# A study to assess the nutritional gaps in PDS households

July, 2019

Government of India
Department of Food & Public Distribution
Ministry of Consumer Affairs, Food & Public Distribution

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# Objectives of the study

## The objective of the study was to quantify the nutritional gaps at the household level and to increase the nutritional efficiency of the Public Distribution System (PDS)

**What is the food basket for a food secure household? How much of it is being supplied by the PDS and other government schemes, such as MDM, ICDS, etc.?**

- What is the **consumption pattern** and the **nutritional profile** of different beneficiary households?
- What are the **food items** beneficiaries receive **through the PDS?**
- What are the **other sources** from which beneficiaries meet their **food requirements?**
- What percentage of an average beneficiary's household **food consumption** is **met through the PDS**, MDM, ICDS, etc.?

**What are the gaps in nutrition among the target beneficiary populace as per the current consumption patterns? How can the gaps be addressed?**

- What **percentage** of the recommended daily **nutritional requirements** is being **met** through the PDS and various other schemes like ICDS and MDM?
- What is the level of **nutritional literacy** in the beneficiary households?
- What are the **determinants** of **nutritional outcomes** for a household?

**What could be the possible alternate delivery mechanisms to improve nutritional indicators?**

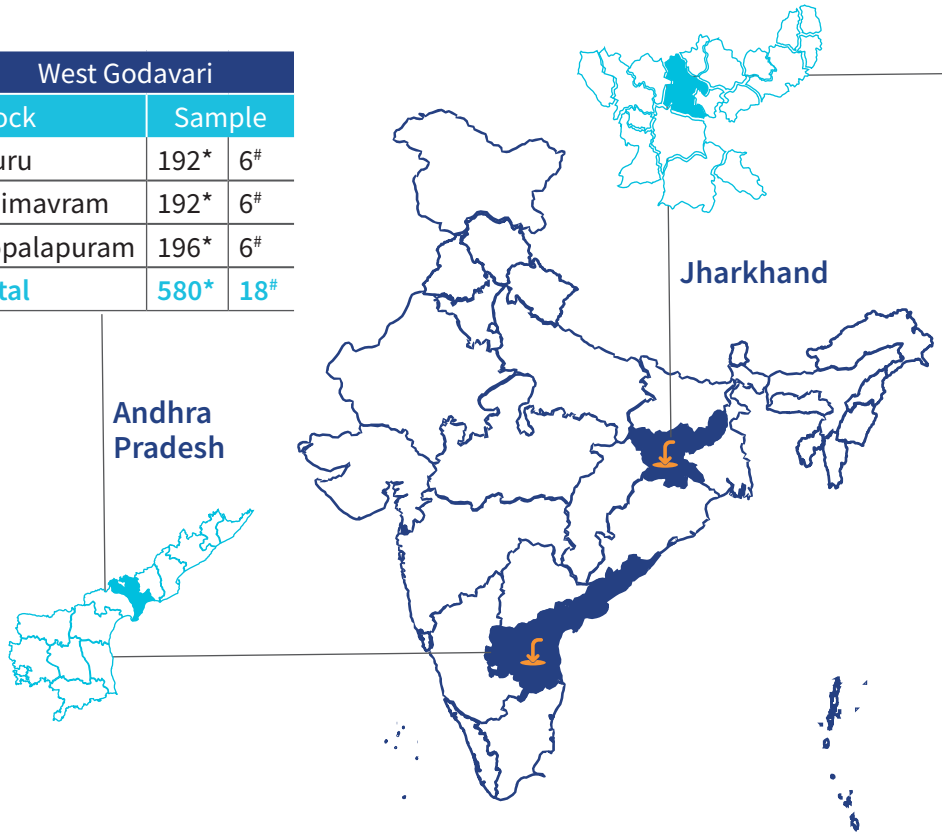
- How to **modify** the **PDS** in order to improve nutritional efficiency?
- Is there a need to experiment with **delivery channels?**
- What are the plausible **radical changes** in the PDS, MDM, and ICDS to meet this objective?
- What are **the implications** on the National Food Security Act **(NFSA)?**

# Methodology

## We used multistage sampling to cover two states in different regions of the country to arrive at a representative sample

| West Godavari | | |
|---|---|---|
| Block | Sample | |
| Eluru | 192* | 6# |
| Bhimavram | 192* | 6# |
| Gopalapuram | 196* | 6# |
| Total | 580* | 18# |

| Ranchi | | |
|---|---|---|
| Block | Sample | |
| Rahe | 197* | 9# |
| Kanke | 195* | 13# |
| Ormanjhi | 199* | 18# |
| Total | 591* | 40# |




**The questionnaires used for the survey were tested for efficacy in villages near Patna and Hyderabad. The gaps were analysed and feedback incorporated.**

* Quantitative
# Qualitative

# We interviewed only female beneficiaries due to their better understanding of household consumption patterns

## Methods

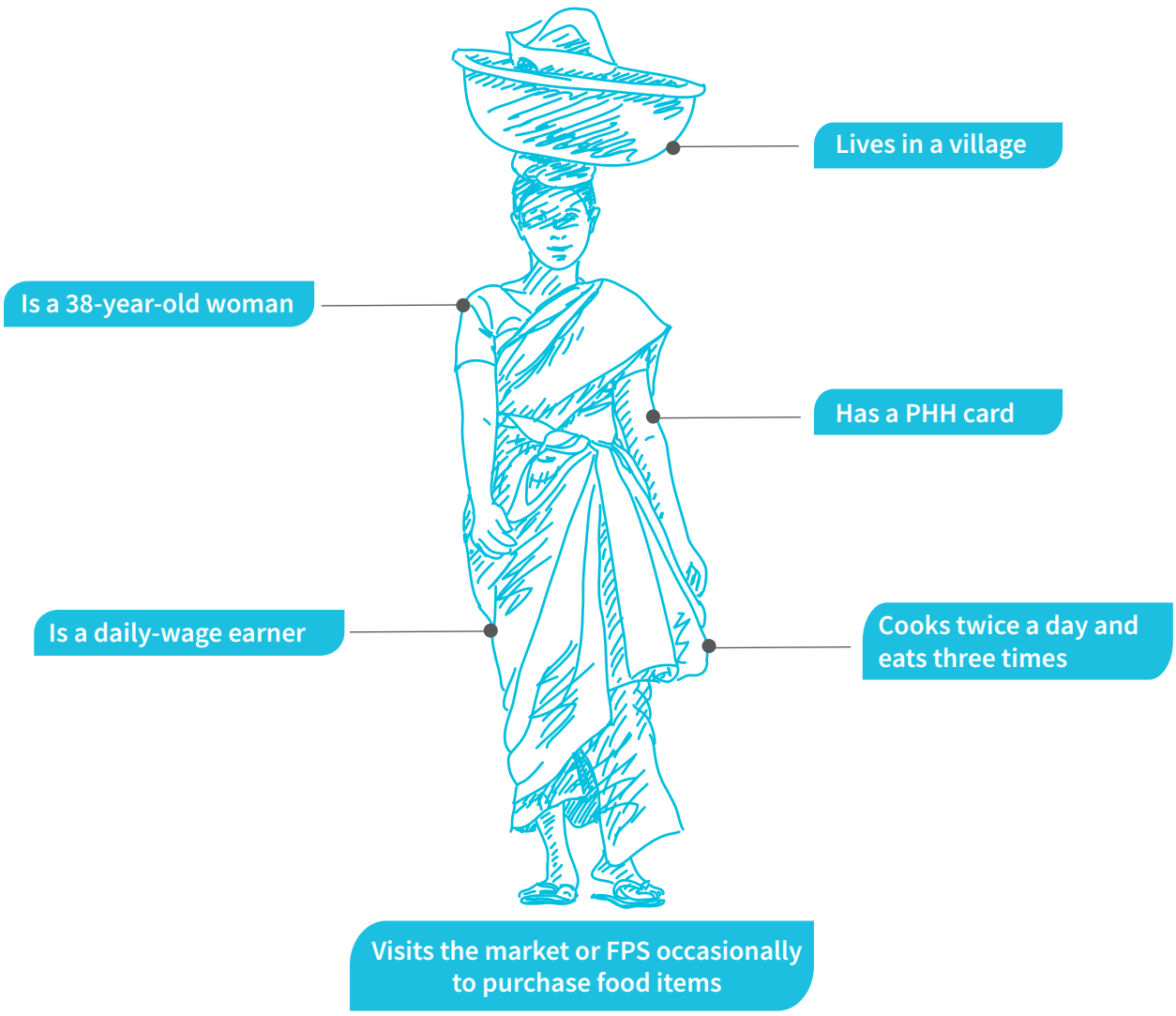
Quantitative

Qualitative

## Tools and techniques

- Standardization of the vessel size;
- Food frequency questionnaire;
- Participatory Rural Appraisal (PRA);
- Focus group discussion;
- In-depth interview;
- Recipe standardization;
- Nutritional profile

## An average respondent



## We triangulated primary qualitative and quantitative data and processed it using multivariate analysis

### Qualitative research:

- Ranchi and West Godavari
- Participatory Rural Appraisal
- Personal interviews
- Focus group Discussions
- 49 beneficiaries
- 7 FPS owners
- Consumption patterns

### Quantitative research:

- Ranchi and West Godavari
- Food frequency questionnaire
- Personal interviews
- 1,171 beneficiaries
- Consumption data

**Inquiry**

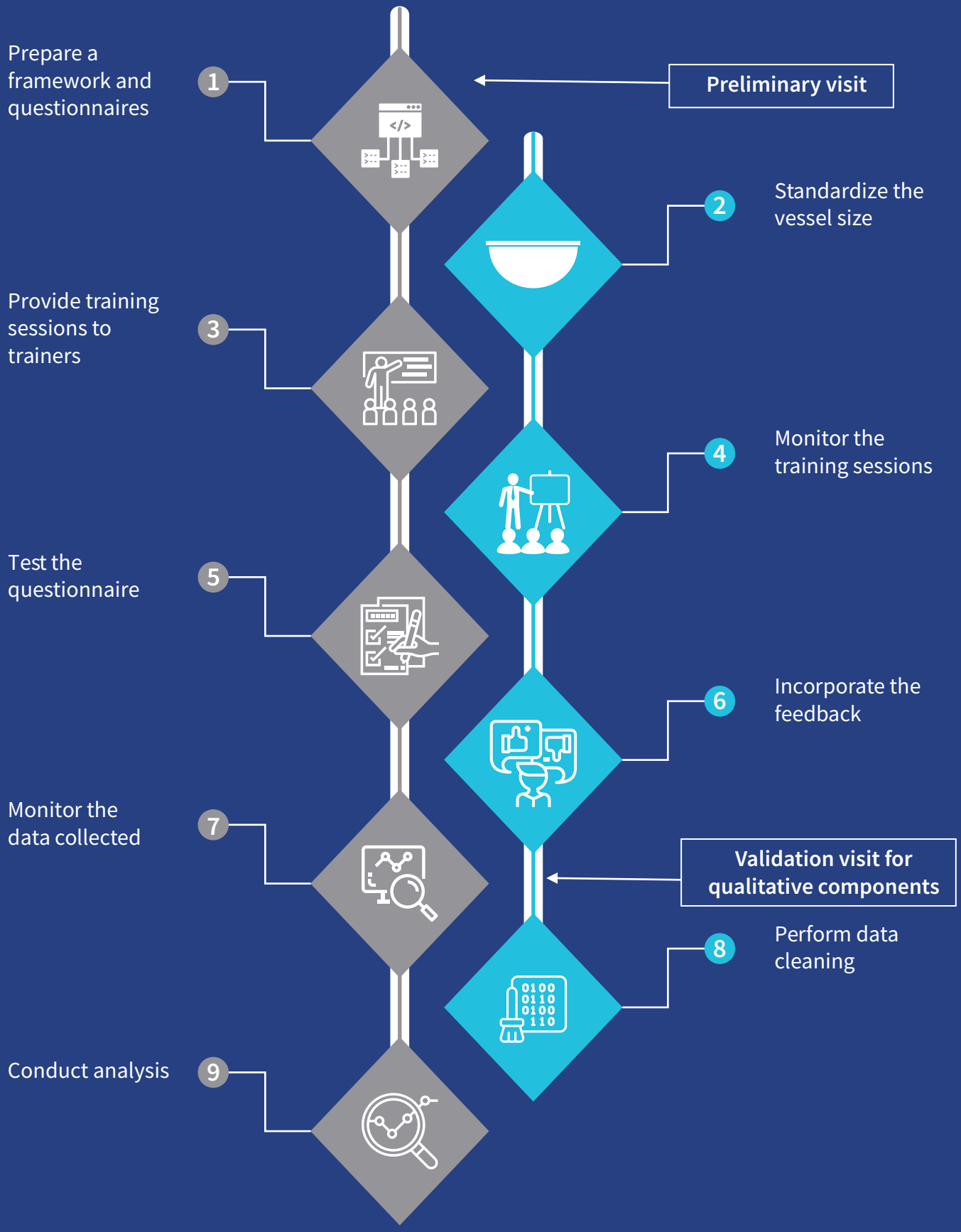
**Validation**

### Result analysis:

- Preliminary analysis
- Data cleaning
- Variable analysis
- Recipe standardisation
- Portion standardisation
- Nutritional profile

**Processing**

## We designed the primary research to receive standardized responses and monitored the data collection process closely



# Our analysis compares the derived values of nutrition, based on the food consumed, to the standard recommended values*

| Assumptions | |
|---|---|
| Body weight of a man: | 60 kg |
| Body weight of a woman: | 55 kg |
| Nature of work done: | Heavy |
| Lactating mother infant : | 0-6 months |
| Body weight of a child: | 25.1 kg |

**Note**

1. Values of energy and fat requirement change with the type of work done.
2. Protein and micronutrient requirements depend on the body weight of an individual and not on the type of work done.
3. All macronutrient and micronutrient requirements change with the age and body weight of an individual.

- The government benefit for men and women is limited to PDS
- For pregnant woman and lactating mothers, the government benefit includes ICDS supplements
- For children, the government benefit includes MDM

| Most commonly consumed meals | | |
|---|---|---|
| Breakfast | Lunch | Dinner |
| Rice and potato | Rice and potato | Rice and *dal* |

| MDM lunch menu | |
|---|---|
| Ranchi | West Godavari |
| Rice, *dal*, and eggs | Rice, *sambar*, and eggs |
| Rice and chickpea | Seasonal vegetables and rice |
| Green vegetables and rice | *Dal* and rice |

| ICDS lunch menu | |
|---|---|
| Ranchi | West Godavari |
| Rice, *dal, bari*, and eggs | *Halwa*, eggs, and seasonal fruits |
| *Dahlia* | *Kichidi* plus seasonal fruit |
| *Kichidi* and seasonal vegetables | *Upma* |

**A correction factor of 7.5 has been applied to account for recall biases and computation anomalies in all nutrients.**

* Values used in the study are from DGI but NNMB and RDA values (of NFI) are also based on WHO numbers and hence were found to be similar.

# Key findings and analysis

## Delivery efficiency of PDS has improved over years but there is scope to increase its nutritional efficiency

**1 There were minimal instances of food shortage**

- No one from food-secure households reported to have skipped meals.
- Some families reported to having skipped one meal occasionally.
- The ration available in PDS shops is optimal.

**2 Beneficiaries lack dietary diversity**

- Rice is a staple food in both states for all meals.
- Millets were consumed traditionally but are no longer locally available.
- Food habits change with demography and medical conditions.
- The consumption patterns depend primarily on the availability and affordability.

**3 Beneficiaries are happy with the system**

- PDS benefits account for a substantial component of beneficiaries' consumption.
- Most beneficiaries are happy with the quality of grains* provided.
- The BAPU model has increased the efficiency of the system.

* Includes rice, wheat, *dal*, and millets.

## MDM and ICDS schemes provide supplementary nutrition to the targeted population. However, these schemes require better monitoring

**4**

**People have traditional knowledge of nutrition but continued nudging would help improve nutritional outcomes**

- Most beneficiaries are aware of the nutritional needs of different family members, but they are unable to follow good practices.
- People have some traditional knowledge of the types of healthy food.
- Affordability and availability are determinants of nutritional practice.

**5**

**ICDS partly meets the additional nutritional needs of the target group**

- ICDS supplements provide needed additional nutrition for pregnant women and lactating mothers. Beneficiaries reported taste issues with the supplement.
- The ICDS in West Godavari provides THR supplements to both women and children.
- The ICDS in Ranchi gives THR to women and hot meals to children. However, THR has not been provided for the last six months. Beneficiaries expressed the need to restart it.

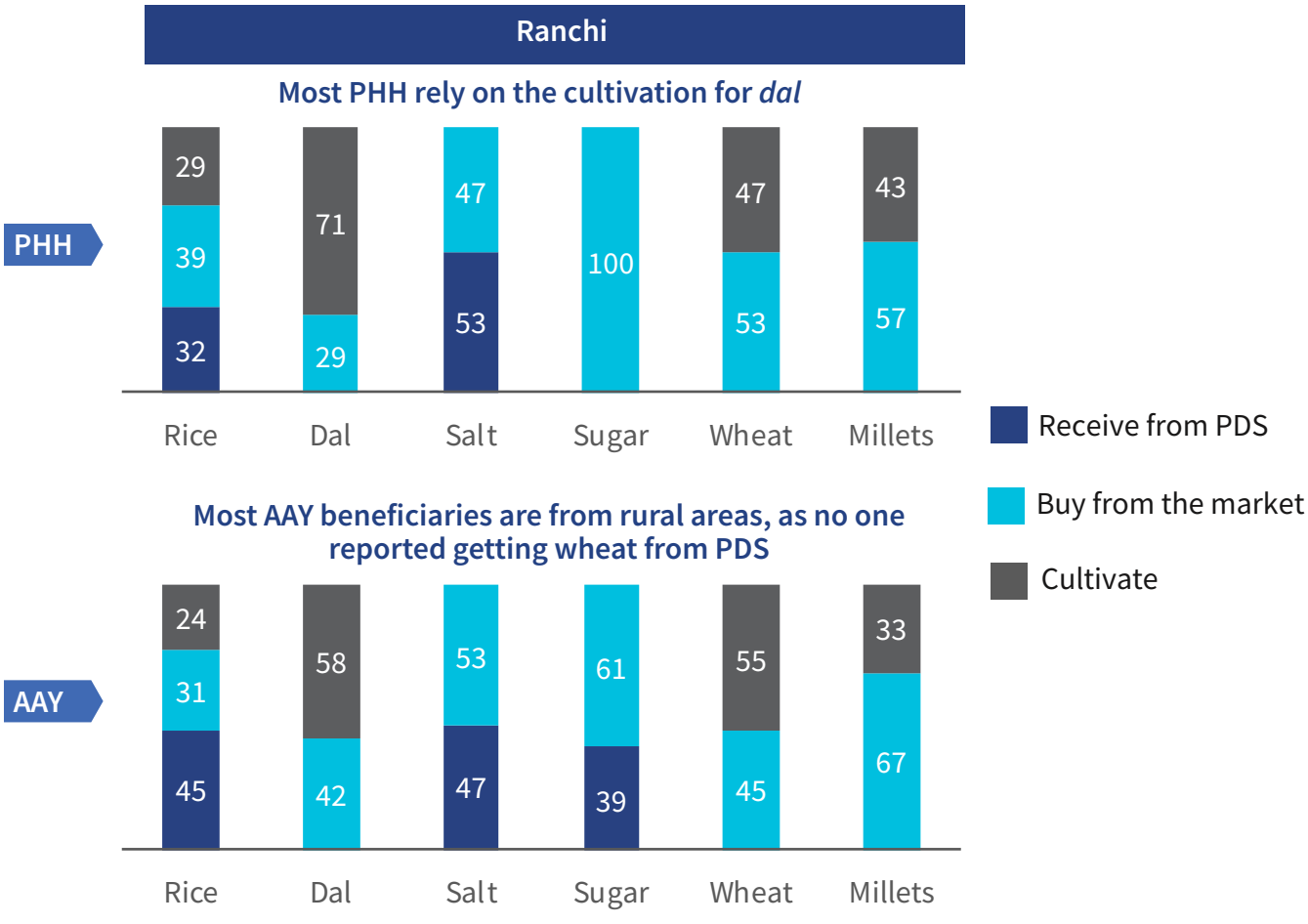
**6**

**Mid-day meal scheme is considered as a promising scheme across regions**

- Respondents view MDM as a welcome addition to the food basket.
- Respondents feel MDM provides good-quality food of sufficient quantity.
- Studies need to be conducted to assess the scheme and its impact.

# Nutritional analysis of beneficiary households

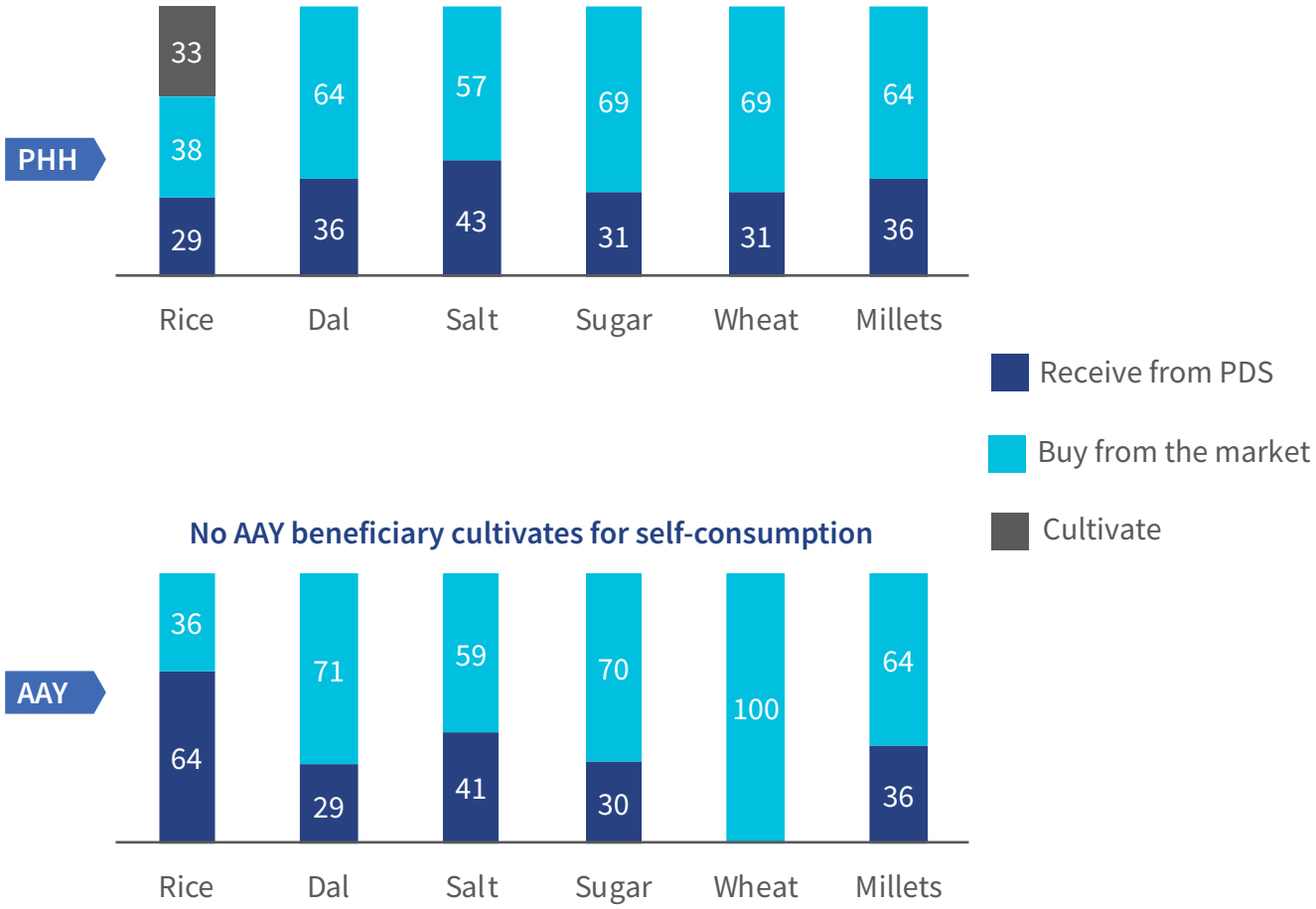
## PDS benefits account for 39% of an average beneficiary household's monthly foodgrain* consumption#




* Includes rice, wheat, *dal*, and millets.
\# Consumption includes their current consumption and may not reflect recommended consumption

## West Godavari

### The total consumption approximately follows the same pattern as the PDS entitlement

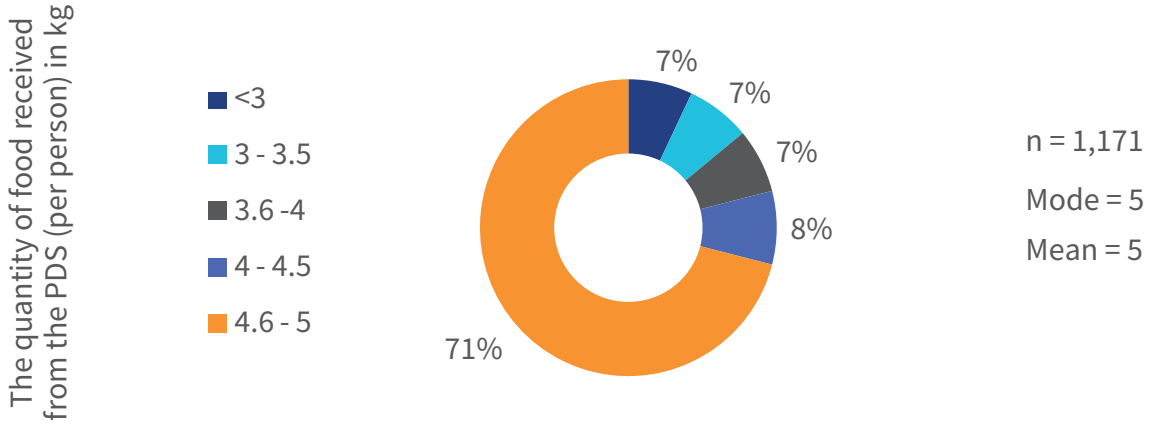



### No AAY beneficiary cultivates for self-consumption

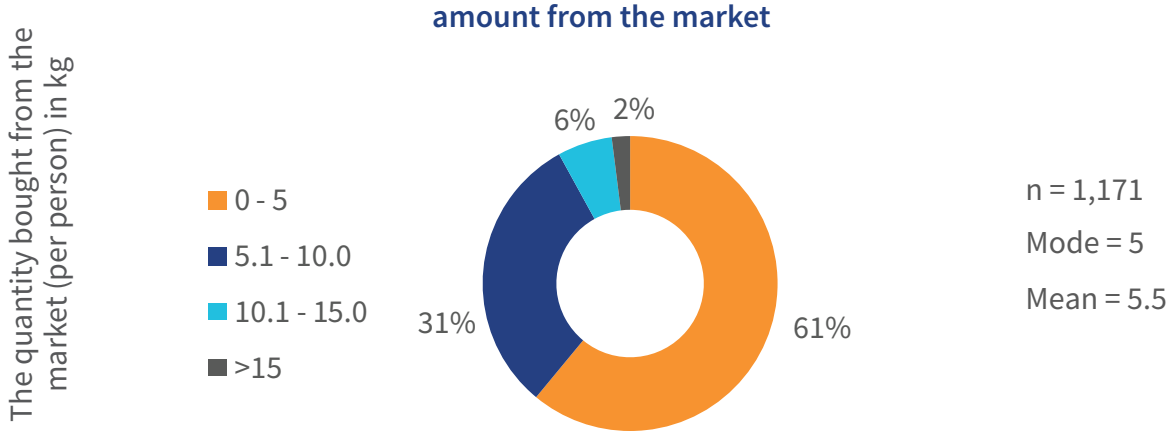



# PDS commodities are an essential component of the beneficiaries' food basket

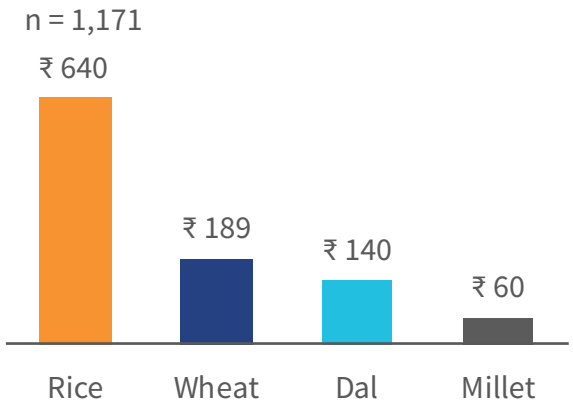
### 78% households receive between 4-5 kg ration per person




### A majority of people get 5kg food/per person from PDS and also purchase an equal amount from the market

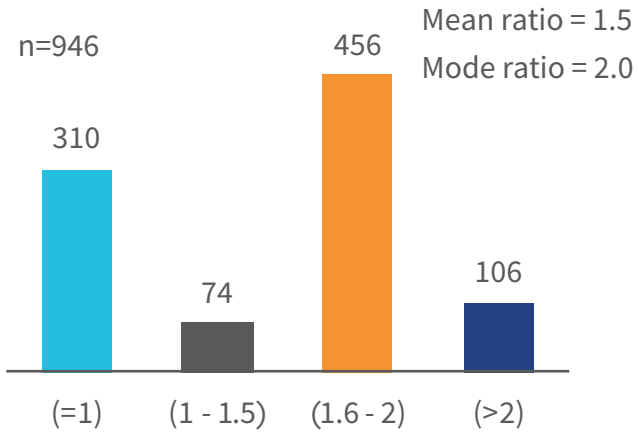



### The average monthly out-of-pocket expense of a household on food grains (excluding PDS) is INR 1050 per month



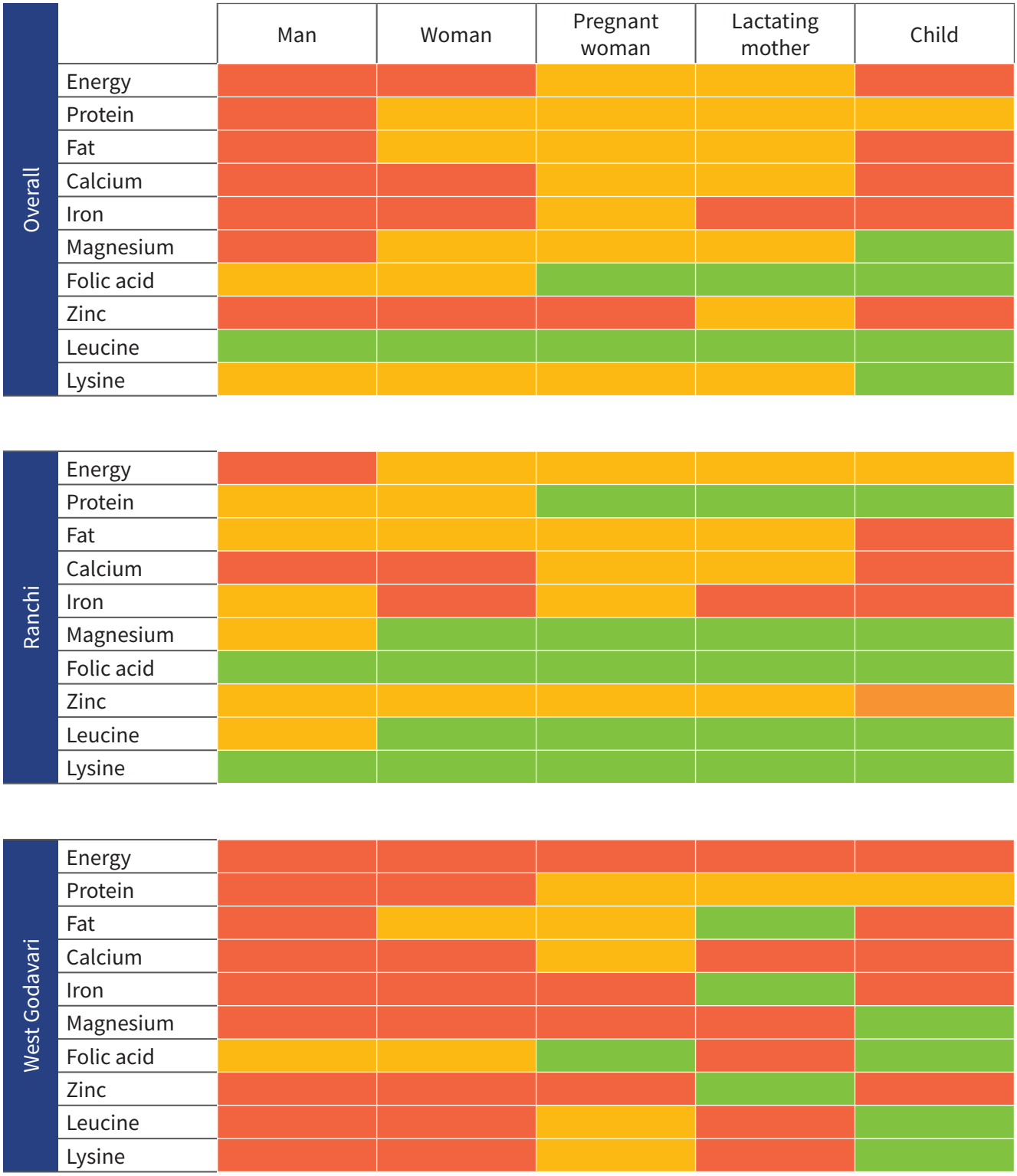

The monthly out-of-pocket expenditure on foodgrains

### A majority of respondents reported that their expenses on food will nearly double in the absence of the PDS security




The ratio of expenditure on food without PDS to the expenditure on food with PDS

# Dietary status of PDS beneficiaries vary across Ranchi and West Godavari



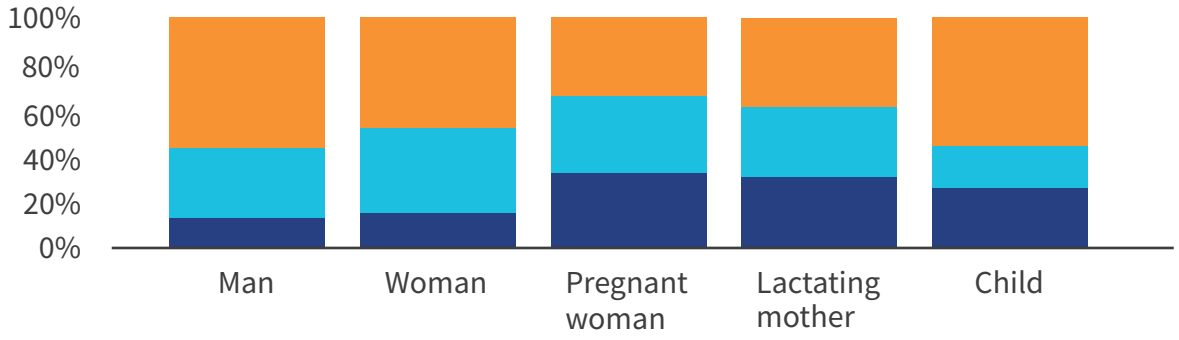

**Households in Ranchi consume local food grains and vegetables, in addition to food grain provided through PDS, leading to their better nutritional status**

<50% >=50%-<70% >=70%

# In Ranchi, THR through ICDS has had an impact on the nutritional intake in women, but the energy gap is substantial in children

## Energy

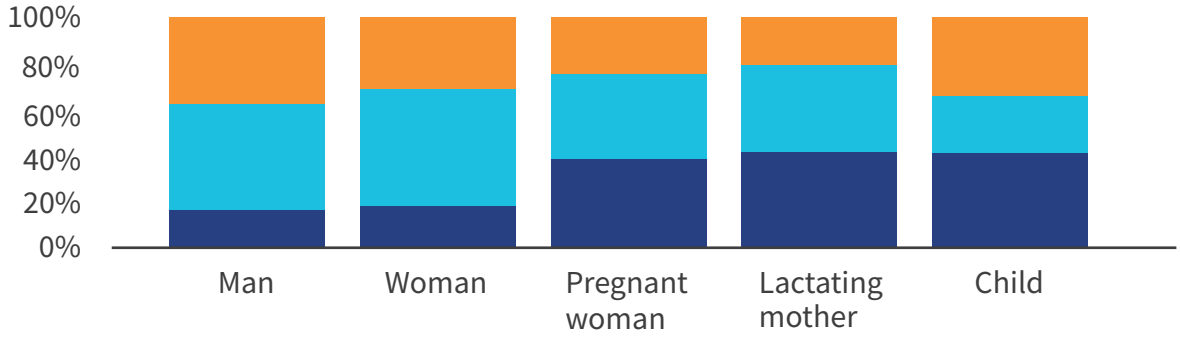
Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 3490kcal | 2850kcal | 3200kcal | 3450kcal | 1690kcal |
| Government | 438kcal | 438kcal | 1070kcal | 1070kcal | 446kcal |
| Self-procured | 1040kcal | 1040kcal | 1040kcal | 1040kcal | 296kcal |

## Protein

Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 60g | 55g | 78g | 74g | 29.5g |
| Government | 9.5g | 9.5g | 30g | 30g | 11.8g |
| Self-procured | 28g | 28g | 28g | 28g | 7g |

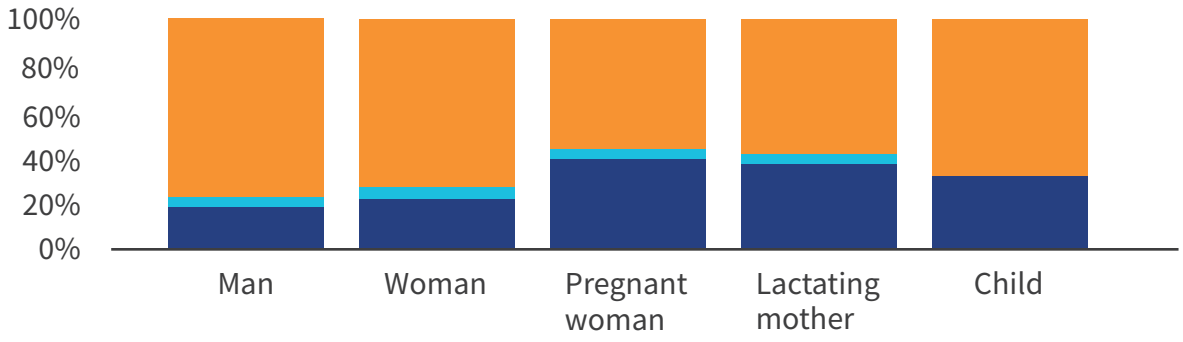
Government Self-procured Unmet

*Requirement per day

# In West Godavari, the diet consumed by both men and women lacks energy and protein components

## Energy

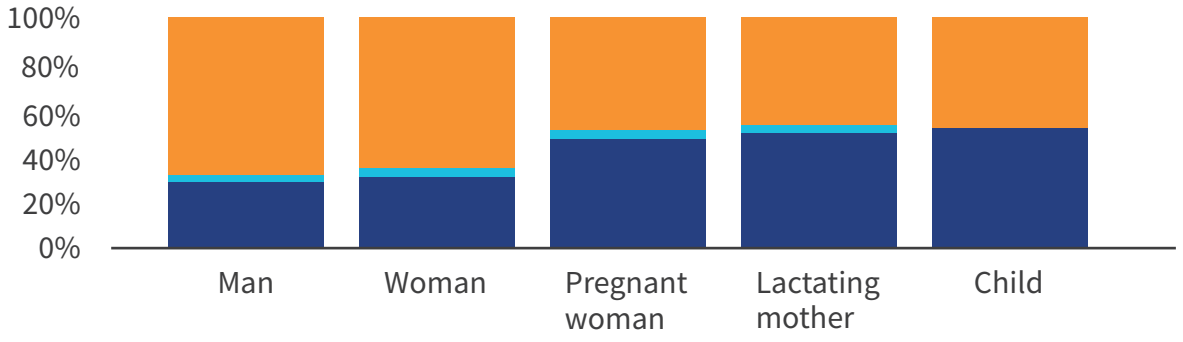
Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 3490kcal | 2850kcal | 3200kcal | 3450kcal | 1690kcal |
| Government | 632kcal | 632kcal | 1263kcal | 1263kcal | 542kcal |
| Self-procured | 133kcal | 133kcal | 133kcal | 133kcal | 0kcal |

## Protein

Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 60g | 55g | 78g | 74g | 29.5g |
| Government | 17g | 17g | 37g | 37g | 15g |
| Self-procured | 2g | 0g | 2g | 2g | 0g |

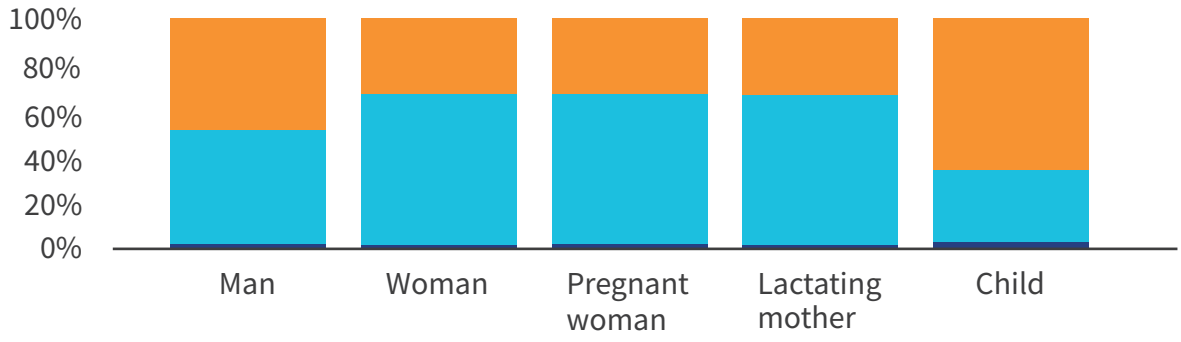
Government  Self-procured  Unmet

*Requirement per day

# In Ranchi, children had substantial unmet needs for fat and calcium

## Fat

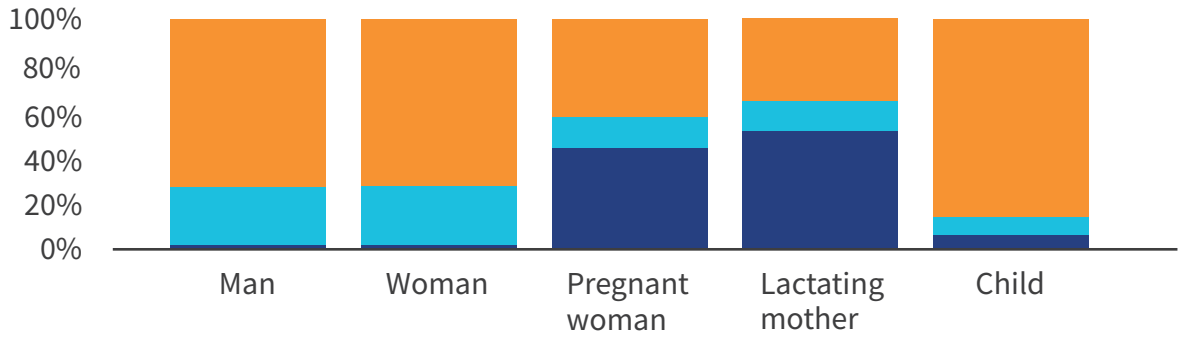
Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 40g | 30g | 30g | 30g | 30g |
| Government | 0.6g | 0.6g | 0.6g | 0.6g | 0.8g |
| Self-procured | 20g | 20g | 20g | 20g | 9g |

## Calcium

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 600mg | 600mg | 1200mg | 1200mg | 600mg |
| Government | 9mg | 9mg | 531mg | 609mg | 35mg |
| Self-procured | 153mg | 153mg | 153mg | 153mg | 45mg |

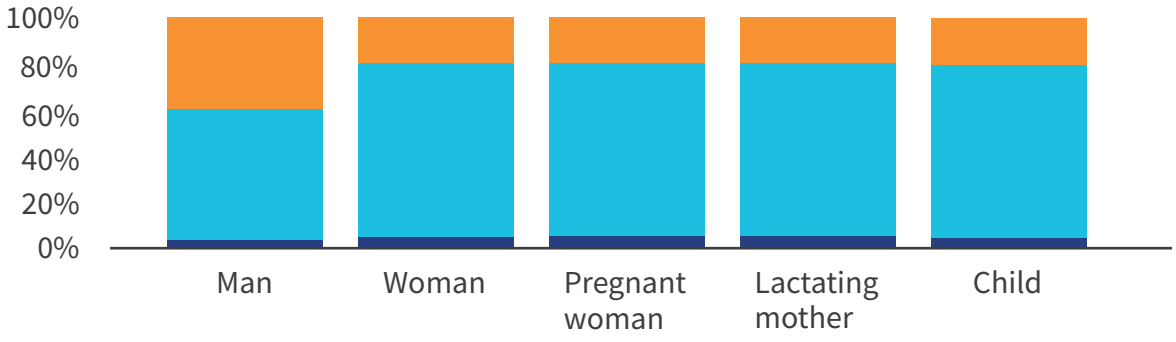
Government Self-procured Unmet

*Requirement per day

# In West Godavari, the consumption of fat among men, women, and children was higher than that of protein

## Fat

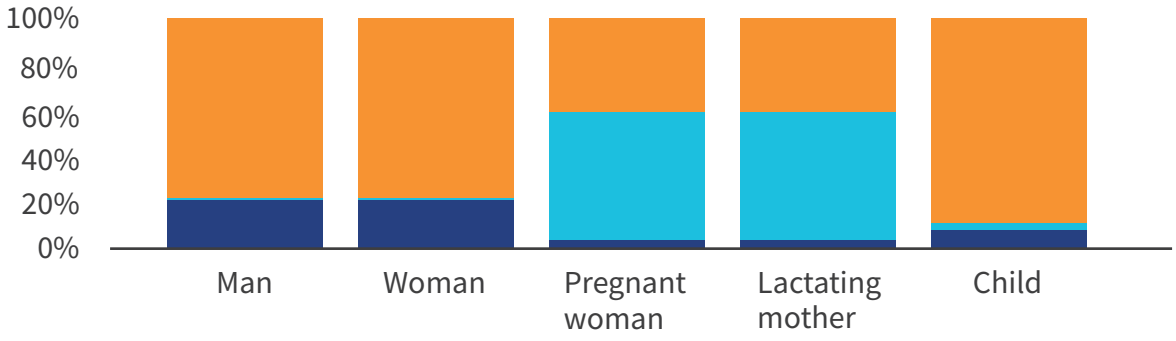
Macronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 40g | 30g | 30g | 30g | 30g |
| Government | 1.3g | 1.3g | 1.3g | 1.3g | 1.1g |
| Self-procured | 17g | 17g | 17g | 17g | 8g |

## Calcium

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 600mg | 600mg | 1200mg | 1200mg | 600mg |
| Government | 119mg | 119mg | 641mg | 719mg | 47mg |
| Self-procured | 5.5mg | 5.5mg | 5.5mg | 5.5mg | 15mg |

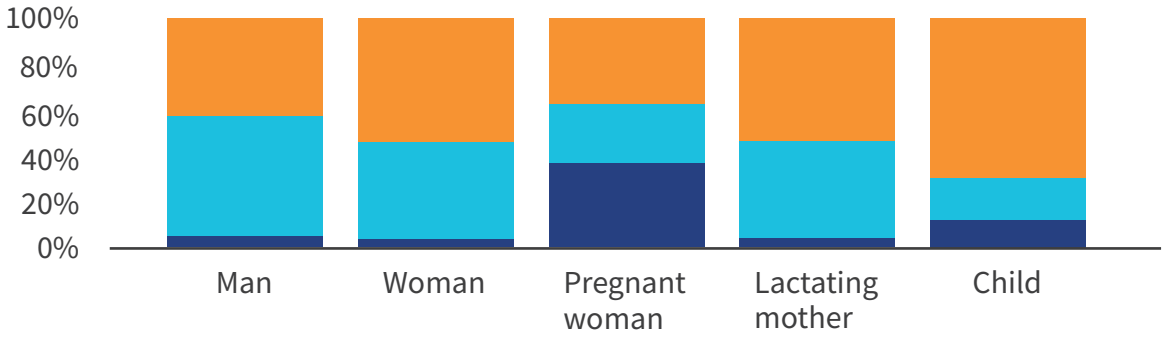
Government Self-procured Unmet

*Requirement per day

# In Ranchi, the unmet need for iron was prevalent in women and children

## Iron

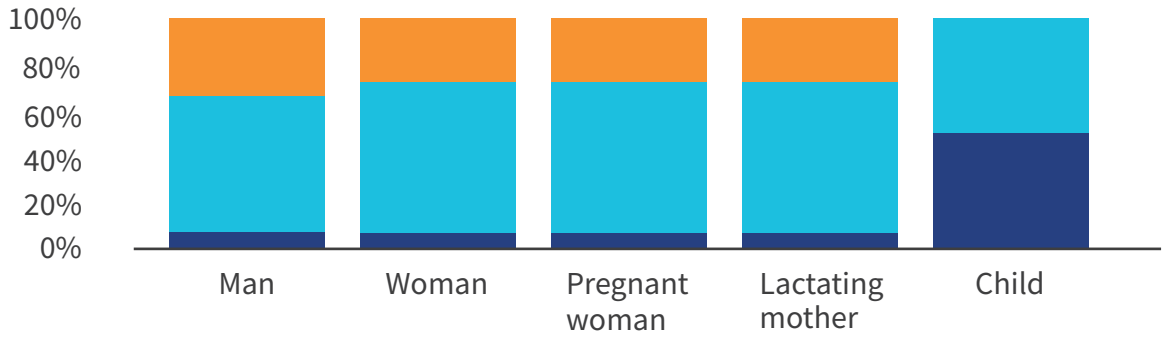
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 17mg | 21mg | 35mg | 21mg | 16mg |
| Government | 0.8mg | 0.8mg | 13mg | 0.8mg | 2mg |
| Self-procured | 9mg | 9mg | 9mg | 9mg | 3mg |

## Magnesium

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 340mg | 310mg | 310mg | 310mg | 100mg |
| Government | 23mg | 23mg | 23mg | 23mg | 51mg |
| Self-procured | 201mg | 201mg | 201mg | 201mg | 61mg |

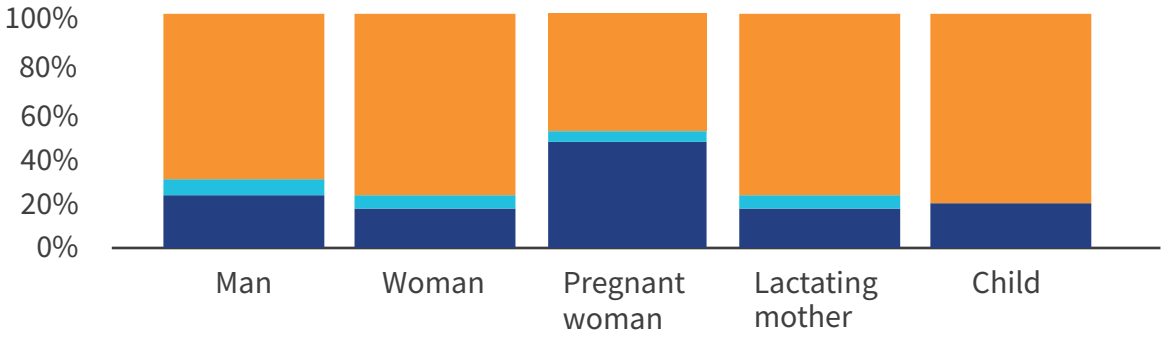
Government Self-procured Unmet

*Requirement per day

# In West Godavari, there was a deficiency of both iron and magnesium among men, women, and children

## Iron

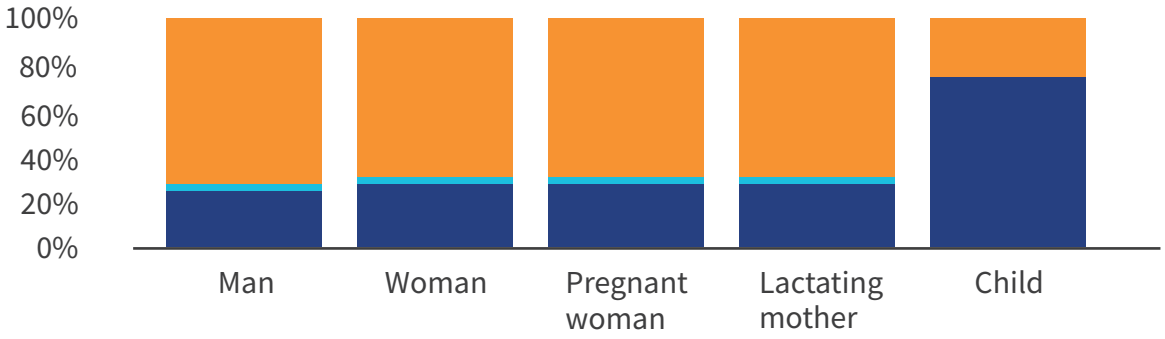
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 17mg | 21mg | 35mg | 21mg | 16mg |
| Government | 4mg | 4mg | 16mg | 4mg | 3mg |
| Self-procured | 1mg | 1mg | 1mg | 1mg | 0mg |

## Magnesium

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 340mg | 310mg | 310mg | 310mg | 100mg |
| Government | 86mg | 86mg | 86mg | 86mg | 74mg |
| Self-procured | 9mg | 9mg | 9mg | 9mg | 0mg |

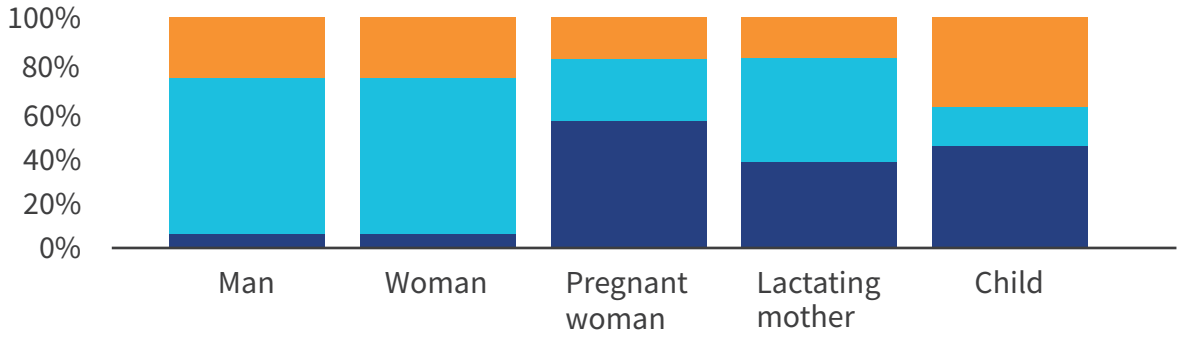
Government Self-procured Unmet

*Requirement per day

# In Ranchi, folic acid levels were found to be acceptable, while children needed more zinc in their diet

## Folic acid

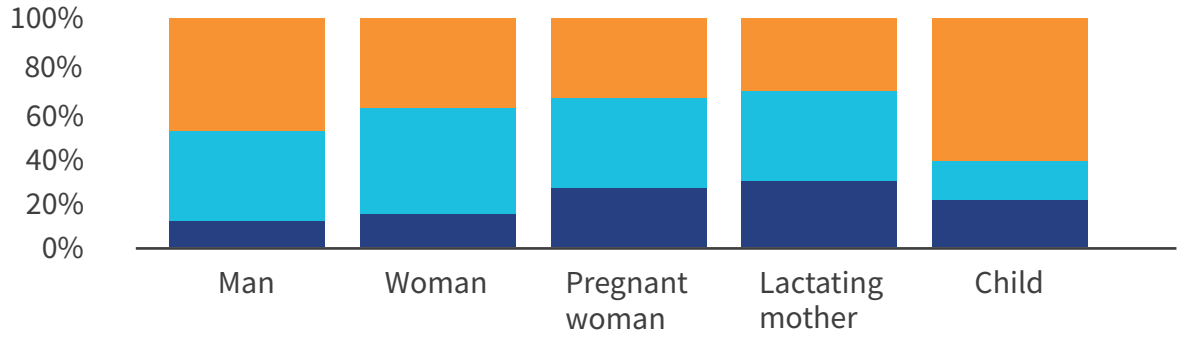
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 200µg | 200µg | 500µg | 300µg | 120µg |
| Government | 11µg | 11µg | 272µg | 111µg | 53µg |
| Self-procured | 135µg | 135µg | 135µg | 135µg | 21µg |

## Zinc

Micronutrient

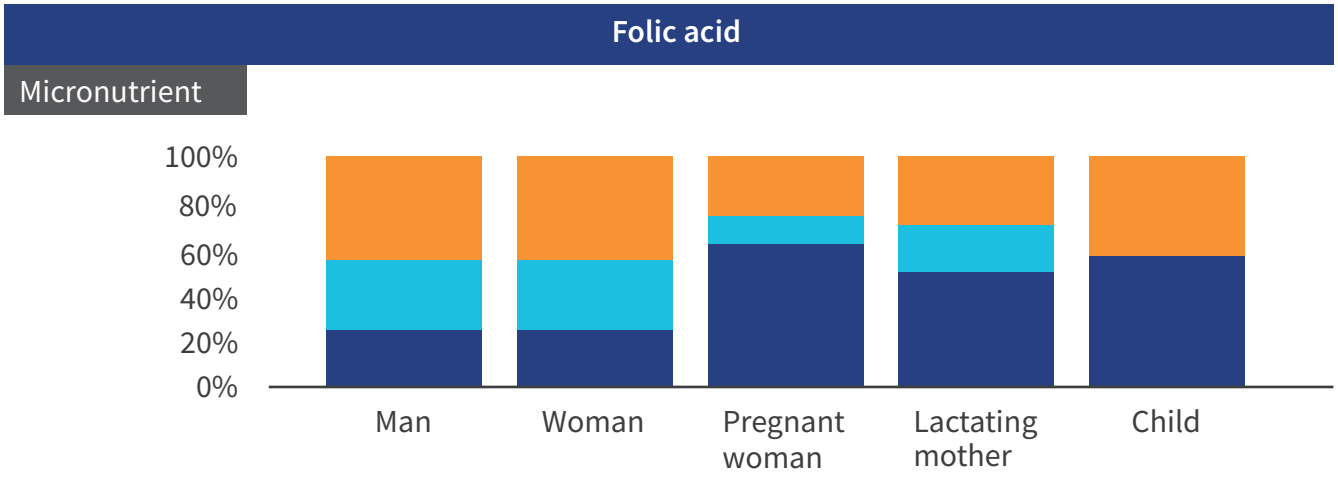



| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 12mg | 10mg | 12mg | 12mg | 8mg |
| Government | 1.5mg | 1.5mg | 3.2mg | 3.4mg | 1.6mg |
| Self-procured | 4.6mg | 4.6mg | 4.6mg | 4.6mg | 1.4mg |

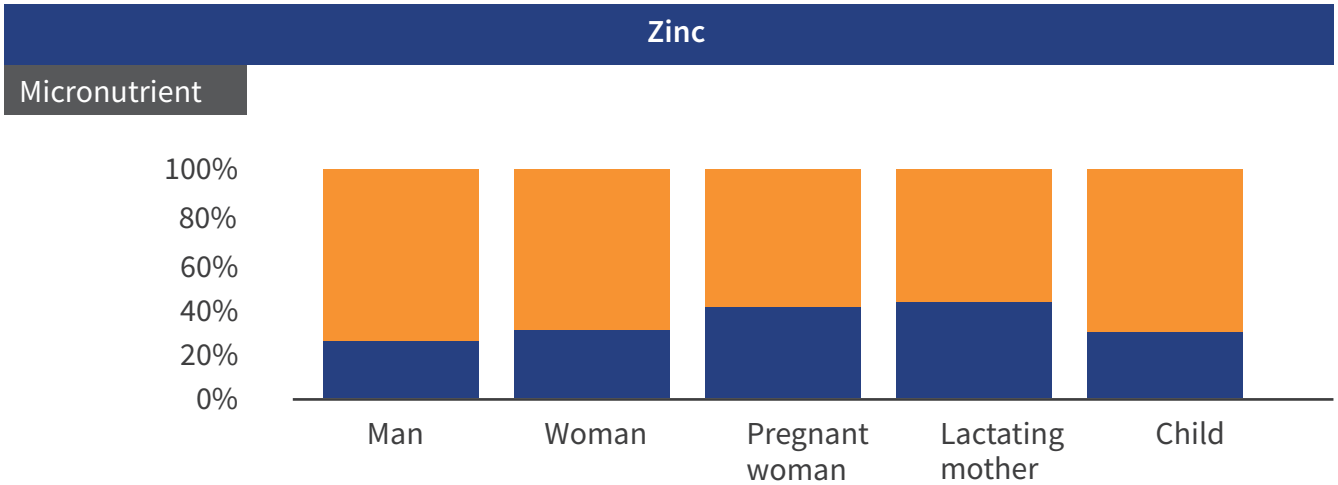
Government Self-procured Unmet

*Requirement per day

# In West Godavari, the diet lacked zinc, although the folic acid level remained fair




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 200µg | 200µg | 500µg | 300µg | 120µg |
| Government | 50µg | 50µg | 310µg | 198µg | 68µg |
| Self-procured | 60µg | 60µg | 60µg | 60µg | 0µg |




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 12mg | 10mg | 12mg | 12mg | 8mg |
| Government | 3mg | 3mg | 5mg | 5mg | 2mg |
| Self-procured | 0mg | 0mg | 0mg | 0mg | 0mg |

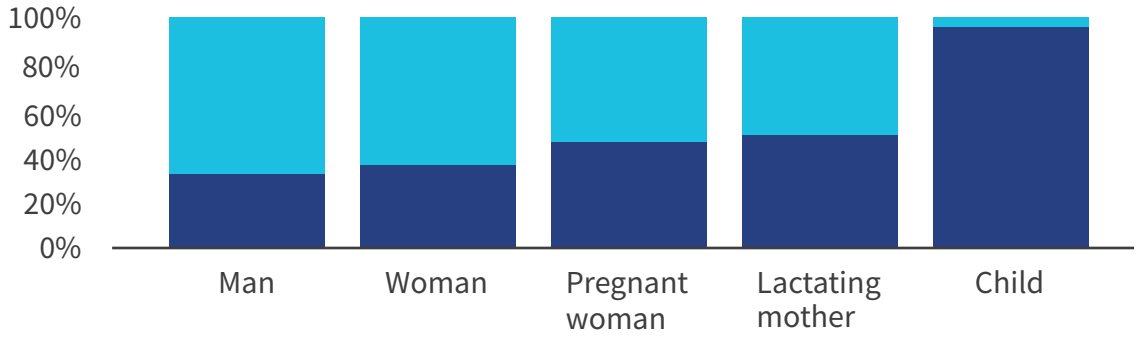
Government Self-procured Unmet

*Requirement per day

# Amino acid levels were satisfactory in Ranchi

## Leucine

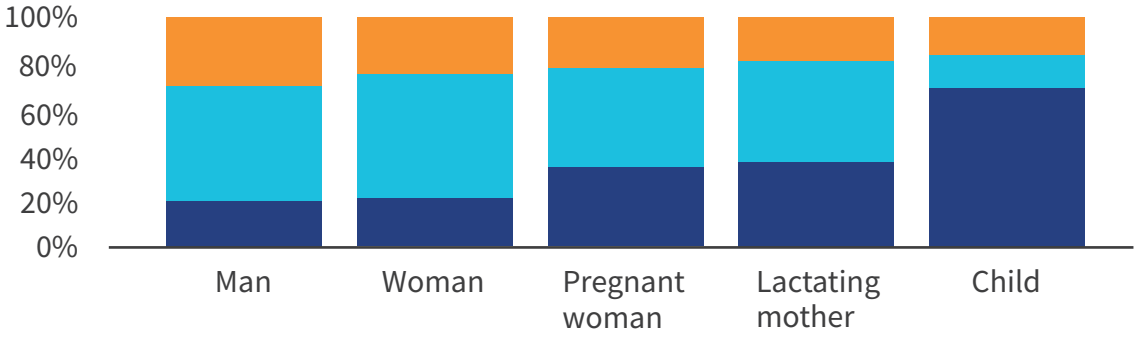
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2340mg | 2145mg | 2681mg | 2681mg | 979mg |
| Government | 771mg | 771mg | 1237mg | 1307mg | 942mg |
| Self-procured | 1603mg | 1603mg | 1603mg | 1603mg | 244mg |

## Lysine

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1800mg | 1650mg | 2063mg | 2063mg | 753mg |
| Government | 353mg | 353mg | 712mg | 765mg | 521mg |
| Self-procured | 899mg | 899mg | 899mg | 899mg | 105mg |

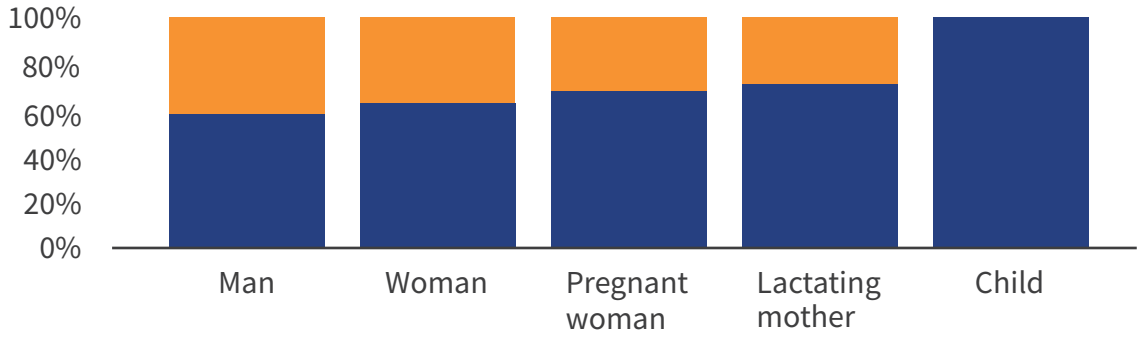
Government Self-procured Unmet

*Requirement per day

# Amino acid levels were found to be low in West Godavari

## Leucine

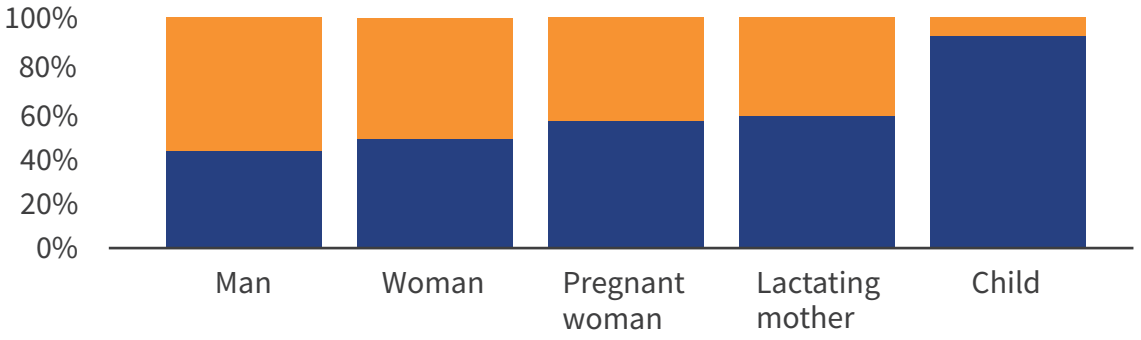
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2340mg | 2145mg | 2681mg | 2681mg | 979mg |
| Government | 1360mg | 1360mg | 1827mg | 1896mg | 1189mg |
| Self-procured | 0mg | 0mg | 68mg | 68mg | 239mg |

## Lysine

Micronutrient



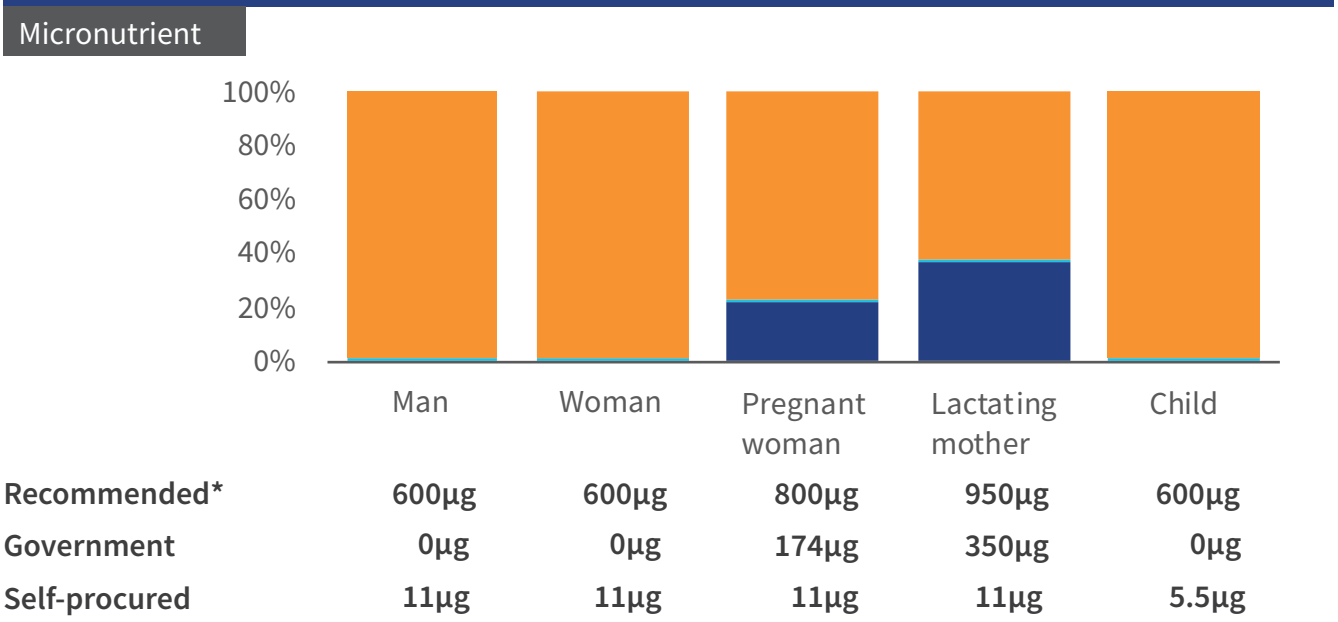

| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1800mg | 1650mg | 2063mg | 2063mg | 753mg |
| Government | 759mg | 759mg | 1118mg | 1172mg | 698mg |
| Self-procured | 0mg | 0mg | 0mg | 0mg | 0mg |

Government  Self-procured  Unmet

*Requirement per day

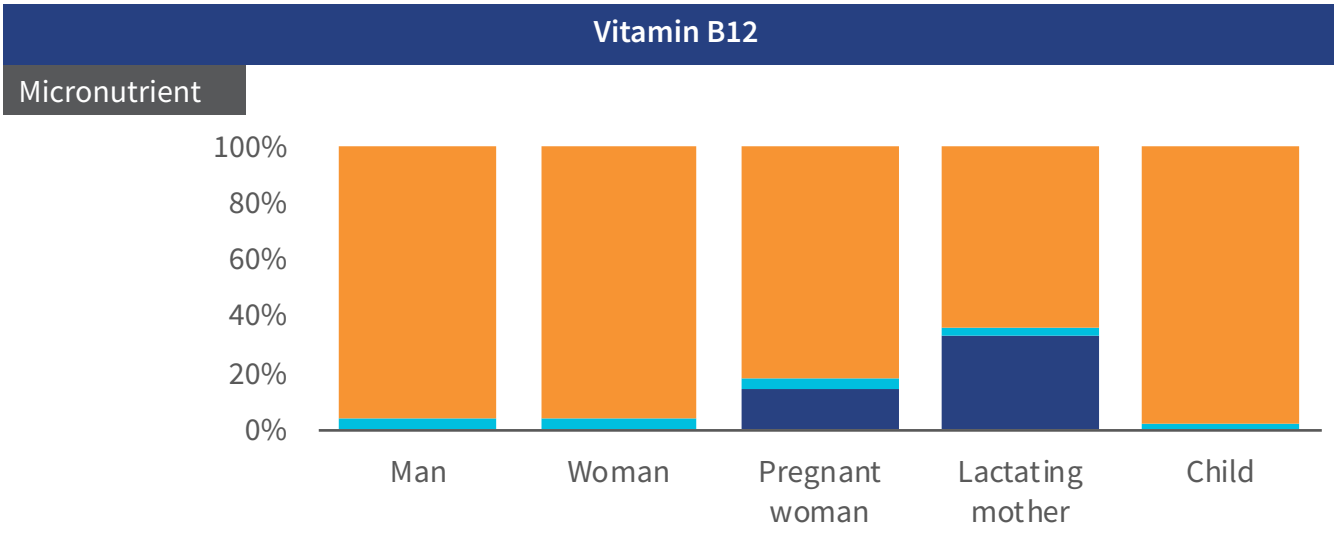
# There is acute shortage of both Retinol and vitamin B12 consumption in Ranchi, the only source of these micronutrients are government distributed THR through the ICDS scheme

## Retinol




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 600µg | 600µg | 800µg | 950µg | 600µg |
| Government | 0µg | 0µg | 174µg | 350µg | 0µg |
| Self-procured | 11µg | 11µg | 11µg | 11µg | 5.5µg |

## Vitamin B12




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1µg | 1µg | 1.2µg | 1.5µg | 1µg |
| Government | 0µg | 0µg | .174µg | .5µg | 0µg |
| Self-procured | .04µg | .04µg | .04µg | .04µg | .02µg |

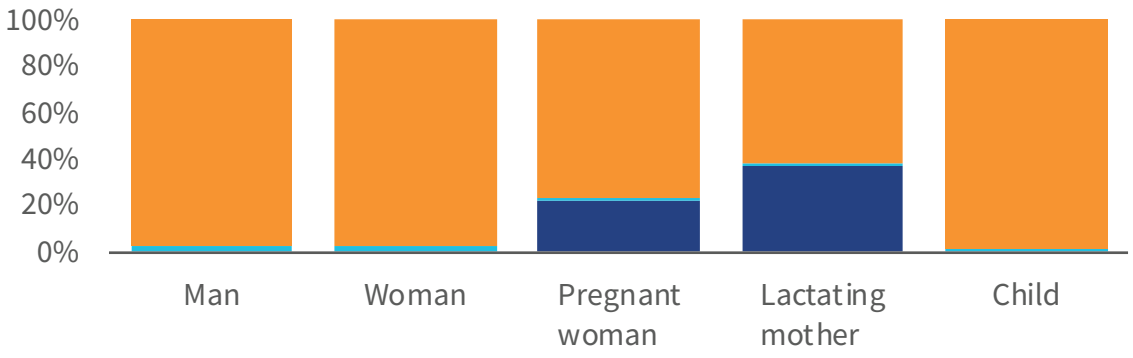
Government Self-procured Unmet

*Requirement per day

# West Godavari also follows the same trend as Ranchi in both Retinol and vitamin B12 with government THR being the only source

## Retinol

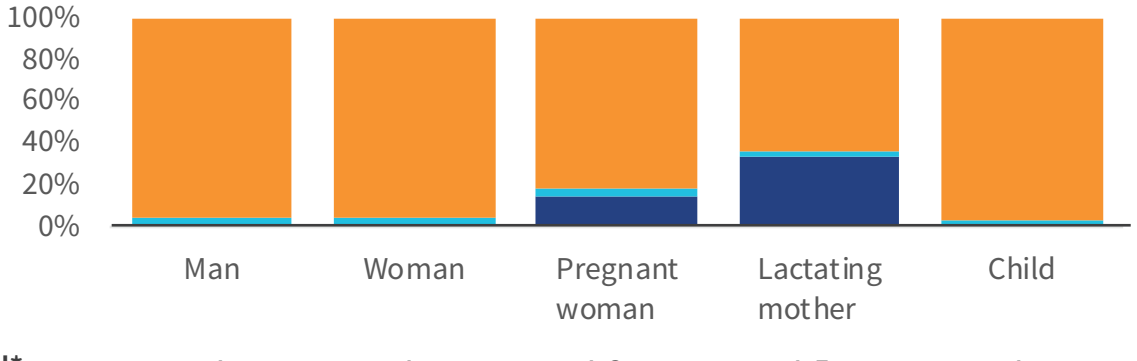
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 600µg | 600µg | 800µg | 950µg | 600µg |
| Government | 0µg | 0µg | 174µg | 350µg | 0µg |
| Self-procured | 13µg | 13µg | 13µg | 13µg | 6.4µg |

## Vitamin B12

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1µg | 1µg | 1.2µg | 1.5µg | 1µg |
| Government | 0µg | 0µg | .174µg | .5µg | 0µg |
| Self-procured | .04µg | .04µg | .04µg | .04µg | .02µg |

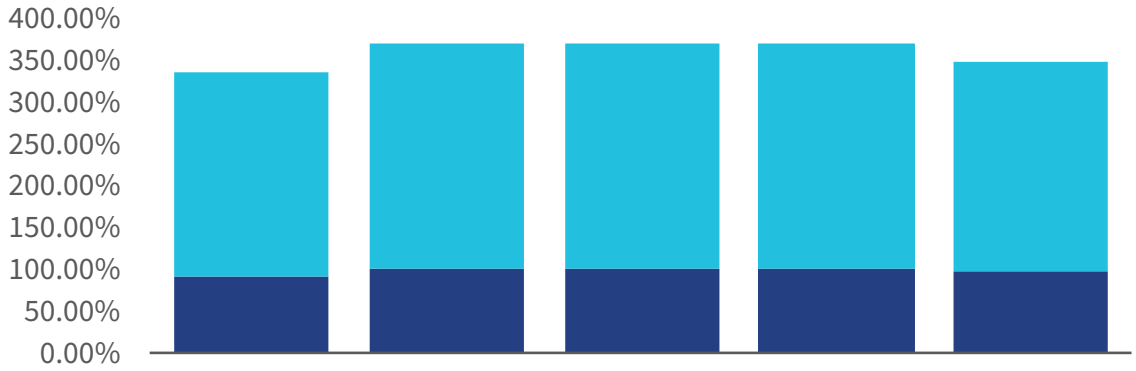
Government  Self-procured  Unmet

*Requirement per day

## Due to excessive consumption of salt in Ranchi, Sodium consumption is higher than the recommended allowance and local food items are a good source of Thiamine

### Sodium

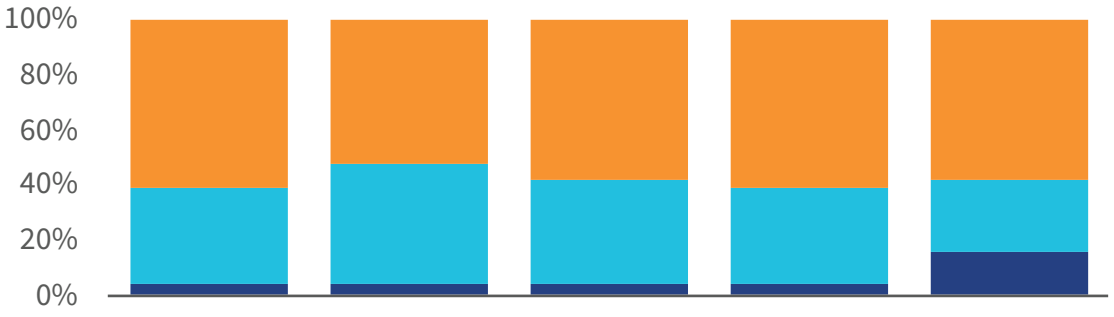
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2100mg | 1900mg | 1900mg | 1900mg | 1010mg |
| Government | 1940mg | 1940mg | 1940mg | 1940mg | 996mg |
| Self-procured | 5112mg | 5112mg | 5112mg | 5112mg | 2531mg |

### Thiamine

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1.7mg | 1.4mg | 1.6mg | 1.7mg | 0.8mg |
| Government | 0.06mg | 0.06mg | 0.06mg | 0.06mg | 0.125mg |
| Self-procured | 0.6mg | 0.6mg | 0.6mg | 0.6mg | 0.21mg |

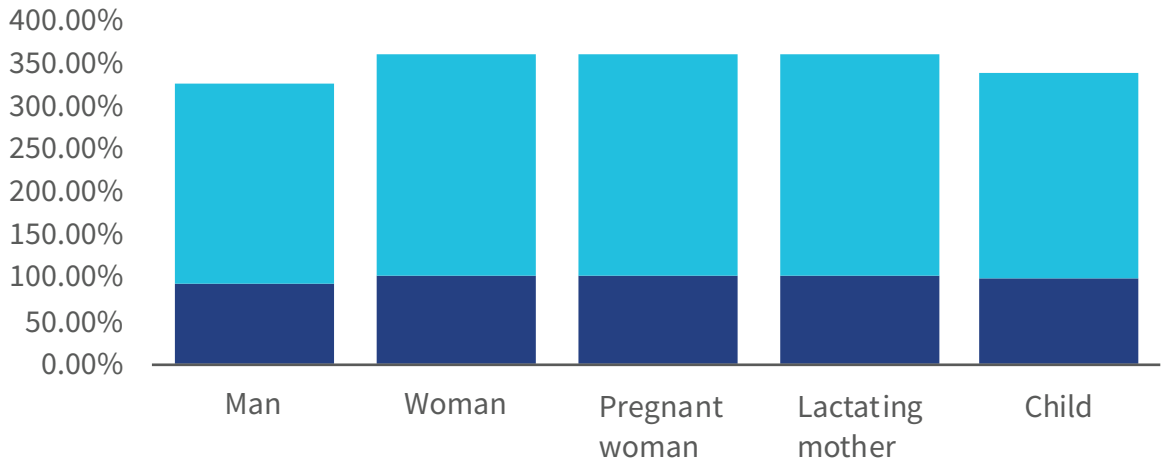
Government Self-procured Unmet

*Requirement per day

## Salt consumption and level of Sodium in diet is higher than recommended allowance for West Godavari as well, but over reliance on PDS grains means that Thiamine deficiencies are prevalent

### Sodium

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2100mg | 1900mg | 1900mg | 1900mg | 1010mg |
| Government | 1944mg | 1944mg | 1944mg | 1944mg | 997mg |
| Self-procured | 4918mg | 4918mg | 4918mg | 4918mg | 2434mg |

### Thiamine

Micronutrient


| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 1.7mg | 1.4mg | 1.6mg | 1.7mg | 0.8mg |
| Government | 0.25mg | 0.25mg | 0.25mg | 0.25mg | 0.2mg |
| Self-procured | 0mg | 0mg | 0mg | 0mg | 0mg |

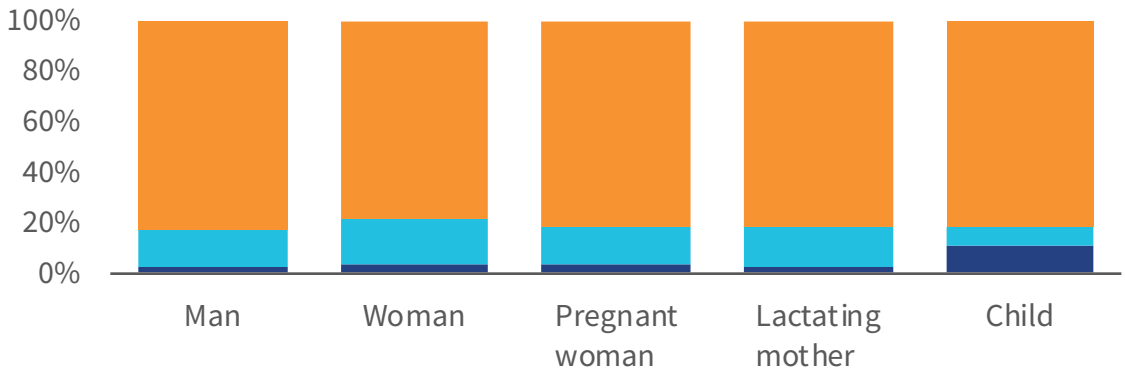
Government  Self-procured  Unmet

*Requirement per day

# Both Riboflavin and Niacin, in Ranchi, are obtained more from self procured food items rather than from the food basket provided by the government

## Riboflavin

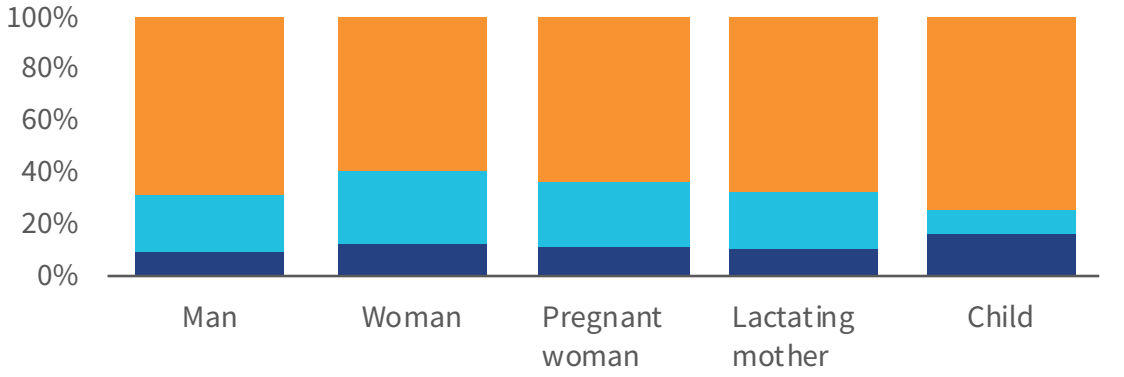
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2.1mg | 1.7mg | 2mg | 2.1mg | 1mg |
| Government | 0.06mg | 0.06mg | 0.06mg | 0.06mg | 0.11mg |
| Self-procured | 0.31mg | 0.31mg | 0.31mg | 0.31mg | 0.07mg |

## Niacin

Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 21mg | 16mg | 18mg | 20mg | 13mg |
| Government | 2mg | 2mg | 2mg | 2mg | 2.15mg |
| Self-procured | 4.5mg | 4.5mg | 4.5mg | 4.5mg | 1.11mg |

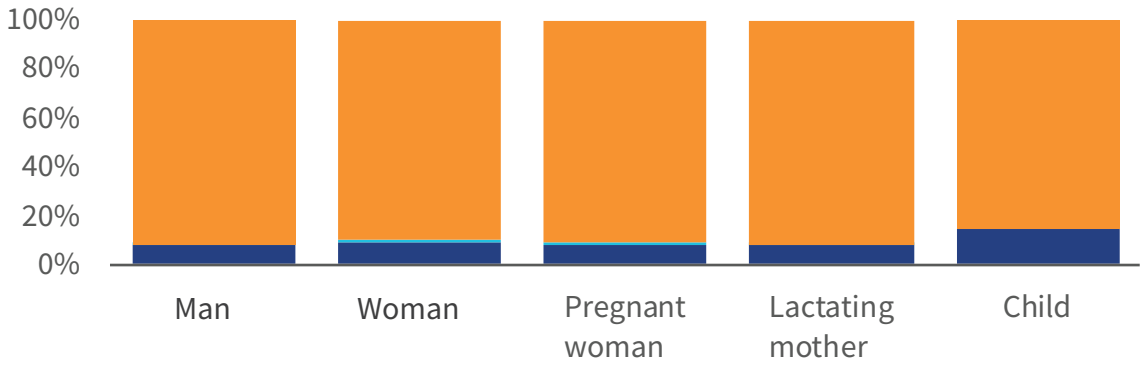
Government Self-procured Unmet

*Requirement per day

# Unlike Ranchi, the diet of people in West Godavari does not include any self-procured sources of either Riboflavin or Niacin

## Riboflavin

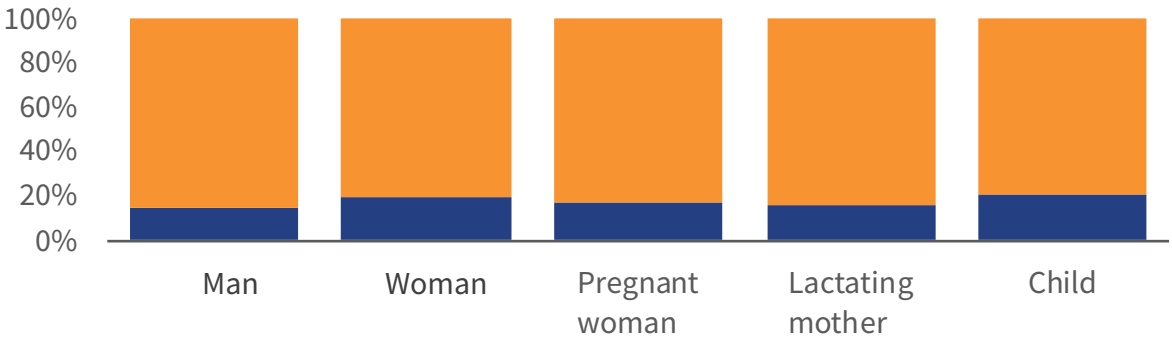
Micronutrient




| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 2.1mg | 1.7mg | 2mg | 2.1mg | 1mg |
| Government | 0.16mg | 0.16mg | 0.16mg | 0.16mg | 0.15mg |
| Self-procured | 0.017mg | 0.017mg | 0.017mg | 0.017mg | 0mg |

## Niacin

Micronutrient

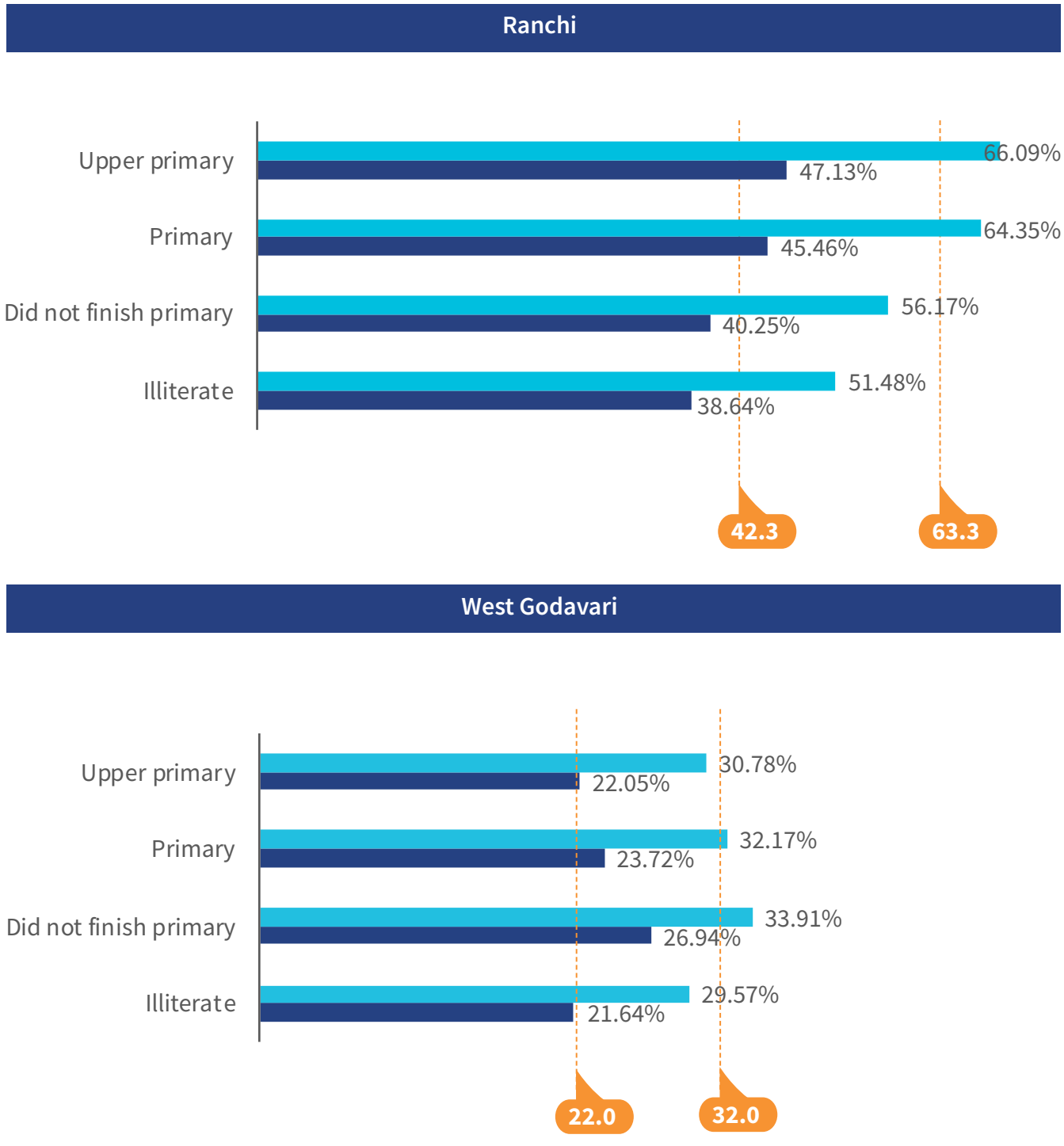



| | Man | Woman | Pregnant woman | Lactating mother | Child |
|---|---|---|---|---|---|
| Recommended* | 21mg | 16mg | 18mg | 20mg | 13mg |
| Government | 3.1mg | 3.1mg | 3.1mg | 3.1mg | 2.7mg |
| Self-procured | 0mg | 0mg | 0mg | 0mg | 0mg |

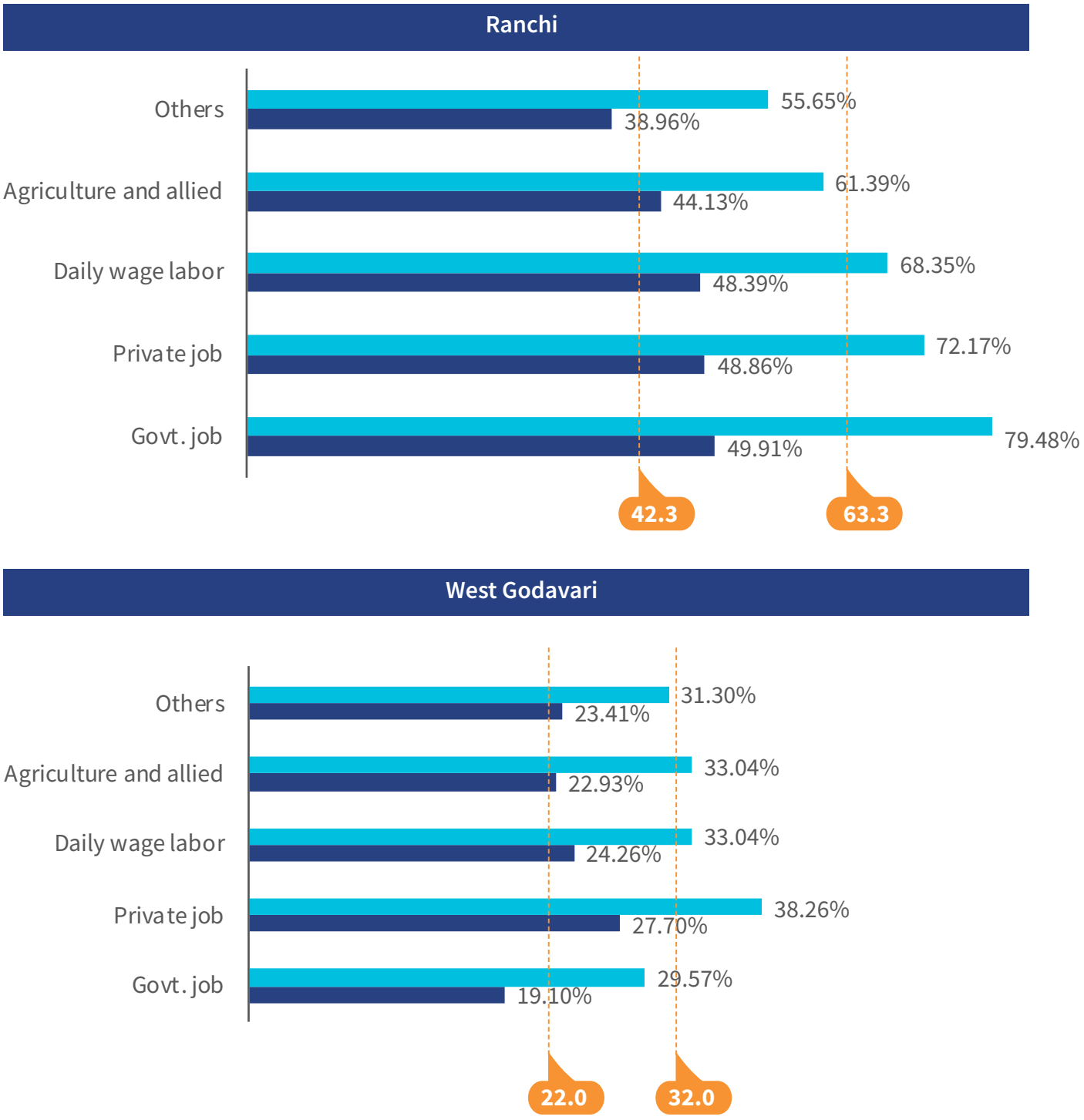
Government Self-procured Unmet

*Requirement per day

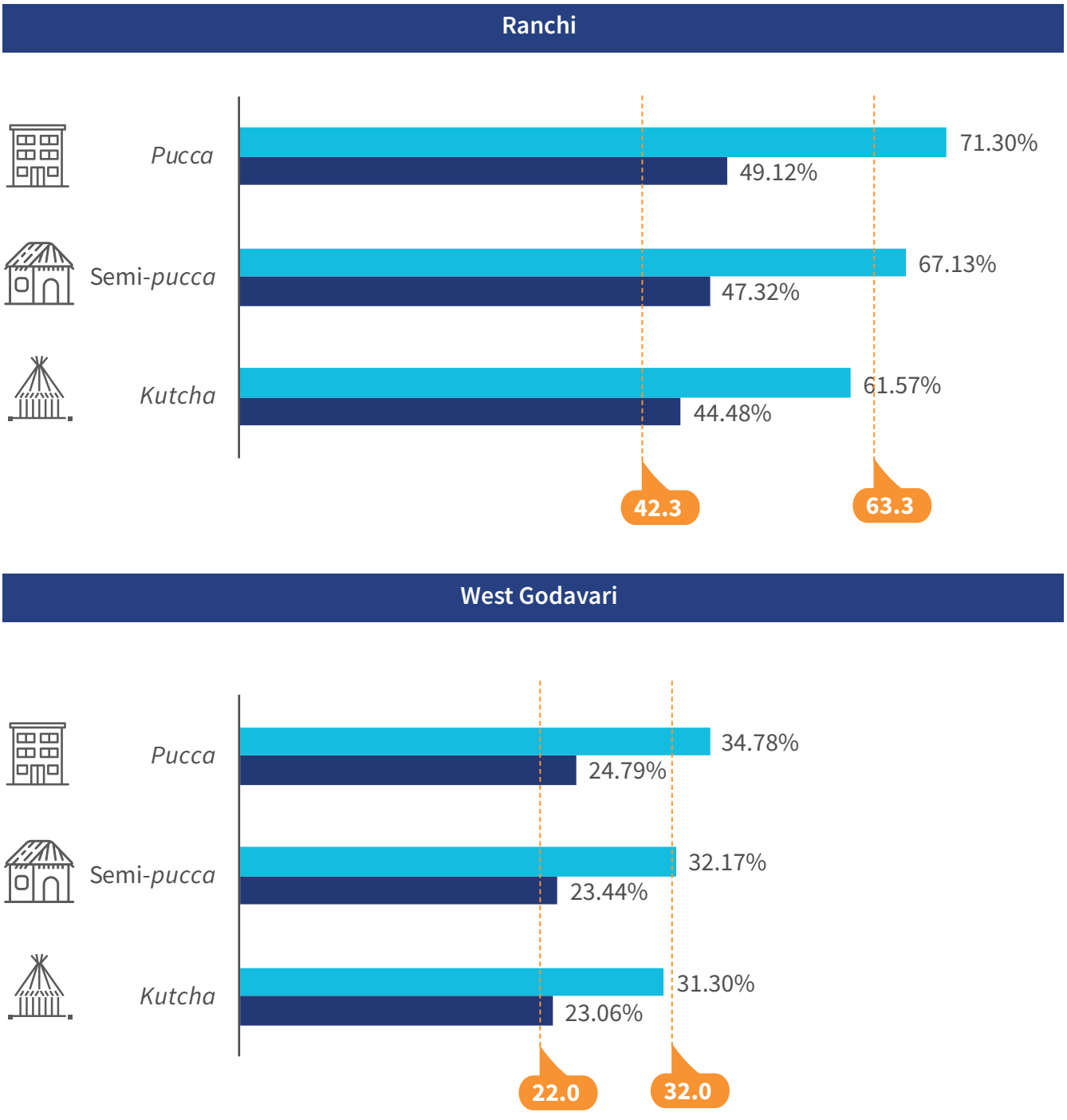
## In Ranchi, education was found to be associated with the nutritional intake, while no such trend was found in the case of West Godavari



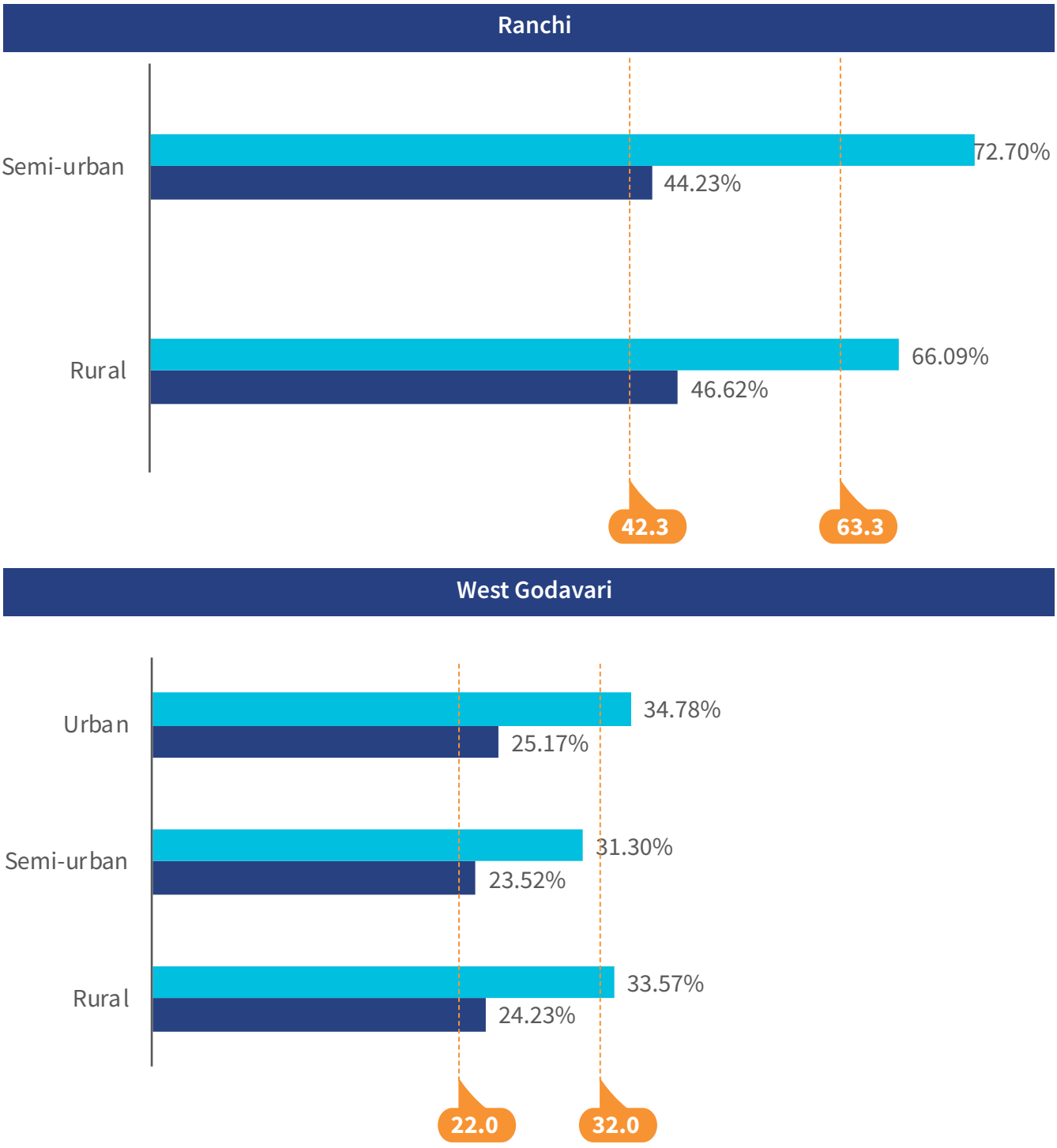
## In Ranchi, working-class people in the government and private sectors had better nutritional intake; while in West Godavari, working-class people in private sectors had better intake



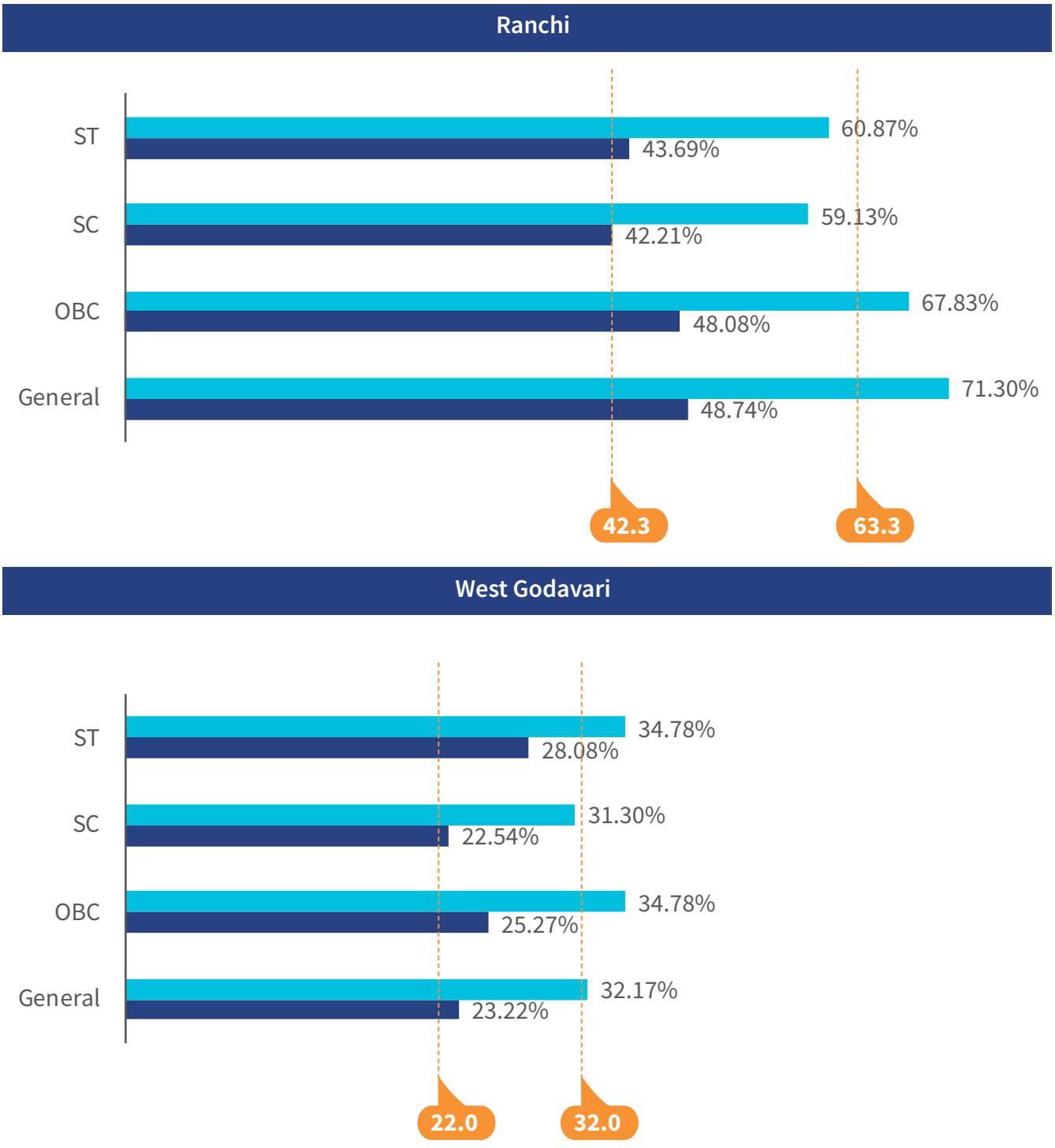
# In both Ranchi and West Godavari, people with a *pucca* house had better nutritional intake



## On the basis of area, not much difference was found in the nutrition intake in both Ranchi and West Godavari

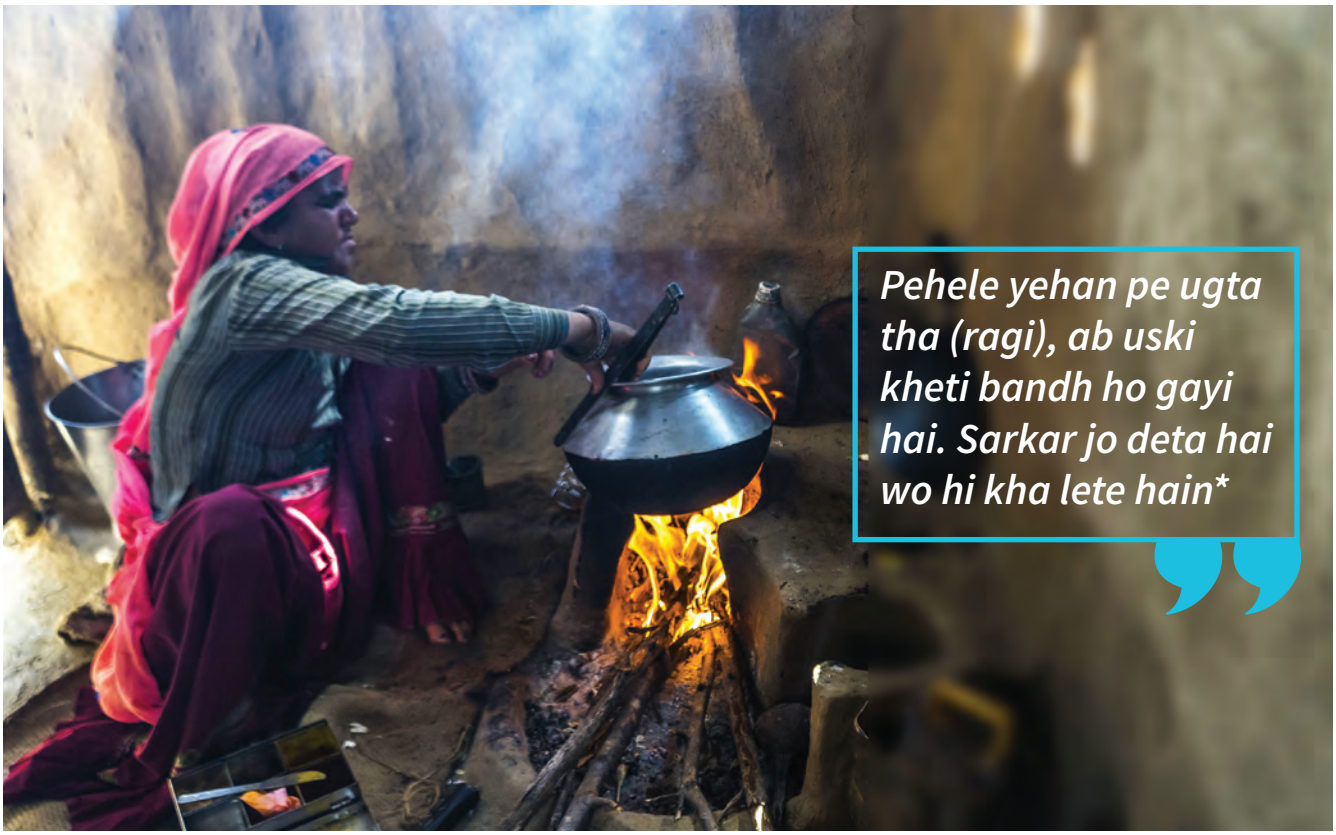


## In both Ranchi and West Godavari, people belonging to the Scheduled Castes (SC) had the lowest nutritional intake as compared to other castes



# Process analysis of food security schemes

## Government procurement policies and PDS are partially responsible for the lack of dieraty diversity among target populace



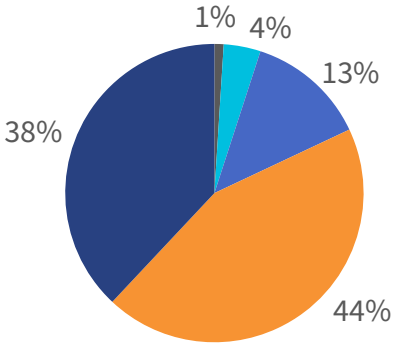

* We would cultivate ragi (millets) here earlier, but not anymore. Now we eat whatever the government gives us.

# Most respondents were satisfied with the quality of PDS grains, but they would like the system to provide a variety of goods

## People in both regions were happy with the quality of goods being provided

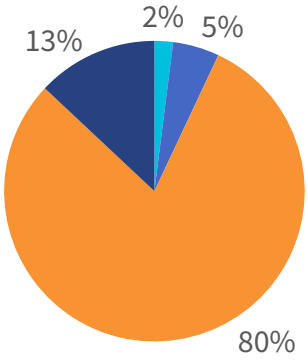
**Ranchi**

n=591




**West Godavari**

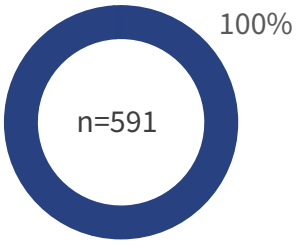
n=580



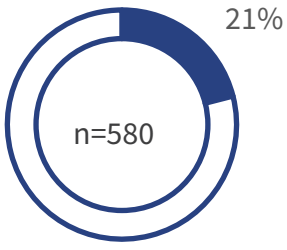

- Very dissatisfied
- Somewhat dissastisfied
- Neither
- Somewhat satisfied
- Very satisfied

Wheat and rice instead of only rice?

**Ranchi**



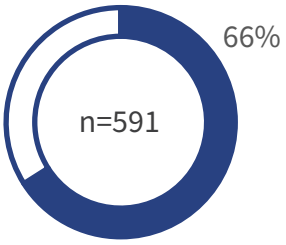

**West Godavari**

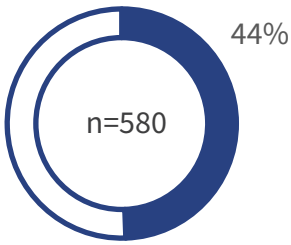



- Yes

**Most* respondents in Ranchi would like some portion of the rice entitlement to be replaced with wheat, while the number was low in West Godavari.**

Millets through PDS?




- Yes

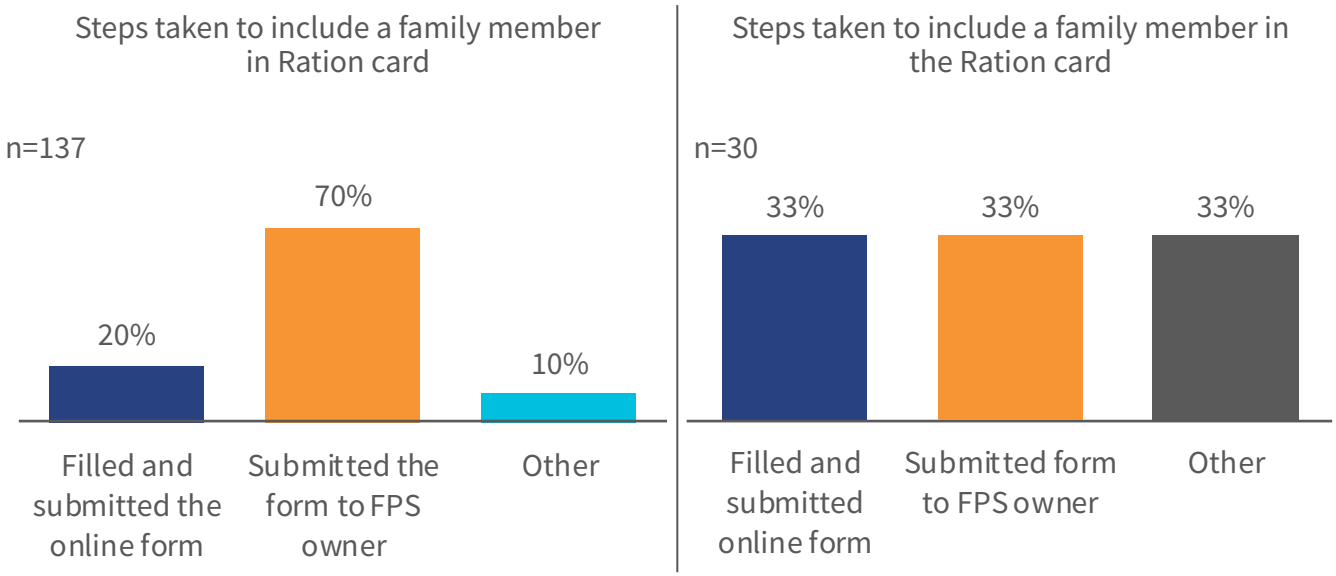
**Similarly, a majority of respondents in Ranchi would like to receive millets through PDS, but a majority in West Godavari do not know how to use millets.**

*Two respondents in the sample did not want wheat in lieu of rice.

# Beneficiaries find it difficult to add family members in the ration card

**A large number of respondents in both locations had at least a family member who was not included in their Ration card**


**People in Ranchi rely more on the FPS owner for the inclusion process. However, in both Ranchi and West Godavari—FPS owners enjoy a great degree of power in the system, as they are the only point of sales**

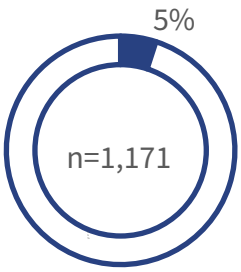




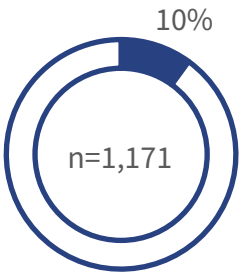
* The dealer has been threatening to strike off our names [from the ration card]. We would even lose what little we are getting now.

# Only a few households reported skipping one of the meals in a day

**Meal skipping pattern is similar across both the districts**




**About 5% households reported having skipped one meal in one of the days in the past week due to unavailability of food.**




**About 10% households reported having skipped one meal in one of the days in the past month due to unavailability of food.**

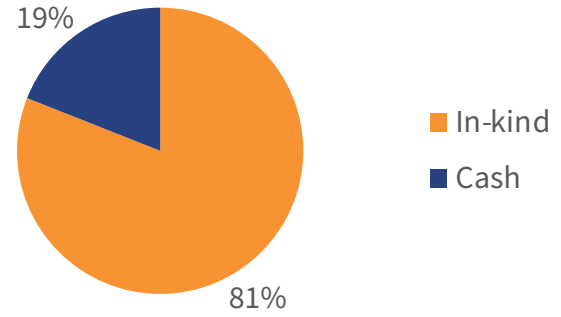
# There is a strong preference for in-kind benefits in PDS among beneficiaries across regions

**Reasons to prefer in-kind over cash**

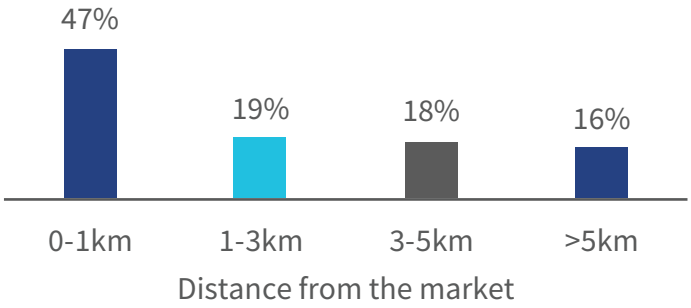
1. Misuse of cash
2. Mistrust with the government
3. Wage loss

## Ranchi

n=591

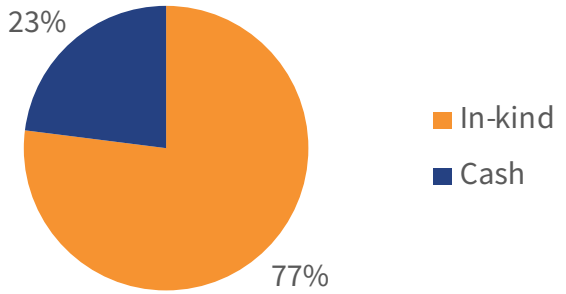



n=460

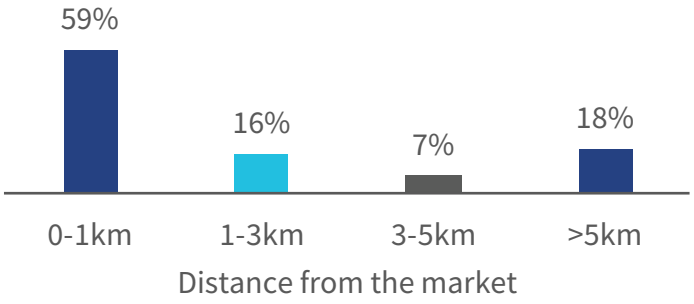



## West Godavari

n=580




n=500




**Responses**

### Cash

*Apne hisaab se khareedenge bazaar se, jo chahiye wo* (We will buy whatever we want from the market, by ourselves.)

*Agar hisaab se paise milenge to suvida hogi* (It will be convenient if we could get the money as per our needs.)

### In-kind

*Sab aadmi log paisa daru mein uda dega* (All the men would blow their money on alcohol.)

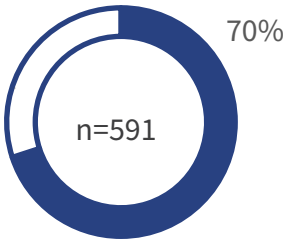
*Paise denge to khareedenge kahan se?* (Even if we get the money to make purchases, where do we buy from?)

*Ek poora din chala jata hai bank se paise nikaalne mein, usme bhi bharosa nahi hai ki mil jayenge* (It takes an entire day to withdraw money from the bank, and often we are unsure if we will be able to get any money at all.)

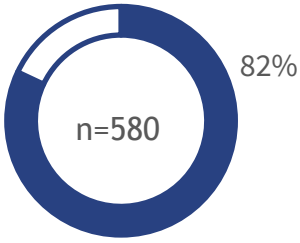
## ICDS supplementary nutrition is a much-needed scheme in the villages but program monitoring should improve

**A majority of respondents feel that pregnant women and children have additional nutritional needs.**

**Ranchi**

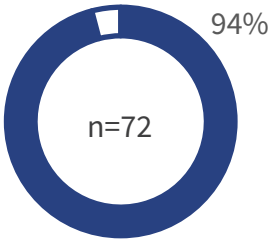



**West Godavari**

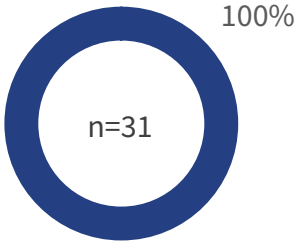



**Most respondents were reported to have an *Aanganwadi* center in their village.**

**Ranchi**

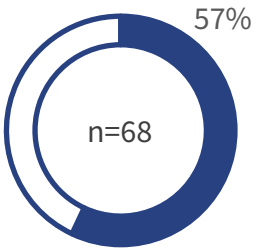



**West Godavari**

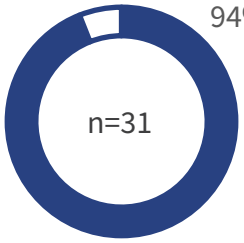



**Most respondents in West Godavari confirmed that the food provided is as per the menu.**

**Ranchi**

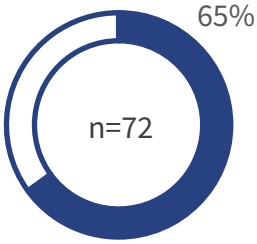



**West Godavari**

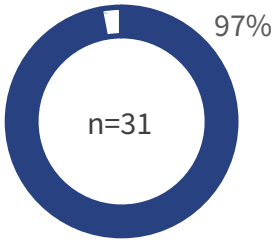



**Almost all respondents in West Godavari feel that the quantity of food provided is sufficient.**

**Ranchi**




**West Godavari**




*Humara bachcha hone ke pehele se hi center mein khaana milna bandh ho gaya, kareeb 6-8 mahine se yojana bandh hai**

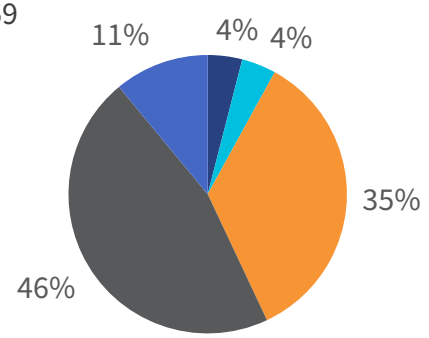
*We stopped getting food from the center before our child was even born. It has been around six to eight months since the program was stopped.

# People* are satisfied with the quality and quantity of provisions in the mid-day meal scheme, but the nutritional efficacy of the scheme may be reviewed

## The instances of dissatisfaction with the quality of food being provided to children were low, and the figures were almost similar in both regions

**Ranchi**

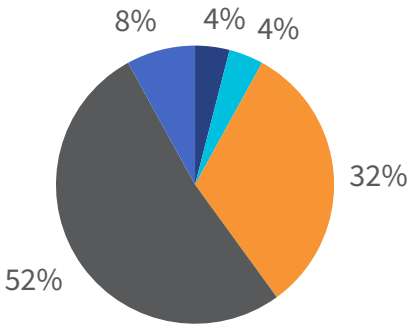
n=169





**West Godavari**

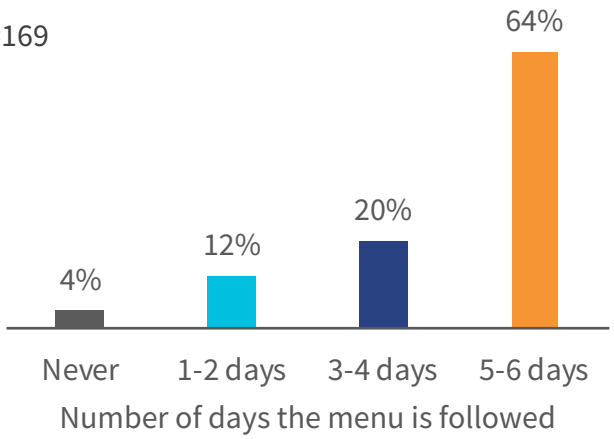
n=52




## Most of the respondents in both regions feel that the proposed menu is being followed

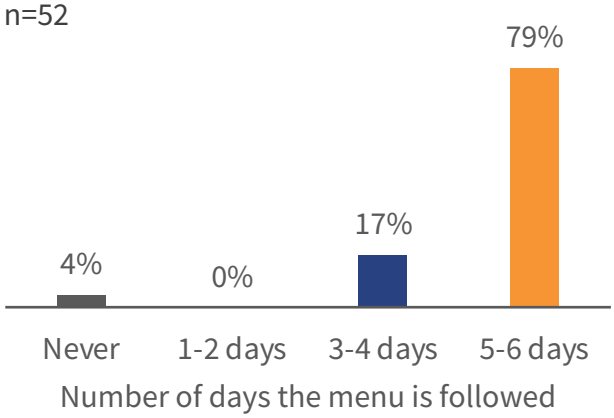
**Ranchi**

n=169



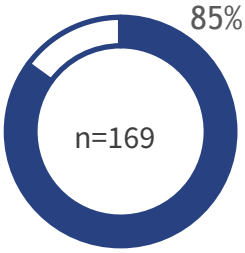

**West Godavari**

n=52

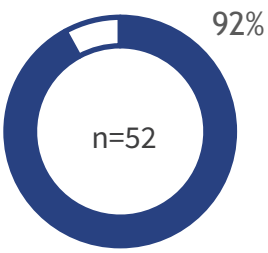



## A large percentage of the respondents in both the regions feel that the quantity being provided is sufficient for their children. However, the number of people with children who avail MDM is low in West Godavari

**Ranchi**




**West Godavari**




Satisfied with quantity

*The actual beneficiaries, children, were not interviewed in this study.

# Recommendations

## There are multiple feasible process modification options to realize better nutritional outcomes among target beneficiaries

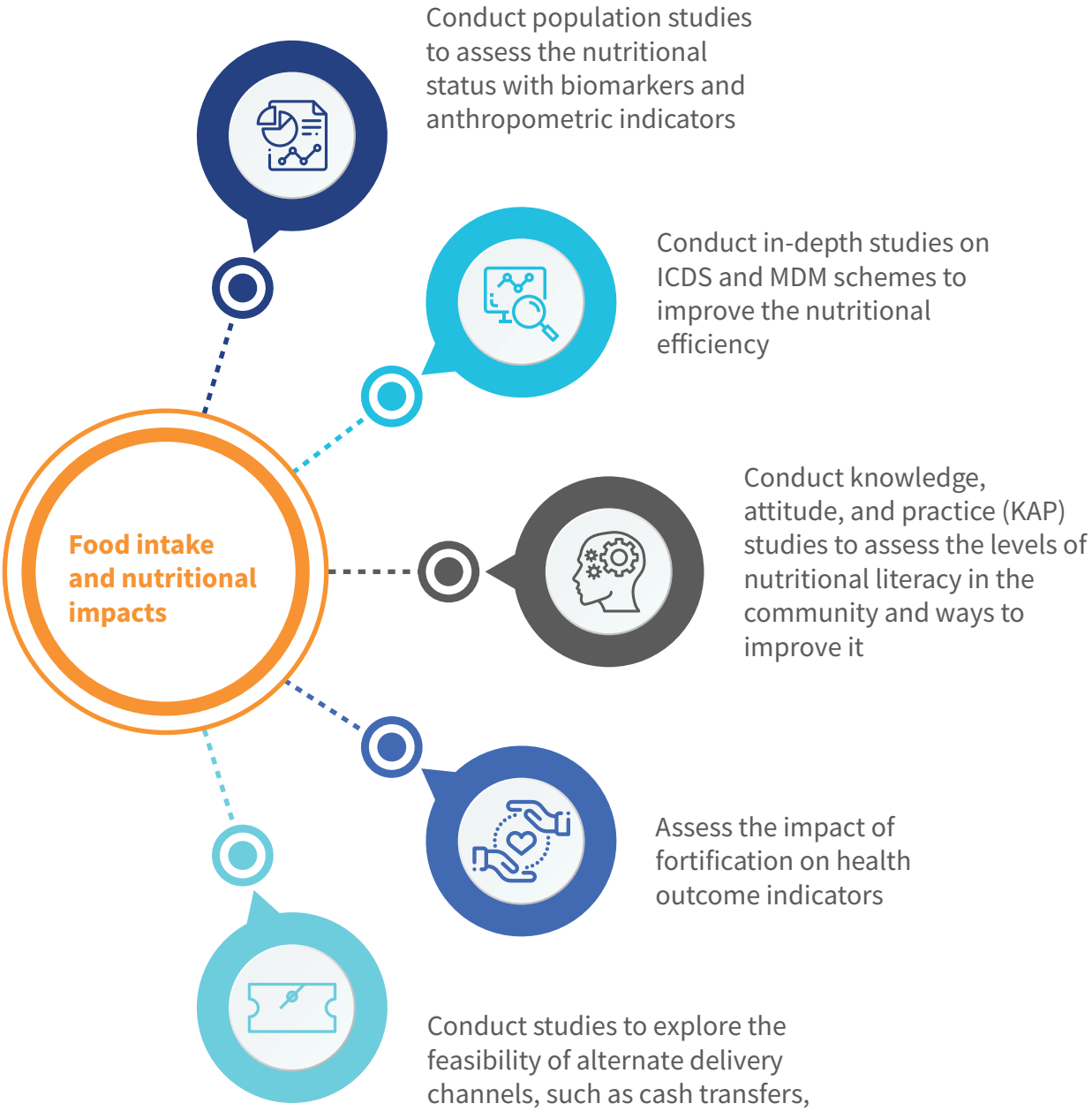
| Recommendation | Expected outcome | Type of change |
|---|---|---|
| The department can begin interventions based on nutrition by **fortifying food** materials supplied through PDS with iron and zinc. | Increased nutritional outcome from the food material with minimal cost | **Incremental short-term** |
| The department can then work on improving the **dietary diversity** by replacing rice with wheat or local millets. Lentils should also be provided even if it is marginally subsidized. | Expanded food basket with increased efficacy of the system | **Radical short-term** |

| | | |
|---|---|---|
| The department can, in the long-term, test alternate delivery mechanisms like cash-transfers or cash-vouchers or food coupons to see if it brings about better nutritional outcomes. | Increased choice for the beneficiaries can lead to better nutritional outcomes from the program | **Radical long-term** |

## There are also behavioral nudges that can help motivate beneficiaries to adopt a more nutritious diet

| Recommendation | Expected outcome | Type of change |
|---|---|---|
| The department can use the concept of orality to **print information** on good nutrition practices in all new **ration cards**. | Increased nutritional literacy | **Incremental long-term** |
| The department can begin to develop a plan to deploy dedicated frontline village-level nutrition workers. | Increased nutritional literacy and informed food choices | **Radical long-term** |
| There should be more studies around MDM and ICDS with the aim to synchronize these efforts with the work of the public distribution system. | Better systemic efficiency | **Incremental long-term** |

## A host of other studies need to be conducted to understand the food intake and nutritional impacts better

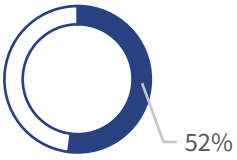
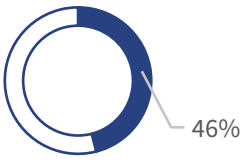
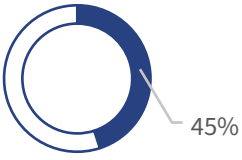
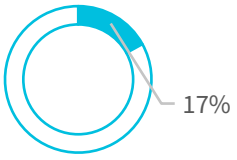
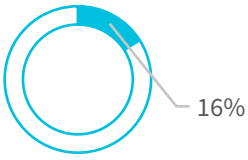
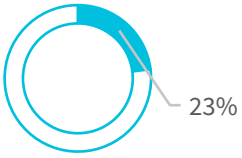
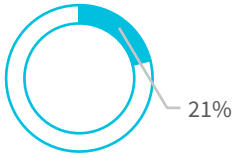
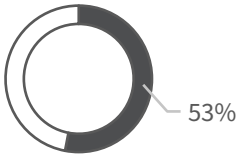
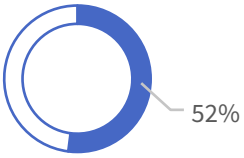
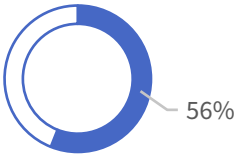
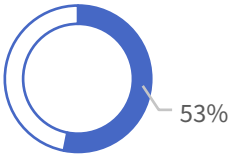



# Annexure

## Incomplete nutrition results in a host of deficiencies or maladies that have serious long-term health implications

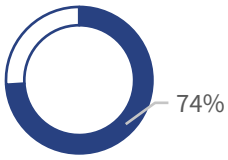
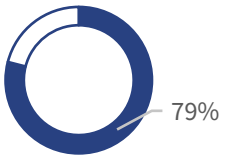
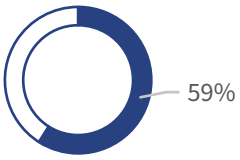
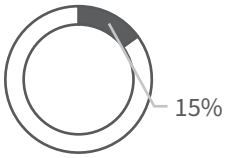
| Cause | Indicator | Symptoms |
|---|---|---|
| Long-term insufficient nutrition intake and frequent infections | Stunting | Below minus two standard deviations from the median **height for age** of the reference population |
| Acute food shortage or diseases or both | Wasting | Below minus two standard deviations from the median **weight for height** of the reference population |
| Acute food shortage or diseases or both | Severe wasting | Below minus three standard deviations from the median weight for height of the reference population |
| Deficiency of either iron vitamin A, vitamin B, folic acid or zinc and worm infestations | Anemia | **Hemoglobin concentration** lower than the level considered for age and gender of a person |
| Insufficient breastfeeding, anemic mothers, untimely initiation of complimentary feed, inadequate quantity & diversity | Under-weight | Below minus two standard deviations from the median **weight for age** of the reference population |
| Energy imbalance between calories consumed and expended | Overweight | **Body mass index** greater than 25 is overweight and BMI greater than 30 is obese |

# While the schemes have done a good job of reducing hunger, nutritional statistics have not improved proportionally (1/2)

| | NFHS-1 (1992-93) | NFHS-2 (1998-99) | NFHS-3 (2005-06) | NFHS-4 (2015-16) |
|---|---|---|---|---|
| **Stunted children** |  |  |  |  |
| **Wasted children** |  |  |  |  |
| **Underweight children** |  |  |  |  |
| **Anemic women** | N/A |  |  |  |

Note: The age of children considered in different rounds of the survey varies. In NFHS 1, it is four years. In NFHS 2 and 3, it is three years. In NFHS 4, it is five years. In the case of women, in NFHS 2, the sample was the total number of women, In NFHS 3, the sample was the total number of women in the age group 15 to 49 years who were ever married, while in NFHS 4, the sample was the total number of women in the age group 15 to 49 years.

# While the schemes have done a good job of reducing hunger, nutritional statistics have not improved proportionally (2/2)

| | NFHS-1 (1992-93) | NFHS-2 (1998-99) | NFHS-3 (2005-06) | NFHS-4 (2015-16) |
|---|---|---|---|---|
| **Anaemic children** | N/A |   |   |   |
| **Obese women** | N/A | N/A |   |   |

MDM, TPDS

NFSA

**Annually, India loses over USD 12 billion in GDP to vitamin and mineral deficiencies while scaling up micronutrient interventions would cost less than ~20% of this amount i.e. USD 574 million/ year.***

Note: The age of children considered in different rounds of the survey varies. In NFHS -1 it is four years, in NFHS -2 and 3 it is three years and in NFHS – 4 it is five years.

* Nutrition at a Glance, World Bank

## India's Public Distribution System is the largest food security program in the world

**1947**

After independence, India's Ministry of Food was established to coordinate food supply throughout the country and continue the wartime Public Distribution System.

**1964**

Food Corporation of India was set up with the mandate to procure and distribute food grains to address food shortage in urban and food-deficit areas.

**1997**

PDS was modified to Targeted PDS, which moved from being a universal benefit in specific areas to becoming a benefit only for the poor throughout the nation.

**2000**

*Antodya* beneficiaries were identified from the TPDS list as the poorest among the poor with an additional provision provided for them to eradicate hunger among the most vulnerable.

**2013**

The National Food Security Act came into power, expanding the scope of TPDS to target 75% of the rural population and 50% of the urban population, moving the nation towards zero hunger.

### Current status

**Implementer**
Ministry of Consumer Affairs, Food and Public Distribution

**Benefits**
Staple foodgrains of the region

**Beneficiaries**
81 crore (810 million)

**Annual budget**
INR 1,45,339 crore (USD 20.16 billion)

## Other social security programs supplement PDS to cater to the nutritional needs of vulnerable demographics

| Scheme name and implementer | Description | Number of beneficiaries | Annual budget |
|---|---|---|---|
| **Integrated Child Development Services**<br><br>Ministry of Woman and Child Development + Ministry of Health and Family Welfare | The ICDS program was launched in 1975 to meet the nutritional needs of pregnant women, nursing mothers, and children up to the age of six through supplementary nutrition, health education, immunization, and health check-ups. | 9.8 crore* (98 million) | INR 15,245 crore (USD 2.12 billion) |
| **Mid-day meals**<br><br>Ministry of Human Resource Development | The mid-day meals program was launched in 1995 to improve the nutritional level of primary school students studying in government and government aided schools, by providing one cooked meal a day at least 200 times a year. | 9.46 crore (94.6 million) | INR 9,096 crore (USD 1.26 billion) |

* Includes only the children and women receiving supplementary nutrition

# Public distribution benefits vary based on region and category, with the center and state sharing the program expenditure

| Types of ration card | Priority households (PHH) | | Antoydaya Anna Yojana (AAY) | |
|---|---|---|---|---|
| | Ranchi | West Godavari | Ranchi | West Godavari |
| Entitlement | 5kg rice/per person | 5kg rice/per person | 35kg rice/RC | 35kg rice/RC |
| | 1kg salt/RC | 0.5kg sugar/RC | 1kg salt/RC | 1kg sugar/RC |
| | | 1kg salt/RC | 1kg sugar/RC | 1kg salt/RC |
| | | 2kg red gram/RC | | 2kg red gram/RC |
| | | 3kg *ragi*/RC | | 3kg *ragi*/RC |
| | | 2kg *jowar*/RC | | 2kg *jowar*/RC |
| | | 1kg wheat *atta*/RC | | 1kg wheat *atta*/RC |
| Method | Biometrically authenticated physical uptake | | | |

## Stakeholders

- Ministry of Consumer Affairs; Food and Public Distribution
- Food Corporation of India
- State Food departments
- Fair price shop owners
- Beneficiaries

## Process

State governments raise the demand based on the number of identified beneficiaries from the SECC database.

The central government allocates budget based on the demand raised by states and covers 60% or 90% of the total cost.*

The FCI delivers foodgrain at the FPS dealer's doorstep based on the allocation decided by a state.

Beneficiaries collect entitlement from fair price shops by authenticating the uptake biometrically.

*Some North eastern states get 90%

## MDM and ICDS programs offer cooked meals as per the local preferences but have prescribed minimum nutritional values

### ICDS

**Beneficiaries**

Pregnant women, lactating mothers, and children up to six years.

**Entitlement**

Micronutrient fortified food or energy-dense foods with fixed calorie and protein values are provided every day to beneficiaries under different categories.

| Cateogary | Energy | Proteins |
|---|---|---|
| Children 6 months to 6 years | 500kcal | 12-15g |
| Severely underweight children | 800kcal | 20–25g |
| Pregnant and lactating women | 600kcal | 18–20g |

**Process**

A state estimates the demand for meals based on the data received from *Anganwadi* centers.

The center allocates funds based on the demand raised by states on a sharing basis.

The *Anganwadi* center procures wheat or rice from FCI and other ingredients locally.

*Anganwadi* center distribute are take-home packets and provide hot-cooked meals.

### MDM

**Beneficiaries**

Children who study in government and government-aided primary schools.

**Entitlement**

One fresh-cooked meal with minimum 300kcal of energy and 8–12g of proteins per day for minimum 200 days a year.

**Process**

A state estimates the demand based on the enrolment statistics from UDISE.

The center allocates a fixed amount per day per child on the basis of the number of children enrolled.

Individual schools are responsible to procure cooked meals with the allocated funds.

Cooked meals are provided to children based on the menu approved by the school committee.

## Even a minor low cost tweak in the consumed recipe can increase nutritional intake considerably

### Followed

| Breakfast | Lunch | Dinner |
|---|---|---|
| Rice and potato | Rice and potato | Rice and *dal* |

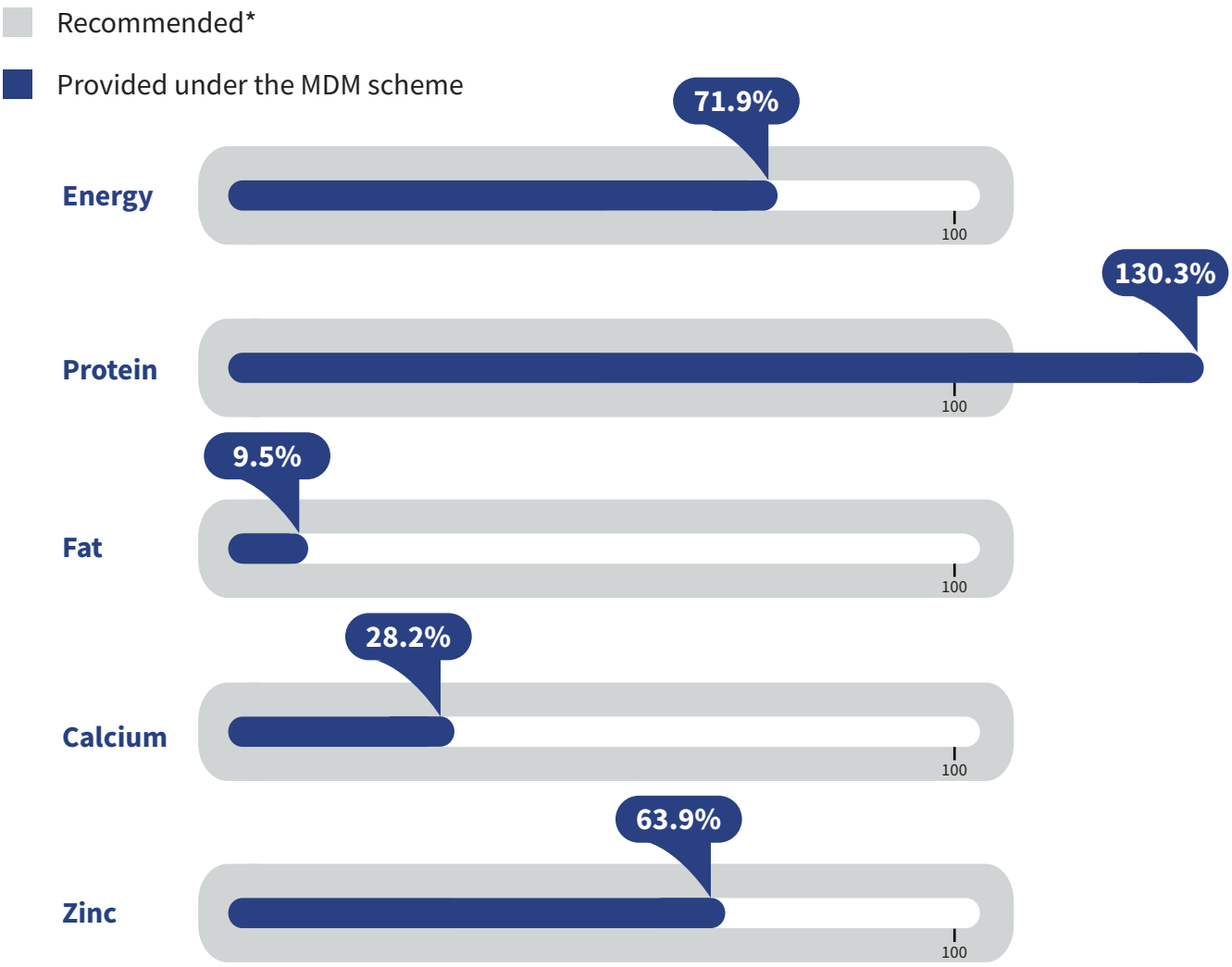
| | | | |
|---|---|---|---|
| Energy - 941kcal<br>Iron - 5mg | Protein - 27g<br>Magnesium - 126mg | Fat - 2g<br>Zinc - 4mg | Calcium - 75 mg<br>Folic acid - 92µg |

### Recommended

| Breakfast | Lunch | Dinner |
|---|---|---|
| Wheat *roti* and egg<br>Porridge<br>Rice and egg | Wheat *roti*, potato, and *jawa* | Rice and *dal* |

| | | | |
|---|---|---|---|
| Energy - 1345kcal<br>Iron -15mg | Protein - 45g<br>Magnesium - 278mg | Fat - 6g<br>Zinc - 9mg | Calcium - 487mg<br>Folic acid - 143µg |

## State governments provide eggs under the MDM scheme, which makes the meal better in terms of the nutrient requirements for children




* Per meal

# List of abbreviations

| | |
|---|---|
| AAY | *Antyodya Anna Yojaya* |
| BAPU | Biometrically Authenticated Physical Uptake |
| FPS | Fair price shops |
| ICDS | Integrated Child Development Services |
| INR | Indian Rupee |
| MDM | Mid-day meals |
| NFSA | National Food Security Act |
| PDS | Public Distribution System |
| PHH | Priority households |
| RC | Ration card |
| THR | Take-home ration |
| TPDS | Targeted Public Distribution System |
| USD | United States Dollar |

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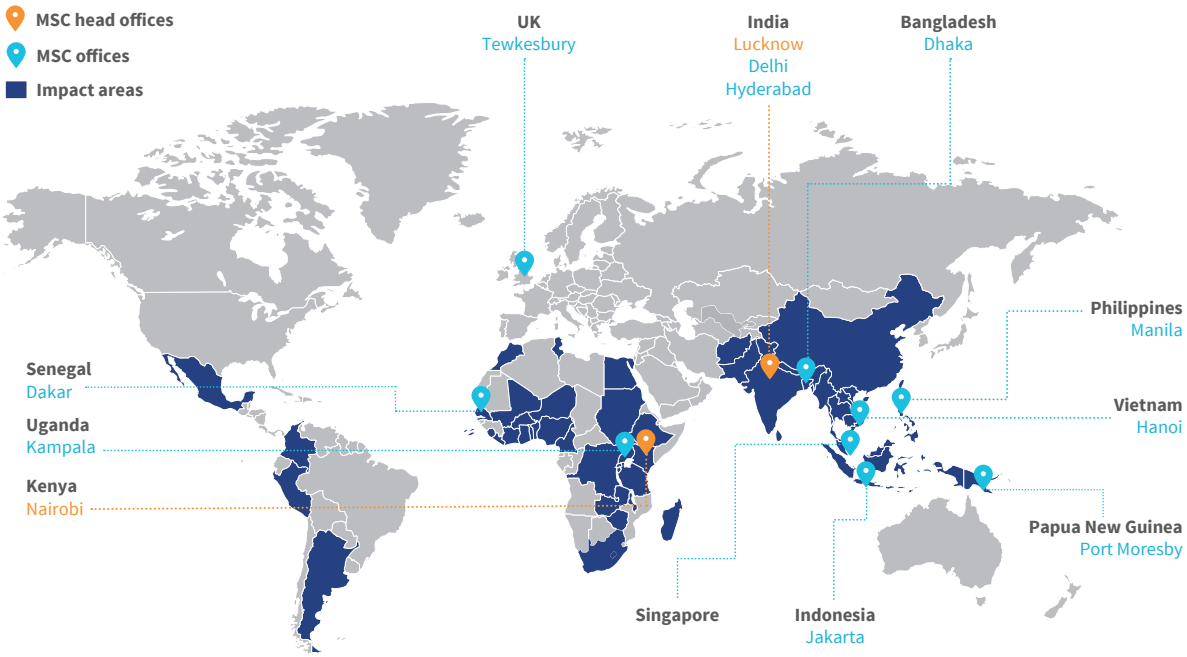



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