Household Food Security and Nutrition Assessment in Bangladesh

November 2008 – January 2009

World Food Programme (WFP)
United Nations Children's Fund (UNICEF)
Institute of Public Health Nutrition (IPHN)

Acknowledgements

- Respondents; Households; Communities
- National, division, district, Upazila, and village authorities, including MOHFW, MOFDM
- Joint Technical Committee: IPHN, UNICEF, WFP, FAO, BBS, DGHS, MOHFP, Mitra and HKI
- MITRA – sampling framework, training, data collection and data entry/cleaning
- Centre for Disease Control (CDC) Atlanta - informal technical support

Outline of Presentation

1. Background

2. Survey Methodology

3. Results:
   - 3.1. Demography and Gender
   - 3.2. Food Markets
   - 3.3. Household Food Security
   - 3.4. Nutrition, Health, Water/Sanitation
   - 3.5. Malnutrition and Household Food Security Linkages

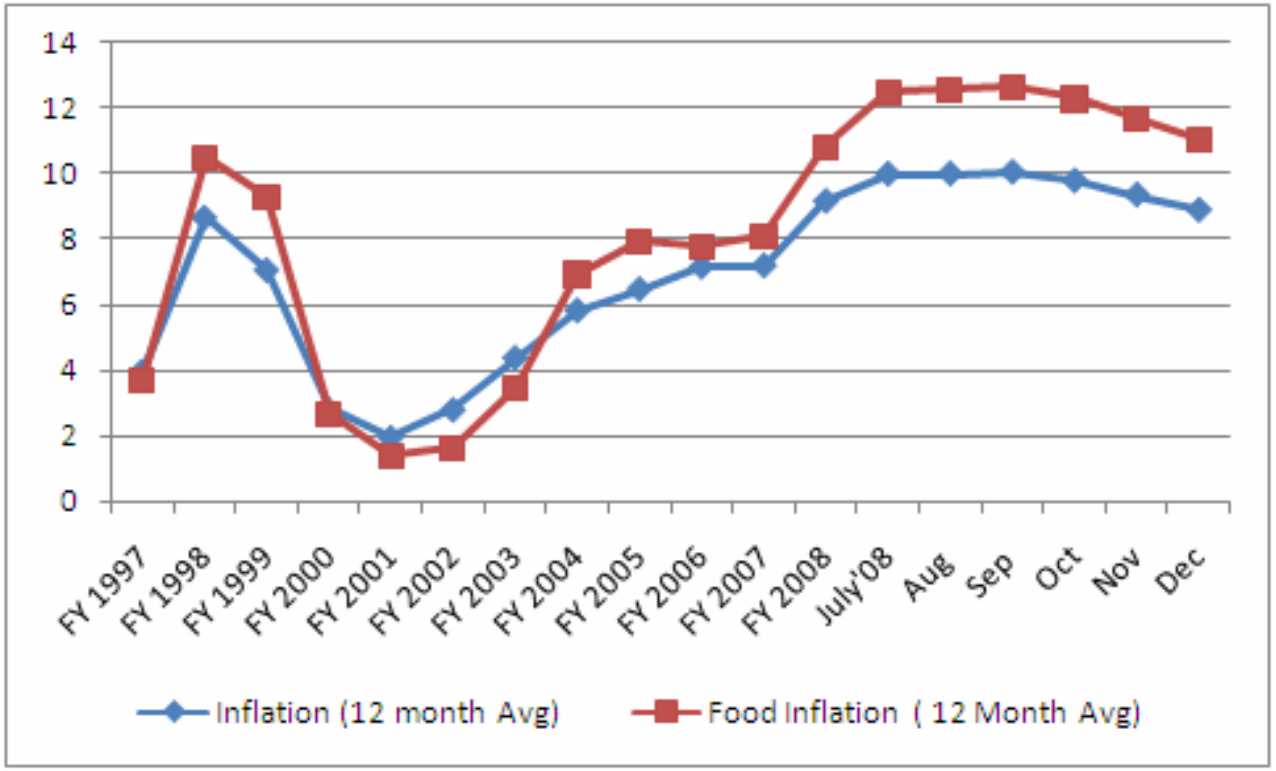
4. Conclusions

5. Recommendations

1. Background Food Price Shock … and macro-econ. context

Timing: Food Price Shock…

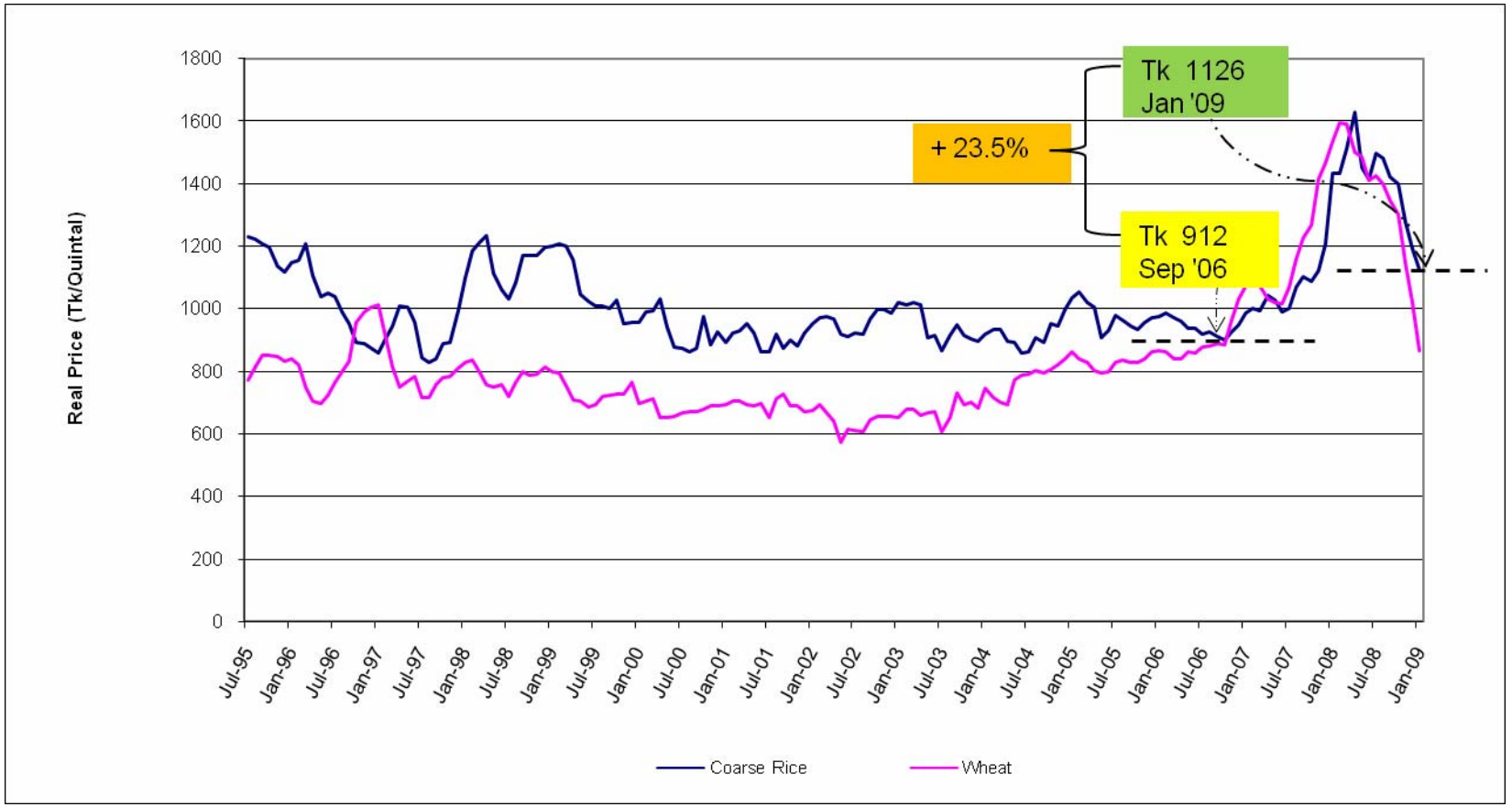
- Inflation rising mid 2006…
  - Inflation rate… > 7%
- Food Inflation…
  - Rapid Rise begins mid 2007



Magnitude of domestic prices increases?

Long term time Series: July ’95 thru Jan. 2009

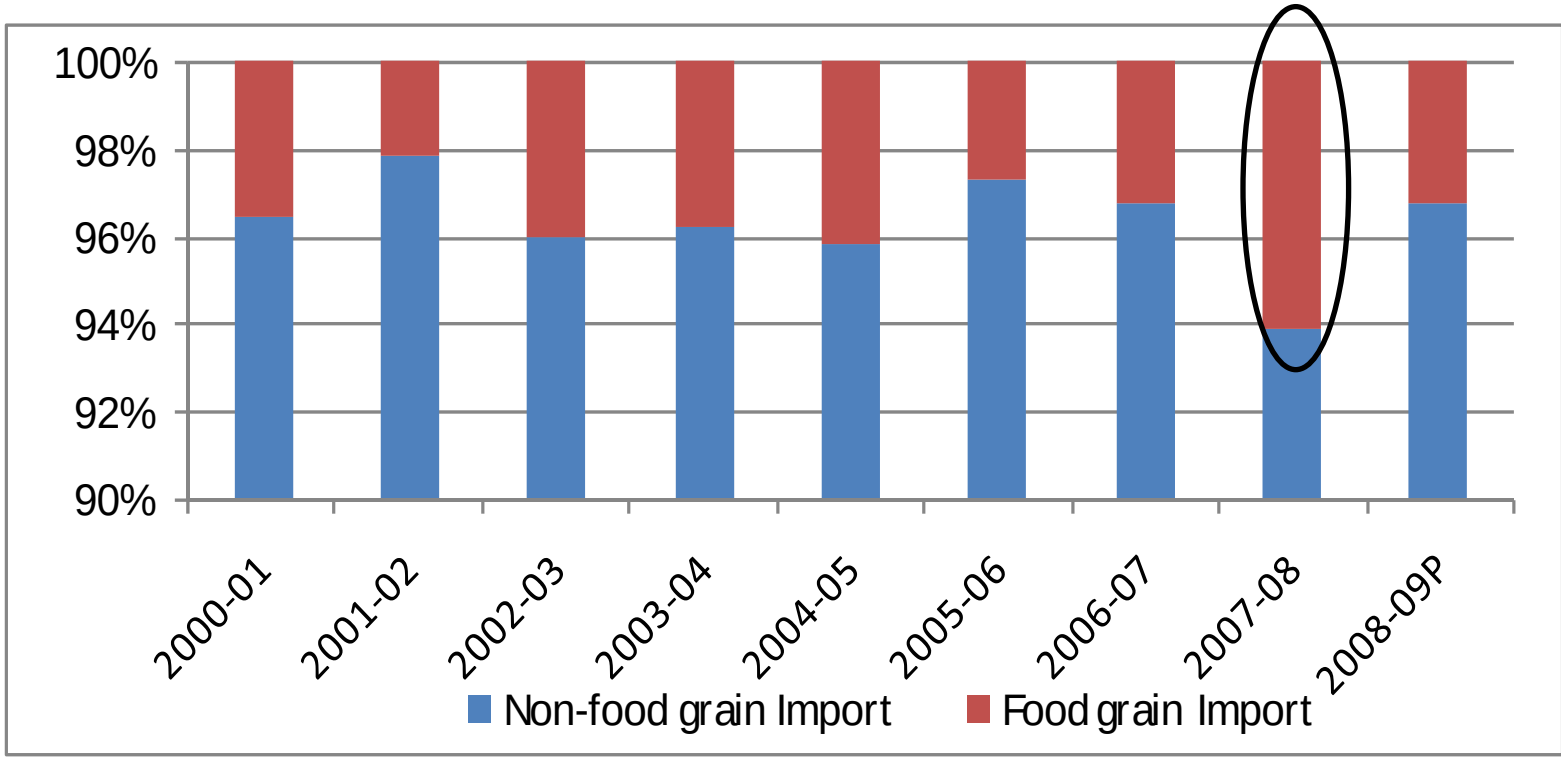
Wholesale prices of rice (Real)



Price rise causes…

- Global:
  - Crop failures, oil price rise, bio-fuels…
- Regional:
  - Trade barriers, export bans …
- Domestic:
  - Natural disasters
    - 2007 Floods
    - 2007 Cyclone Sidr

Food Grain Imports rise dramatically…2007-08



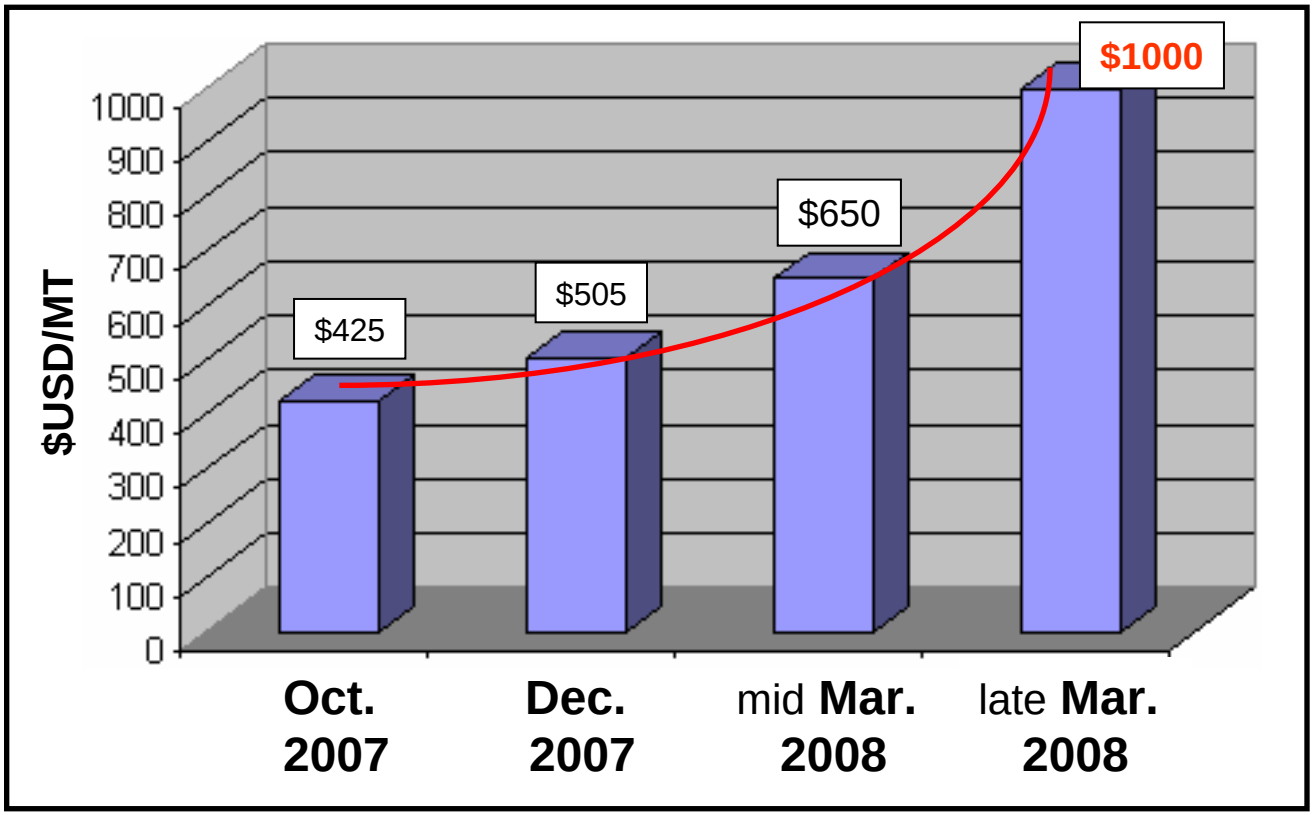
Value of Food Grain imports as percent total imports…
2007-08 reaches 6%, vs. 3% in previous years

Source: Bangladesh Bank, Economic Trends (2009).
P= Provisional estimates up to Feb.2009

Trade barriers with India

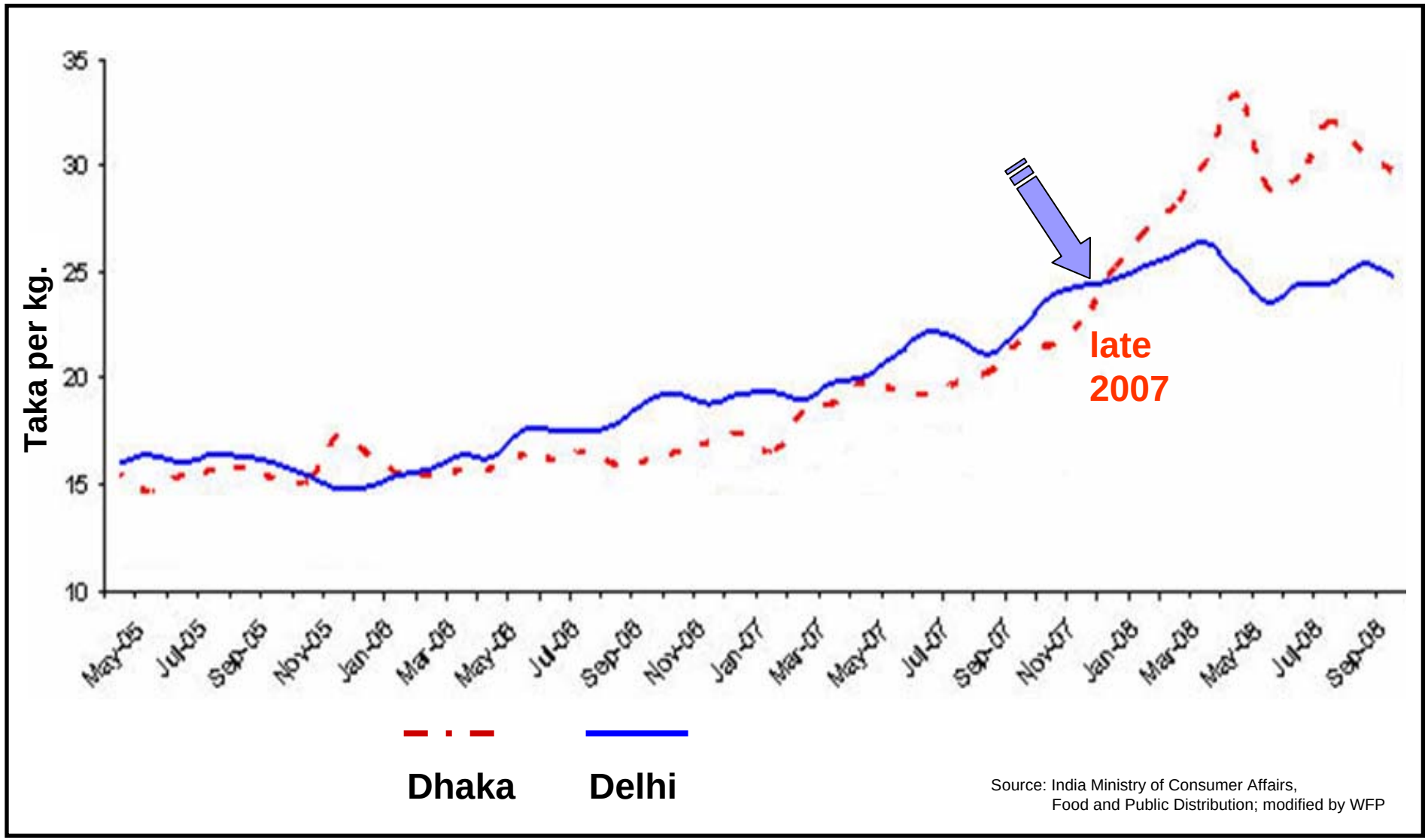
- Rice*; "Minimum Export Price" set artificially high

Exports later banned: April 2008



* Rice: non-Basmati Rice

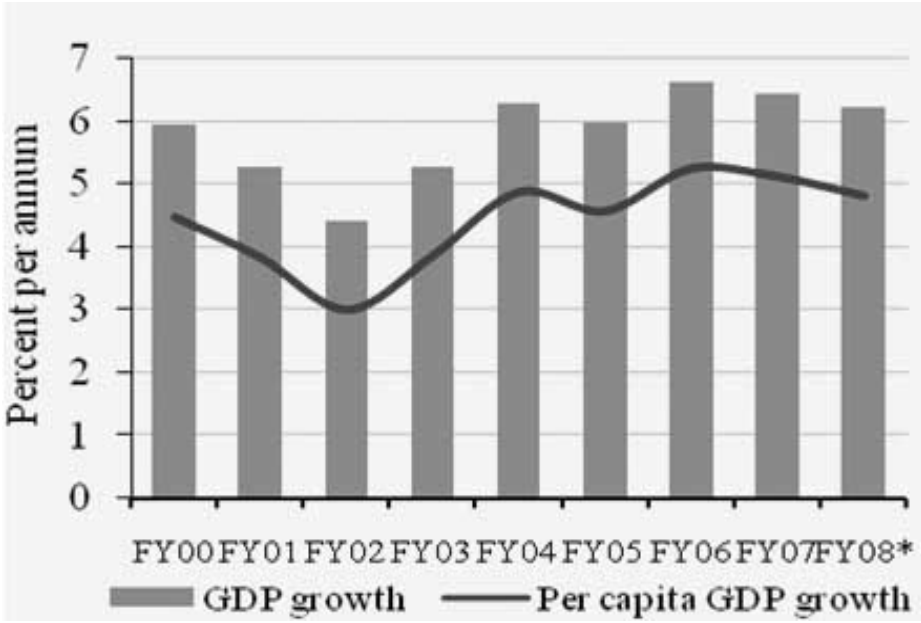
Bangladesh rice price De-links from India…



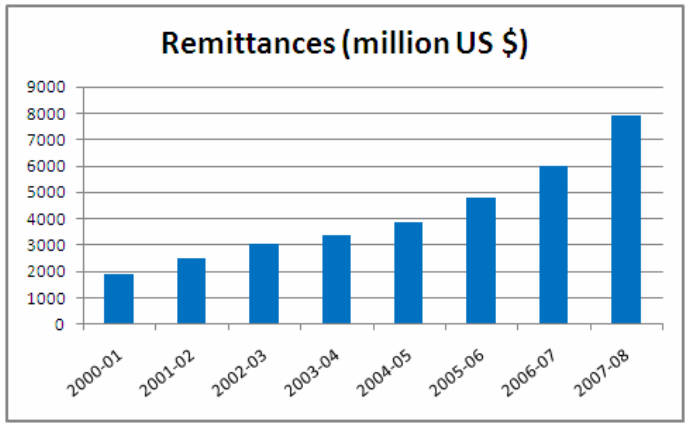
Source: India Ministry of Consumer Affairs,
Food and Public Distribution; modified by WFP

Background… Economic Performance…

- Moderately high GDP growth rates
  - FY 2006-07: 6.5%
  - FY 2007-08 : 6.2%



- Remittances strong…



Food Availability: Cereals, rice…

- Rice… FY 2007-08 …close to rice self sufficient
  - 29.8 Million MTs of food grain
    - Up 6.1% from previous year
    - Despite major natural disasters, Floods, Cyclone
    - Bumper Boro major factor; 17.8 Million MTs
      - 18.7% increase vs. previous year

2. Survey Objectives and Methodology

Primary Survey Objectives

Food Security

- Understand the impact of the food price shock on household food security. (Household Survey)
  - Who most affected? Demographic, Livelihood characteristics
  - Coping Strategies?
  - Regional differences… Urban/Rural, Divisional level…
- Examine how food markets responded, constraints, traders perceptions etc (Market Survey)
- Recommendations re: food security and social protection, Social Safety Net/SSNs programmes…

Objectives Cont-----

Nutrition, Health, Water and Sanitation

Nutritional Status

- Determine prevalence of acute malnutrition, underweight and stunting in children 6-59 months

- Determine prevalence of MUAC in mothers of children < 5 years

Infant and Young Child Feeding

- Gain better understanding of IYCF practices for children < 24 months

Objectives Cont-----

Nutrition, Health, Water and Sanitation

Illness and Mortality

- Determine crude and U5 mortality rates in 6 months prior to the survey
- Determine prevalence of diarrhea, fever, and ARI in children 6-59 months in 2 weeks prior to the survey and health seeking

Access To Services

- Estimate proportion of children 6-59 months in past 6 months and postpartum women who received Vitamin A in first 6 weeks after delivery
- Estimate proportion of pregnant women who received iron/folate supplementation

Water and Sanitation

- Estimate the coverage of latrines and access to safe water among households

Survey Design and Data Collection

- WFP & UNICEF - Survey protocol and questionnaires design.
- Technical Committee: IPHN, UNICEF, WFP, FAO, BBS, DGHS, MOHFP, MITRA and HKI provided inputs on entire survey process
- **Training** and **pilot-survey/pre-test** conducted around Dhaka
- Data collection - **November 11, 2008 - January 19 2009,** during the *Aman* harvest season by MITRA Associates
- 12 survey teams (2 supervisors, 6 interviewers, 6 quality control officers) and a s**upervisory team** from IPHN and WFP field staff.
- The food security component and market analysis was led by WFP and nutrition component led by UNICEF/IPHN

Sampling Frame

- Derived from the sample clusters of the 2007 BDHS survey
- Sampling frame -**Enumeration Areas (EA**) and Sampling unit - **Household.**
- A representative sample for the **country as a whole**, for the **urban and the rural areas separately**, and for each of the **six divisions.**
- Sample Design **- Two-stage, stratified sample**
  - **Stage One – 361 clusters** were selected randomly
  - **Stage Two –**Selection of households within a cluster – Goal - 30 HHs per cluster and about 10,000 **households in total.**
- **Adequacy of HH number per indicator** was checked with **CDC, Atlanta**
- Within a cluster, all **HH were selected with a fixed interval from the enumeration area list**
- Interviewer collected data from the **selected household only – No replacement** of household

Markets/Trade

- **180 Markets -** every other cluster
- Markets selected **randomly and proportionally** to the distribution of the clusters among **rural and urban areas**.
- Maximum of **5 traders – systematic** random selection of 2 wholesalers and 3 retailers/shop keepers.

Assumptions used for Sample Size Calculations per division / Rural / Urban / National

Indicator	Estimated Prevalence	Desired Precision	Design Effect	Sample size	10% Non-response	Number of households needed 1 child/HH
GAM (<-2 z score + edema)	16%	± 5	1.5	310	344	344
Stunting (HAZ <-2)	50	± 5	2	769	854	854
Underweight (WAZ <-2)	50	± 5	2	769	854	854
Vitamin A last 6 months	95%	± 10	2	37	41	41
MUAC	15%	± 5	2	392	435	435

Sampling Size

Samples:	Clusters	HHs
Barisal	48	654
Chittagong	62	1859
Dhaka	78	3242
Khulna	57	1319
Rajshahi	69	2673
Sylhet	47	632
Rural	227	8089
Urban	134	2289
Total	**361**	**10378**

For Market/Trade survey, 180 markets and 900 traders were interviewed

3. Results

3.1. Demography and Gender

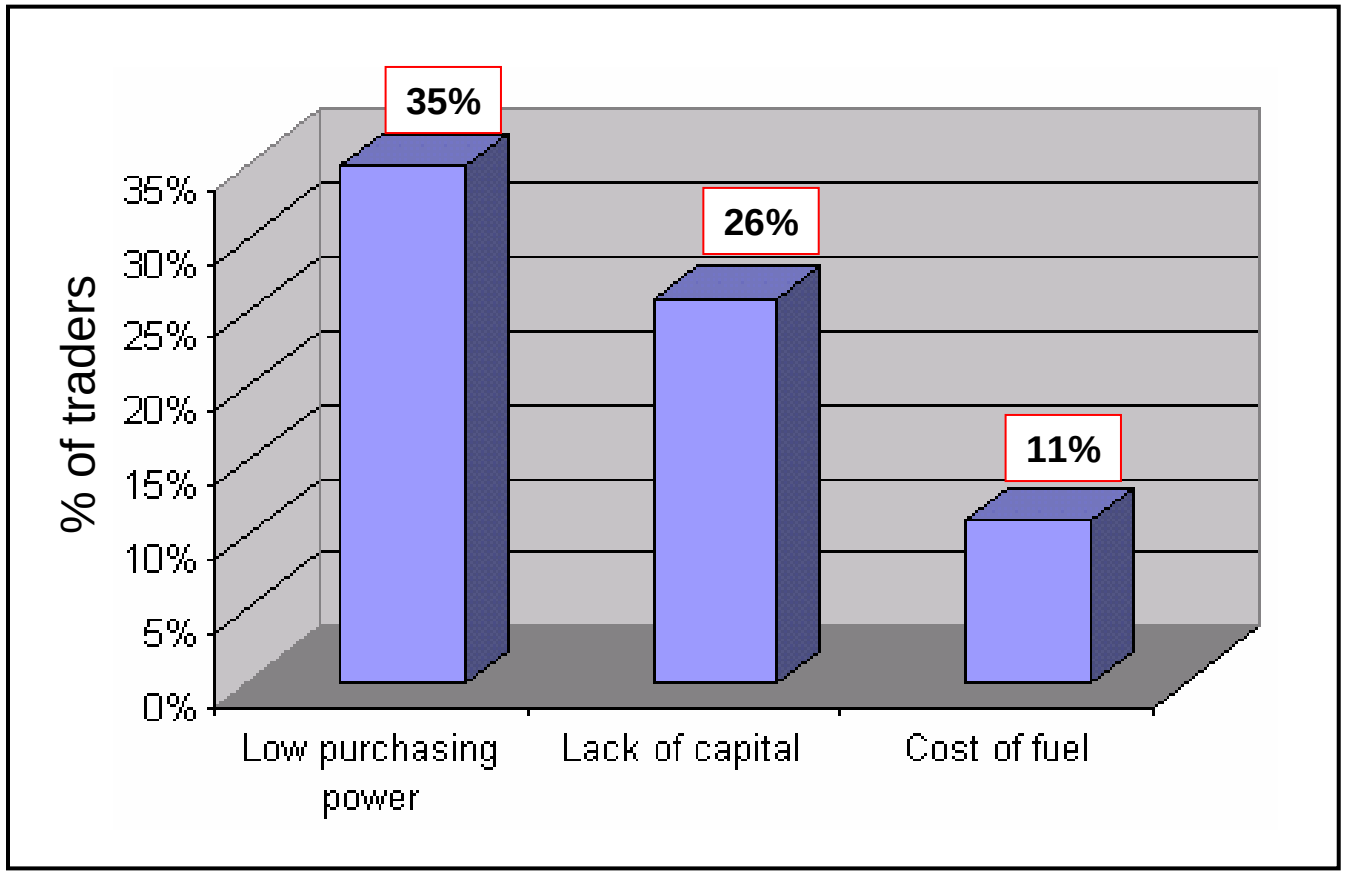
Demography and Gender

- Average household size: **5 persons**
- % of households with dependents: **40%**
- % of female-headed households: **8%**
- % of heads of household that never attended school: **43%**

(**Dependency** is the ratio between the active population and inactive (below 15-years and 60+ years) population, i.e. **those that are not working**

3.2. Results/Highlights Food Markets Survey

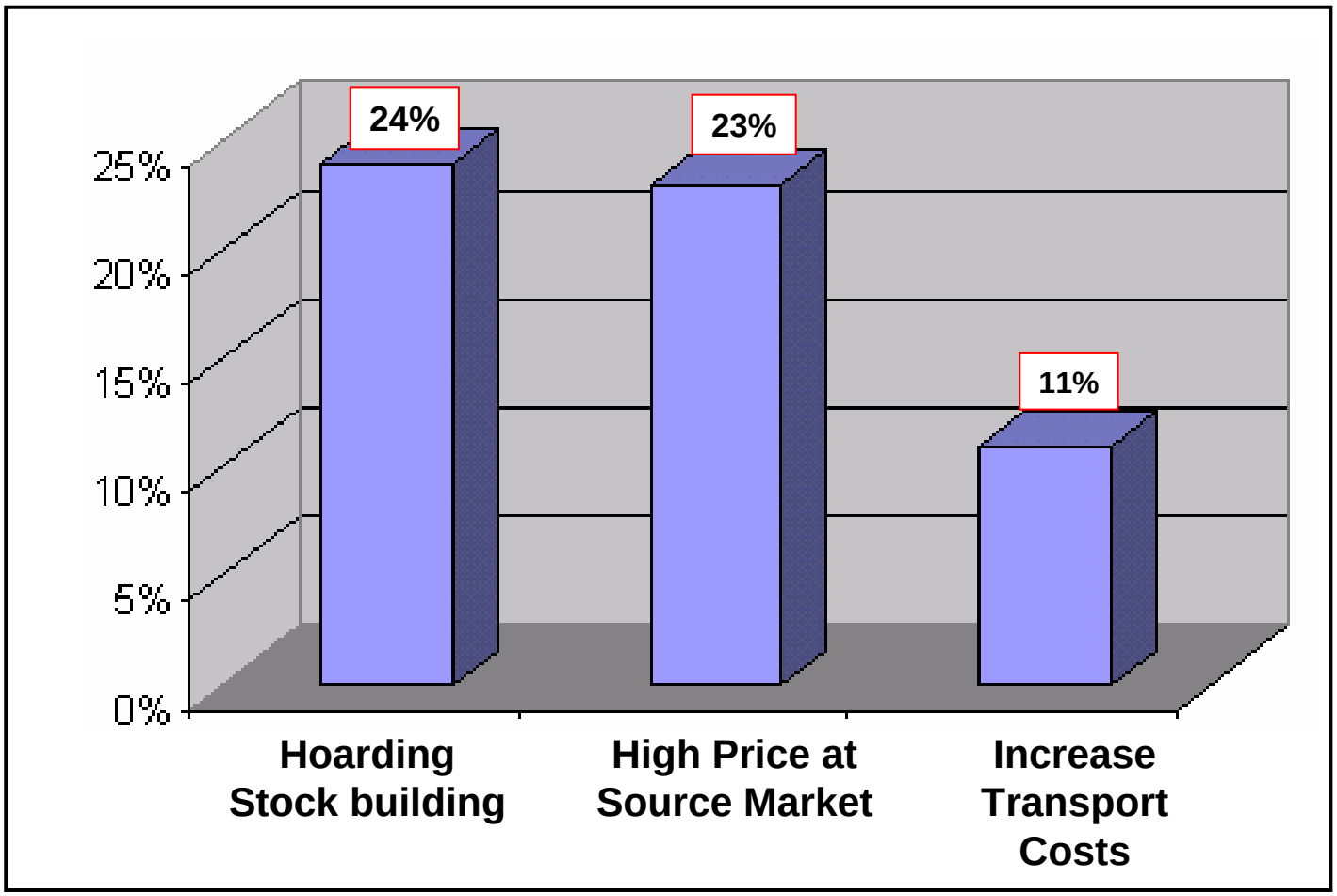
Traders Perceptions, Market constraints: Low consumer purchasing power, a major constraint



35% traders: "low purchasing power" *the* major constraint

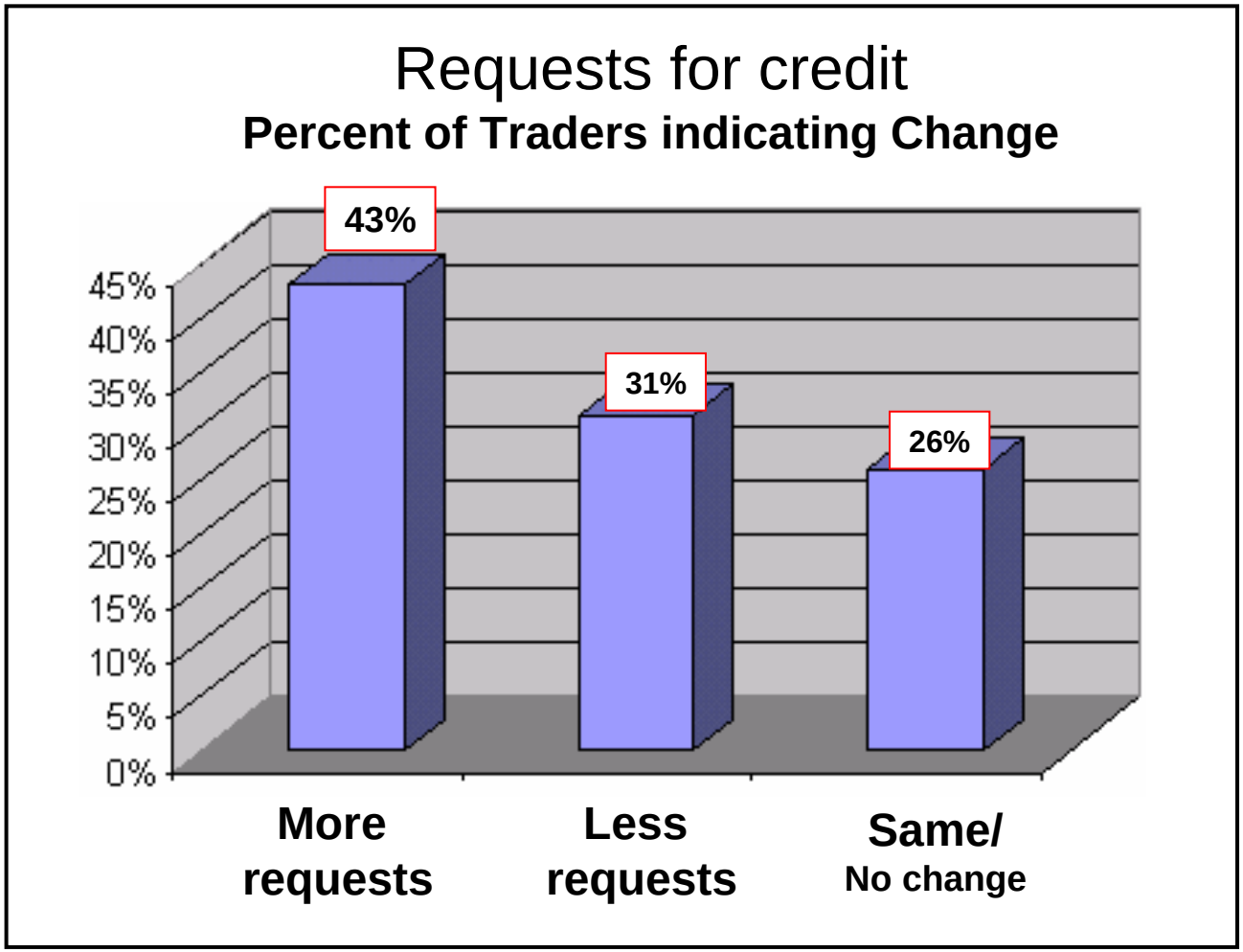
Source: survey, HHFSNA 2008

Traders Perceptions: Main Causes High Food Prices



Source: survey, HHFSNA 2008

Traders identify more customers requesting credit



95% of traders extend credit to compensate for low demand…

Source: survey, HHFSNA 2008

3.3. Results/Highlights Household Food Security

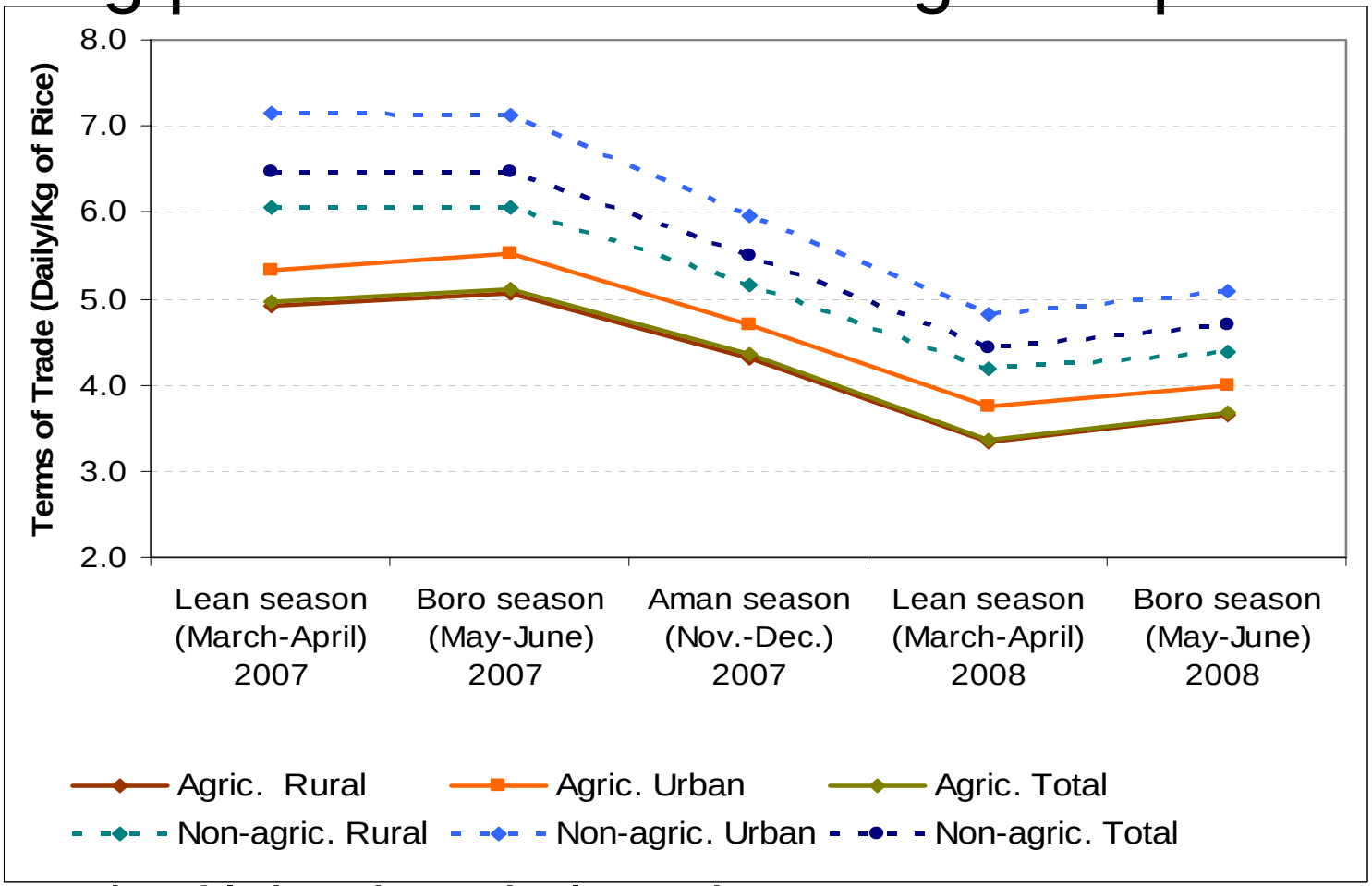
Households more dependant on the market…

- Number of market participants grows
  - "Net food buyers" group expands most (+28%)
    - Urban (+35%)
    - Female headed HHs (+68%)
    - Livelihood Groups becoming more dependant…
      - Wage laborers (Non-Ag) +59%
      - Casual Workers +55%
      - Remittance earners +53%

Impact on household income…

- Real Income per HH drops by 12%
  - HIES 2005: 4533 (BDT)
  - HHFSN 2008: 4000 (BDT)
- Nominal income, 2008 vs. 2007
  - 2008 increases by 11%

Purchasing power fell due to rising food prices…



A day's worth of labor bought less rice…

March 2007:

1 day's wage = 5 to 7 kg of coarse rice.

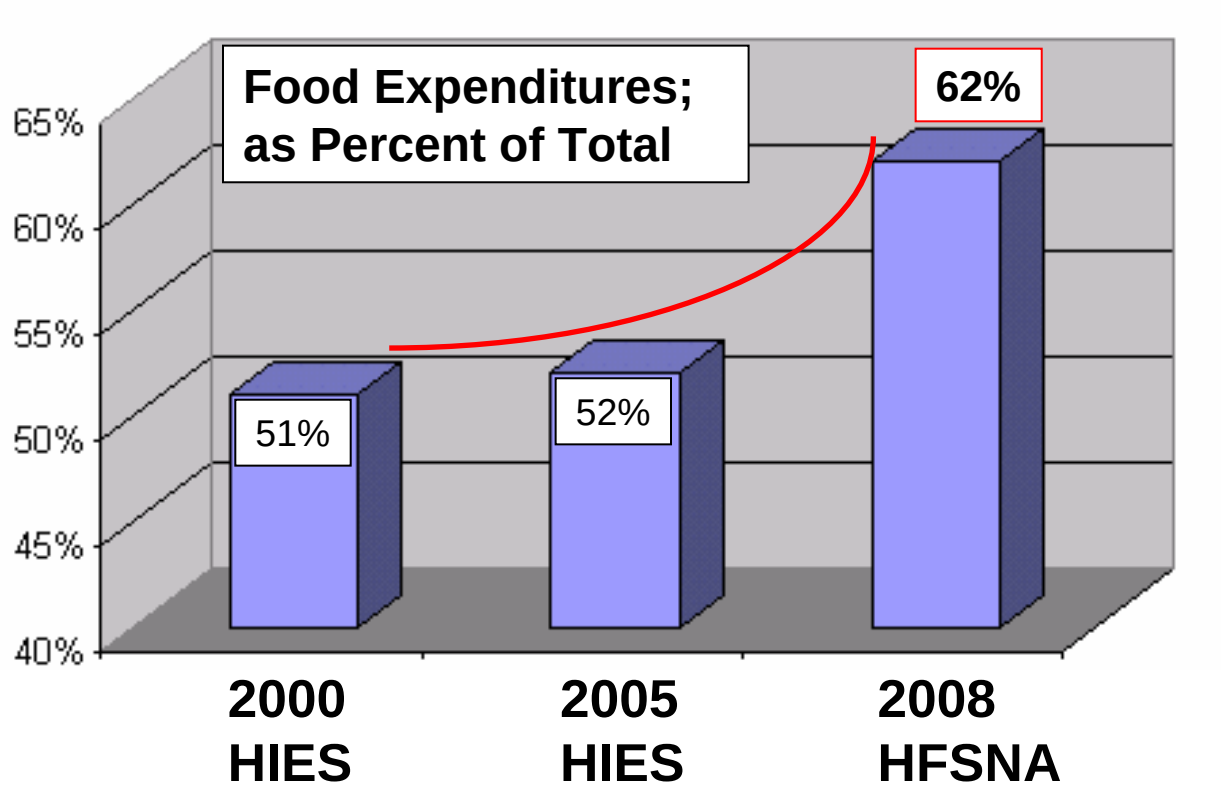
June 2008:

1day's wage = 3.7 to 5 kg of coarse rice.

The amount (need specific; i.e. 4 kgs.) is enough to feed a household of 5 in a day.

However larger percentage share food expenditures … compromised expenditures on other non-food basic needs

Households spend more on food…



- Cause for concern
  - Less money for other basic needs
  - Potential impact on development, and MDGs

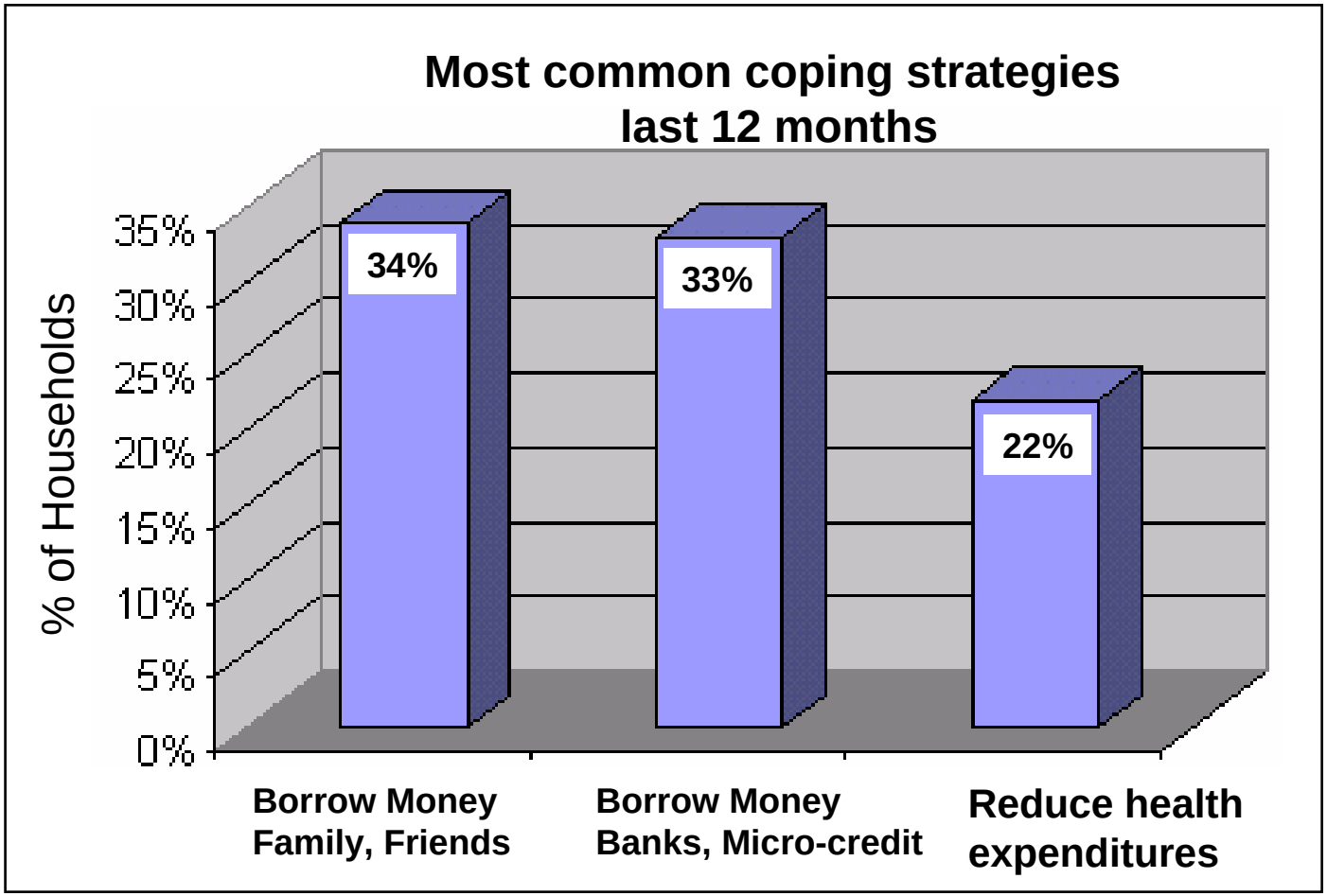
Households spend more on food…

- **Highest shares… by Division**
  - **Sylhet 67.7%, Chittagong (64%) and Dhaka (62.2%)**

- **Female-headed households 64 %**
  - **Vs. 62% MHH**

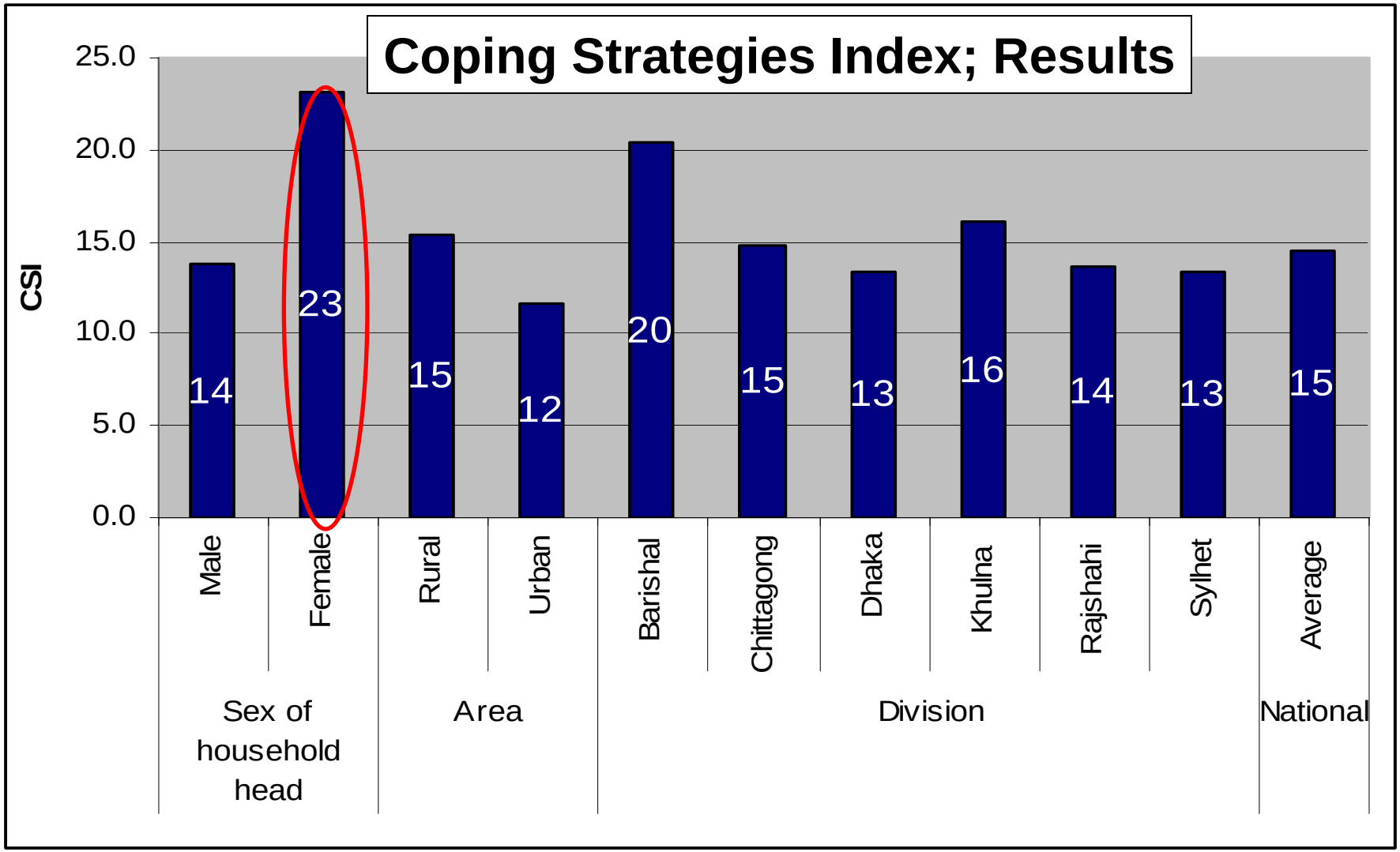
- **Unlike past expenditure patterns …**
  - **not much difference between rural urban food expenditures**

Coping by Taking on debt, and reducing health expenditures



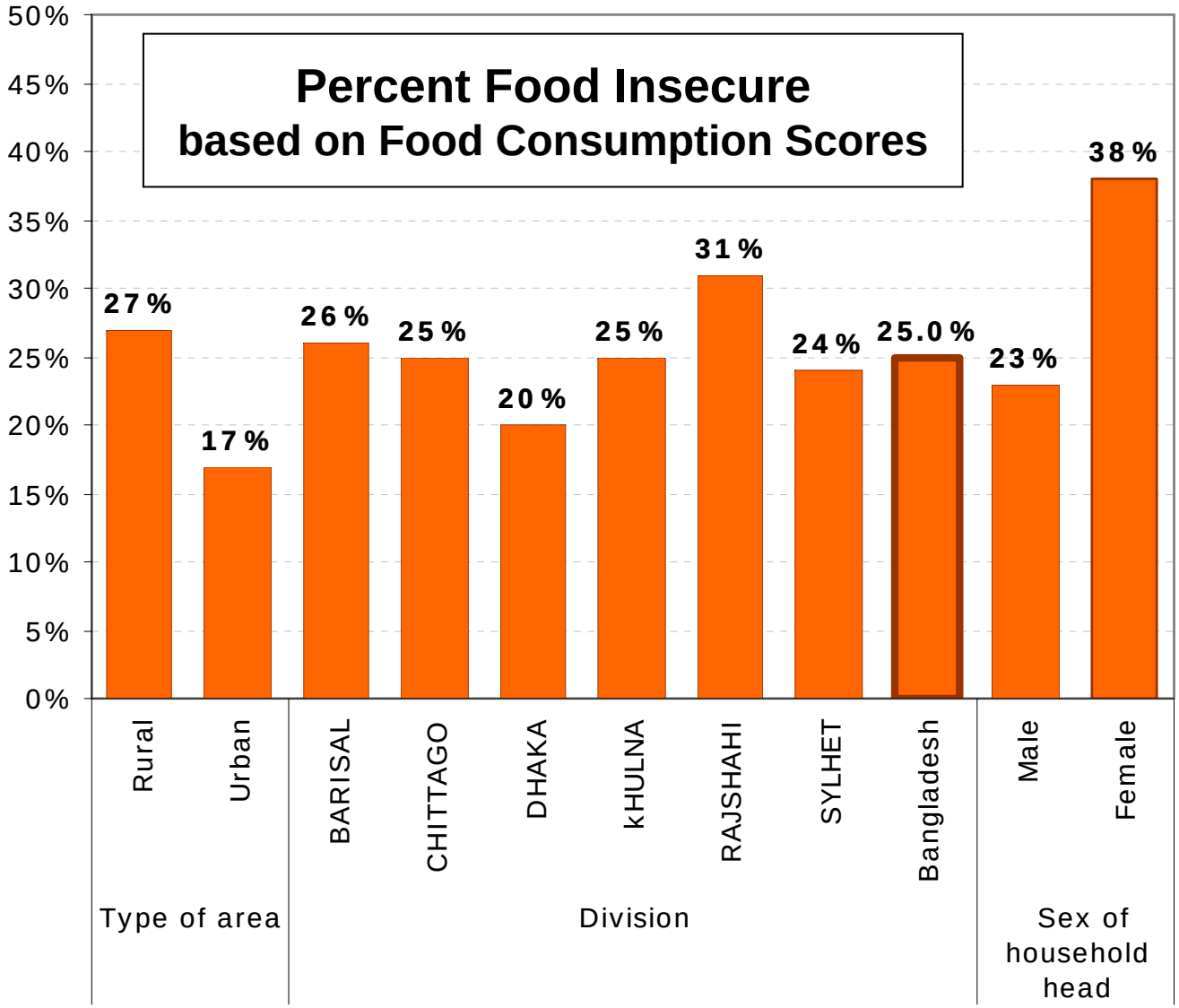
Source: survey, HHFSNA 2008

Female Headed Households Struggling to Cope



On average…Female headed hhs had comparatively much higher; 64% higher… CSI scores vs. HHs headed by males.

One in four (25%) of households are food insecure



Who are the most affected households?

	% Food Insecure (Food Consumption Scores)	% Spent on food	Coping Strategies Index Scores
Non-agric. labourers	38%	69%	23
Agric. labourers	45%	69%	27
Casual workers	56%	76%	26
Average	25%	62%	14

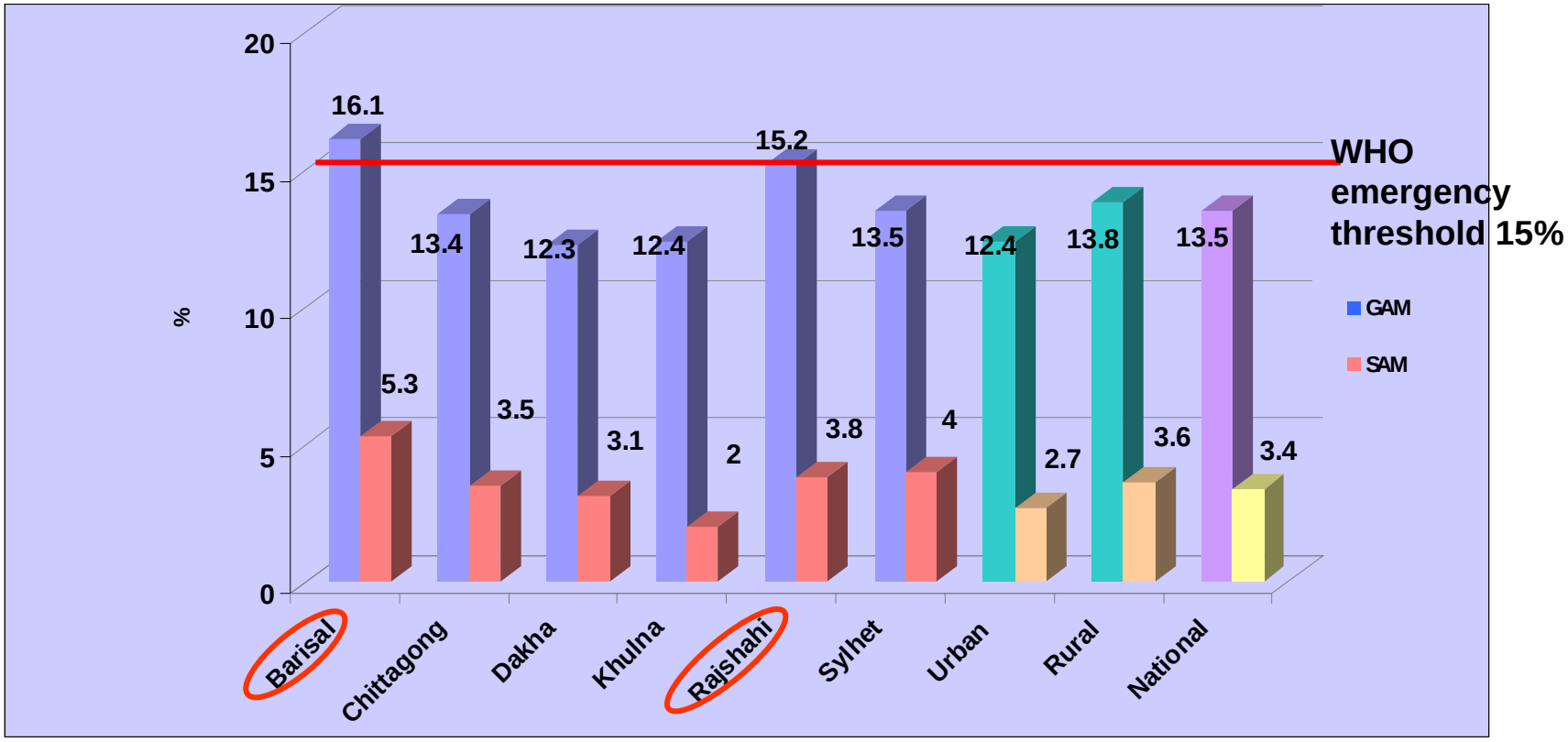
3.4. Nutrition, Health, Water and Sanitation

Child Nutrition

2009 National Estimates:
Child Malnutrition, Wasting, Stunting, Underweight
6 – 59 months (WHO standards)

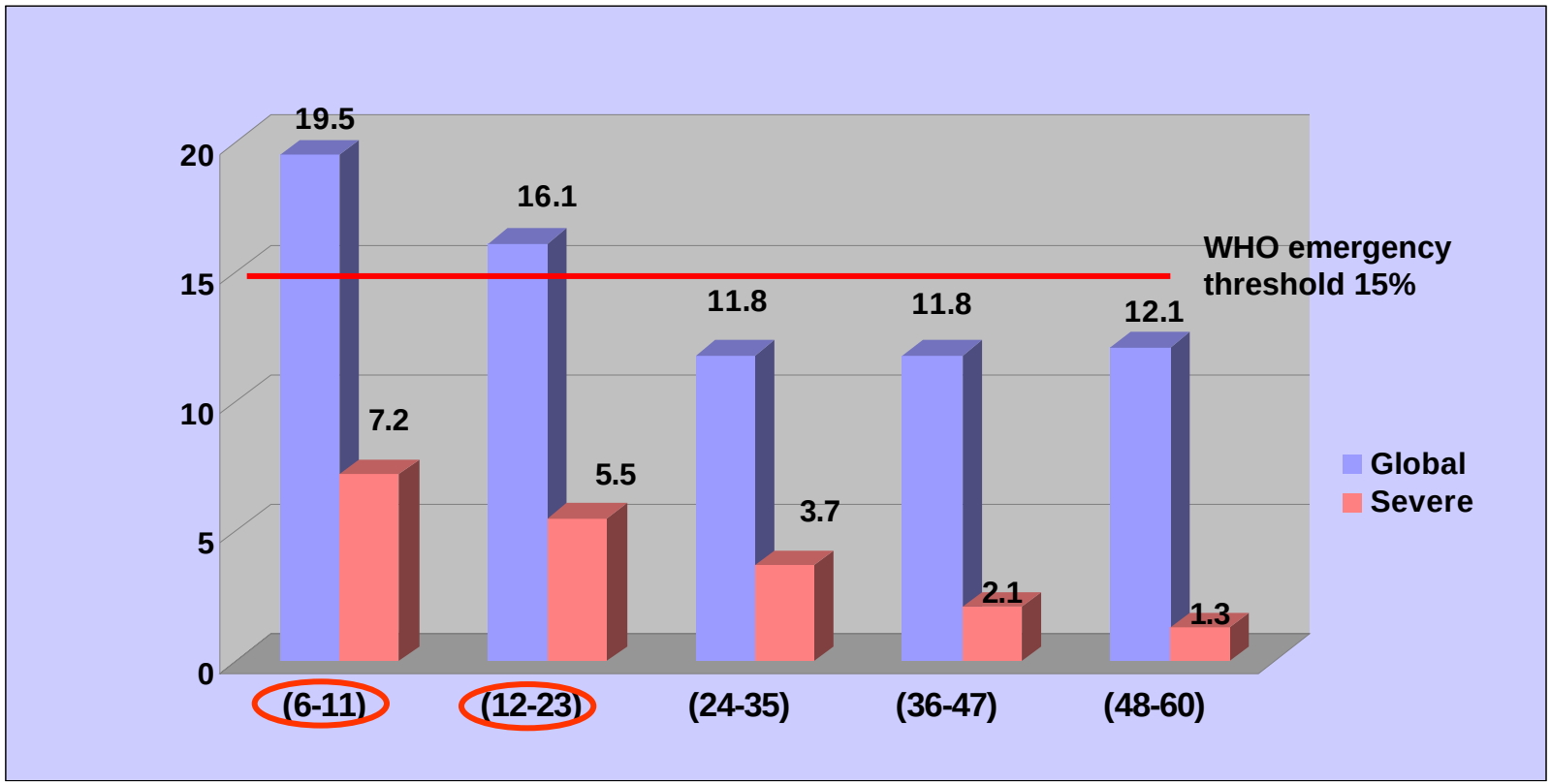
Children 6 – 59 months	Wasting (WHZ)	Stunting (HAZ)	Underweight (WAZ)
Global Malnutrition:	13.5% (CI 12.1-15.0)	48.6% (CI 46.5-50.6)	37.4% (CI 35.4-39.5)
Severe Malnutrition:	3.4% (CI 2.8-4.2)	20.1% (CI 18.4-21.8)	12.3% (CI 10.9-13.8)

Child Malnutrition, Wasting, 6 - 59 months
By Division, Areas and National (WHO standards) *n=4002*



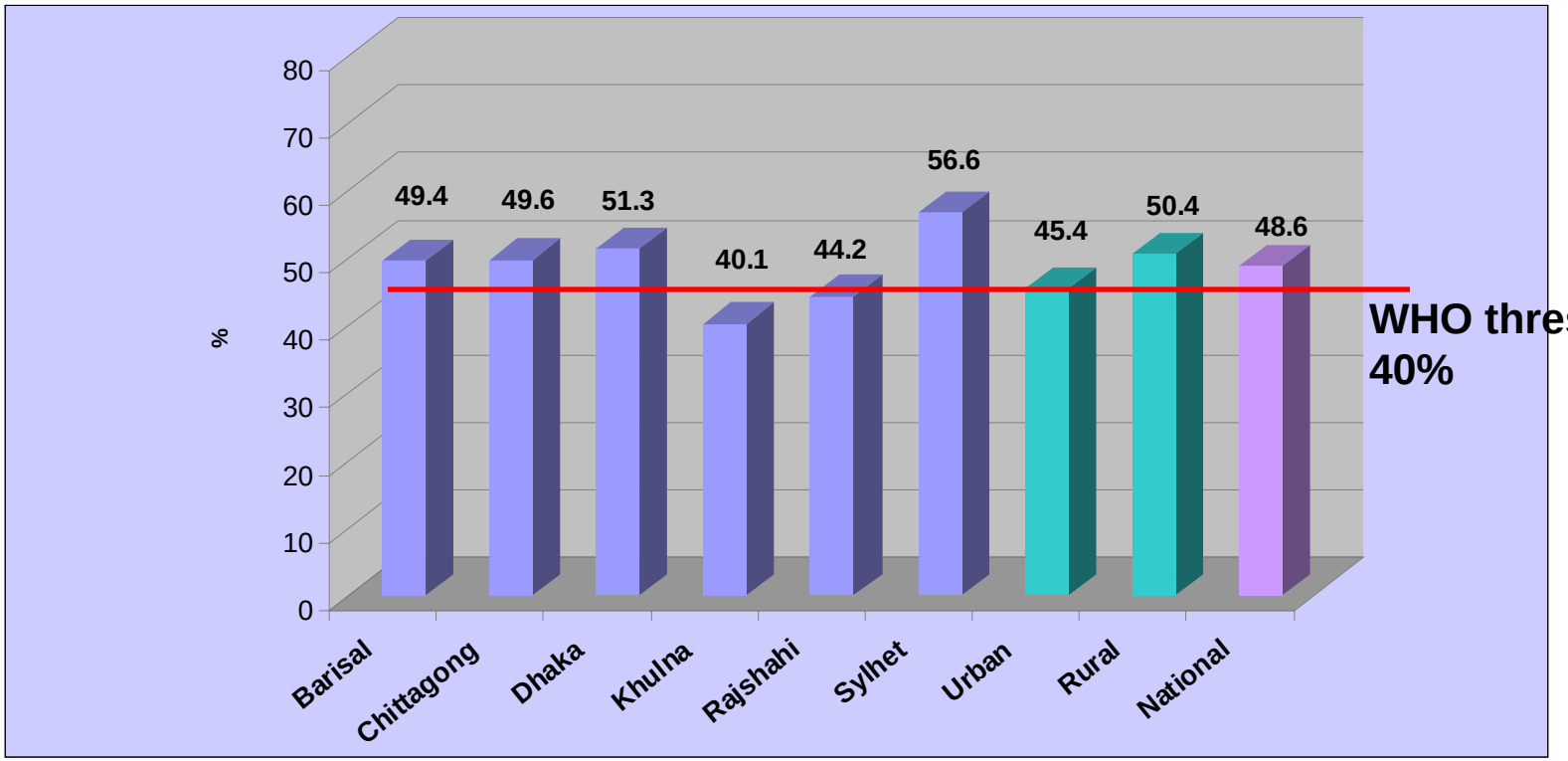
Wasting is worse in Barisal and Rajshahi divisions. These findings are consistent with Food Security findings – the most food insecure [*poor /borderline food consumption groups*] divisions are in these the same divisions

Child Malnutrition, Wasting, 6 - 59 months, by Age Group (WHO standards) *n=4002*



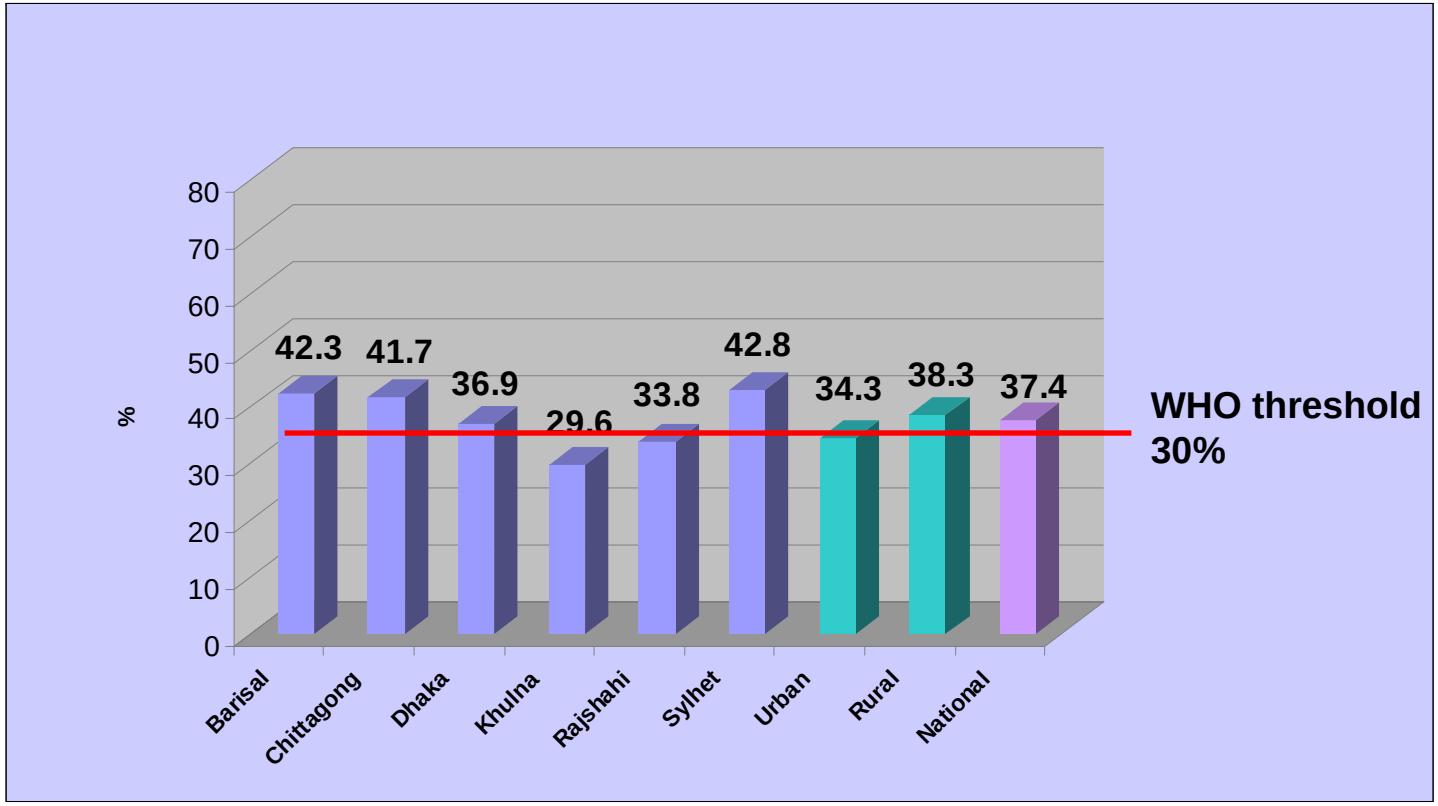
More children aged 6-23 months are malnourished than children aged 24-59 months **and this is closely linked to the poor feeding practices.**

Child Malnutrition, Stunting, 6 - 59 months
By Division, Areas and National (WHO standards) *n=3931*



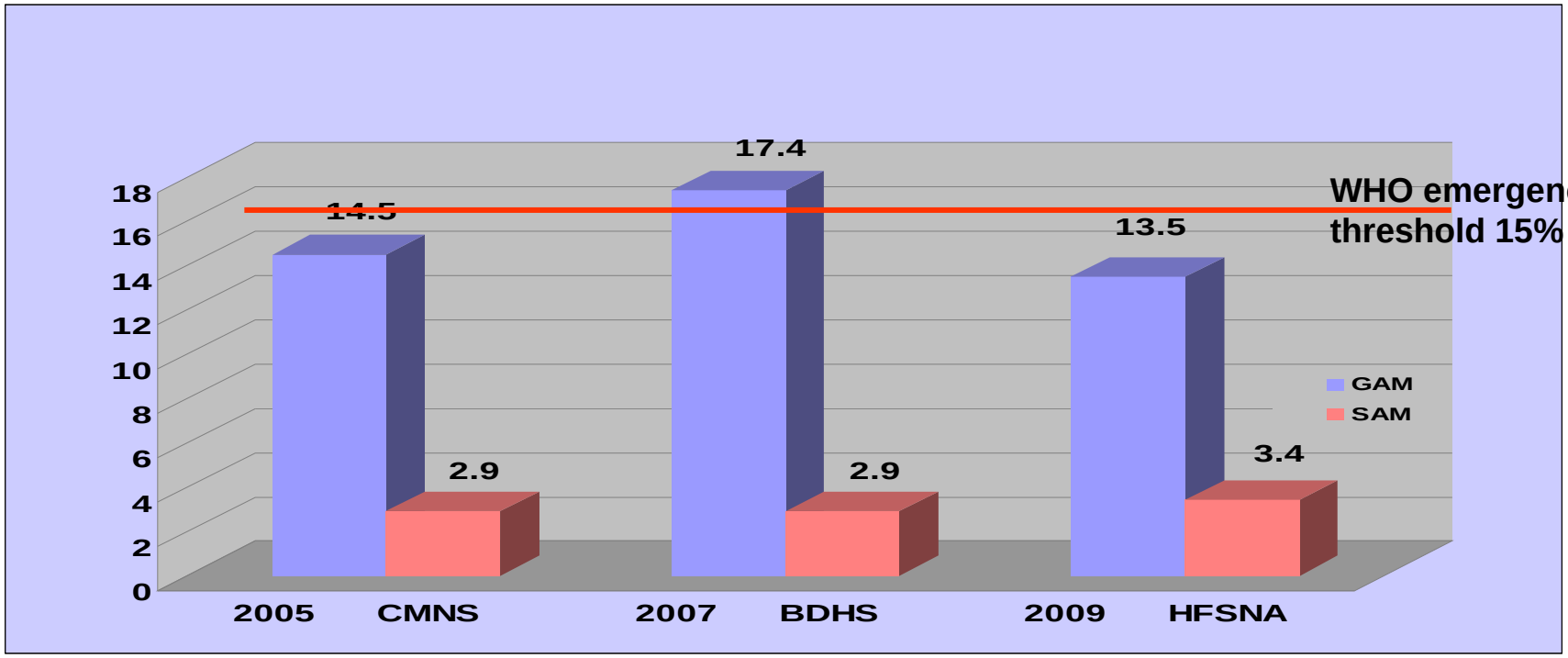
Overall, stunting remains high across all divisions. Sylhet has the highest stunting rate while Dhaka, Barisal and CHT are higher than the national average. Sylhet has a high increase of food expenditures and it is also one of the divisions affected by price transmissions**.**

Child Malnutrition, Underweight, 6 - 59 months
By Division, Areas and National (WHO standards) *n=4175*



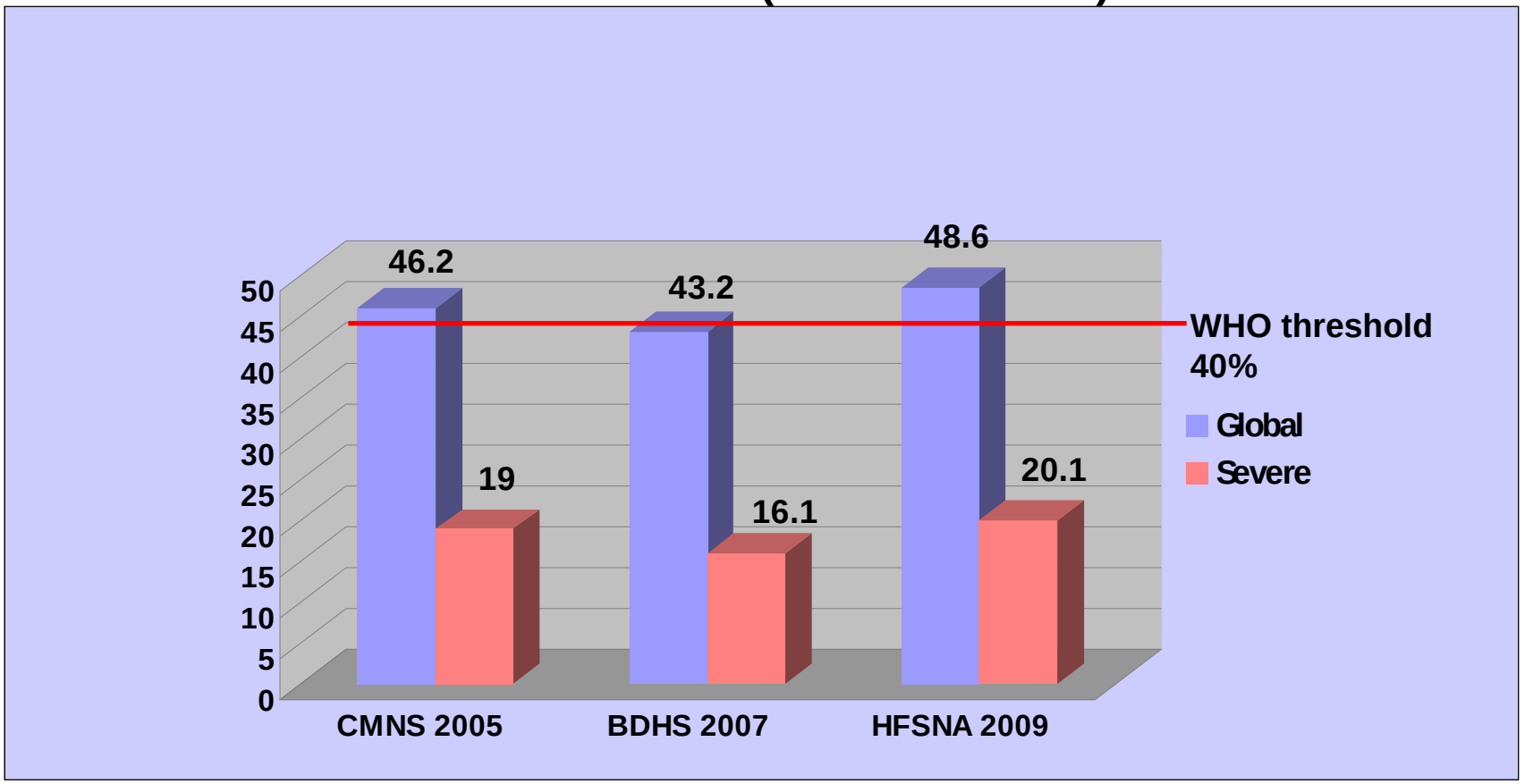
Levels of underweight are all above the 30% WHO threshold with exception of Khulna division. Barisal and Sylhet have shown high rates of underweight which are consistent with the food security situation in those two divisions

National Estimates:
Child Malnutrition, Wasting, 2005 - 2009 (WHO standards)



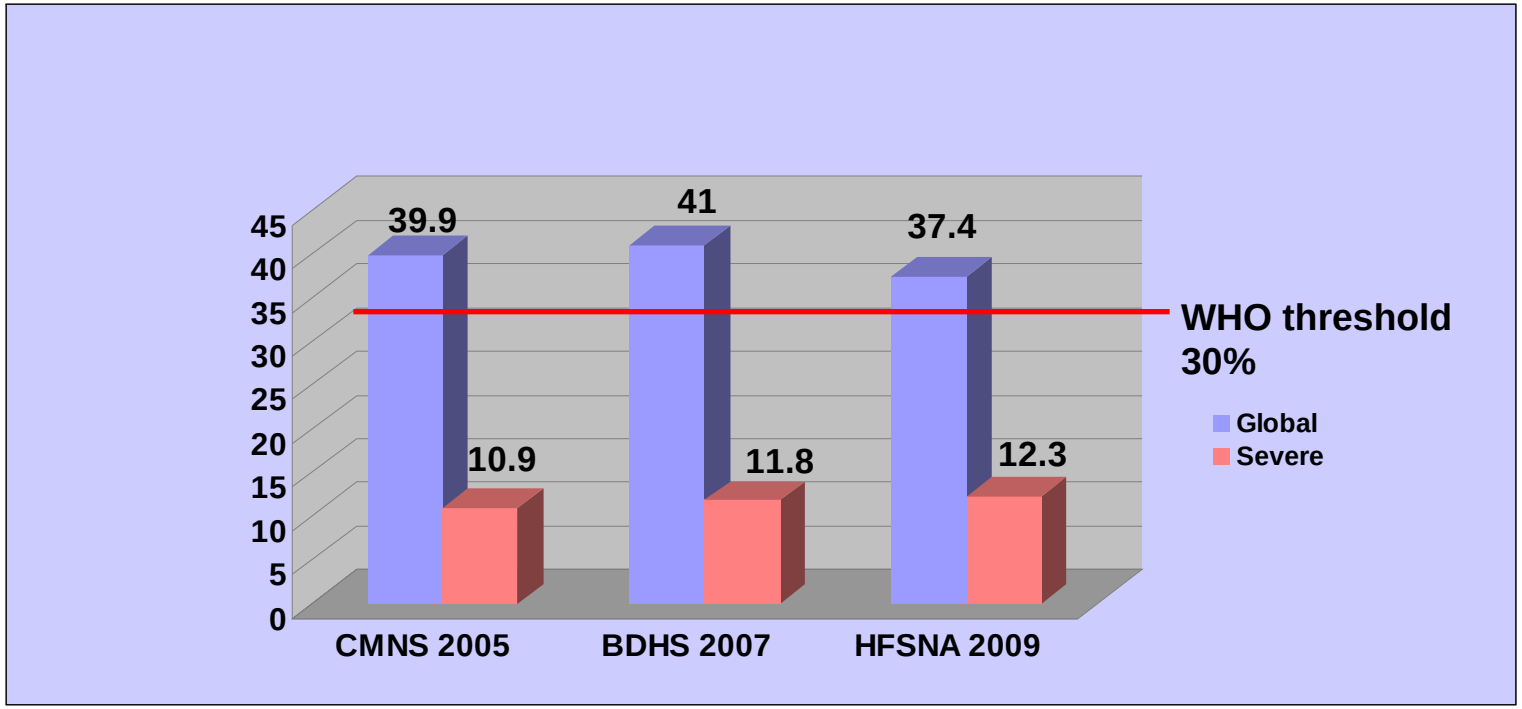
Levels of acute malnutrition has decreased – compared to BDHS 2007. However, since this survey was conducted during the best period of the year, **GAM rate of 13.5% (which is just below the emergency threshold) indicates a serious nutritional situation.**

National Estimates: Child Malnutrition, Stunting 2005 - 2009 (WHO standards)



Stunting levels have increased – but remain stable in comparison to 2005. This is in harmony with the analysis of the food consumption groups and dietary intake

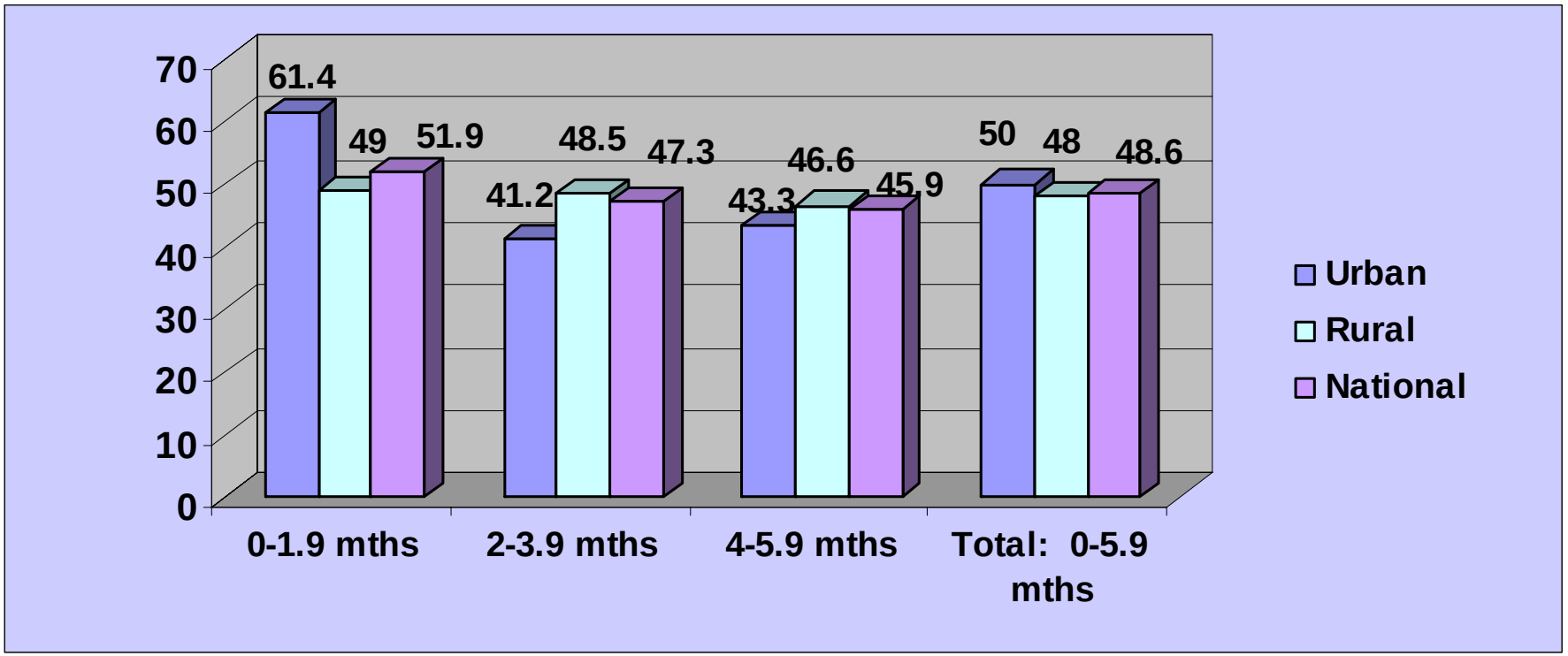
National Estimates:
Child Malnutrition, Underweight
2005 - 2009 (WHO standards)



Underweight has decreased a little, but it still remains above the WHO thresholds – however, survey conducted during the harvest season, thus this explains the "improvement"

Infant & Young Child Feeding Practices

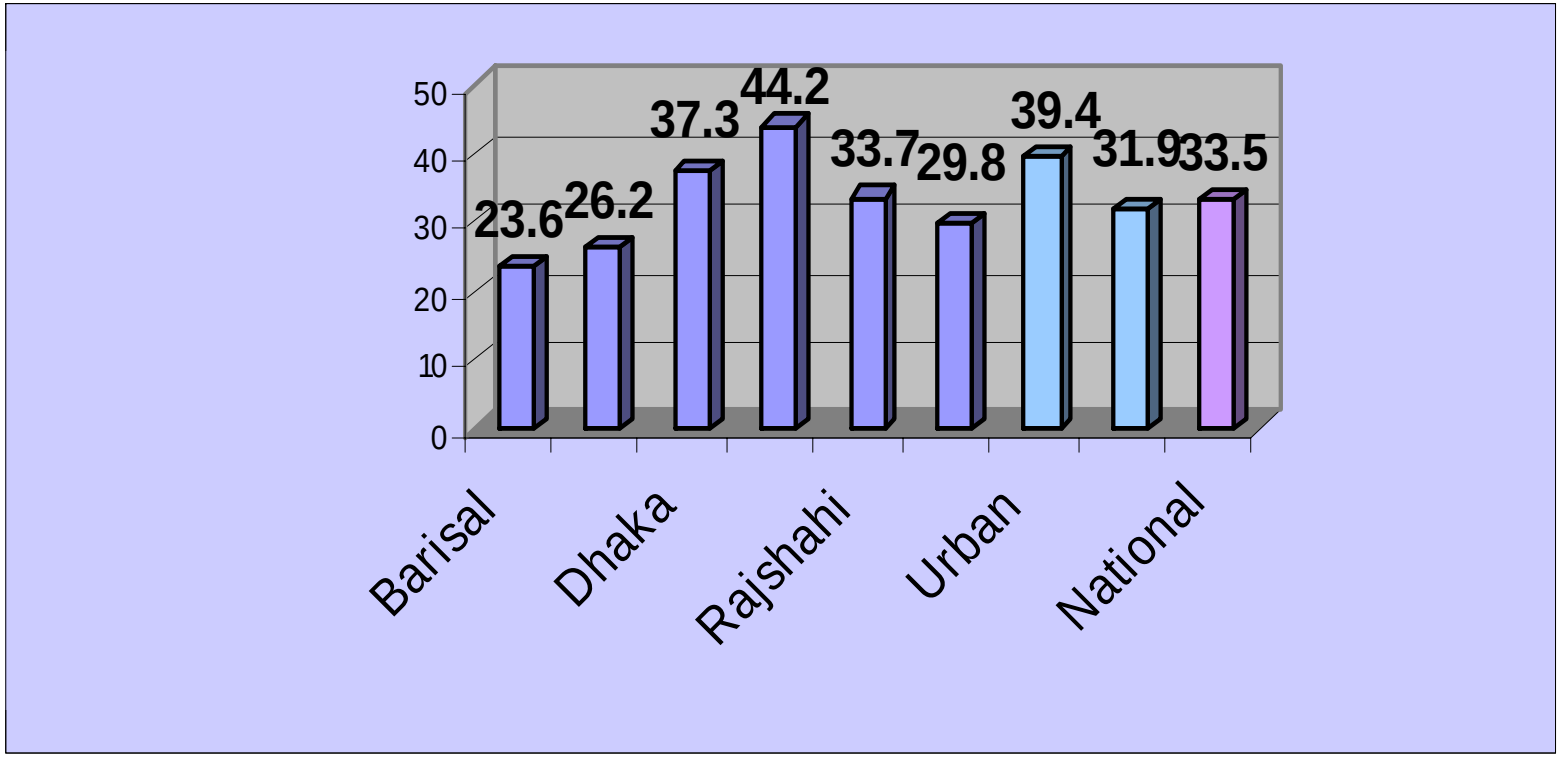
Exclusive Breastfeeding 0- 6 Months, by Age and Area



Poor infant and young child feeding practices with limited practice of exclusive breastfeeding to 6 months

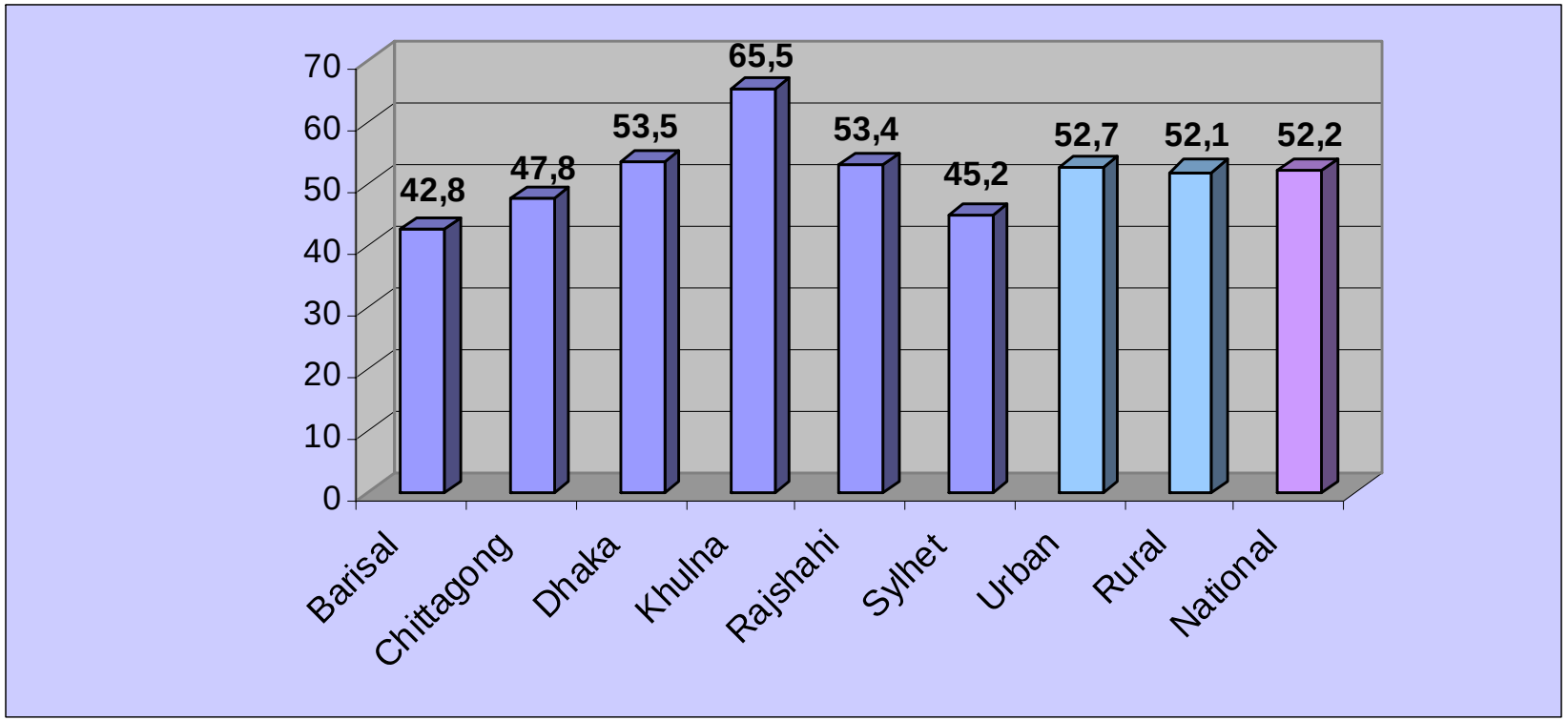
Infant & Young Child Feeding Practices

Percentage of children 6 - 23.9 months that received a minimum diet diversity
Min. 4 food groups/day from 7 different food groups



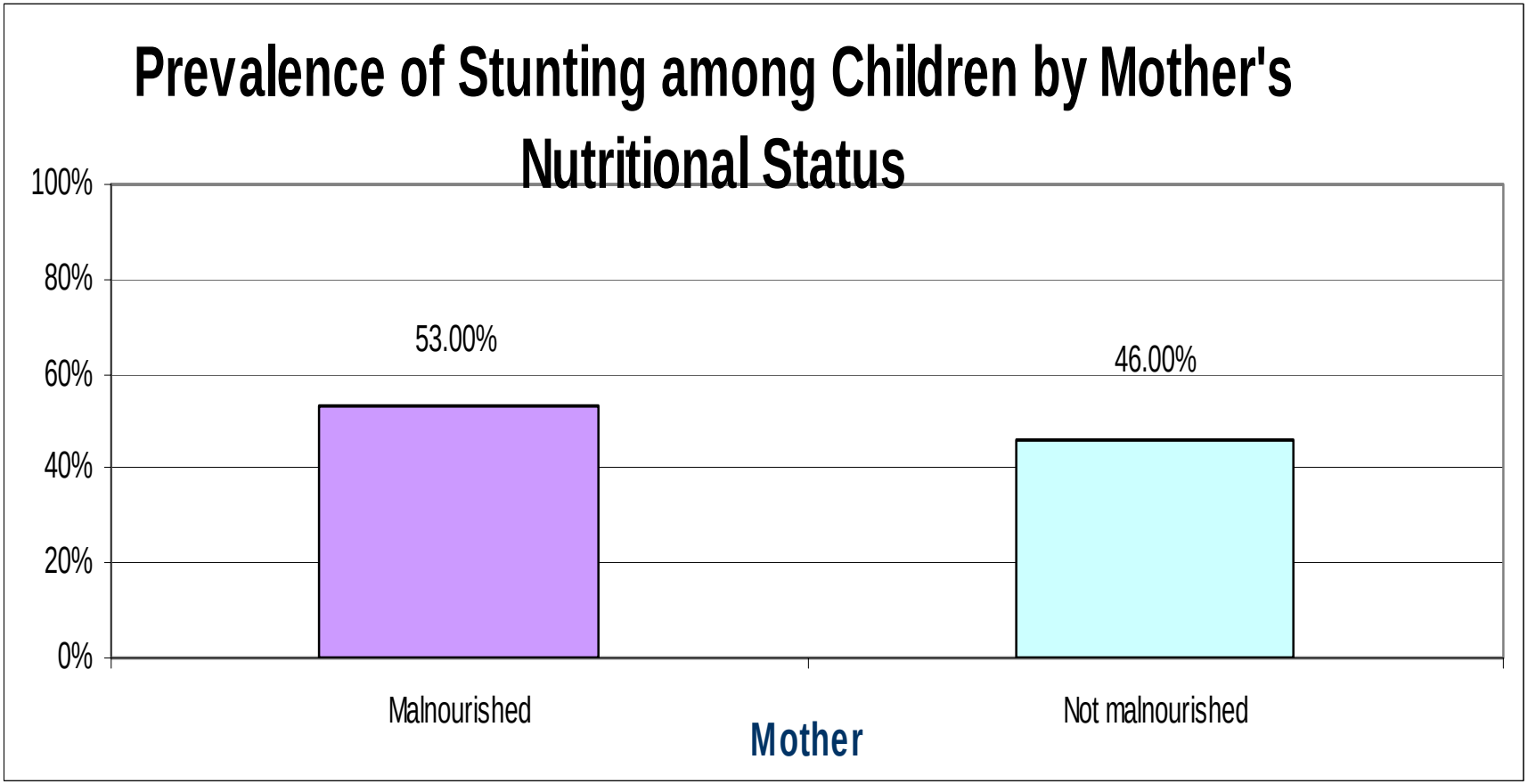
Over 60% of the children age 6-24 months did not received the **minimum diet of at least 4 food groups a day**

Percentage of children 6-24 months that received a **minimum meal frequency**



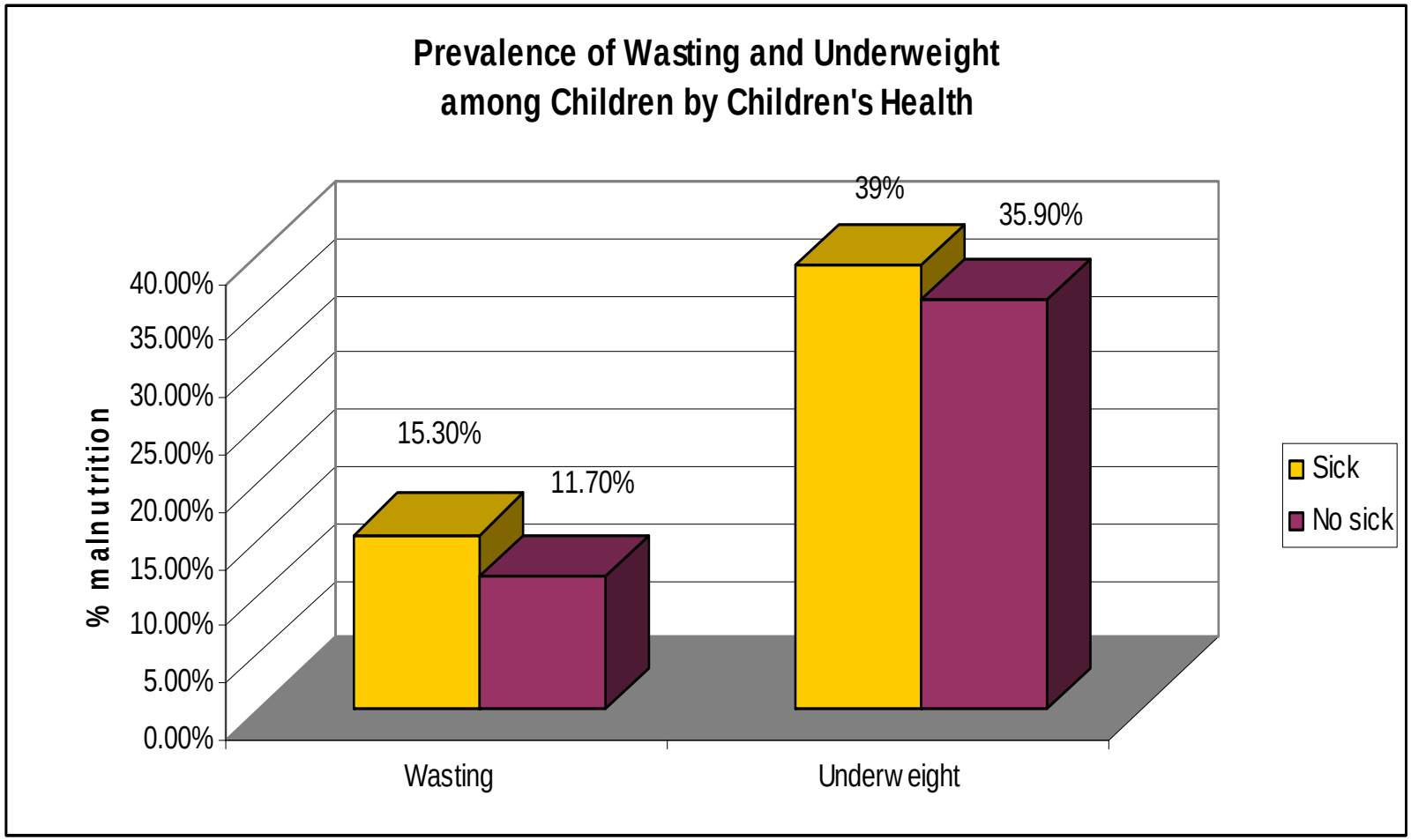
About 50% of the children 6-24 months did not receive a **minimum meal frequency** - Barisal, Chittagong and Sylhet are the worst.

Maternal Nutrition



Stunting is closely correlated with poor maternal nutrition status

(Note: Maternal nutrition status based on low MUAC of <221 mm)



Both wasted and underweight children are more likely to be illness than stunted children.

Maternal Nutrition

- **MUAC: 18.2%** < 221 mm GAM and **8.9%** < 214 mm SAM **(**WHO cut-off)
- **Vitamin A** coverage in mothers 6-weeks post-partum: **34%**
- **Iron/folate** supplementation of pregnant women: **50.3%**

Morbidity, Mortality, Water and Sanitation

Child Health

•**48.6%** of children were ill in the 2-weeks before the survey (49% rural, 47.5% urban)

•85% of children were brought to health facilities. Lack of money was the major reason (**45.5%**) for those children not brought for health care.

General Health: (household)

•**50.8%** reported illness in the previous 2-weeks (51.1% rural, 50% urban)

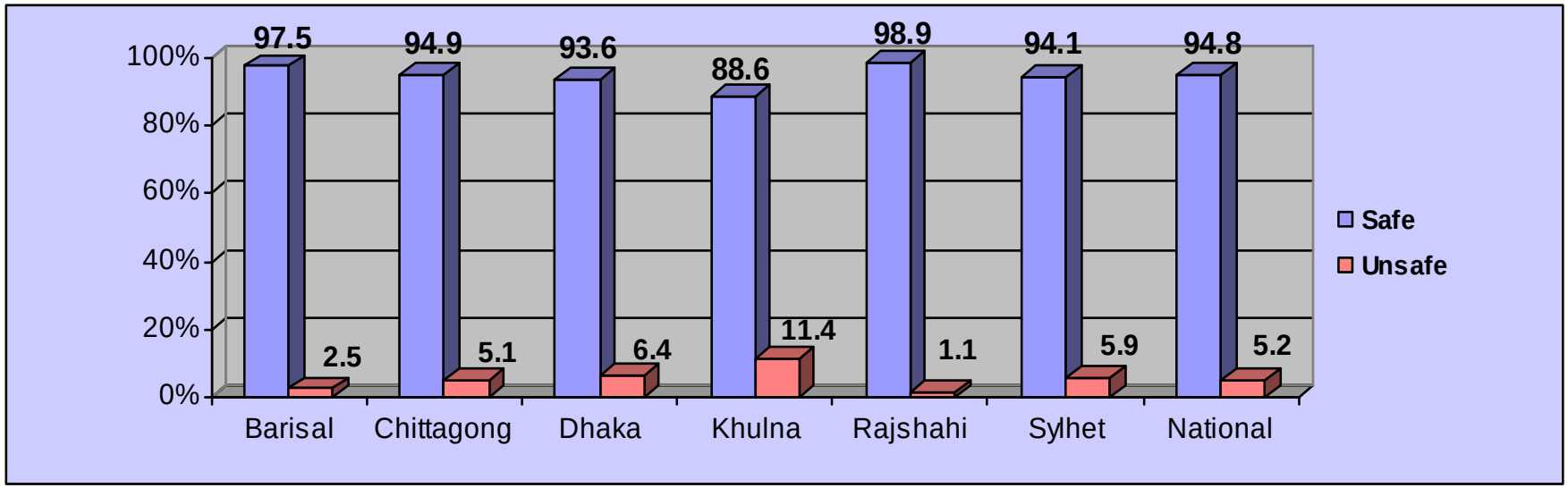
•85% of the households surveyed sought healthcare treatment. Of those that did not, **65.6%** stated that lack of money was the major reason.

General Mortality and Child Mortality, Under-5 Years

Area	U5 Mortality Rate total U5 deaths/10,000 U5 children/day (alert threshold: >2.0/10,000/day)	Crude Mortality Rate: total deaths/10,000 persons/day (alert threshold: >1.0/10,000/day)
National	**0.66 (CI 0.64-0.68)**	**0.22 (CI 0.21-0.23)**
Barisal	0.66 (CI 0.61-0.71)	0.10 (CI 0.09-0.11)
Chittagong	0.72 (CI 0.69-0.74)	0.22 (CI 0.21-0.23)
Dhaka	0.71 (CI 0.69-0.73)	0.34 (CI 0.33-0.35)
Khulna	0.60 (CI 0.56-0.64)	0.17 (CI 0.16-0.18)
Rajshahi	0.58 (CI 0.55-0.61)	0.30 (CI 0.29-0.31)
Sylhet	0.61 (CI 0.56-0.66)	0.08 (CI 0.07-0.09)
Rural	0.65 (CI 0.64-0.66)	0.26 (CI 0.25-0.27)
Urban	0.71 (CI 0.68-0.74)	0.14 (CI 0.13-0.15)

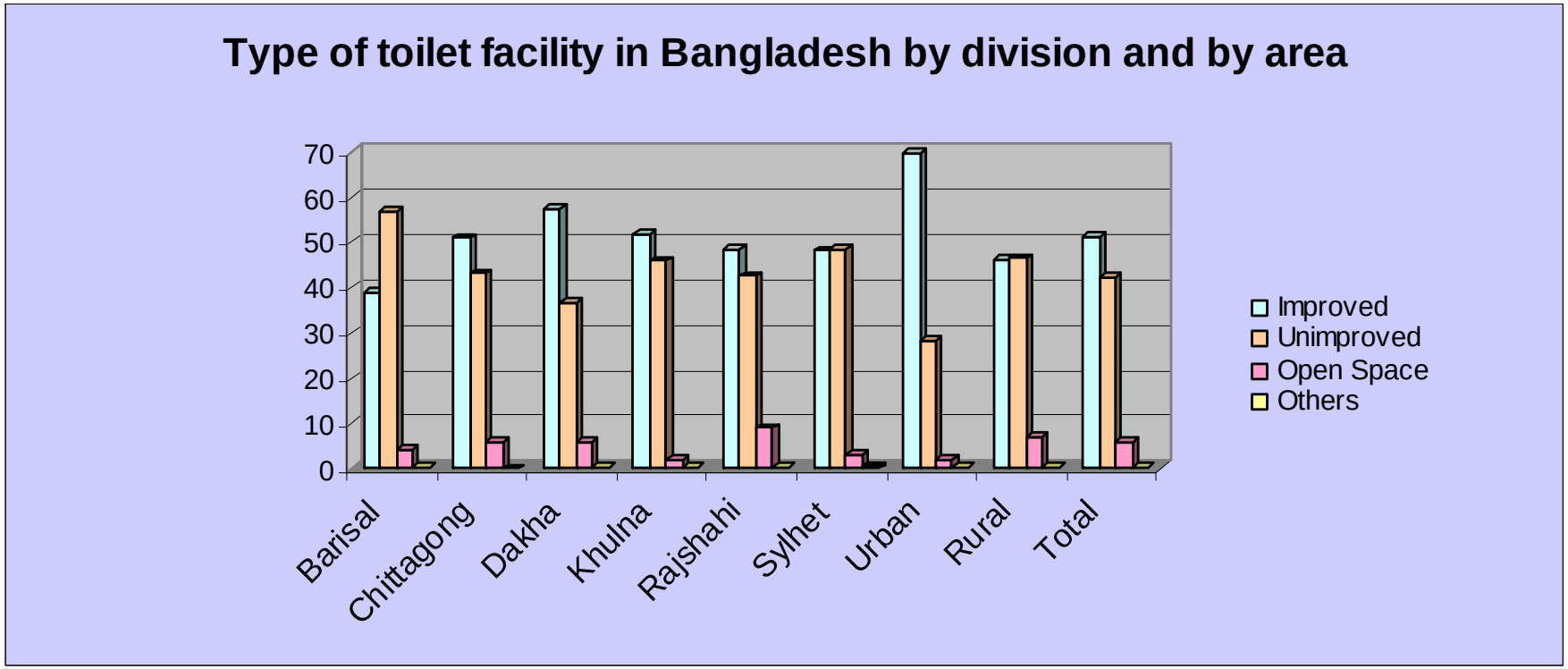
Mortality rates well below alert and emergency thresholds, both nationally, and within divisions. There is no statistical difference between urban and rural.

Percent of households with safe sources of drinking water



89.3% of the population have as a main source of drinking water, a tubewell or borehole at the moment of the survey, but **only 7.5% of households treat their drinking water at the moment (no change from 12 months ago)**

Sanitation



51.4% of the population used an improved toilet facility, usage of improved latrine more in urban area compared to rural area

3.5. Malnutrition and Household Food Security Linkages

FOOD SECURITY and NUTRITION LINKAGES

Statistical Linkages (Significant)

- Children within households with **Poor and borderline household food consumption scores** are more likely to be malnourished (wasting, stunting, underweight).
- Household with high percent share of **food expenditures** were more likely to have malnourished children (wasting, stunting, underweight)
- Households having higher **Coping Strategy Index (CSI)** scores are more likely to have malnourished children (wasting, stunting, underweight)
- Households with seasonal or irregular income **(agriculture wage, non-agriculture wage and casual work)** are more likely to have malnourished children (stunting / underweight)

4. Conclusions

Household Food Security and Markets

- Trade barriers were a major contributing factor re: food price rise.
- Food traders identify main constraints; low capital for investment in food storage facilities.
- Households heavy reliance on debt to cope with food access problems.
- Households spent a greater percent of their total expenditures on food
- Households compromise health care expenditures to cope; implications for MDGs etc.
- Social protection and Social Safety Net expansion needs to be faster, more agile, and better targeted

Nutrition, Health, Water and Sanitation

- Overall, wasting and underweight levels remains high while there is a slight increase in stunting levels
- The youngest children present **higher rates malnutrition, especially acute malnutrition**
- **Diet quality** does not meet acceptable levels for children, thus young children less than two years of age **do not eat the minimum acceptable diet**.
- Child malnutrition is strongly associated with the two main indicators for **food security (i.e. children from poor and border line food consumption groups or/and from households with increase % of expenditure on food are more likely to be malnourished)**
- **Prevalence of illness among other household member and among children under five year old** is high. Lack of money is an important reason for not seeking medical care, while fever, respiratory illness and diarrhoea are significantly associated with acute malnutrition (*wasting*)
- **Mortality rates** remain below alert and emergency thresholds
- Overall, **water and sanitation** indicators are stable but **quality of water** and **water treatment** not necessarily good.

5. Recommendations

Recommendations

1. Enhance the efficiency and effectiveness of the **Social Safety Net system**; expand coverage in areas of high malnutrition and food insecurity.

2. Targeted **supplementary feeding w/ micronutrients** for vulnerable groups, Children Under 5's, Under 2's, Pregnant and/or Lactating Women

3. **Cash interventions** when food abundant, accounting for seasonality, and market availability; otherwise **targeted food assistance**.

4. Support investment in food marketing and storage **infrastructure**, e.g. warehouses for larger stocks.

5. **Promote open trade policies** within region, avoid policies that result in trade barriers.

Recommendations

6. Invest more and build on existing information systems for **monitoring and surveillance, early warning for early actions**

7. Address the large numbers of acutely malnourished children with m**anagement of acute malnutrition** at both **facility and community levels**

8. Improve **optimal infant and young child feeding** -emphasizing maternal and community participation

9. Emphasize **micronutrient-enriched foods and diet diversity** in food assistance interventions, food security and nutritional programmes

10. Strengthen **health and hygiene promotion** to prevent and treat diarrhoeal disease, respiratory infections and fever

11. Harmonized and develop and standardized **national survey guidelines to enable data quality and comparability.**