Smith and Haddad, 2015; Fadare et al. 2019): better care practices (self and child)
- Women lose on accessing livelihood and diet through systematically lower access to
 - Employment (Nankinga et al. 2019) influences child's nutrition
 - Land or other productive capital (FAO 2011, Agarwal 2012),
 - Adequate wages (Ramachandran et al. 2010),
 - Status as an equal member in despotic family structures (Ramalingaswami et al. 1996; Rao 2008).

Immediate

- Diets
- Care
- Disease

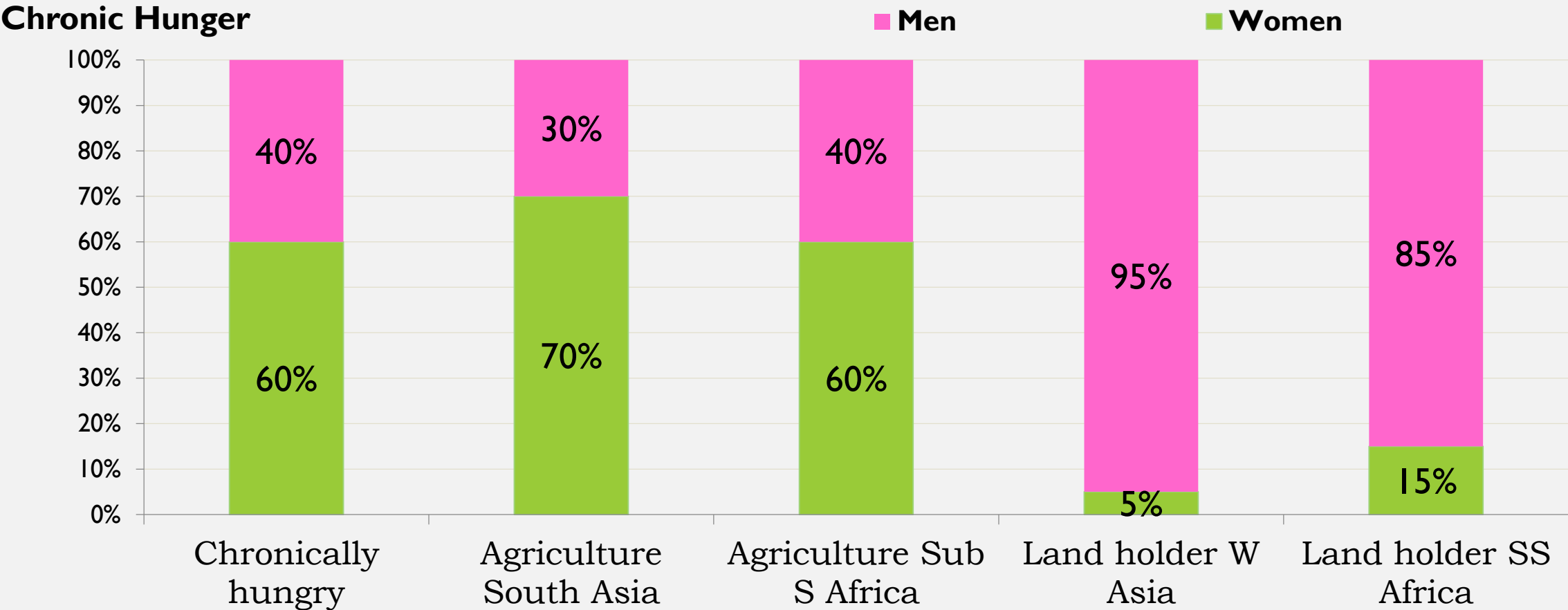
Underlying

- Food
- Practices
- Services

Enabling

- Resources
- Norms
- Governance

HUNGER IS GENDERED AND CLOSELY LINKED TO LAND-HOLDING (2015 GRAPH: WFP GENDER POLICY AND STRATEGY)



GENDER INTERSECTED WITH FOOD PRODUCTION

60% OF THE UNDERNOURISHED
GLOBALLY
ARE WOMEN OR GIRLS

- UN estimates



GENDER EQUALITY CAN MAKE A
SUBSTANTIAL CONTRIBUTION TO A
COUNTRY'S ECONOMIC GROWTH,
AND IS THE SINGLE MOST IMPORTANT
DETERMINANT OF FOOD SECURITY

■ AGRICULTURAL GENDER GAPS



gender inequities in access to
rural resources, services,
labor market opportunities



undervaluation of women's
roles and contributions



gender neutral
policies



lack of
gender specific data

■ IMPROVING WOMEN FOOD PRODUCERS' PRODUCTIVITY

A Food and Agriculture Organization of the United Nations (FAO) study estimates that **closing the gender gap** in access to productive resources such as land, credit, machinery, or chemicals could...



eliminate yield gaps of
20% - 30%
among men & women



increase domestic
agricultural output by
2.5% - 4%



100 million
fewer people living in hunger

Note

There is no statistical difference in managerial efficiency of women and men farmers (Agarwal, 2012)

Women farmers report lower yields and productivity due to different gender asymmetries

GENDER VULNERABILITIES MANIFEST IN TIMES OF SHOCK: POST-COVID EXPERIENCE FOR RURAL WOMEN IN INDIA

- Post Lock down the sources of seasonal work dried up with the lockdown juxtaposing with lean season
- The access to regular employment opportunities, **which was already low**, further **worsened** with Anganwadis and schools being closed.
- The independent sources of income of women lowered
- Nutrition, health, education status witnessed varying degrees of setbacks
- Recorded decline in household food consumption, high PDS demand, and extreme fall in dietary diversity especially for women and girl child in the rural households.

WOMEN EMPOWERMENT SHOWN EMPIRICAL LINKS TO BETTER DIETARY INTAKE

Recent research in developing countries have linked women's empowerment in agriculture decision making to

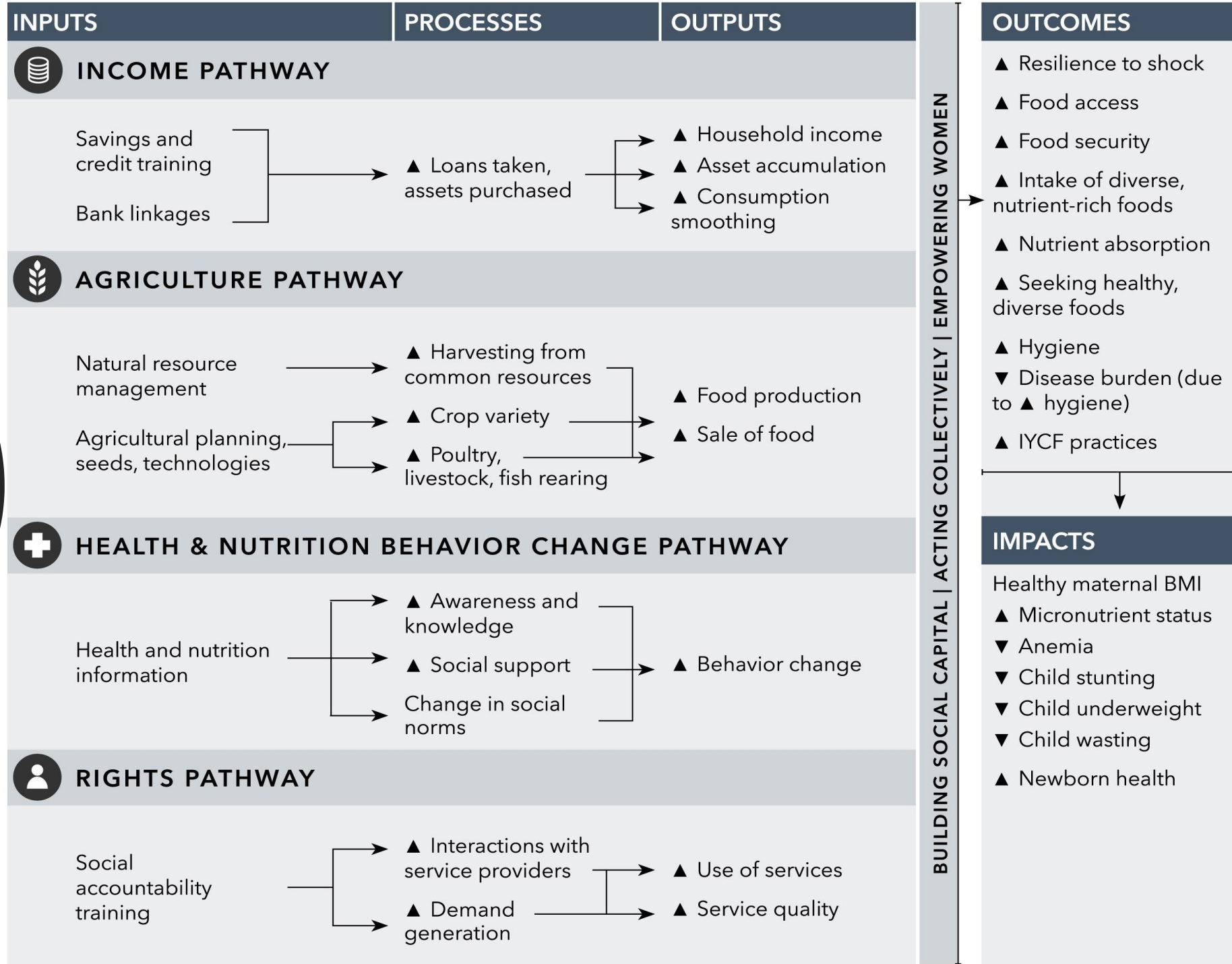
Nutritional outcome (malapit and quisumbing 2015),

Macro-nutrient intake (tsiboe et al. 2018),

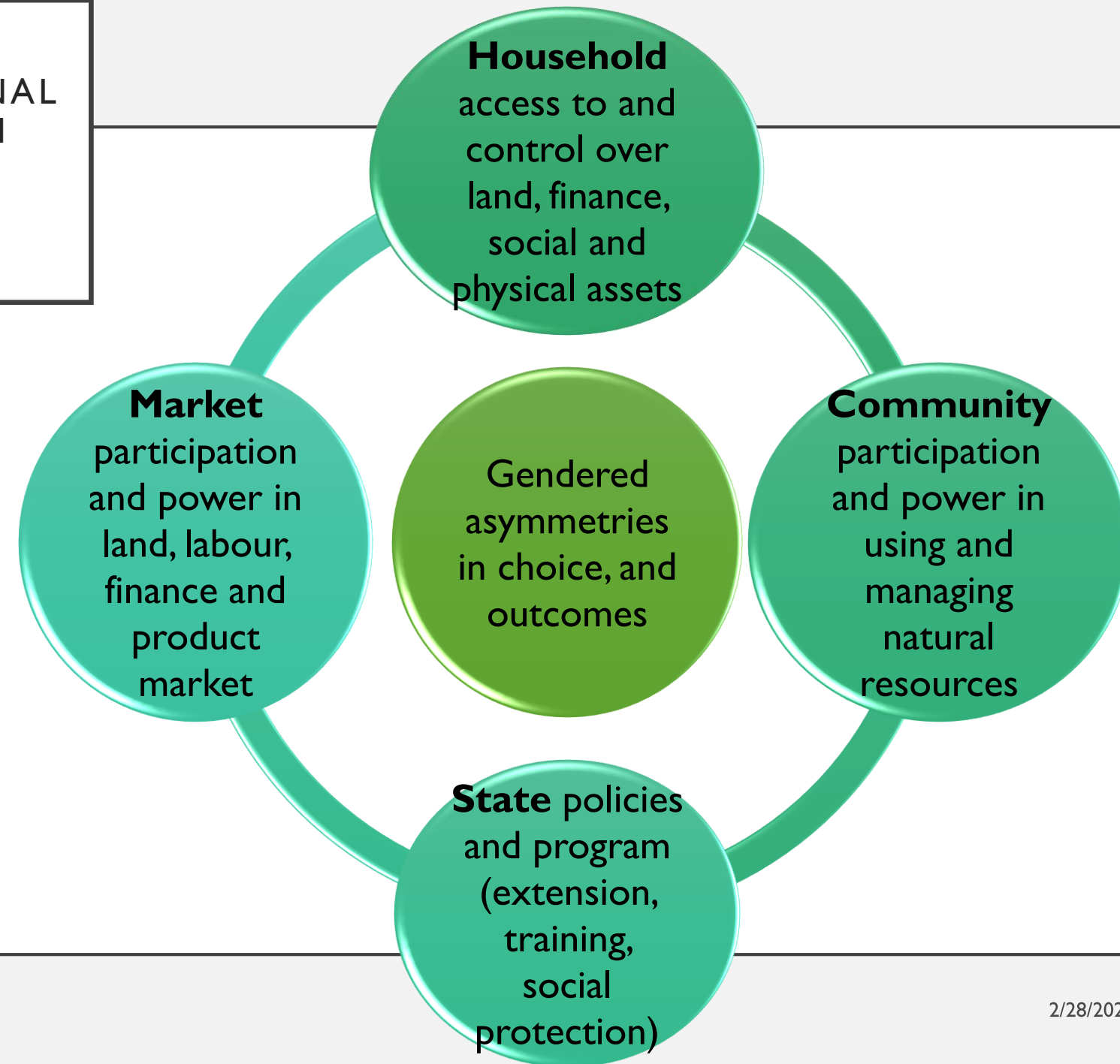
Dietary diversity index (sraboni et al. 2014)

Mitigation of dietary crisis from low production diversity (Malapit et al. 2015)

**Women's
Collectives as
Pathways to
empowerment &
Nutrition (Kumar
et al. 2018)**



GENDERED INSTITUTIONAL
SITES AND IMPACT ON
RURAL WOMEN'S
LIVELIHOOD



Summarizing Gendered Challenges

Challenges to Women as Producers

Can't access welfare net that requires ownership of land as inclusion criteria

Do not get fair share of produce and earning

Overworked and burdened with house-work and outdoor work – devalued contributor- invisible to policy.

Limited bargaining power with state institutions and markets

Challenges to Women as Consumers

Lack of access to sufficient food or dietary diversity

Circle of poverty and malnourishment

Low access to land/farm-decisions, lower share of produce/income, lower purchasing power, lower bargaining power

GROUP FARMING BY WOMEN IMPROVES FOOD SECURITY (B. AGARWAL, 2020)

Increase in size from very small farms up to 8 ha significantly increased per hectare profits, the rise being especially notable with size increases up to 2 ha. (Rosenzweig, 2011)

Greater pool of labour, which can help overcome peak labour shortages and reduce hired labour costs

Financially better placed than individuals to invest in capital intensive inputs such as irrigation equipment; undertake land improvement; experiment with risk-prone higher value crops with larger payoffs; spread losses among a greater number; and invest in crop insurance

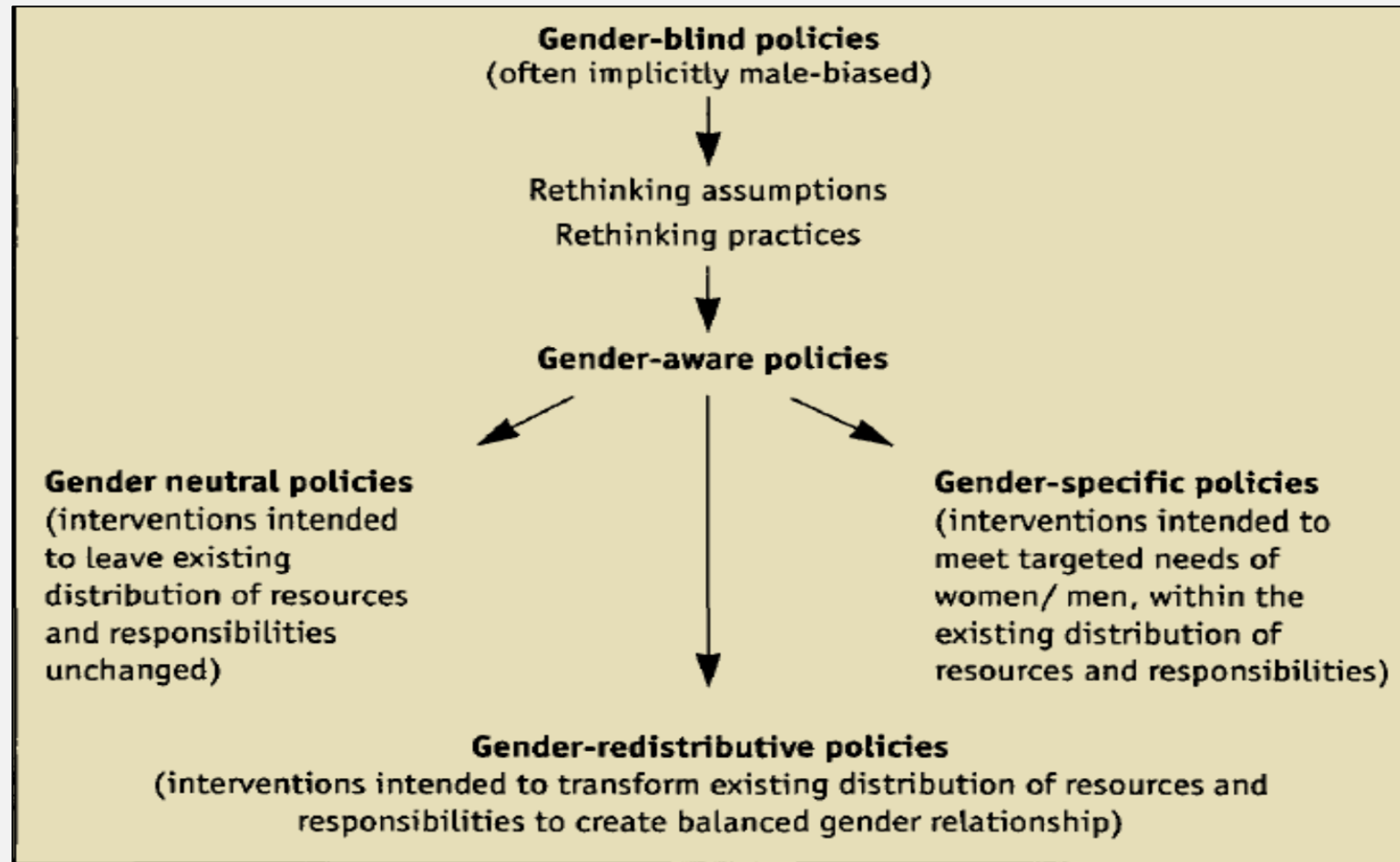
Farming in groups, outside the domain of families, can change social perceptions that women only do domestic work.

COLLECTIVE FARMING & EMPOWERMENT

- Source: N. Fraser's framework in Agarwal 2020

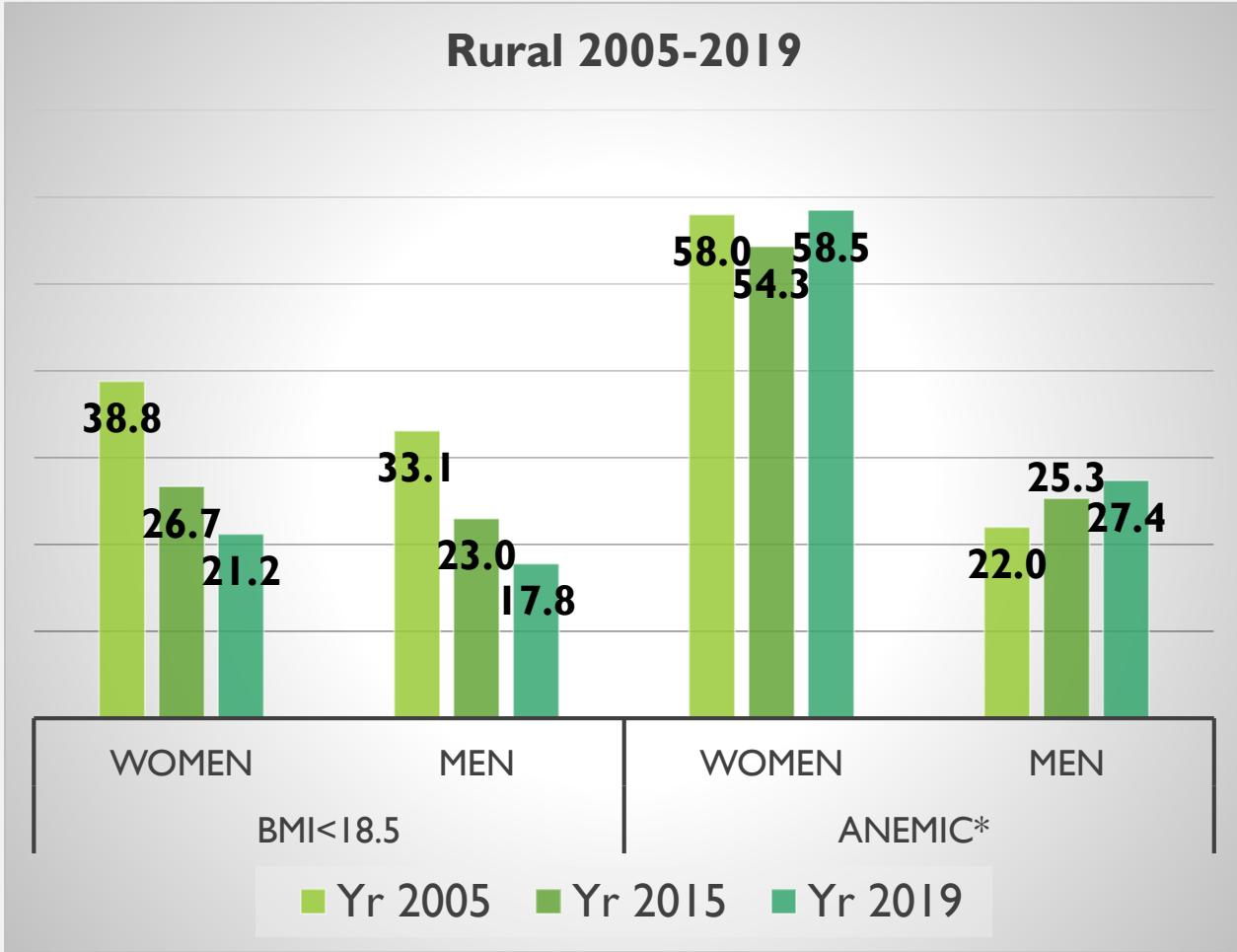
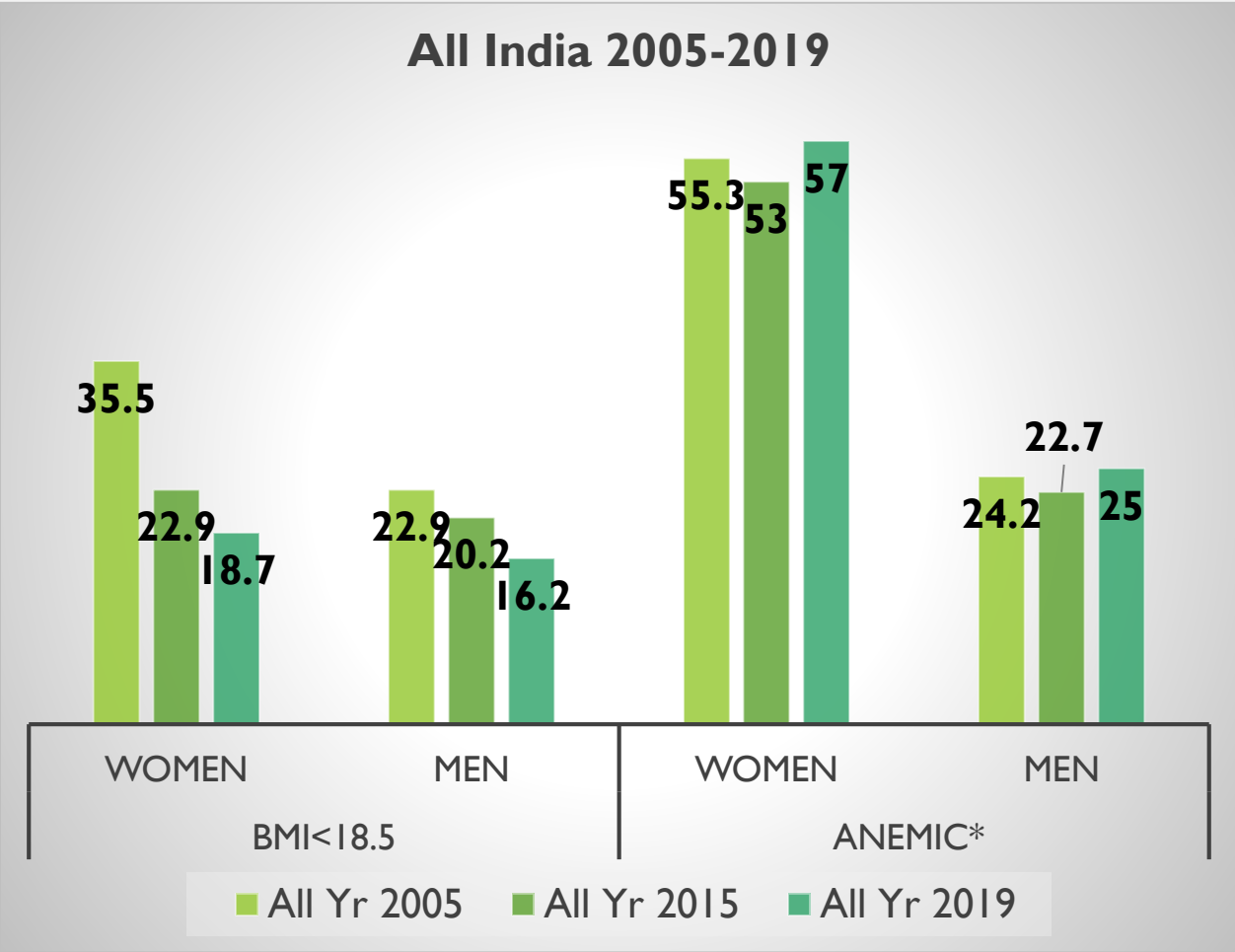
	REDISTRIBUTION	RECOGNITION	REPRESENTATION
1	Land pooling	Work outside family land/ household domain	Collectivization build leadership qualities
2	Inputs such as fertilizer, technology, seed	Increased mobility, autonomy and bargaining power	More articulate in sharing issues and demanding solutions
3	Labour pooling	Knowledge sharing and increased experience about outdoors	Greater chance of organized representation politically

POLICY CHANGE PATHWAY (N. KABEER)



QUANTITATIVE EVIDENCE SECONDARY DATA

Change in Gender wise Nutritional Outcome from 2005-06 (NFHS III) to 2019-20 (NFHS V): India



- The proportion of thin women aged 15-49 declined from 23 percent in 2015-16 to 19 percent in 2019-21
- The proportion of overweight or obese women increased from 21 percent to 24 percent. Overall, there has been a slight increase in the mean BMI from 21.9 in 2015-16 to 22.4 in 2019-21.

Mobility in Chronic Energy Deficiency (CED) Status of Adult Individuals: 2005 -2011 IHDS Data

Year	Groups	CED Status>>	2011 Status of CED	
2005 Status of CED	All India		No CED	CED
	Total (100%)	No CED	18.20%	2.80%
		CED	65.00%	14.10%
	Gender and Caste			
	General: Men (100%)	No CED	0.60%	0.10%
		CED	87.40%	11.90%
	Dalit: Men (100%)	No CED	0.90%	0.10%
		CED	82.10%	16.90%
	General:Women (100%)	No CED	36.30%	4.90%
		CED	46.00%	12.80%
	Dalit:Women (100%)	No CED	32.90%	6.90%
		CED	41.90%	18.40%

Top left and Bottom right qurters are % of people without any change in CED status,
 Bottom left quarter is improvement from CED to No-CED and top right quarter is degradation into CED status from No-CED.

‘GENDER DIFFERENCES IN ACCESS TO NUTRITION AND FOOD PRODUCTION IN RURAL INDIA’ (*Bhattacharya R et al. 2020*)

Quantitative evidence from
primary data

CONTEXT

- Recent literature advocates investments in empowerment programs for better nutrition (Malapit et al. 2015; Tsiboe et al. 2018; Sraboni and Quisumbing 2018; Heckert et al. 2019; Narayanan et al. 2019, 2021; Kabir et al. 2020).
- Women's empowerment is observed *to improve*
 - women's direct access to nutritional security, indirect determinants of nutrition such as adequate quality and quantity of diet, disease-susceptibility, quality of caring practices, safe water and sanitation (Ramalingaswami et al. 1996; Smith and Haddad 2015; Mitra and Rao 2017),
 - nutritional outcomes of the household and children through better child-care (Sraboni et al. 2014; Na et al. 2015; Malapit and Quisumbing 2015; Tsiboe et al. 2018; Heckert et al. 2019; Kabir et al. 2020; Bliznashka et al. 2021),
 - increased health seeking behavior, access to services and better self-esteem (Berti et al. 2015; Mainuddin et al. 2015; Lailulo et al. 2015).
- However, this approach of associating a combined metric of empowerment to nutrition-outcomes to inform nutrition policy has some limitations.

RESEARCH INTEREST

- First, there is inconclusive evidence to link empowerment-scores to indicators of nutrition universally,
- Second, the empowerment-nutrition relation is full of contradictions; E.g.: gainful employment may improve nutritional status, but at the same time, women may suffer from chronic energy deficiency through an increase in time-use burden due to burden of productive and care-work,
- Thirdly, there is a need to look at the context-specific relevance of the metric of *empowerment*. There is also the risk of inaccuracy in the binary quantification of an endogenous concept of “empowerment” with exogenous definitions.

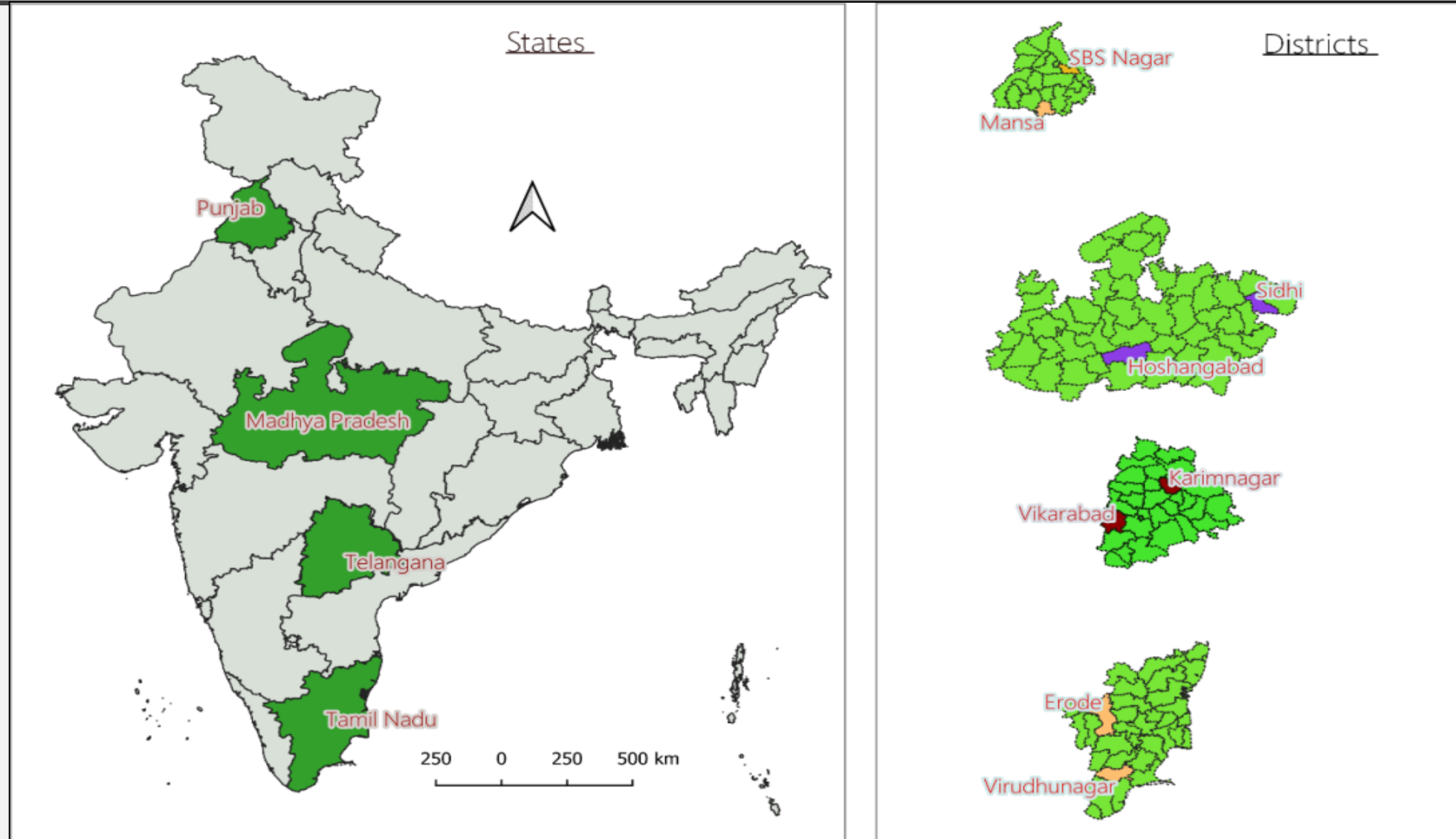
RESEARCH QUESTIONS

- Whether nutrition-empowerment link is better captured using a more contextualised WEAI metric.
- Whether bio-social attributes such as wealth and agroclimatic regions affect the complexity of nutrition-empowerment empirical linkages.

KEY INDICATORS & METHOD

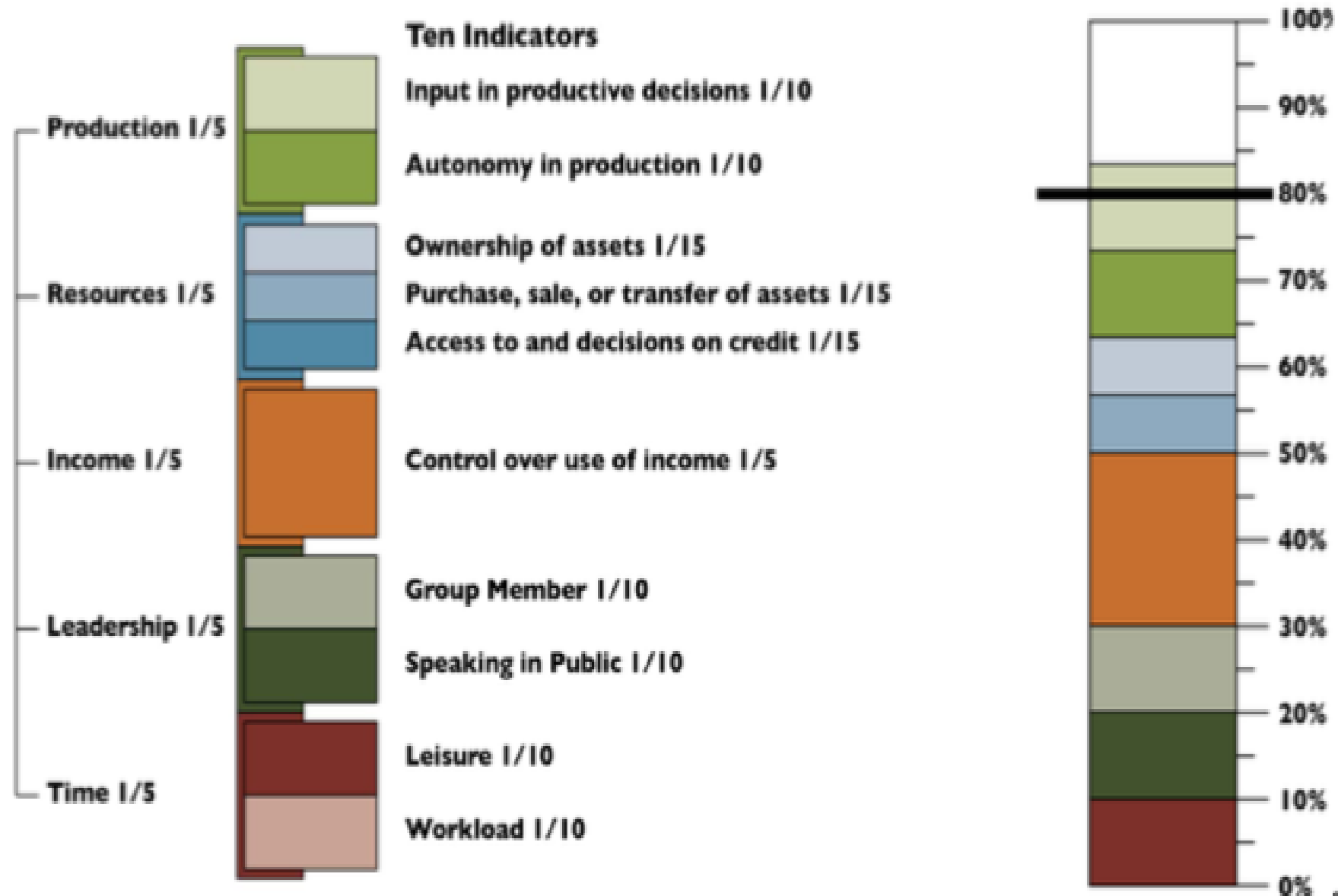
- Key predictors:
 - (a) Contextualized Metric for Empowerment of women as **Ad Hoc WEIA Index**
 - b) Wealth index
- Key outcome: Individual Dietary Diversity Scores <4
- Concentration of Low IDDS estimated using a Modified Wagstaff concentration index (ErCI) with Empowerment Scores (Ci) as underlying ranking variable.
- ErCI further decomposed by attributes to understand the pathway of empowerment-nutrition link.

STUDY-AREA



INDICATOR OF WOMEN EMPOWERMENT IN AGRICULTURE [WEIA](IFPRI)

- A Multi-dimensional Index combining
 - Adequacy in the 5 Domains (5DE)
 - Gender Parity within Households (GP)

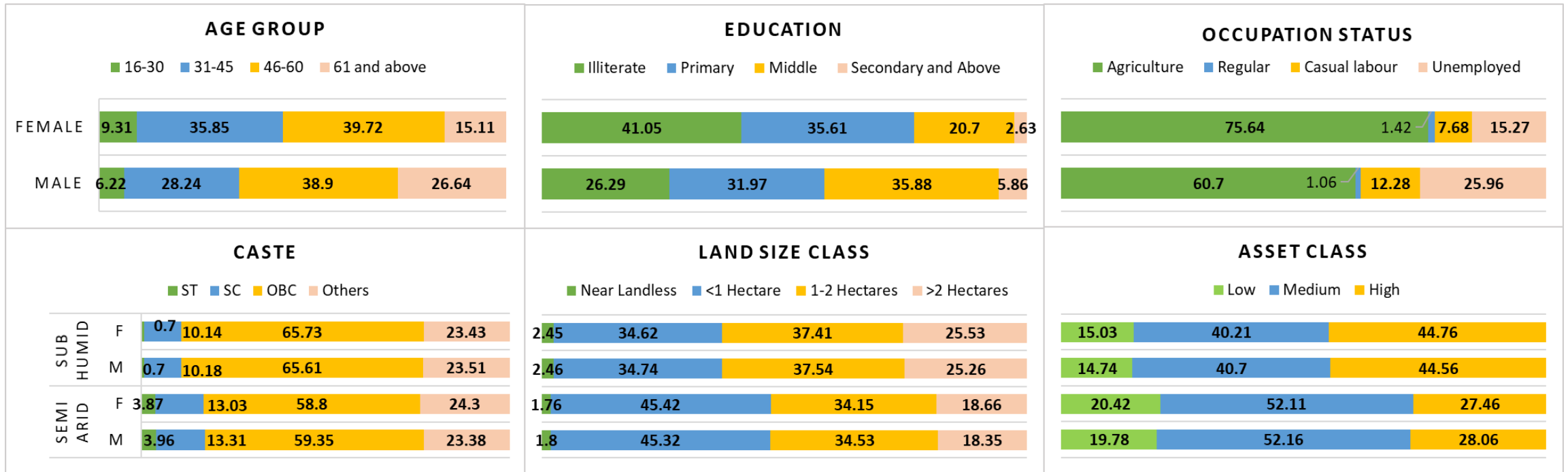


CONTEXTUALISED WEIA: DISAGGREGATING INDICATORS BY OPERATIONS INCLUDED FOR MEASURING WOMEN EMPOWERMENT IN AGRICULTURE

OPERATIONS	MEN	WOMEN/CHILDREN
WEEDING	Decision to take up the task	Performs the task
SOWING	Decides on crop (jointly)	Jointly Decides and Performs the task
FERTILIZER/ PESTICIDE	Decides the type of inputs, quantity and time of work, jointly performs	Jointly performs
HARVESTING	Decision and Performing the task	No primary role
POST-HARVEST	No primary role	Decisions on process and performing the task
SELLING	Decision and Performing the task	No primary role

WEIGHTS BY INDICATORS

Sub indicator	Wt
Input in productive decisions: Individual has some input in productive decisions in at least two activities (Food crop/ Commercial crop/ Livestock or fishing)	1/5
Ownership of assets: Individual self or jointly owns at least one large asset or two small assets	1/15
Decision making about purchase/sell/transfer of productive assets: Individual self/jointly have at least one right over one agricultural asset , conditional on ownership	1/15
Access to and decisions about credit/savings: Individual self/jointly makes at least one decision regarding at least one credit/savings source , conditioned on usage	1/15
Control over use of Income: Individual has some input in income decisions in at least one domain (Food crop/ Commercial crop/ Livestock or fishing/ Non-farm activity/ Salaried employment/ Major hh spending)	1/5
Group membership: Individual is member of at least one group present in community	1/10
Speaking in Public: Individual speak up in public for any circumstance	1/10
Leisure: Individual had more than 10 hrs of leisure in last 24 hrs	1/5



ATTRIBUTES OF SAMPLED ADULTS

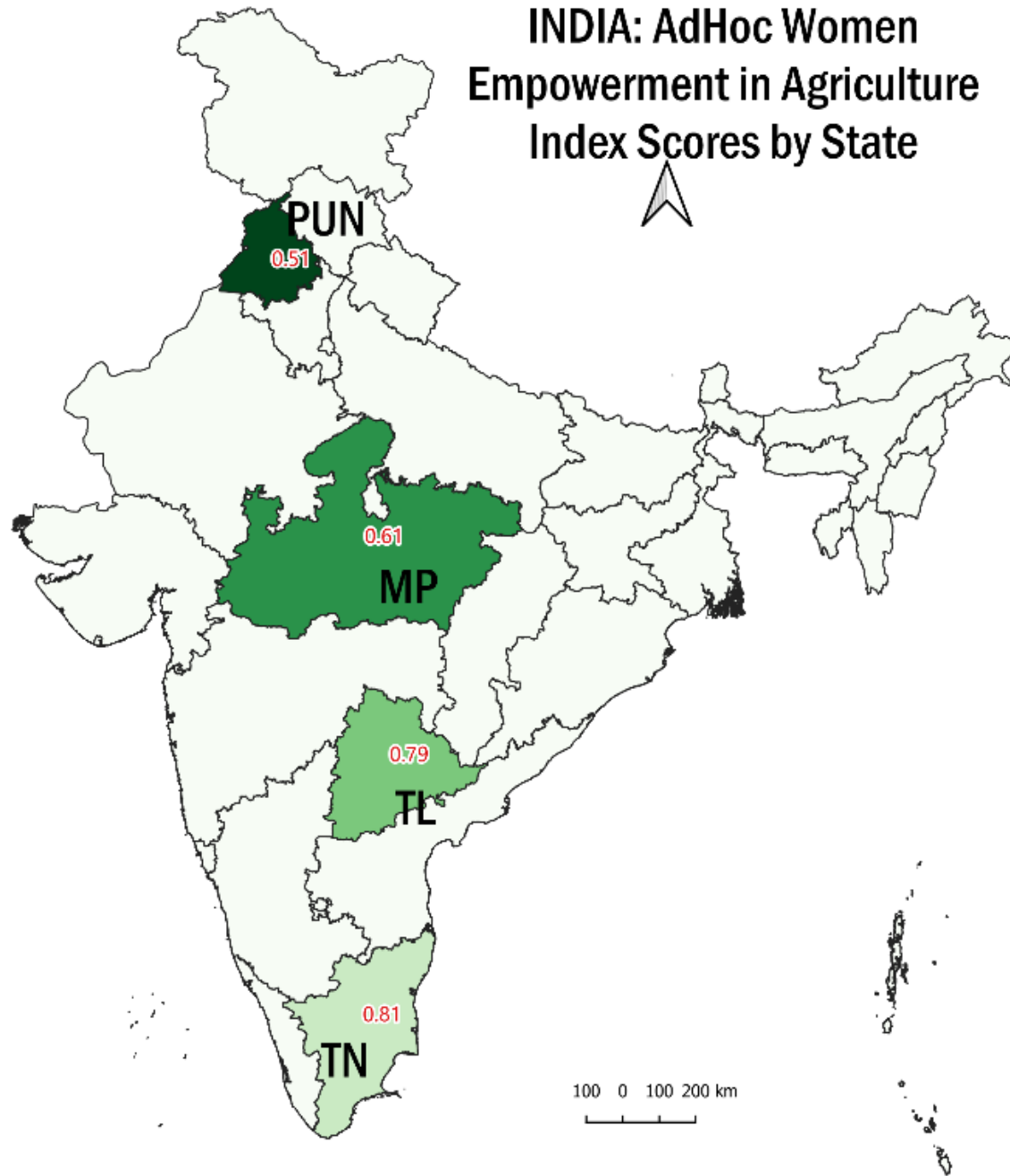
% ADULTS WITH BMI < 18.5

	Telangana	Tamil Nadu	Madhya Pradesh	Punjab
Male	21.3	11.6	36.7	19.5
(NFHS 4)	24.6	14.3	31.8	12.3
Female	19.2	16.5	35.5	19
(NFHS 4)	29	18.5	31.1	13.5

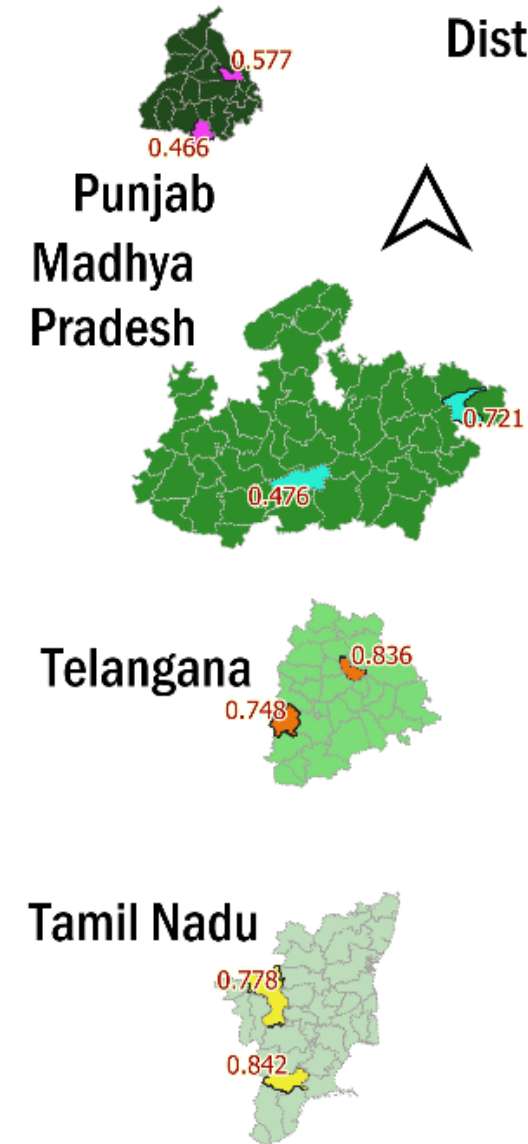
% Adult Men/Women with < 4 IDDS

Inadequacy Score cut-off k =20%	Men	Chi2	Women	Chi2
Empowered (Ci < k)	22.26	0.418	13.2	18.0480***
Not Empowered (Ci > k)	24.86		30.8	
Total	23.28		24.24	

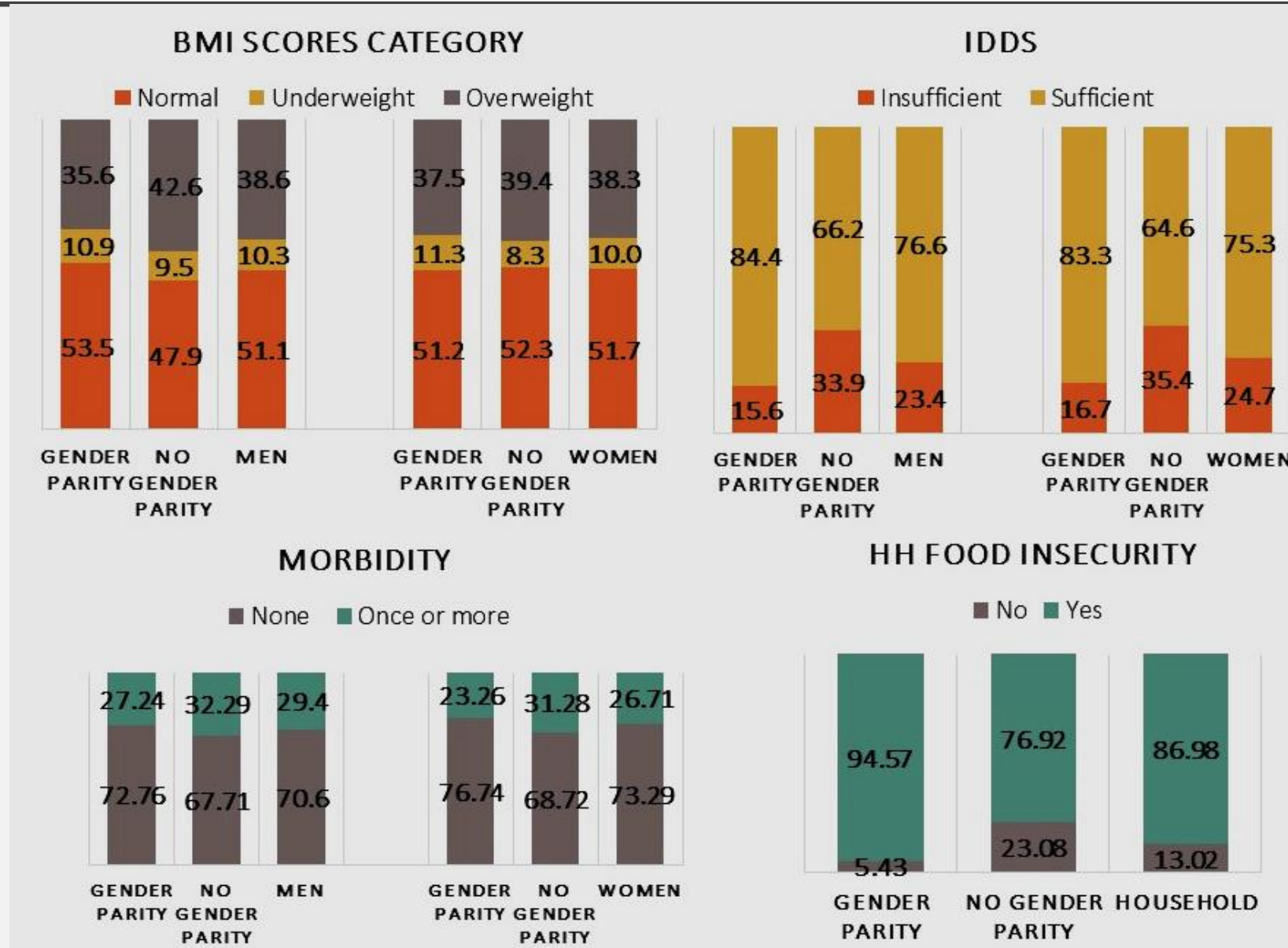
INDIA: AdHoc Women Empowerment in Agriculture Index Scores by State



WEAI Scores by District



Association of gender parity in Combined Deprivation Score and selected outcomes of nutrition, health and hunger (2019 study)



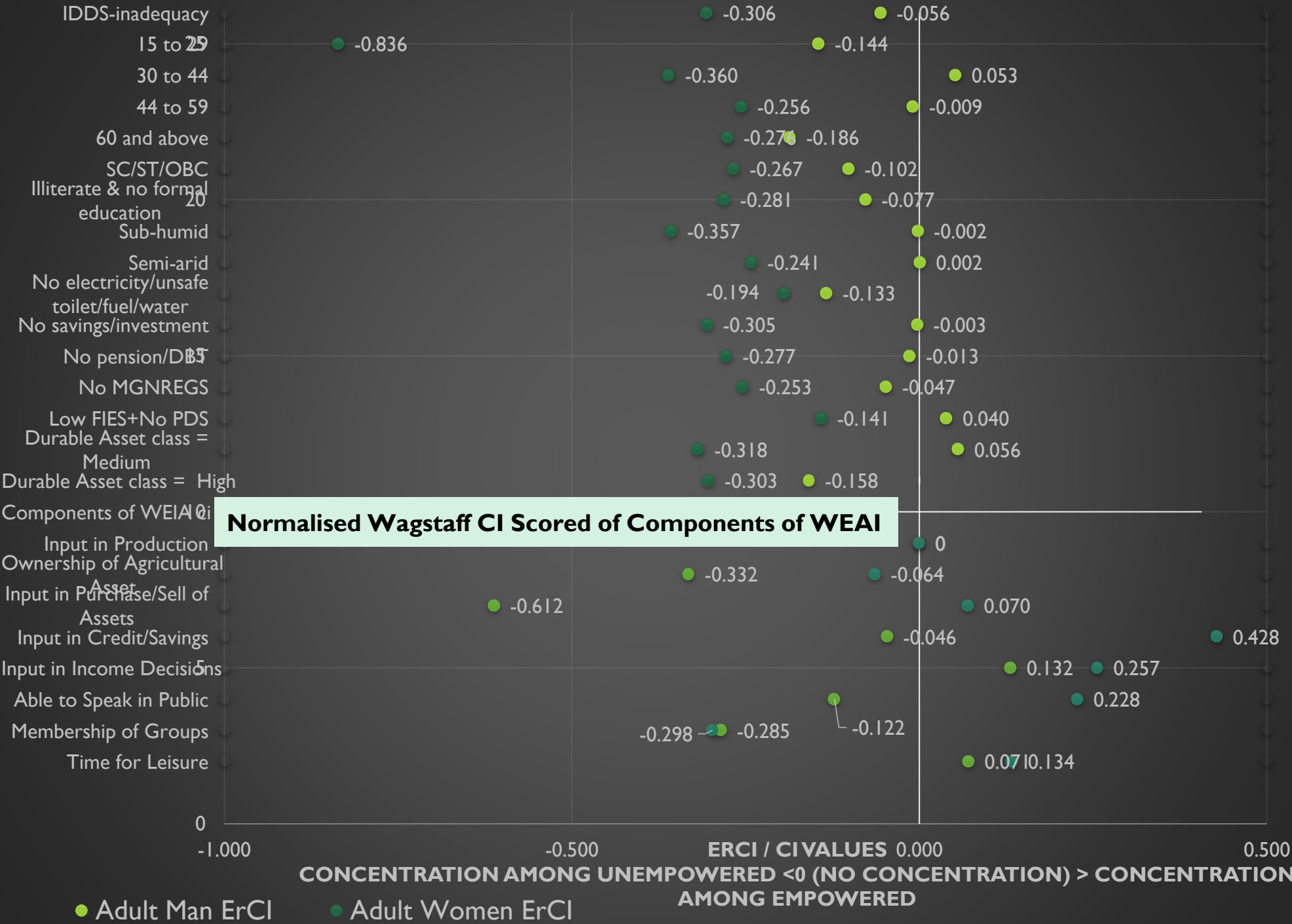
Source: Bhattacharya 2022

2/28/2023

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CONCENTRATION OF IDDS-INADEQUACY BY SOCIO-DEMOGRAPHIC ATTRIBUTES OF THE SAMPLE

- The concentration of *low-IDDS* by empowerment rankings (ErCI) was negative (-0.180; p-value<0.001)
- Higher concentration of low dietary diversity among disempowered individuals in the studied sample.



Odds of Women reporting IDDS < 4

- Adjusting for Gender, literacy, employment, welfare-net, caste, asset level.
- Households **without gender parity** have higher odds of low individual level dietary diversity.

*** p<0.001

Indicator	Category	% to N	AOR [£]
> 20% average Deprivation Score	Not Deprived	49.2	Reference
	Deprived	50.8	1.041
Gender Parity	Yes	57.0	Reference
	No	43.0	2.068***
Region	Sub-humid	23.9	Reference
	Semi-arid	50.0	2.522***
Standard of Living	Low	50.0	Reference
	High	26.0	0.543***
PDS	No PDS	74.0	Reference
	Has PDS	16.7	0.484***
Asset Ownership level	Low	83.3	Reference
	Medium	17.6	0.933
	High	46.3	2.098***

Observations from quantitative evidence

- The concentration of components of empowerment (eight indicators across five domains of WEAI) showed that inadequate input in production (-0.155; $p < 0.001$) and inability to speak in public (-0.281; $p < 0.001$) were concentrated among the asset-poor, and inadequacies in purchase or sale of assets (0.308; $p < 0.001$), input in credit and savings (0.196; $p < 0.001$), and time (0.211; $p < 0.001$) were concentrated among the asset-rich.
- Men showed a statistically insignificant and close to zero ErCI (-0.056; p-value: 0.373), whereas women showed statistically significant, negative, and higher ErCI (-0.306; p-value < 0.001)
- Women showed a deeper concentration of IDDS-inadequacies at the lower empowerment level than men for each socio-demographic attribute.
- If the relationship between assets with empowerment (CI) and empowerment and nutritional outcome of women (ErCI) were read together, they indicated that lack of empowerment did not affect nutrition through poverty; rather, there were complex pathways through which disempowered women found it harder to access better nutrition.

IN CONCLUSION

Empowerment the key capital for Nutrition

- Women-Empowerment should be a key strategy for nutrition through a long-term commitment to improving gender-equality through all policy and development channels.
- However, there should be rethinking of the high priority of economic or income-generating policies for women's empowerment. Rather than prioritizing income generation as the only policy for empowerment, there should be specific policies for specific inadequacies.
- There is a need to improve women's participation in decision making considering the geographical and wealth-based variations of disempowerment. There needs to be more deliberations on modifying the indicators for WEAI to make it effective in capturing region-specific differences. There is a need to look beyond WEAI for contextualized metrics of empowerment to capture specific inadequacies within their socio-demographic environment.

SERVICE DELIVERY FOR SUPPLEMENTARY NUTRITION *INTERVENTIONS IN DULAR UNICEF :* (*BHATTACHARYA, 2018*)

Qualitative Primary Study

The *Dular* (ICDS) strategy

- To encourage the improved child-caring habits among families/communities with the help of networks of the community-based women volunteers.
- To create a new environment where ICDS and other health system can work together more efficiently.



Study Area

Two Villages in Vaishali district

- **Nayagaon East** (Sahdei Buzurg block)
 - **Rampur Ratnakar** (Rajapakar block)
-

The activities of Dular differed by levels of jurisdiction

District level

- Meetings of district coordinated committees-for health, welfare and education related services and provision of inter-departmental coordination
- Training for D.M.M.T.T- to develop ability and ensure proper functioning of activities at the ground level

Block Level

- Meetings of block level committees- for provision and inter-departmental coordination.
- Complex (sankul) level trainings- for the development of village level volunteers.

Village level

- Village related campaign-community coordination, awareness and Local Resource People (LRP) selection.
- Training of LRP's-to bring behavioural change and ensure services in the community.

Instruments

Local Resource Persons (LRP)

- Monitor 15-20 households
- Link between the households and the Anganwadi centres.

Dular strategy: Village contact drive

- To draw a map of the village and mark the households
- Conduct focus group discussions to educate on health and nutrition
- Entry of weights and consultation
- Encouragement of women volunteers who have leadership quality
- Women volunteer given Local Resource Person (LRP) recognition to organize Local Resource Groups.
- To mediate the Anganwadi workers and local resource groups the basic health and nutrition related information using the counseling process.

Comparison Group (ICDS EXPOSED CHILD)
12 Respondents ; 25 Youngest Child



RECALL GROUP (DULAR EXPOSED CHILD)
12 Respondents ; 25 Older Siblings



Accessibility

Accessing the program is on mothers -- if mothers don't ensure the attendance, child loses out on meal.

Access to the program was ensured as

- LRPs used to personally visit
- track progress by Chalk marking HH with malnourished child



Quality

- Quality of food improved -both for hot meal and cold ration.
- No regularity in IFA consumption

- There was not much variety in the content of the food.
- IFA tablet was regular as LRPs monitored the mothers



Knowledge

- Knowledge of Exclusive breastfeeding up to 6 months
- Complementary feeding after 6 months.

- Couldn't recall any of the practices for childcare / nutrition taught in Dular sessions



Practice

- No demonstration is given on any behavioral issue

Demonstration was given on

- identification of Iodine Salt
- regular hand wash



Outcome

- No severely malnourished child in the Centre
- Strong feeling of exclusion in some women

- 3 children were underweight but improved weight –height ratio as per the Growth Monitoring Chart,

Strength and Weaknesses

DULAR

Strength

Weakness



Accessibility

- Paid second line FLWs or LRPs
- Growth Monitoring Chart Booklets
- Insufficient ration for children's feed

Insufficient ration for children's feed



Quality

- Full coverage of all beneficiaries

Lower participation of mothers in ICDS



Knowledge

- Regular trainings with stipend to FLWs
- Trainings on convergence

Finding constant engagement from second line FLWs was difficult even with payment



Work Environment

- Recall intense participation and regular activities

ICDS

Strength

Weakness

Ration/medicines increased

- No GMC,
- Poor infrastructure,
- Sanctioned vacancies not filled

- Higher Participation in ICDS

No monitoring of beneficiaries due to low human resource

- Mandatory block level trainings.
- Travel cost paid out of pocket

- Almost nil. Obscure about GPDP

- Workload too high,
- Some beneficiaries complain and confront frequently



Challenges: Where is PRI Convergence Needed

- Mid-course changes in a strategy made it unfeasible for long term monitoring and impact evaluation.
 - Unless social coherence is established through PR institution's continuous intervention, the nutrition intervention will continue to be plagued by social problems: a) social incoherence: beneficiaries-Sevika's , b) intervention and beneficiaries, c) social groups – intra and inter-household, and d) governance and service delivery agents: no space to demand infrastructure, human resource or even better food and cleanliness, over-burdened with multiple tasks.
 - Continuous updating of beneficiary roster needed – **if possible, every month.** Exclusion even within the eligible families.
 - Strategy for migrating mothers.
-

How to inform nutrition policy
of gender?

Possible way forward

- Firstly, since poor nutritional intake tends to concentrate among the disempowered, the solutions to increasing or improving nutritional intake is also linked with empowering women.
- Secondly, an overhaul of the community-development and mobilization programs is needed to address women's participation and access to resources in the studied areas. There is a need to re-energize the SHG based programs for an immediate improvement of women's participation in decision making.
- Thirdly, the geographical and wealth-based variations of the disempowerments should also be considered. *A rethinking for identifying the indicators for WEAI to capture these geography-specific differences in a comparable form?*
- Lastly, the study shows that malnutrition gap that exists within household men and women can be reduced if gender parity in household decision making around production system can be improved. A long-term commitment to improving gender-equality through all policy and development channels is needed in that direction.