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The Challenge of Child Undernutrition in Uttar Pradesh: Findings from a Situation Assessment

Report

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ABOUT POSHAN

POSHAN (Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India) is a 4-year initiative that aims to build evidence on effective actions for nutrition and support the use of evidence in decisionmaking. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.

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Acronyms and Abbreviations

AHS	Annual Health Survey
ANC	antenatal care
ANM	auxiliary nurse midwife
AWC	*anganwadi* center
AWW	*anganwadi* worker
BCC	behavior change communication
BPM	*Bal Parivar Mitra*
BSPM	*Bal Swasthya Poshan Mah*
CA	change agent
CES	Coverage Evaluation Survey
DLHS	District Level Household and Facility Survey
HUNGaMA	hunger and malnutrition
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
IYCF	infant and young child feeding
IFA	iron folic acid
IFPRI	International Food Policy Research Institute
MCHN	Maternal Child Health and Nutrition project
MNCHN	Maternal, Newborn, Child Health and Nutrition Development Partners Forum
MNI	Mainstreaming Nutrition Initiative
NFHS	National Family Health Survey
NRC	nutrition rehabilitation center
NRHM	National Rural Health Mission
NSDP	new state domestic product
ORS	oral rehydration solution
POSHAN	Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
RACHNA	Reproductive and Child Health, Nutrition, and HIV/AIDS program
SAM	severe acute malnutrition
THR	take-home ration
UMANG	Uplifting Marriage Age, Nutrition and Growth program
UNICEF	United Nations Children's Fund

Executive Summary

This paper analyzes the current nutrition situation in Uttar Pradesh and examines nutrition-related services, programs, and policies with the goal of informing strategic directions for nutrition-related policy in Uttar Pradesh. This paper uses an assessment framework that explicitly considers the biological, programmatic, and sociopolitical aspects of nutrition in Uttar Pradesh. It draws on primary and secondary data sources; published literature, results of a stakeholder network mapping exercise and in-depth, semi-structured interviews with key nutrition stakeholders in Uttar Pradesh.

An assessment of the ***biological*** aspects of nutrition reveals the following about the nutrition situation in Uttar Pradesh:

1. Maternal and child undernutrition in Uttar Pradesh is particularly severe, not only in terms of the prevalence, but also in sheer numbers.
2. Despite substantial reductions in severe childhood underweight, particularly in high-burden districts in Uttar Pradesh, the burden of childhood stunting, underweight, and wasting remains high.
3. Data from Uttar Pradesh reaffirm the importance of prepregnancy and the first two years of life as a critical window within which to intervene.
4. Nutrition-specific challenges in Uttar Pradesh include poor maternal nutrition, exceptionally poor infant and young child feeding and hygiene practices, and poor availability and use of basic health services.
5. The troublesome state of underlying determinants of nutrition, such as poverty, access to water, sanitation, food insecurity, and female education further impede the ability to rapidly reduce undernutrition.
6. Last, but not least, there is a dire lack of updated data on nutrition in Uttar Pradesh; the most recent state-level data available are from 2005 to 2006, and the most recent district-level data, only for a subset of districts, are from 2010 to 2011.

Our analysis of ***programmatic*** factors finds that several state-level nutrition policies and programs have been initiated and implemented in Uttar Pradesh over the last decade. The availability of Integrated Child Development Services (ICDS) has also increased substantially in the last few years, indicating that the universalization of ICDS is well underway in Uttar Pradesh. At the same time, interviews with stakeholders reveal some very significant implementation challenges related to the quality of service delivery, convergence between health and ICDS, lack of leadership for nutrition, and the poor use of evidence to improve service delivery. Furthermore, system and frontline capacities at the district, block, and village levels are all considered impediments to delivering nutrition programs and services. Finally, indirect determinants of undernutrition, such as access to clean drinking water and sanitation, have not traditionally been on the nutrition policy agenda, as it has been singularly ICDS-focused for the past several years, even at the national level.

From a ***sociopolitical*** perspective, interviews reveal a great diversity of actors involved in nutrition in the state and highlight the absence of consensus on the nature and extent of the nutrition problem in addition to a dearth of possible solutions to address these problems. Although organizations like the United Nations Children's Fund (UNICEF) have traditionally played a strong supporting role in improving programming for nutrition in Uttar Pradesh, the Uttar Pradesh state government itself was noted to not have been at the core of driving actions for nutrition for the past several years. However, the emergence of the UP Nutrition Mission in 2013 is a dramatic change in political commitment for nutrition in Uttar Pradesh, and the time to act definitively for nutrition in Uttar Pradesh is now.

Based our analysis, we recommend the following key actions to translate Uttar Pradesh's current high-level commitments to nutrition into action and impact for children:

- Invest in routine, high-quality surveys and/or surveillance on nutrition in order to establish and benchmark the nature, severity, and variability of the nutrition situation in the state, to set targets for the UP Nutrition Mission, and to monitor progress on nutrition interventions on an ongoing basis.
- Support the active implementation and monitoring of essential nutrition interventions.
- Identify the most critical operational bottlenecks to delivering nutrition-specific interventions to prioritize operations research and systems strengthening in order to build locally relevant knowledge.
- Improve state technical and program capacity to design and implement district- and block-level nutrition actions.
- Develop explicit advocacy and stakeholder engagement strategies to ensure that *political* commitment for nutrition is kept high on the agenda.
- Strengthen stakeholder consensus around the nature and extent of the nutrition problem in Uttar Pradesh and identify cross-sectoral solutions to address undernutrition. This could be achieved through the establishment of a neutral, state-level nutrition coalition.
- Institute an inclusive and extensive advocacy process to build awareness on critical actions for nutrition, not just among actors at the state-level, but also at the district, block, and village levels.

Introduction

Despite tremendous economic progress in the last 20 years, the most recent Global Hunger Index 2012 [2] reports that India ranks a distant 65th out of 79 countries and classifies the hunger situation in India as "alarming." Great disparities exist between the states within India with respect to hunger and nutrition, however. The India State Hunger Index 2008 [3] reports that 7 out of 17 states recorded hunger levels that were higher than the national average. Uttar Pradesh, the most populous state in India, ranks among these 7 states.

Child undernutrition is, by now, well recognized as one of India's most challenging development issues. However, actions to address child undernutrition must consider the nature of the problem and its determinants, as well as the landscape within which actions to improve nutrition must be taken. Given India's decentralized government system, a nationally focused analysis is inadequate, and state-specific analyses are critical to action. Therefore, understanding the nature of child undernutrition and its determinants, and analyzing the programmatic and political landscape for child undernutrition in a state-specific context, can go a long way in developing solutions to what is often considered an intractable problem in India's development story.

Thus, the goals of this situation analysis are to

1. analyze the current situation related to undernutrition and its determinants in Uttar Pradesh;
2. document the current landscape of programs, policies, and actors engaged in addressing undernutrition in Uttar Pradesh; and
3. identify key areas for action to strengthen policy and program actions for undernutrition in Uttar Pradesh.

Assessment Framework

Recent literature regarding nutrition policy processes suggests that an assessment that focuses not just on the patterns and determinants of the problem, but also on the underlying social and political actors and processes that shape the landscape for nutrition, is essential to identify the most contextually relevant entry points for action. Therefore, this paper utilizes an assessment framework developed by the Mainstreaming Nutrition Initiative (MNI) in order to understand child undernutrition in Uttar Pradesh. The MNI assessment framework encompasses the following three interrelated dimensions of undernutrition in order to provide a comprehensive understanding of the undernutrition problem and to explicitly recognize the role of programmatic and sociopolitical challenges in improving nutrition and assessing the nature and severity of the problem [1].

BIOLOGICAL AND EPIDEMIOLOGICAL DIMENSION OF NUTRITION

This dimension relates to the patterns and trends in undernutrition as well as direct and indirect determinants of nutrition. Examining this dimension provides an understanding of the nutrition situation, with a focus on the more proximal reasons for undernutrition. Direct determinants of child undernutrition include maternal nutritional status, infant and young child feeding practices, and the care and prevention of illness. Indirect determinants include household-level calorie deficiency and literacy and poverty levels.

PROGRAMMATIC INTERVENTIONS AND ENABLING ENVIRONMENT DIMENSION

This dimension relates to the status of interventions and programs intended to reduce the prevalence of undernutrition, or to shape the determinants of undernutrition. This includes programs implemented by the state government, development partners, and civil society. In the context of this paper, this dimension describes programs implemented by the state in addition to reform activities intended to address gaps in program implementation.

SOCIOPOLITICAL ENVIRONMENT AND GOVERNANCE DIMENSION

This dimension relates to the influence of political factors on the state of nutrition interventions and programs, the role of influential actors in the nutrition policy space, and the political will of the government to develop future nutrition policies. Nutrition assessments often do not *explicitly* capture the role of sociopolitical factors in determining the status of interventions and policies or in shaping the underlying economic and social context for nutrition.

Methods

In this section, we describe the methods used to examine each dimension of the assessment framework, including secondary data sources, literature review, stakeholder network mapping, stakeholder interviews, and technical review.

SECONDARY DATA SOURCES

We used reports and primary data from the National Family Health Surveys (NFHS) 2 (date range) and 3 (2005–2006) and the HUNGaMA Survey (2010–2011) for data on the biological, epidemiological, and programmatic aspects of nutrition in Uttar Pradesh. Primary data analysis focused mainly on descriptive analysis to examine the data on nutrition and its determinants for Uttar Pradesh from these data sources. Other data sources used extensively were the UNICEF Coverage Evaluation Survey (CES) 2009 report [2], the Annual Health Survey (AHS) 2011 [14], and a 2011 Indian Council of Medical Research (ICMR) report by Adhikari et al. [3].

LITERATURE REVIEW

Key sources of literature included academic articles [4, 5], program documents from government websites, program summaries on the UNICEF website, and project reports published by development partners [6–10]. We also drew on a program evidence review recently completed by the International Food Policy Research Institute (IFPRI) (Avula et al. 2013) for insights on essential interventions covered by the major program innovations tested in Uttar Pradesh [13].

STAKEHOLDER NETWORK MAPPING

We used a stakeholder network mapping methodology called Net-Map[1] to understand the overall landscape of influential stakeholders in the nutrition policy space. This method is a participatory interview technique that aids in understanding, visualizing, and discussing situations in which many different actors influence outcomes. The stakeholder network mapping exercise was conducted by IFPRI and Save the Children India in Lucknow, Uttar Pradesh, on July 19, 2012. Fifteen key actors from different organizations were present for the exercise. To identify actors who play a role in shaping maternal and child nutrition policy and program decisions in the state of Uttar Pradesh, participants were led through the interview process by trained Net-Map facilitators. In the stakeholder network mapping exercise, participants first identified institutions or individuals that play a role in nutrition in Uttar Pradesh. Then, participants explained why each actor is important, specified how each actor engages in the network, and evaluated the degree of influence each actor has in the network. The participants focused specifically on the use of research and advocacy as a means of influencing nutrition policy and program decisions. The Net-Map produced in Uttar Pradesh provides data for the sociopolitical dimension of the framework.

STAKEHOLDER INTERVIEWS

To learn about operational gaps, policymaking processes, and stakeholder opinions about the nutrition agenda, Save the Children and IFPRI conducted 15 individual, in-depth interviews in Lucknow in two phases. The first phase took place November 26–30, 2012, and the second phase took place December 17–19, 2012. IFPRI participated as the lead member of Partnerships and Opportunities to Strengthen

[1] Read more about the Net-Map Toolbox at http://netmap.wordpress.com/about/.

and Harmonize Actions for Nutrition in India (POSHAN), a project funded by the Bill and Melinda Gates Foundation.[2] Upon completion of the interviews, a broader set of themes was developed and used to code the narratives. The analysis based on the coded data is referenced in both the second and the third dimensions of the framework.

TECHNICAL REVIEW

We sought comments and inputs from three external reviewers who have significant knowledge of the nutrition landscape and experience working in Uttar Pradesh, and revised this situation analysis based on their feedback.

[2] In Uttar Pradesh, Save the Children India and POSHAN collaborated at the state level to conduct a stakeholder mapping exercise, interviews, and analysis. These activities are intended to help plan Save the Children India's advocacy activities in Uttar Pradesh and inform POSHAN's research and knowledge mobilization strategy to prioritize state-level actions for nutrition.

Results

BIOLOGICAL FACTORS

In this section, we describe the current state of undernutrition in Uttar Pradesh, trends over time and geographic variability in undernutrition, and the status of known direct and indirect determinants of child nutrition.

Status, Trends, and Variability in Child Undernutrition in Uttar Pradesh

In 2005–2006, 56.8 percent of children under 5 years of age in Uttar Pradesh were stunted, 42.4 percent were underweight, 25.1 percent of babies born were low-birth-weight babies, and 73.9 percent were anemic (Table 1).

TABLE 1. STATUS OF UNDERNUTRITION INDICATORS IN UTTAR PRADESH (NFHS-3, 2005–2006)

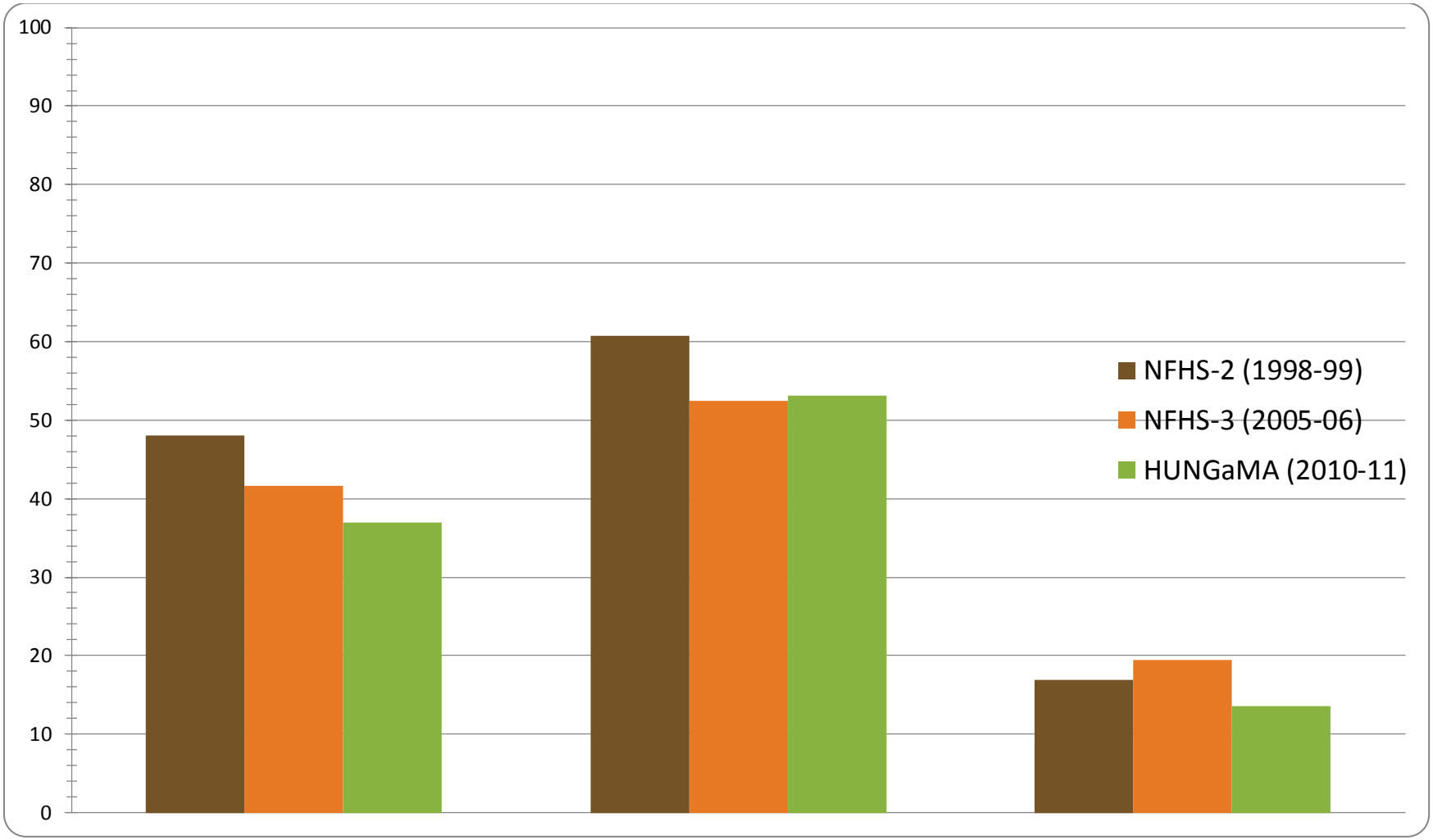
Indicators	India (%)	Uttar Pradesh (%)
Stunting (0–5 years of age)	48.0	56.8
Underweight (0–5 years of age)	42.5	42.4
Wasting (0–5 years of age)	19.8	14.8
Low birth weight	21.5	25.1
Child anemia (0–5 years of age)	69.5	73.9

Source: NFHS-3 [11].

A critical issue for Uttar Pradesh and other states aiming to develop nutrition strategies is that NFHS data on nutrition have not been available since 2005–2006. However, some recent data on child nutrition are available from the HUNGaMA (Hunger and Malnutrition) Survey (2011) [12], albeit only for 40 out of the 74 districts in Uttar Pradesh. The HUNGaMA Survey [12] reports high levels of stunting, underweight, and wasting in the sample districts in Uttar Pradesh. Still, in 2010–2011, these 40 districts, likely among the poorest in Uttar Pradesh, were somewhat better off than the average levels of undernutrition in the state in 2005–2006 (Figure 1). However, the actual levels of undernutrition are still extremely high in these 40 districts (Figures 2, 3, and 4). The level of stunting, in particular, is well over 50 percent in most of the sample districts in Uttar Pradesh that were covered in the HUNGaMA Survey [12].

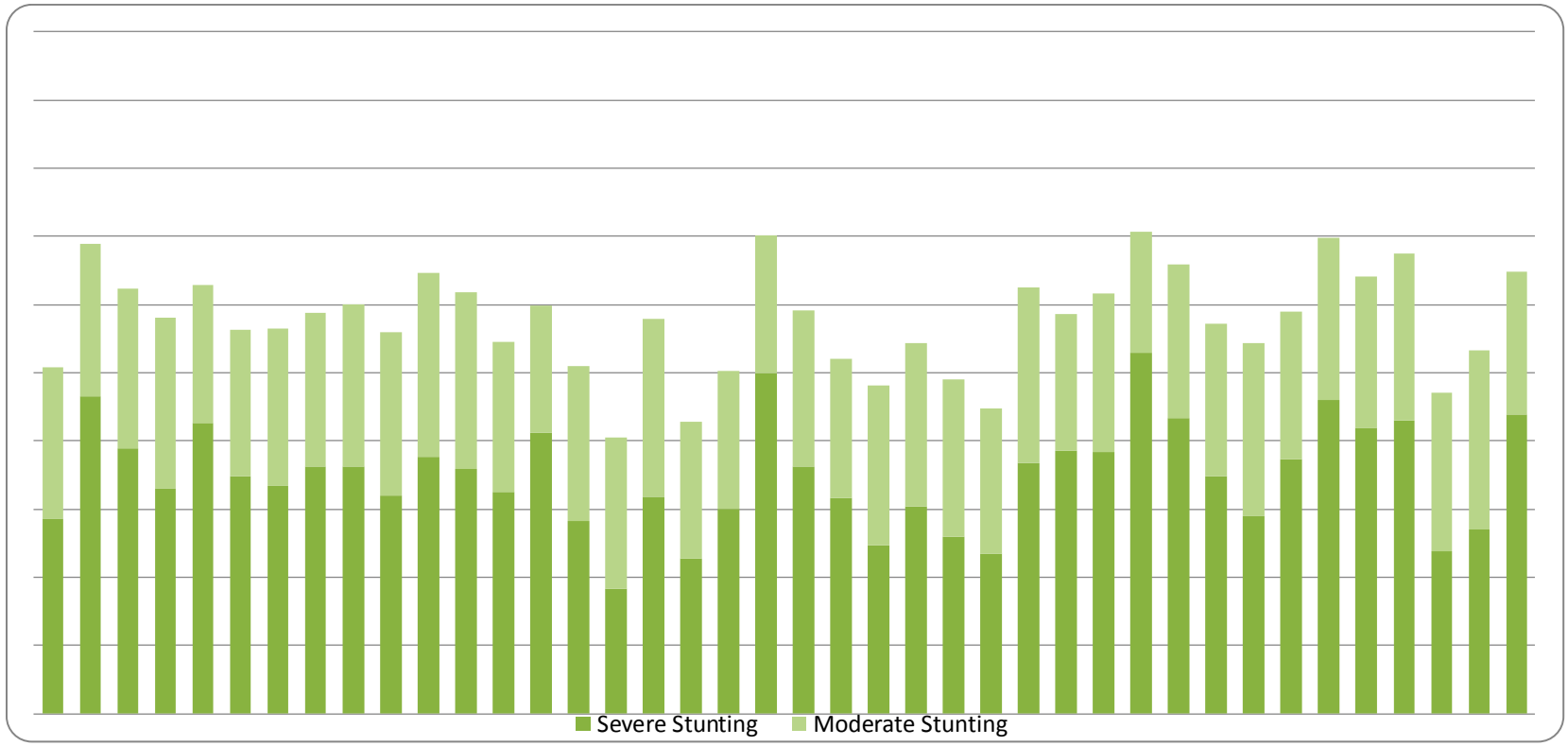
These figures also highlight the variability in the current levels of child undernutrition across districts. For example, the highest burden of severe stunting was found in Rae Bareli, Bachraich, and Shrawasti, where more than 46 percent of children are severely stunted. The highest burden of moderate stunting was found in Fatehpur, Sultanpur, and Jhansi, where more than 26 percent of children are moderately stunted. Overall, the largest burden of stunting, both severe and moderate, was found in Rae Bareli, Kheri, and Shrawasti, where nearly 70 percent of children under 5 years of age are either moderately or severely stunted (see Figure 4).

FIGURE 1. PREVALENCE OF UNDERNUTRITION AMONG CHILDREN UNDER 3 YEARS OF AGE IN UTTAR PRADESH—1998–1999 (NFHS-2), 2005–2006 (NFHS-3), AND 2010–2011*



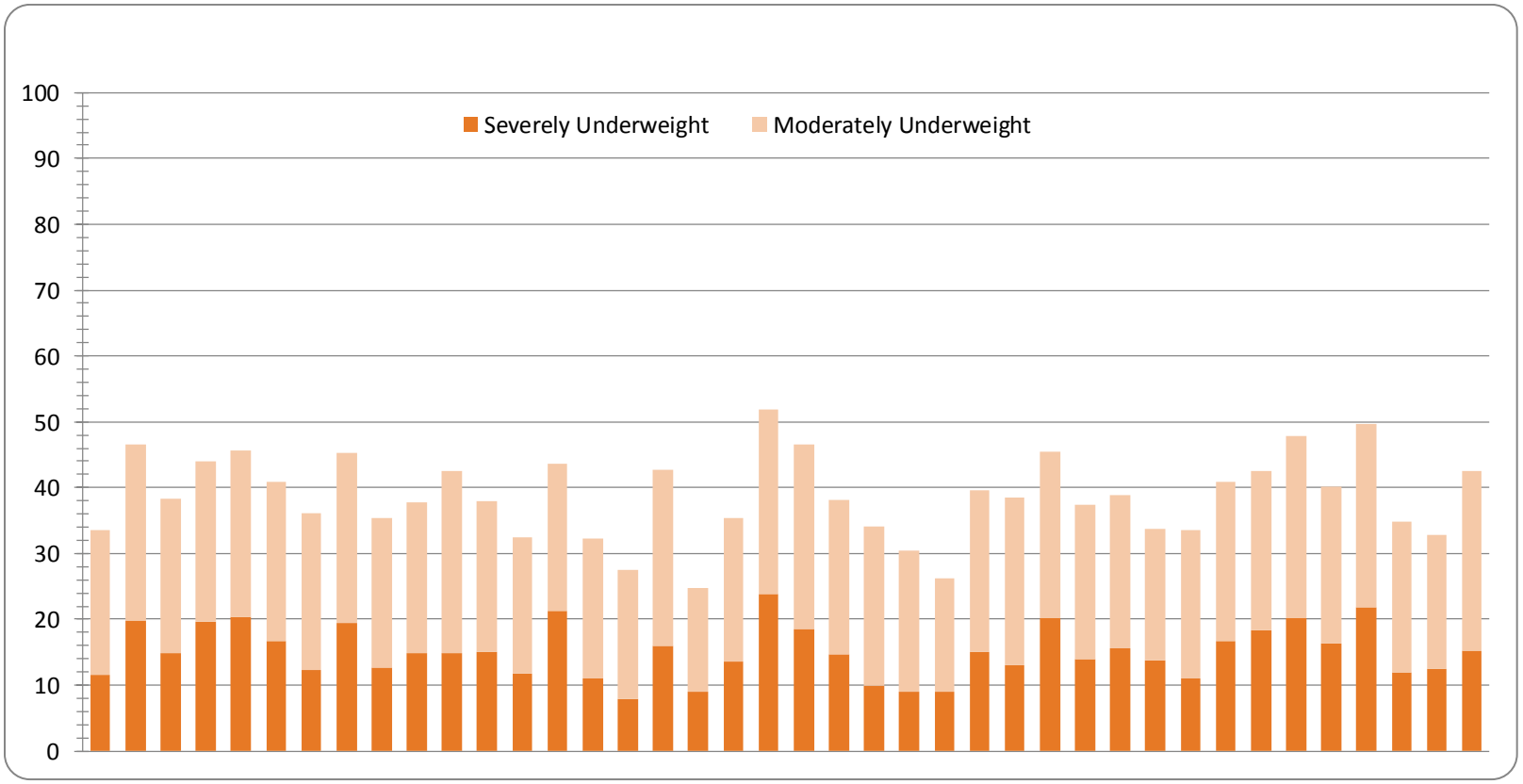
*Note: The HUNGaMA Survey [12] includes a sample of 40 districts.

FIGURE 2. STUNTING PREVALENCE AMONG CHILDREN UNDER 5 YEARS OF AGE IN 40 DISTRICTS IN UTTAR PRADESH



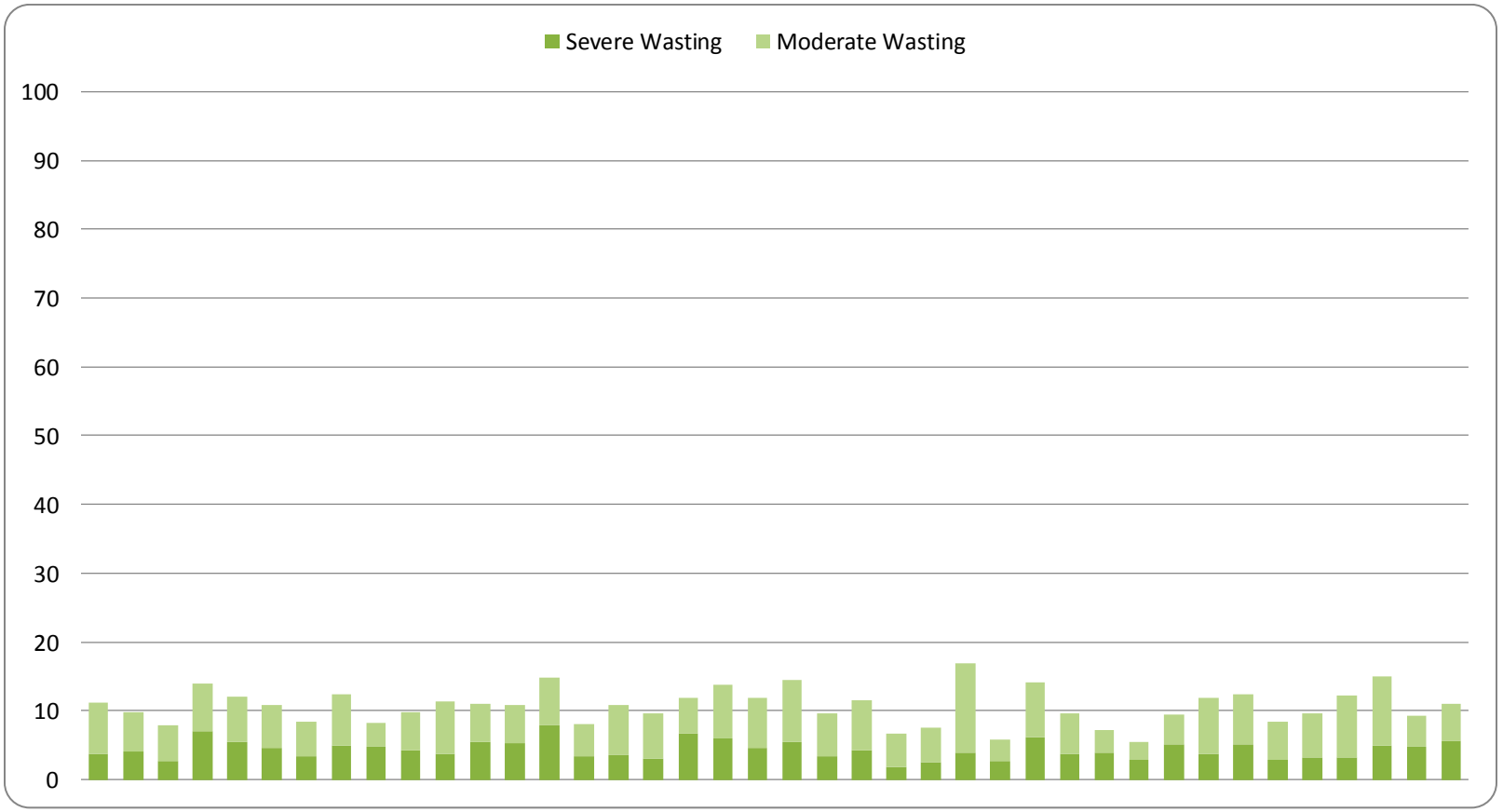
Source: HUNGaMA Survey, 2010–2011 [12].

FIGURE 3. UNDERWEIGHT PREVALENCE AMONG CHILDREN UNDER 5 YEARS OF AGE IN 40 DISTRICTS IN UTTAR PRADESH



Source: HUNGaMA Survey, 2010–2011 [12].

FIGURE 4. PREVALENCE OF WASTING AMONG CHILDREN UNDER 5 YEARS OF AGE IN 40 DISTRICTS IN UTTAR PRADESH



Source: HUNGaMA Survey, 2010–2011 [12].

Despite the continued high prevalence of stunting in Uttar Pradesh in 2011, the findings of the HUNGaMA Survey [12] reveal significant improvement in the prevalence of underweight among children under 5 years of age (Figure 5). The districts that have experienced the greatest reduction in the prevalence of underweight among children under 5 years of age between 2002–2004 and 2010–2011 were Auraiya, Bulandshahar, Farrukhabad, and Mainpuri. While underweight declined in several districts by more than 50 percent, a few districts (Bahraich, Barabank, Hardoi, Kheri, Shrawasti, and Sitapur) experienced an increase in underweight between 2002–2004 and 2010–2011.

The reduction in the percentage of underweight children at the district level indicates that improvements over time are due to positive changes in the prevalence of *severely* underweight children under 5 years of age. Indeed, between the last District Level Household Survey (DLHS) in 2002–2004 and the HUNGaMA Survey in 2010–2011 [12], the prevalence of severely underweight children decreased in 36 out of 40 districts, with the most notable changes seen in Auraiya, Bulandshahar, Farrukhabad, and Mainpuri (Figure 6). The prevalence of moderately underweight children also decreased in the majority of districts; however, the reduction in moderate underweight was much less than that of severe underweight (Figure 7).

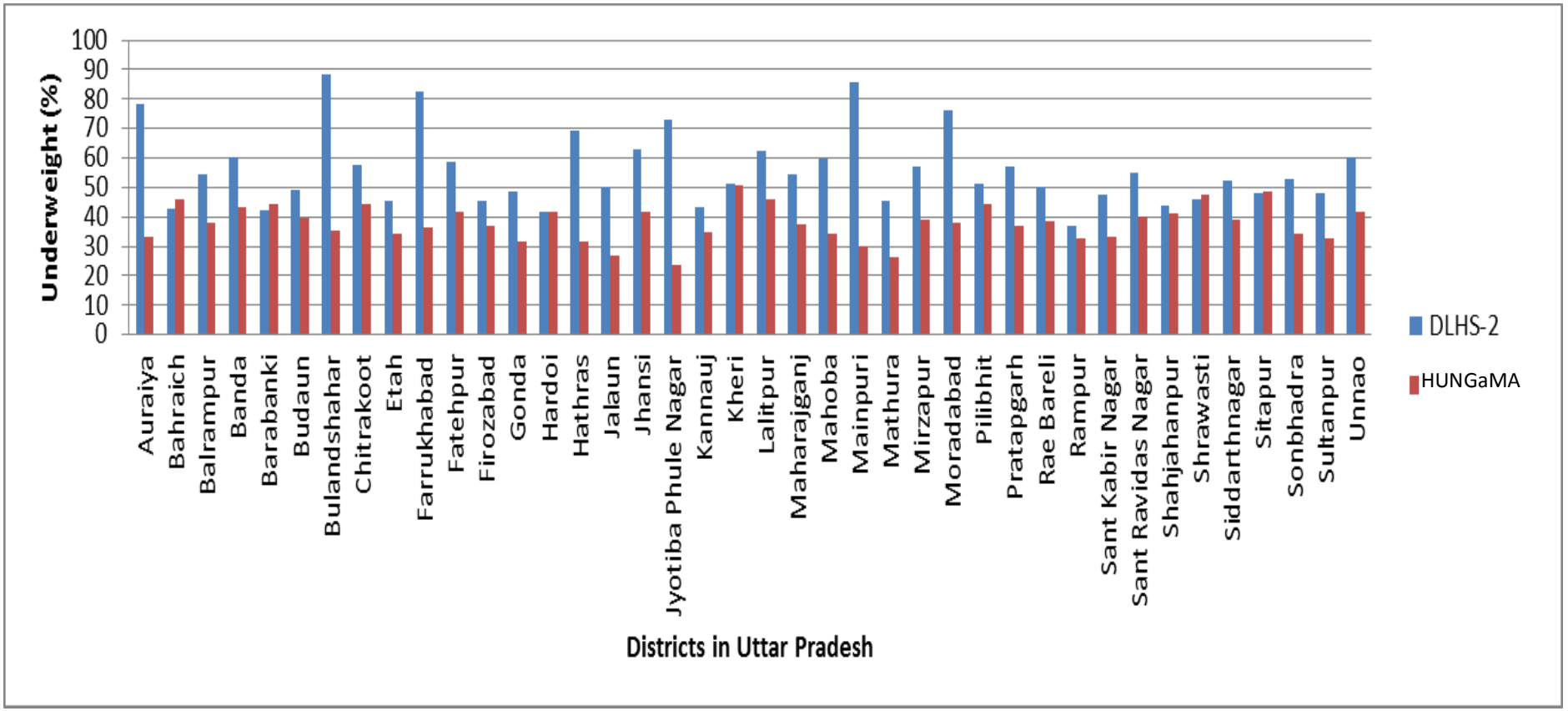
Age Patterns in Underweight in Uttar Pradesh

The global literature and Indian scientific literature on nutrition now recognize the first 2 years of life as a critical period in which undernutrition, particularly stunting, increases. Our analysis of trends in height-for-age, weight-for-age, and weight-for-height by child age draws on both the NFHS-3 data (2005–2006) and the HUNGaMA Survey data (2010–2011)[12] and reinforces the importance of this age window for Uttar Pradesh. Figures 8 and 9 indicate that child height-for-age Z scores decline rapidly in the first 18–24 months of a child's life, leveling off thereafter at a very low score.

Overall, the findings on the patterns of child undernutrition in Uttar Pradesh indicate that:

- Maternal and child undernutrition in Uttar Pradesh are particularly severe, not only in terms of the prevalence, but also in sheer numbers.
- Despite substantial reductions in severe childhood underweight in high-burden districts within Uttar Pradesh, the burden of problems, such as childhood stunting, remains high; the lack of data precludes analyses of the extent to which changes in stunting vary within Uttar Pradesh.
- Data from Uttar Pradesh reaffirm the importance of the prepregnancy, pregnancy, and the first 2 years of life as a critical window within which to deliver nutrition interventions.
- The lack of recent data on nutrition is a critical constraint on efforts to mobilize stakeholders, target and prioritize actions, and monitor progress.

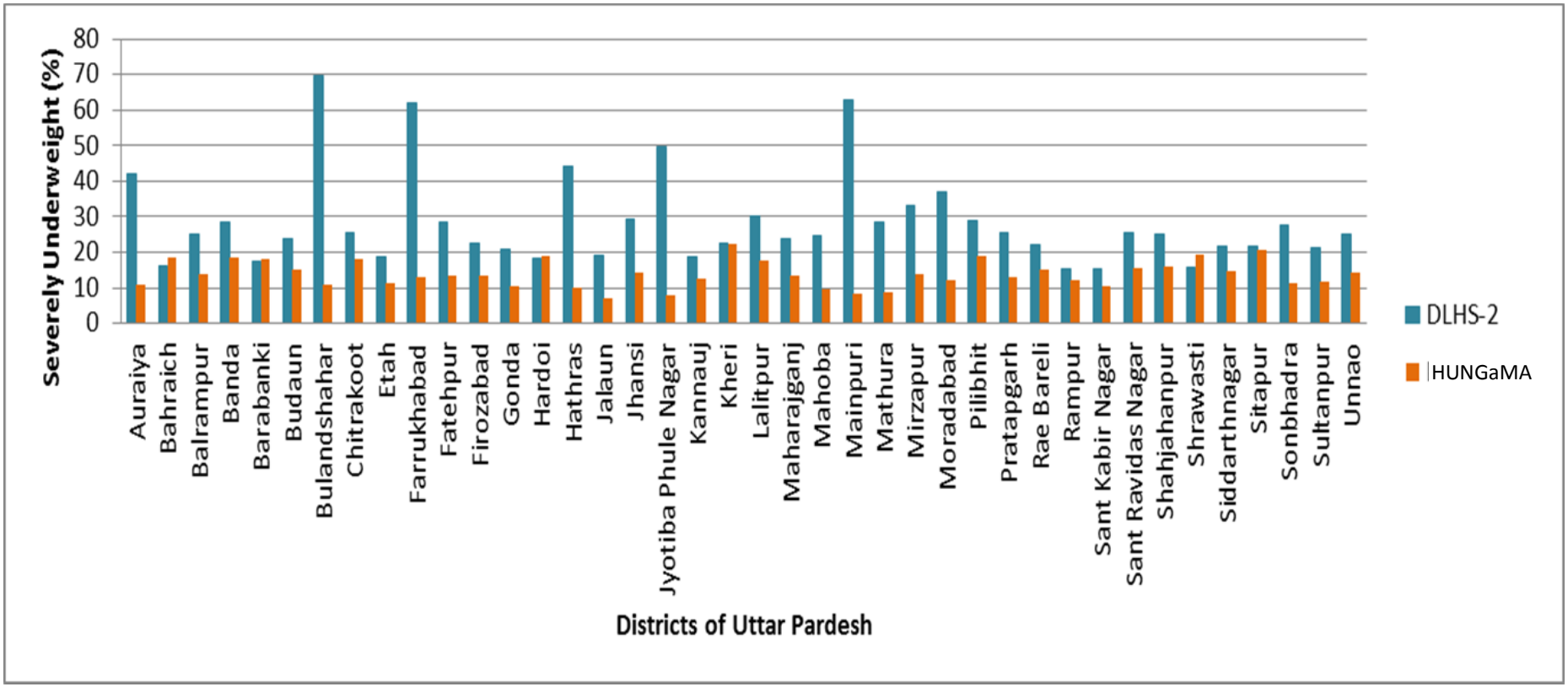
FIGURE 5. DISTRICT-LEVEL CHANGES IN UNDERWEIGHT AMONG CHILDREN UNDER 5 YEARS OF AGE IN UTTAR PRADESH BETWEEN 2002–2004[3] AND 2010–2011[4]



[3] Source: DLHS-2 (2002–2004) [19].

[4] Source: HUNGaMA Report (2010–2011) [12].

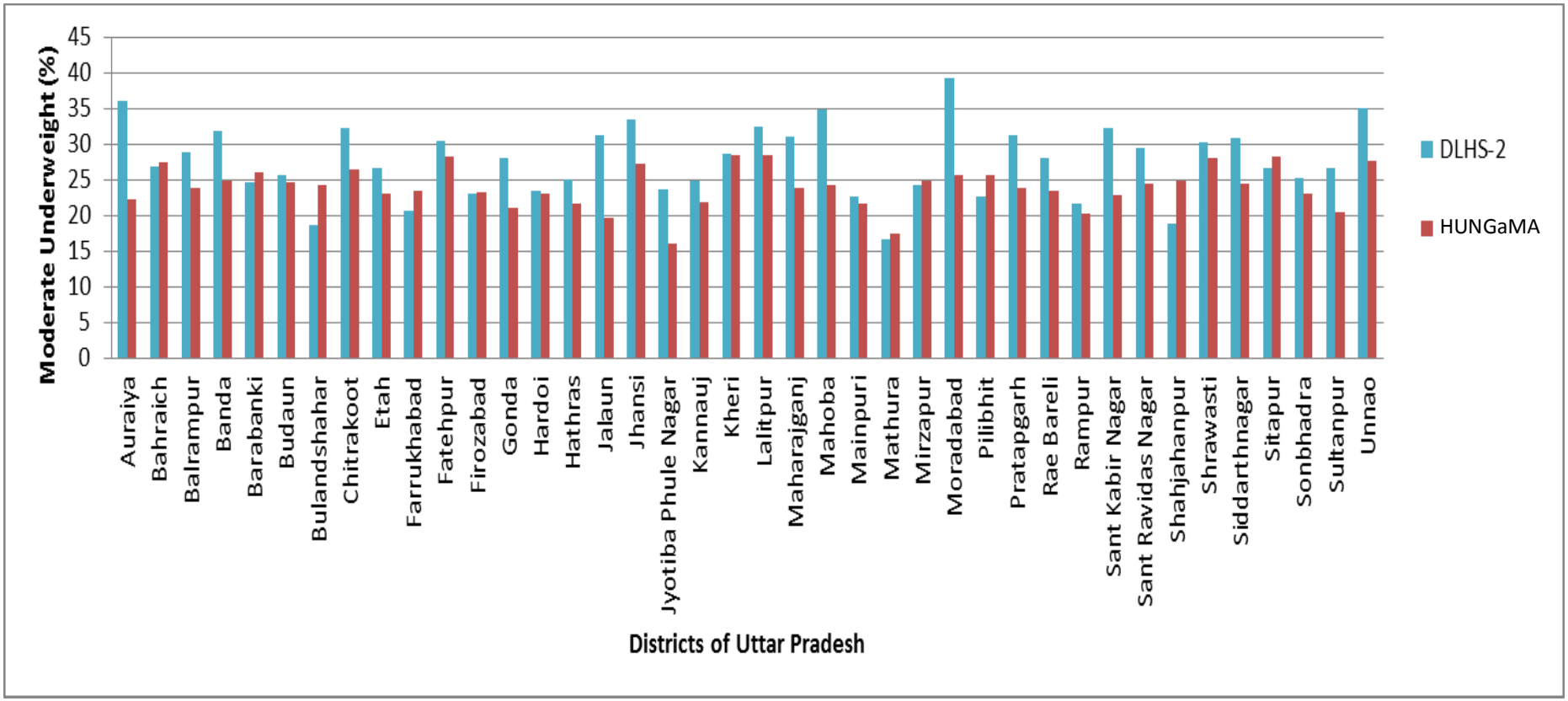
FIGURE 6. DISTRICT-LEVEL CHANGES IN SEVERE UNDERWEIGHT AMONG CHILDREN UNDER 5 YEARS OF AGE IN UTTAR PRADESH BETWEEN 2002–2004[5] AND 2010–2011[6]



[5] Source: DLHS-2 (2002–2004) [19].

[6] Source: HUNGaMA Report (2010–2011) [12].

FIGURE 7. DISTRICT-LEVEL CHANGES IN PREVALENCE OF MODERATE UNDERWEIGHT AMONG CHILDREN UNDER 5 YEARS OF AGE IN UTTAR PRADESH BETWEEN 2002–2004[7] AND 2010–2011[8]



[7] Source: DLHS-2 (2002–2004) [19].

[8] Source: HUNGaMA Report (2010–2011) [12].

FIGURE 8. ANTHROPOMETRIC STATUS, BY AGE, FOR CHILDREN UNDER 5 YEARS OF AGE IN UTTAR PRADESH (NFHS-3, 2005–2006)

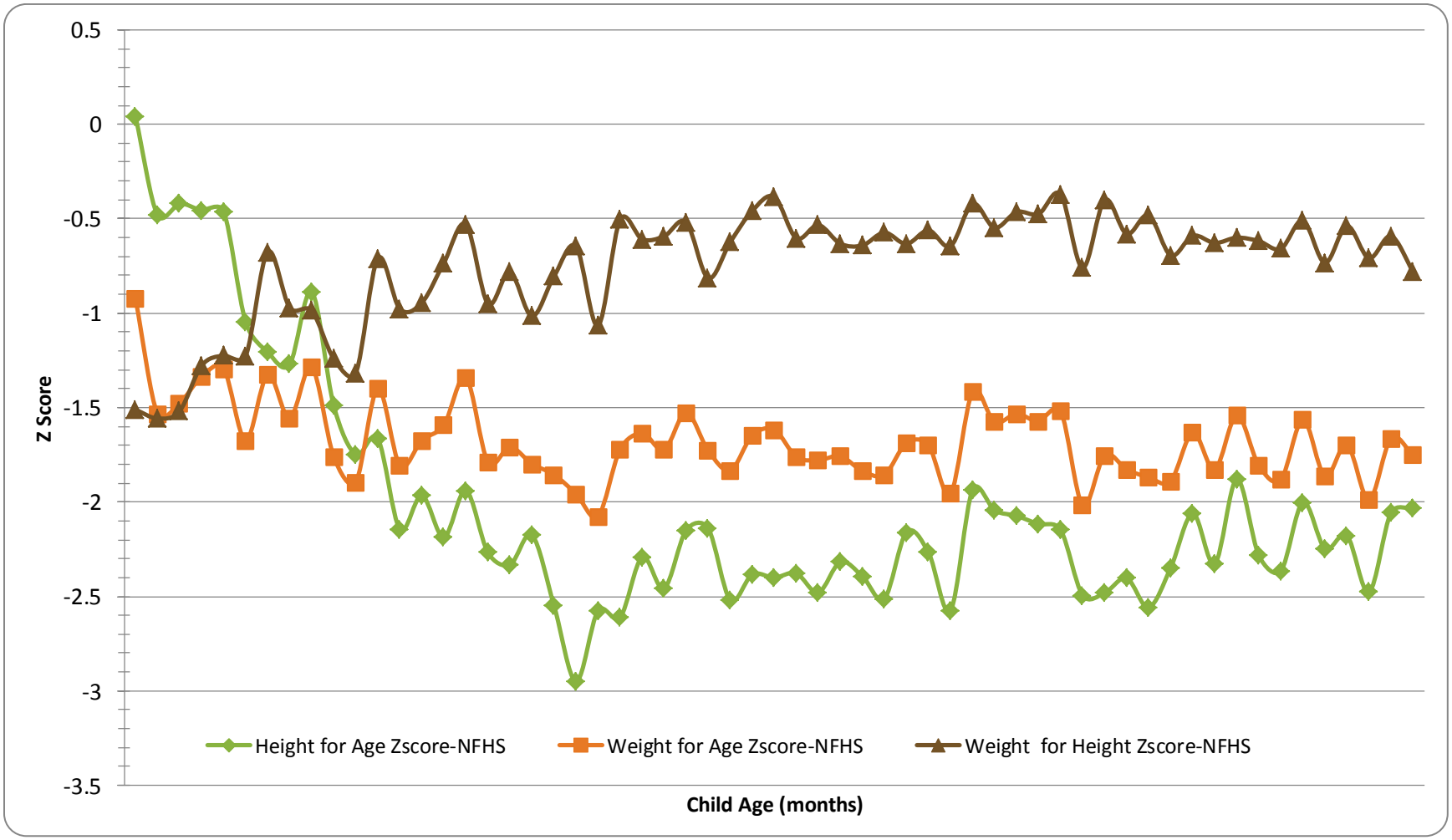
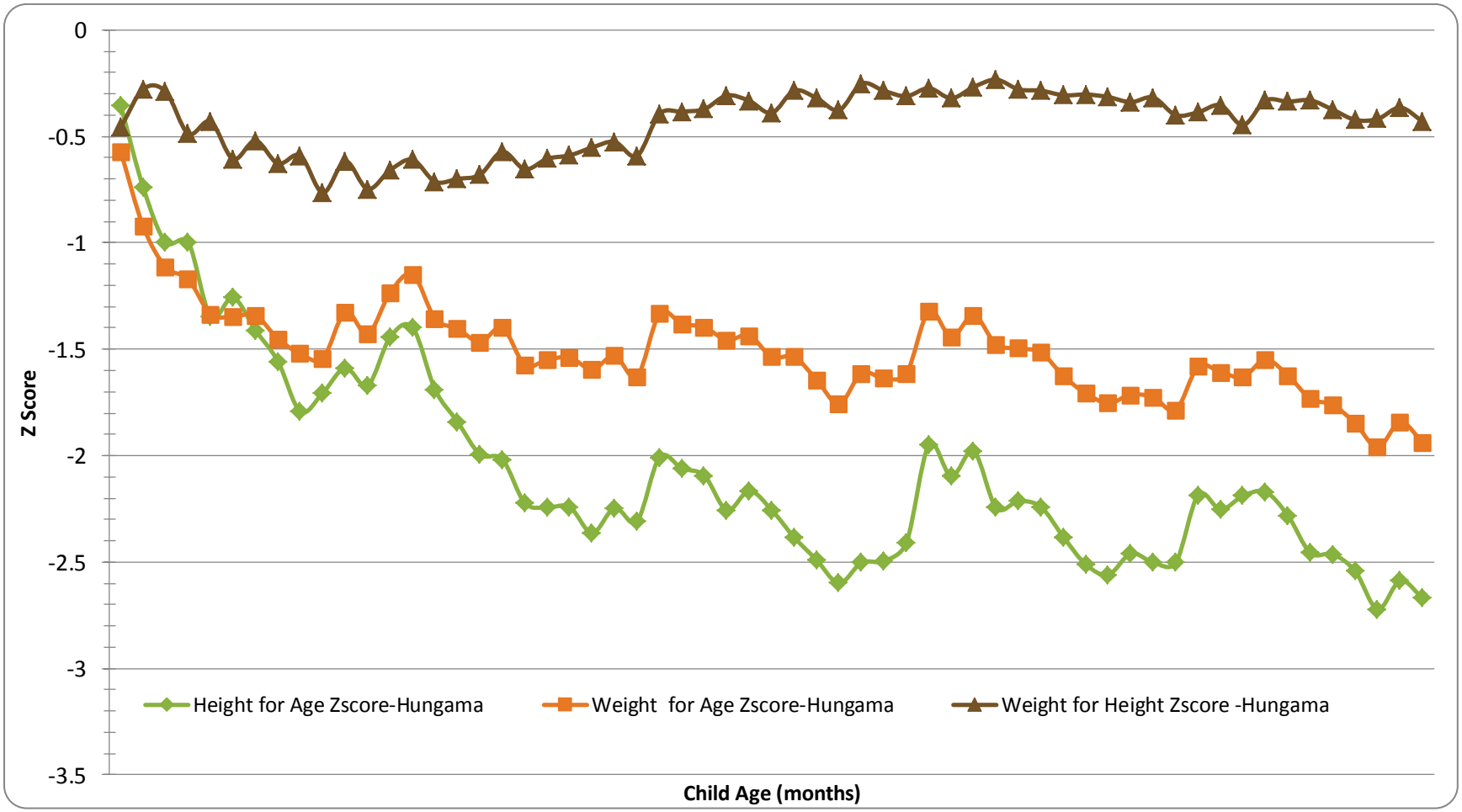
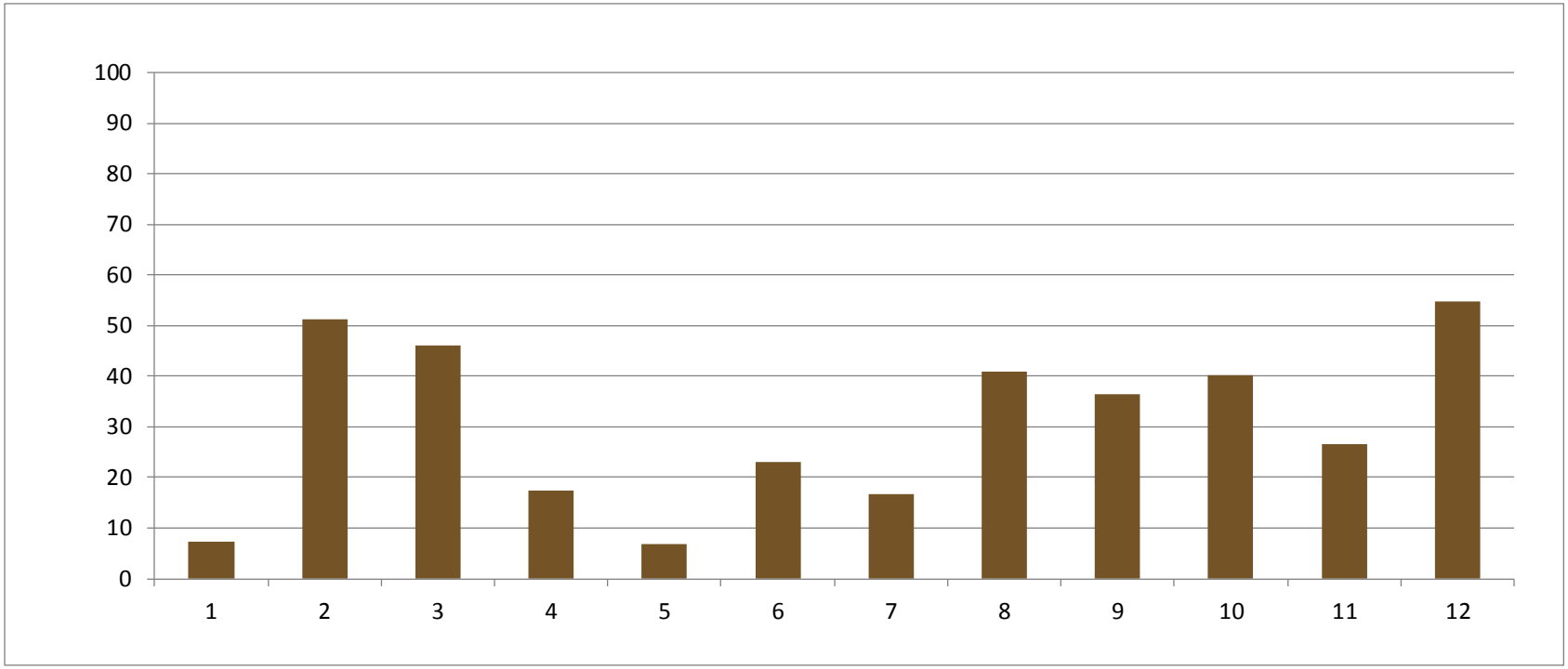


FIGURE 9. ANTHROPOMETRIC STATUS, BY AGE, FOR CHILDREN UNDER 5 YEARS OF AGE IN 40 DISTRICTS IN UTTAR PRADESH IN 2010–2011



Source: HUNGaMA Survey, 2010–2011 [12].

FIGURE 10. STATUS OF ESSENTIAL NUTRITION INPUTS IN UTTAR PRADESH (2005–2006)



Note: Essential Nutrition Inputs[9] include (1) early initiation of breastfeeding (within 1 hour of birth); (2) exclusive breastfeeding from 0 to 6 months; (3) Introduction of complementary foods at 6–9 months; (4) three expected infant and young child feeding practices (sources of dairy, minimum meal frequency, minimum number of food groups); (5) Iron-rich foods (6–35 months); (6) full immunization coverage; (7) stools safely disposed of; (8) vitamin A supplementation (<3 years of age); (9) household has adequately iodized salt; (10) diarrhea: children with diarrhea who are fed more than or about the same as usual; (11) women >3 antenatal care visits; and (12) women (15-49 years old)—normal body mass index.

[9] These Essential Nutrition Inputs are based on national and global sources and a study conducted by the POSHAN team at IFPRI, New Delhi [13].

Determinants of Child Undernutrition in Uttar Pradesh

Direct Determinants of Nutrition

The direct determinants of, or essential inputs for, ensuring good nutrition are well documented and agreed upon both globally and in India [13]. Figure 10 above illustrates the low status of the essential inputs for nutrition. The findings are based on the most recent data on the essential inputs for nutrition from 2005–2006. They indicate that only two of the essential nutrition inputs—having an adequately nourished mother and being exclusively breastfed—were received by more than half of the children in Uttar Pradesh (Table 2). For all other essential nutrition inputs, including critical infant and young child feeding (IYCF) practices, preventive health care for pregnant women and children, and adequate care during illness, the prevalence is exceptionally dismal. Data on the full set of essential inputs for child nutrition are only available from 2005–2006. However, updated findings on some of these indicators from the 2009 CES and AHS 2010 do not indicate dramatic improvements over time, suggesting that there is still ample room for improvement.

TABLE 2. INDICATORS OF SELECTED ESSENTIAL INPUTS FOR INFANT AND CHILD NUTRITION [1]

Indicators of Selected Essential Inputs	NFHS, 2005–2006 (%)	UNICEF-CES, 2009–2010 (%)
1. Early initiation of breastfeeding (within 1 hour of birth)	7.3	15.6
2. Exclusive breastfeeding of children at 0–6 months of age	51.3	58.9
3. Introduction of complementary foods at 6–9 months	46	Not available
4. Three expected IYCF practices (sources of dairy, minimum meal frequency, and minimum number of food groups)	17.4	Not available
5. Iron-rich foods (6–35 months)	6.9	Not available
6. Children receiving full Immunization (12–23 months of age)	23	40.9
7. Treatment of childhood diarrhea by oral rehydration solution (0–2 years)	30.3	14.3
8. Stools safely disposed of	16.8	Not available
9. Children (12–23 months) receiving the first dose of vitamin A	40.9	48.9
10. Household has adequately iodized salt	36.4	71.1
11. Children with diarrhea who are fed more than or about the same as usual	40.1	29.2
12. Pregnant women receiving full antenatal care (3 antenatal care visits, 1 tetanus toxoid injection, and more than 100 iron folic acid tablets)	26.6	12.4
13. Women (15–49 years old) with normal-range body mass index	54.8	Not available

Underlying Determinants of Nutrition

Such factors as women's status, poverty, illiteracy, food insecurity, and economic growth are underlying or indirect determinants of child undernutrition. The data from 2005–2006 on these underlying determinants indicate that there is much room for improvement in such factors as creating enabling environments within households for better nutrition. For example, maternal literacy and decisionmaking by women are both low. Only 22 percent of married women have a role in the decisionmaking regarding their own healthcare, major purchases, household purchases, daily purchases, and visits to family and friends, illustrating the low status of women in Uttar Pradesh. Early marriage is high in Uttar Pradesh (close to 60 percent of rural women 18–29 years of age were married before they were 18); this, coupled with early child bearing, is linked with higher risks of poor nutrition outcomes. Additionally,

total fertility rates in Uttar Pradesh are higher than in the rest of India, with the average total fertility rate of rural women at 4.15 and urban women at 3.95 in the state.

Per capita calorie deficiency and household poverty are also more troublesome in Uttar Pradesh when compared with the national average. Per capita net domestic product of the state is nearly half of the national average (Table 3).

TABLE 3. SELECTED UNDERLYING DETERMINANTS OF CHILD UNDERNUTRITION (NFHS-3)

Indicators	India	Uttar Pradesh
Maternal literacy	55.1	45.0
Married women with *no say* over five decisions (own healthcare, major purchases, household purchases, daily purchases, visits to family/friends)	20.5	22.0
Percentage of women age 18–29 who were first married by age 18	29.7 (urban) 53.4 (rural)	31.8 (urban) 59.4 (rural)
Percentage of all women age 15–19 years who have had a live birth	12.1	11.2
Percentage of women age 15–19 years, who are *currently married* and have had a live birth	43.6	Not available in report
Calorie deficiency (<1,632 kilocalories, as used in India State Hunger Index[10])	20.0	14.5
Population below poverty line (2004–2005)[11]	27.5	32.8
Average year-on-year percentage change in gross state domestic product for the 6-year period (2000–2006)	6.6	4.4
Per capita new state domestic product (NSDP) at current prices (New Series: 1999–2000) in India—Part 1 (2005–2006 year in which the NFHS-3 survey was conducted)	25,956	13,302
Growth rate of per capita NSDP (state income) at 1993–1994 prices in India (year 2004–2005) (% growth over previous year)	6.1	16.0

Overall, the data on the direct and indirect determinants of nutrition in Uttar Pradesh suggest that:

- The gap in access to essential inputs to nutrition was very high in 2005–2006; the most recent data do not suggest major improvements.
- IYCF practices are very poor, especially with respect to complementary feeding. (Note: This is a high-priority area for intervention, given the direct links between poor infant feeding practices and nutritional outcomes in India.)
- Sanitation practices are exceptionally poor; less than 1 in 5 children's stools are safely disposed of.
- Poor maternal nutrition and low access to antenatal care (ANC) services can compromise efforts to improve nutrition in Uttar Pradesh.
- Underlying determinants of nutrition that relate to women's status, such as women's literacy, early marriage, and early childbearing, are likely all significant contributors to the high burden of

[10] Source: Menon et al. (2008) [1].

[11] Source: *indiastat.com* (accessed on 29 June 2012) http://www.indiastat.com.libproxy.ifpri.org/table/economy/8/incidenceofpoverty/221/422359/data.aspx. Based on a Uniform Recall Period Consumption in which consumer expenditure data for all the items are collected from a 30-day recall period.

undernutrition in the state. Early marriage and early childbearing, in particular, are established risk factors for poor maternal and child health and nutrition outcomes.

- Household poverty and food insecurity are also important underlying determinants of nutritional outcomes in the context of Uttar Pradesh.

A clear area for action for improving nutrition in Uttar Pradesh is scaling up the availability of, and enhancing the use of, essential nutrition-specific interventions, including improvements in sanitation. In addition, strategic actions to limit early childbearing, reduce fertility rates, and improve and address household poverty could have significant benefits for nutrition as well.

PROGRAMMATIC FACTORS

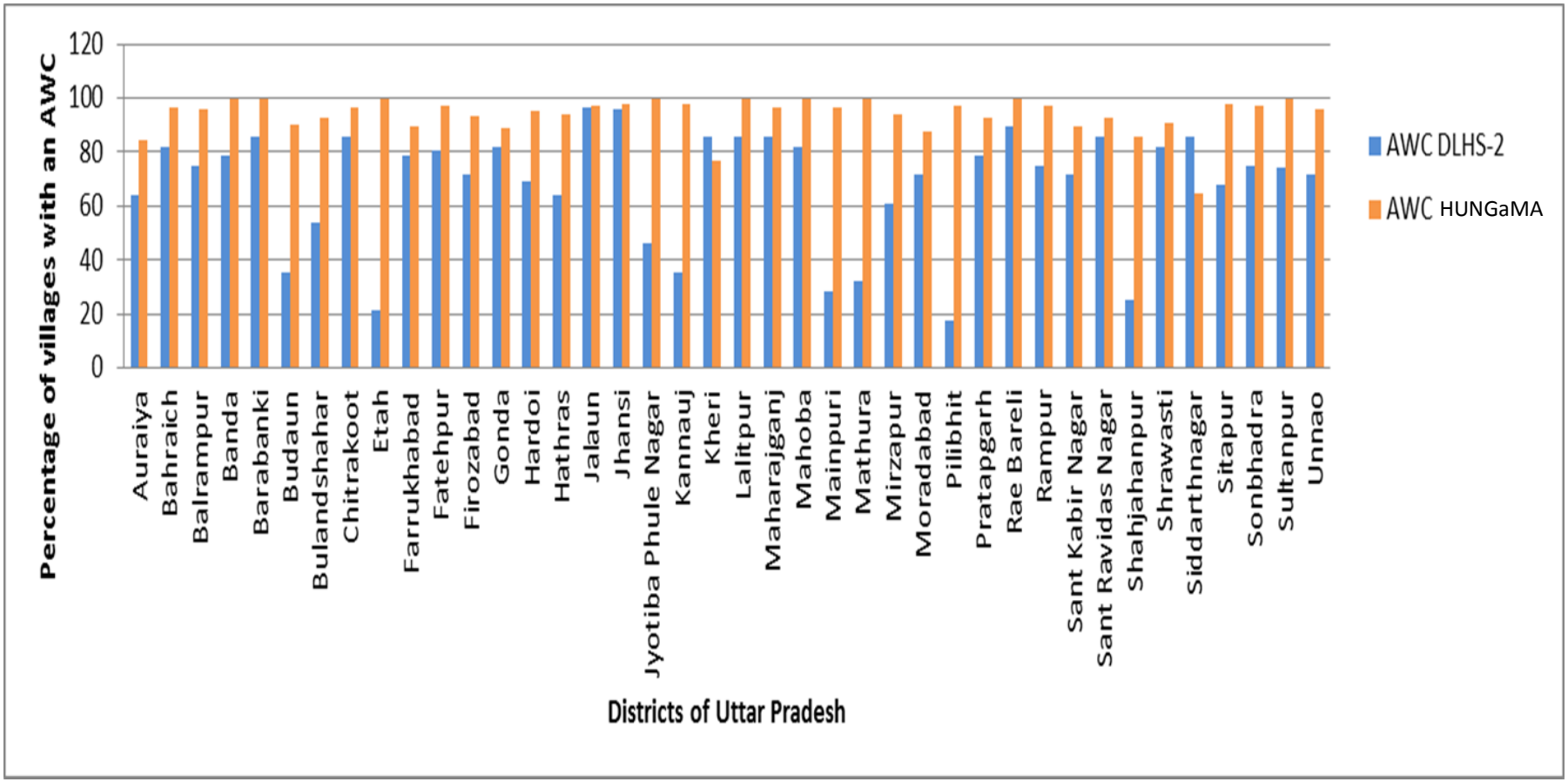
This section describes selected programs implemented in Uttar Pradesh to advance nutrition security in the state, and highlights operational challenges in the program and policy environment in Uttar Pradesh. The findings here are based on a desk review of program-related documents and an analysis of in-depth, semi-structured interviews with key actors in the nutrition landscape in Uttar Pradesh.

Programs Implemented by the State Government

In Uttar Pradesh, as in other states in India, the Integrated Child Development Services (ICDS) and the National Rural Health Mission (NRHM) are intended to address the direct determinants of undernutrition. The process of universalization of ICDS appears to be progressing in Uttar Pradesh, as it is in other states. For example, data from the DLHS-2 and HUNGaMA Survey (Figure 11) clearly show the expansion in the proportion of villages with an established *anganwadi* center (AWC) between 2002–2004 and 2010–2011. Over this period, the percentage of villages with AWCs increased in 38 of 40 districts. In fact, in several of these poorer districts in Uttar Pradesh, 100 percent of villages had an established AWC in 2010–2011.

At the same time, the availability of AWCs does not necessarily translate into the use of AWC services. Data from the NFHS-3 in 2005–2006 and for the subset of HUNGaMA districts (Table 4) illustrate how the ICDS has been underutilized in Uttar Pradesh. Although AWCs were established in more than 70 percent of villages in Uttar Pradesh in 2005–2006, child-level use of services, including supplementary food, immunizations, health checkups, and child weight measurements, was reported to be below 20 percent. Even among children whose caregivers received counseling, the utilization of services is only 38.1 percent. More recent HUNGaMA data, from a smaller set of districts, suggest that along with the improved access to services, the use has improved, but there are still large gaps in use of services, such as receiving supplementary food, health checkups, weighing of children, and counseling. However, these data do not permit an analysis of whether the low utilization is the result of poor service delivery, or is because households do not use services even if they are available. Further research is essential to shed light on the supply- and demand-side constraints on the use of ICDS and health services in this context.

FIGURE 11. PERCENTAGE OF VILLAGES[12] IN UTTAR PRADESH WITH AN *ANGANWADI* CENTER IN THE DISTRICT BETWEEN 2002–2004[13] AND 2010–2011[14]



[12] DLHS-2 [19] and HUNGaMA [12] data have been compared by creating a panel at the district level across two time periods. The district panel is an aggregate of household-level cross-section.

[13] Source: DLHS-2 (2002–2004) [19].

[14] Source: HUNGaMA Report (2010–2011) [12].

TABLE 4. USE OF ICDS SERVICES (2005–2006)[15] AND (2010–2011)

Indicators	Uttar Pradesh (NFHS-3 2005–2006) (%)	40 districts in Uttar Pradesh (HUNGaMA 2010–2011) (%)[1]
Children <6 years who live in a survey area covered by an AWC	76.2	94.14[2]
Children <6 years who have received any service from an AWC in the past year	18.6	94.96
Children <6 years who received supplementary food	14.7	39.30[3]
Children <6 years who received an immunization at an AWC	13.5	86.25
Children <6 years who received a health checkup at an AWC	2.7	16.53
Children <6 years who were weighed at an AWC	2.8	9.28
Children <6 years whose caregivers received counseling	38.1	14.10[4]
Children <6 years who live in a survey area covered by an AWC, among the lowest standard-of-living quintile	84.3	Not available
Children <6 years who had received any service from an AWC in the past year, among the lowest standard-of-living quintile	25.3	Not available
Funds allocated by the central government for ICDS used in 2005–2006[5]	61.34	Not available

[1] HUNGaMA data [12] are for children <5 years of age.

[2] Percentage of villages in UP HUNGaMA districts (N = 40) that have an *anganwadi* center.

[3] Percentage of children (3–6 years) who received food at the AWC or infants and mothers who received the take-home ration.

[4] Percentage of children whose parents received counseling (calculated for each child and not for each mother; therefore, if one mother has two children and has not received counseling, this was recorded twice as a "No.")

[5] Source: Seventh Report of the Supreme Court Commissioners of India from the Right to Food Campaign (2007) [18].

In addition to the basic ICDS and NRHM program platforms to address maternal and child health and nutrition, there have been specific programmatic efforts, often in collaboration with development partners, to improve access to the essential inputs of nutrition. (See Table 5 for a list of these programs and the following sections for a description of selected programs.)

- The *Kishori Shakti Yojana* was launched in 1999 under the auspices of the ICDS, and works to address the nutrition needs of adolescent girls (11–18 years of age) by promoting awareness of health, hygiene, nutrition, and family care [14].
- The *Bal Swasthya Poshan Mah* (BSPM) was launched in 2004, in collaboration with UNICEF, to carry out child health and nutrition activities related to direct determinants of nutrition in Uttar Pradesh. *Bal Swasthya Poshan Mah* provides biannual services, such as administration of vitamin A to eligible children, immunizations, advice on breastfeeding and complementary feeding, and screening and referral for severely malnourished children, and works to increase demand for iodized salt (NRHM 2011)[15].
- The *Comprehensive Child Survival Programme* was specifically designed for Uttar Pradesh, and was launched in 2007–2008 [15]. This program combines behavior-change strategies, home-based care for newborns, and integrated management of neonatal and childhood illness [5]. As of 2012, nearly 36 districts have been covered by the program (NRHM 2011) [15].

[15] Source: NFHS-3 (2005–2006) [11].

TABLE 5. GOVERNMENT PROGRAMS ADDRESSING ESSENTIAL INPUTS TO ENSURE INFANT AND CHILD NUTRITION

Program	Year of inception	Essential nutrition inputs addressed by specific interventions
Kishori Shakti Yojana	1999	Improve nutritional intake of adolescent girls
Bal Swasthya Poshan Mah	2004	Reducing vitamin A deficiency, immunization, complementary feeding, breastfeeding, and care of children with severe acute malnutrition
Comprehensive Child Survival Programme	2007	Exclusive breastfeeding during first 6 months of life, timely introduction of complementary foods at 6 months, and prevention of illness of newborns
Saloni Swasth Kishori Yojana	2008	Nutrition education and counseling, along with nutrition support for adolescent girls
Setup of nutrition rehabilitation centers in Uttar Pradesh	2009	Nutrition support to children with severe acute malnutrition
Jachcha Bachcha Suraksha Karyakaram	2010	Improve food and nutrient intake of children and women

- Under NRHM, an indirect nutrition intervention, the *Saloni Swasth Kishori Yojana*, was launched in 2008–2009 to provide counseling on nutrition, personal hygiene, weekly iron folic acid (IFA) supplementation, and biannual deworming for schoolgirls (10–19 years of age) [15].
- From 2009 to 2010, UNICEF established 13 nutrition rehabilitation centers (NRCs) for children suffering from severe acute malnutrition (SAM) [15]. In August 2010, the Uttar Pradesh government initiated the *Jachcha Bachcha Suraksha Karyakaram* program to implement Village Health and Nutrition Days.

These programs are intended to provide comprehensive outreach services for children and pregnant women in addition to tracking their nutrition and health status [15].

Other initiatives in Uttar Pradesh under the NRHM have included strengthening the training of state medical officers, nurses, auxiliary nurse midwives, and accredited social health activists on nutrition [5], including IFA tablets for preschool children and pregnant women. Additionally, the iodine deficiency control program has expanded under the NRHM [5]. Some of the key program support efforts made by development partners, in collaboration with the state government organizations, are shown in Box 1.

Our review of the coverage data on essential inputs for nutrition and the types of program innovations and systems-strengthening programs in Uttar Pradesh suggests that although several efforts have been made to date, they do not appear to have comprehensively tackled all the known essential direct inputs for nutrition. In early 2000, program design for addressing undernutrition was quite solid, especially for some essential interventions (examples of such programs included the Maternal Child Health and Nutrition (MCHN) project; the Reproductive and Child Health, Nutrition, and HIV/AIDS (RACHNA) program; and BSPM. However, it is thought that implementation was not effective enough and that the overall enabling environment for nutrition programs was poor. There was poor appreciation of the problem of undernutrition by the leading government departments at the time; therefore, the programs often remained donor driven. Moreover, intensive polio eradication activities in the state resulted in the government machinery being fully occupied with polio eradication, leaving little time for other nutrition or health initiatives. However, the lessons learned from these programs are well documented and could be synthesized for moving forward with scaling up of direct essential nutrition actions.

BOX 1. DIRECT EXAMPLES OF EFFORTS MADE TO IMPROVE ICDS AND NRHM FUNCTIONING IN UTTAR PRADESH*

Reproductive and Child Health, Nutrition, and HIV/AIDS (RACHNA) Program

Development partners, such as CARE and UNICEF, were instrumental in addressing the supply-side components and instituting reform through the RACHNA program (started in 2000) [16]. Until 2006, CARE India coordinated the RACHNA program in collaboration with the ICDS. The goal of the RACHNA program was to enhance capacities to deliver maternal and child health services, including antenatal care (ANC), newborn care, early and exclusive breastfeeding, vitamin A and iron supplementation, and full immunization coverage and food supplementation (see Annex 1).

Several reports are available on the experiences of the RACHNA program. However, it is not clear how many of the lessons from that large initiative have been absorbed into the current program initiatives in the state. An evaluation was conducted in two intervention districts, with controls in the states of Andhra Pradesh and Uttar Pradesh to provide diverse sociodemographic contexts to assess the "net impact" of the interventions package. There were improvements in early initiation of breastfeeding, exclusive breastfeeding, timely introduction, quantity, quality and frequency of complementary feeding, responsive feeding, coverage with vitamin A and IFA, and contacts by service providers during the critical life-cycle periods. There was marked improvement in Uttar Pradesh as compared with Andhra Pradesh. The program did not affect underweight and stunting in the study populations. In Uttar Pradesh, the intervention clearly had an effect on wasting. India's Integrated Nutrition and Health Programme interventions protected against wasting among all children, boys, and infants 0–5 and 6–11 months. Although no decrease in anemia prevalence was found, significant differences in increase in anemia prevalence rates in the in the control group as compared with slight decreases in intervention areas suggest a protective effect.

Uplifting Marriage Age, Nutrition and Growth (UMANG) Program

The initiative for folic acid supplementation and counseling of adolescent girls, part of the UMANG program, was launched in 2001 by the state-based nongovernmental organization Vatsalya, in collaboration with UNICEF and the Department of Health, Department of Education, and ICDS [10]. The 12-month intervention improved hemoglobin levels and reduced the prevalence of anemia among girls receiving the supplement and counseling.

Maternal Child Health and Nutrition (MCHN) Project

In 2000, a community-based MCHN project was initiated by the Directorate of Health and Family Welfare and the Directorate of ICDS, with support from UNICEF, to create demand in the community for appropriate preventive health, nutrition, water, and sanitation services, particularly among those at high risk for malnutrition [9]. This project was also aimed at improving community response to quality services, such as vitamin A supplementation; provision of IFA tablets; and registration for ANC, essential newborn care, and full immunization coverage.

MCHN focused on working with families at "highest risk "of undernutrition (families with children under 2 years of age, pregnant women, severely undernourished children, and newlyweds), and reaching these prioritized families through cluster community volunteers, referred to as *Bal Parivar Mitras.* The interventions included influencing family-level practices such as IYCF, hand washing, maternal care, and use of iodized salt; creating demand and response for ANC services, family planning services for delaying conception to over 18 years, and routine immunization services; and improved coverage of vitamin A supplement, as well as diarrhea prevention and management. The health department, with support of regional medical colleges, spearheaded the project. Nutrition resource centers were established in five primary medical colleges for the MCHN project.

*See Annex 1 for more details.

Our review of the coverage data on essential inputs for nutrition and the types of program innovations and systems-strengthening programs in Uttar Pradesh suggests that although several efforts have been made to date, they do not appear to have comprehensively tackled all the known essential direct inputs for nutrition. In early 2000, program design for addressing undernutrition was quite solid, especially for

some essential interventions (e.g., MCHN, RACHNA, and BSPM). However, it is thought that implementation was not effective enough, and that the overall enabling environment for nutrition programs was poor. Poor appreciation of the problem of undernutrition by the leading government departments at the time caused the programs to be donor driven. Moreover, intensive polio eradication activities in the state resulted in the government machinery being fully occupied with polio eradication, leaving little time for other nutrition or health initiatives. However, the lessons learned from these programs are well documented and could be synthesized for moving forward with scaling up of direct essential nutrition actions.

Our analysis is that, for the most part, many prior efforts seem to have been related to *specific* interventions of interest to a particular project or program, rather than to comprehensively tackling undernutrition. However, it is now known that to scale up the impact on nutrition, simultaneous strengthening of systems to deliver *all* nutrition-specific interventions is critical. This is an area that will need clear attention to scale up the impact for nutrition in the state. The government should consider drawing strategically on development partners to ensure that all necessary systems-strengthening support for critical nutrition actions is available to the state, rather than being drawn into prioritizing single interventions.

Key Insights on Operational Gaps in Policies and Programs

Although there seems to have been progress in establishing nutrition-related programs in the state, our stakeholder interviews also revealed several operational gaps in nutrition programming.

The most important critical gaps include the absence of a state nutrition policy or action plan and a lack of stakeholder consensus around the very nature and extent of the nutrition problem in Uttar Pradesh. Some of the other challenges on *policy and advocacy support for operationalizing essential nutrition interventions* identified by the stakeholders revealed the need for dynamic leadership in ICDS and a "state champion" to advocate for nutrition security. Interviewees also expressed the need for a higher quality of nutrition data and their growing concern about the ineffectiveness of some of the leading national and state nutrition organizations in advocating for the availability of credible data. They opined that this was a serious monitoring and quality assurance gap in the state. They also noted a significant gap in the areas of planning and allocation of resources on the ground. Some government officials even acknowledged that they were unaware of the field realities, which they felt was widening the already existing gap between policy and the program implementations. They spoke extensively about the large regional disparities, inefficient spending of allocated funds, and the lack of preparedness by relevant departments for successful program implementation.

They stated that these problems were exacerbated by the absence of requisite technical capacity within these departments to address the operational gaps. To substantiate what the stakeholders expressed, as stated above, some interviewees cited the example of the breakdown of growth monitoring in the ICDS system as an important operational issue. They also highlighted issues relating to the quality of service delivery, such as low remuneration for ICDS workers, lack of proper weighing machines, and the absence of storage containers for ready-to-eat foods. On the contrary, the stakeholder interviews and the mapping exercise indicated a greater role of the health sector in IYCF, micronutrient supplementation, and SAM interventions, particularly by the Department of Community Medicine of Medical Colleges. However, a core issue that the majority of stakeholders expressed concern about was the lack of convergence between ICDS and the Department of Health to deliver key nutrition interventions.

Key Insights on Knowledge Gaps

With respect to the *use of research and evidence in policymaking*, stakeholder interviews revealed several key insights related to evidence producers and evidence consumers. In general, the Department

of Health, NRHM, and ICDS were perceived to be consumers of evidence. However, some respondents were of the opinion that the NRHM is more inclined to consult with development partners and seek evidence for informed decisionmaking than the ICDS. They noted that, to address evidence gaps, the Department of Health and NRHM should undertake literature reviews and field visits to other states to gather operational evidence.

Some government officials noted that state implementation guidelines are based on evidence gathered from the nutrition community in the state. However, the development partners believe that the little evidence that is generated from operational research is never used for policy planning. They noted that knowledge and operational evidence, such as the document on the Uttar Pradesh innovations prepared by the Development Partners Forum, and the UNICEF state policy and strategy document on nutrition called the "Poshan Mission (2006)," exist but are poorly utilized. The development of these strategy documents was an important milestone and an early effort by the state government to get into a mission mode. Thus, stakeholders perceive that there is a disconnect between "knowledge" and "knowledge to action."

Some interviewees felt that there was a substantial disconnect between policymakers and researchers. Some also noted that there is currently no public demand for improving nutrition, and there is little awareness of the challenges in addressing the problem of undernutrition. They opined that this overall poor understanding of undernutrition at all levels seems to support actions that are not evidence-based.

In general, many respondents highlighted the need for knowledge dissemination on nutrition issues at all levels of government, including the state, district, block, and village levels. They also cited the need for increased regional knowledge, as the problems in Uttar Pradesh vary from region to region. In the absence of a formal knowledge management system, the Internet was seen as the most useful source of information, although it was noted that printed materials or a single website with reliable information would be useful. The stakeholders also highlighted the absence of common knowledge spaces for discussion and debate or platforms for data exchange. Although the Maternal, Newborn, Child Health and Nutrition (MNCHN) Development Partners Forum exists, it is reported to have very little participation from government officials.

In summary, our analysis of the *programmatic* factors finds the following:

1. Several state-level nutrition policies and programs have been initiated and implemented in Uttar Pradesh over the last decade, and there have been efforts to address the importance of essential inputs to ensure infant and child nutrition through the implementation of various programs.
2. The availability of ICDS has increased substantially in the last few years; however, data on use of ICDS services by potential beneficiaries indicate several gaps.
3. Previous nutrition programs were not always implemented effectively, since implementation of all the known essential interventions at the same time requires commitment and coordination of both health and ICDS sectors for convergent actions
4. The lack of state technical and program capacity prevents effective design and implementation of district- and block-level nutrition programs
5. Interviews with stakeholders reveal very significant implementation challenges related to the quality of service delivery, convergence between health and ICDS, lack of leadership for nutrition, and poor use of evidence to improve service delivery.

SOCIOPOLITICAL AND GOVERNANCE FACTORS

In this section, we briefly describe the political and policy landscape for nutrition in Uttar Pradesh. We draw on insights from the Net-Map exercise, which was used to map the landscape of actors in nutrition in Uttar Pradesh. We also draw on the state-level stakeholder interviews and review of documents.

Influential[16] Actors in the Policy Space

Government Actors

The Principal Secretary of Health and the Director General of Family Welfare were perceived as influential in shaping nutrition policies and programs in the state in the Net-Map stakeholder map. The current Principal Secretary of Finance is perceived to be a strong leader; however, few actors in the nutrition policy and program landscape were reported to support him (for reasons unknown). Key stakeholders also identified the Uttar Pradesh-MNCHN Partner's Forum (including the Nutrition Core group) as a potential influencer in the nutrition policy and program landscape. Stakeholders identified the following important government-linked decisionmakers or influencers who have the potential to affect nutrition policy and programs, but have no linkages to other key nutrition actors: the *Panchayati Raj*, the *Total Sanitation Campaign*, Uttar Pradesh-*Jal Nigam*, the National Rural Livelihood Mission, Mother Communities (known as *Matra Samiti*), the State Urban Development Agency, the District Urban Development Authority, and the Agriculture Production Commissioner.

Development Partners

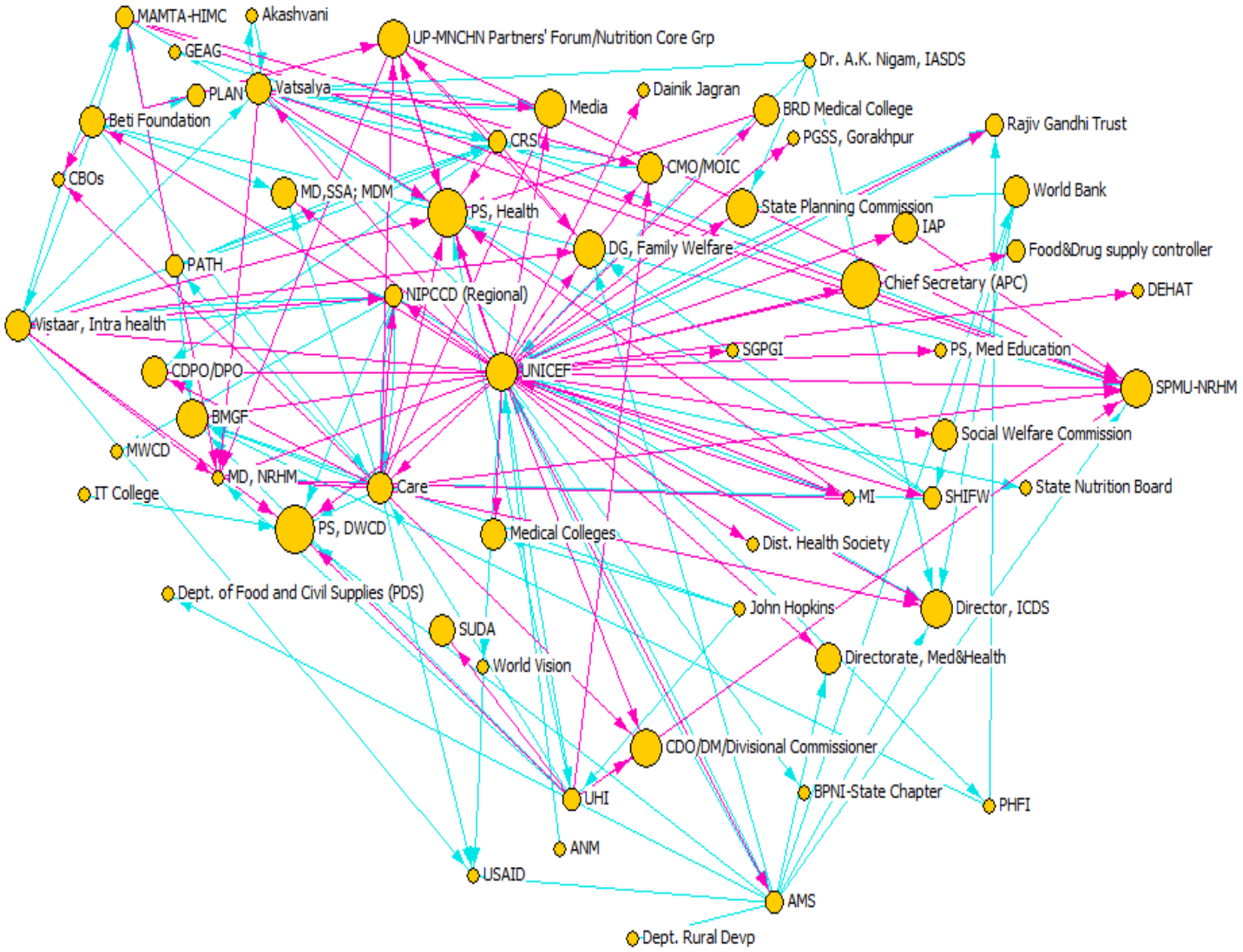
Development partners have been active in Uttar Pradesh for several years, and the Net-Map analysis highlighted that UNICEF appeared to be a central development partner in the nutrition landscape of Uttar Pradesh. UNICEF was perceived to be a highly influential organization, and the stakeholders participating in the Net-Map exercise assigned UNICEF the maximum number of research and advocacy links (Figure 12). Another development partner that was well linked with various stakeholders was CARE. A large number of development partners are currently involved in addressing direct and indirect determinants of maternal and child health (Table 6). However, only a few of these organizations were identified as influential in the Net-Map exercise, and some, such as the Aga Khan Foundation, Save the Children, and FHI 360, do not appear on the map at all.

Academic Institutes

Medical colleges, individuals and academic institutions were noted to be influential in the nutrition space. Specific institutes that were mentioned in the Net-Map exercise were Sanjay Gandhi Postgraduate Institute of Medical Science, Gorakhpur Medical College, Banaras Hindu University, Indian Medical Association–Lucknow, and the Institute of Applied Statistics and Development Studies.

[16] By "influence" we mean the ways in which stakeholders are in a position to influence maternal and child nutrition-related policies and programs. The ways of influencing include (but are not limited to) funding, technical information, advice, and advocacy, but could also include attributes like "respect."

FIGURE 12. NETWORK MAP OF STAKEHOLDERS ENGAGED IN NUTRITION IN UTTAR PRADESH (MAP DRAWN JULY 2012)



Research Link
Advocacy Link

TABLE 6. DEVELOPMENT PARTNERS WORKING ON NUTRITION IN UTTAR PRADESH

Area of work on nutrition	Key development partners
Newborn care	PSI, UHI, World Vision India, PATH, IntraHealth (Manthan), UNICEF, BETI Foundation, Aga Khan Foundation, IntraHealth (Vistaar), CRS, Plan India, Vatsalya, Save the Children
Child health	World Vision India, FHI 360 (DAZT), UNICEF, BETI Foundation, Aga Khan Foundation, CARE, Micronutrient Initiative, Plan India, Vatsalya
Maternal health	PSI, UNICEF, UHI, World Vision India, PATH, IntraHealth (Manthan), UNICEF, BETI Foundation, Aga Khan Foundation, PSI, CARE, PATH, World Vision India, SAHAYOG, Vatsalya, CRS, VHAI, Plan India
Nutrition	UNICEF, World Vision India, UNICEF, BETI Foundation, CARE, IntraHealth (Vistaar), Vatsalya, Save the Children

Source: Save the Children.

Political Factors

Uttar Pradesh belongs to a category of states in India in which upper-caste and upper-class dominance has been effectively challenged by middle castes and the middle class. As a result, support for the Congress Party has collapsed in the context of fractured and unstable party competition [17]. At the same time, these states have not been able to achieve poverty reduction as effectively as such states as Tamil Nadu, where lower castes and the lower class are more equally represented, and where the Congress Party lost its dominance at an earlier stage [17]. Despite the fractured political environment, various programs have been put in place since the 1980s to improve the social status of excluded populations in Uttar Pradesh. However, these programs are thought to have been largely ineffective, and their relative importance on the political agenda remains low [4]. The political situation in Uttar Pradesh continues to be charged around various issues, making development reform a challenging prospect for any leadership. The stakeholder interviews conducted in our research also suggest a general perception that a highly charged political environment is a major obstacle for improvements in the state nutrition situation.

Political Will for the Future

Political commitment and will to tackle some of Uttar Pradesh's challenging health statistics are on the agenda after many years of silence on these issues. Several high-profile events have been held in the state, and explicit acknowledgement of the burden of poor maternal and child health and nutrition by the state leadership suggests the environment for addressing these issues is positive. The following is a brief list of key events focusing on maternal and child nutrition in Uttar Pradesh:

- On August 6, 2012, Save the Children India and the State MNCHN Partner's Forum organized the event "Understanding the past, planning for the future: Celebrating 10 years of WHO/UNICEF's Global Strategy for Infant and Young Child Feeding," with the help of the state government[17] in order to draw the attention of policymakers to the importance of promoting recommended breastfeeding practices in Uttar Pradesh.
- In a presentation to the Planning Commission in January 2013,[18] the Uttar Pradesh government projected that the state would achieve full immunization coverage for children from six deadly diseases, reduce malnutrition among children less than 3 years of age from 47.0 percent to 23.5

[17] Source: Everyone.org (accessed at 3:00 p.m., 1 August 7, 2012) http://everyone.org/india-launches-campaign-this-world-breastfeeding-week/.

[18] Source: Planning Commission (accessed at 2:46 p.m., January 31, 2013) http://planningcommission.nic.in/plans/stateplan/Presentations12_13/UP_201213.pdf.

percent, and reduce anemia among women 15–49 years of age from 51.6 percent to 20.0 percent by 2017.

- Following the national Call to Action summit in early 2013, a child survival summit was hosted by Save the Children and the Government of Uttar Pradesh in March 2013, which raised the profile of undernutrition as a key input to child survival.[19]

Perhaps the most significant of signals related to high-level commitment for nutrition is that the Chief Minister of Uttar Pradesh announced the launch of a Nutrition Mission in the state in April 2013.[20] This was possibly the result of momentum created at the national level with the release of the HUNGaMA Report, the Prime Minister's Council on Nutrition meeting and the 12th Five-Year Plan, and advocacy by several key actors, including the Citizen's Alliance Against Malnutrition, a cross-party alliance of young members of parliament. The proposed mission aims to address undernutrition using the strategies of political leadership, integration and convergent action, promotion of evidence-based interventions, and universal coverage of programs. The stakeholders interviewed in our study mentioned that both the HUNGaMA Report [12] and the Citizen's Alliance, a cross-party group of young parliamentarians, were influential in the decision to launch the mission, and that the new political leadership is more oriented toward social reform than previous governments.

The movement toward establishing a Nutrition Mission is welcome in the context of the high burden of undernutrition in Uttar Pradesh, but the challenges are sobering, and must be tackled systematically and comprehensively.

In summary, the sociopolitical landscape for nutrition in Uttar Pradesh offers hope and raises some challenges. Specifically, we find the following:

1. There is a real diversity of stakeholders involved in nutrition in Uttar Pradesh, with strong leadership from some key government actors and at least one major development partner (UNICEF).
2. The wider stakeholder network in the state does not yet agree fully on the nature of the problem of undernutrition or the necessary solutions to tackle it. Building this awareness and commitment through the state system and through district- and block-level actors will be essential to scale up impact.
3. Political will and commitment for nutrition are high at present. The establishment of the Nutrition Mission offers an important window of opportunity for action.
4. However, the political and system capacity challenges to implementing actions chosen by the Nutrition Mission will need to be tackled head-on through comprehensive advocacy and systematic capacity building.

[19] http://everyone.savethechildren.net/articles/india-deliver-uttar-pradesh-must-lead-way-saving-children%E2%80%99s-lives.

[20] http://www.thehindu.com/todays-paper/tp-national/tp-newdelhi/uttar-pradesh-to-set-up-nutrition-mission/article4596836.ece.

Conclusions

This analysis of the nutrition situation in Uttar Pradesh points to several challenges to and opportunities for improving maternal and child undernutrition in Uttar Pradesh.

First, the problem of undernutrition in Uttar Pradesh is particularly severe, not only in terms of the prevalence, but also in sheer numbers. Despite substantial reductions in severe childhood underweight in high-burden districts within Uttar Pradesh, the burden of problems, such as childhood stunting, remains high. The data from Uttar Pradesh reaffirm the importance of the first 2 years of life as a critical window within which to deliver nutrition interventions. However, the lack of recent data on nutrition is a critical constraint on efforts to mobilize stakeholders, target and prioritize actions, and monitor progress.

Second, in relation to determinants of undernutrition, we find that the gap in access to essential inputs to nutrition is very high overall. IYCF practices are very poor, especially with respect to complementary feeding, as are sanitation practices. Poor maternal nutrition, low access to ANC services, and the challenge of underlying determinants of nutrition that relate to women's status—such as women's literacy, early marriage, and early childbearing—are likely to be significant barriers to improving nutrition in the state. Furthermore, household poverty and food insecurity are also critical challenges. Thus, child undernutrition in Uttar Pradesh lies at the vortex of what is likely a "perfect storm," and requires a truly multi-pronged approach to tackle these diverse determinants simultaneously.

Third, Uttar Pradesh has numerous nutrition programs in place to address the problem of undernutrition, and scaled-up ICDS services in response to the process of ICDS universalization. While this is a positive step, ICDS is currently underutilized, suggesting that even though centers have been established, actual services are still not reaching intended beneficiaries. The several systems-strengthening efforts to date have not tackled all of the nutrition-specific interventions comprehensively. Indeed, our analysis finds that many of these initiatives were started or co-implemented by nongovernmental organizations, and the government has not been at the core of leading comprehensive action to improve child undernutrition in the state. Interviews with stakeholders reveal significant implementation challenges related to the quality of service delivery, convergence between health and ICDS, lack of leadership for nutrition, and poor use of evidence to improve service delivery. These areas require critical attention to move political commitment to action and impact on the ground.

Fourth, our analysis of the sociopolitical landscape for nutrition reveals the diversity of stakeholders involved in nutrition in Uttar Pradesh, and highlights the strong leadership from some key government actors and at least one major development partner (UNICEF). While this is positive, consensus on the way forward for nutrition could be challenged by the lack of full agreement among the wider stakeholder network on the nature of the problem of undernutrition or the necessary solutions to tackle undernutrition. Building this awareness and commitment through the state system and translating commitment to district- and block-level actors will need to be a high priority to scale up impact and to ensure strong support from all actors for nutrition actions.

Finally, political will and commitment for addressing nutrition in Uttar Pradesh are high at present. The establishment of the Nutrition Mission offers an important window of opportunity for action, which must not be squandered. In light of the multiple challenges to improving nutrition in Uttar Pradesh, the new Nutrition Mission, a laudable step forward for the state, will need to clearly address the major data gaps, and develop strategies to address existing operational and knowledge gaps in policies and programs, including the lack of service quality, convergence, leadership, use of evidence, and absence of

consensus relating to nutrition knowledge. The mission will also need explicit strategies for marshaling data and evidence systematically to improve actions for nutrition, to build stakeholder consensus and system-wide commitment.

Based our analysis, we recommend the following key actions to translate Uttar Pradesh's current high-level commitments to nutrition to action on the ground and to impact for the children of Uttar Pradesh:

- Invest in routine, high-quality surveys and/or surveillance on nutrition to establish and benchmark the nature, severity, and variability of the nutrition situation in the state; to set targets for the Uttar Pradesh Nutrition Mission; and to monitor progress on an ongoing basis.
- Strengthen stakeholder consensus around the nature and extent of the nutrition problem in Uttar Pradesh, and identify cross-sectoral solutions to address undernutrition through the establishment of a neutral, state-level nutrition coalition.
- Institute an inclusive and extensive process to build awareness on critical actions for nutrition, not just among policymakers at the state level, but also actors at the district, block, and village levels.
- Identify the most critical operational bottlenecks to delivering nutrition-specific interventions to prioritize operations research and systems strengthening, in order to build locally relevant knowledge.
- Develop explicit strategies to ensure that political commitment for nutrition is kept high on the agenda.

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ANNEX 1. EVIDENCE-BASED INTERVENTIONS USED IN THREE MAJOR NUTRITION PROGRAMS IN UTTAR PRADESH[21]

Essential input addressed	Evidence-based intervention	Intervention platform
RACHNA Program (2001–2005)		
Timely initiation of breastfeeding	Behavior change communication (BCC) through interpersonal communication at appropriately timed home visits, immunization programs, and Nutrition and Health Days	Change agents (CAs), *anganwadi* workers (AWWs), and auxiliary nurse midwives (ANMs) conducted home visits at various stages during and after pregnancy. CAs, AWWs, or ANMs were present at the time of childbirth or visit at the earliest possible time after birth to facilitate early breastfeeding.
Exclusive breastfeeding	BCC through interpersonal communication at appropriately timed home visits	AWWs, ANMs, or volunteers made home visits during critical periods and provided appropriate information and advice. CAs worked with support of the AWWs and community organizations to promote child health and nutrition practices. CAs, AWWs, or ANMs visited frequently during the first week and once a month thereafter to promote exclusive breastfeeding using job aids.
Timely introduction of complementary feeding at 6 months	BCC on complementary feeding	CAs, AWWs, or ANMs counseled mothers at 6–8 months about complementary feeding. Appropriate local belief systems were encouraged, such as ritual of initiation of complementary feeding at 6 months.
Age-appropriate complementary feeding	BCC was promoted on complementary feeding	Once a month, CAs conducted home visits to counsel mothers on feeding frequency, age-appropriate quantity of food, and appropriate complementary food choices in addition to helping with problem solving. A take-home ration (THR) of corn-soy blend was provided on Nutrition and Health Days with appropriate counseling.
Prevention of anemia	Pediatric iron folic acid (IFA) tablets were distributed	Pediatric IFA tablets were crushed and mixed into complementary food (Note: The implementation was very variable across districts. In fact, this intervention was not properly implemented and prioritized by the system.)
Reducing vitamin A deficiency	Provision of biannual vitamin A supplementation services at *anganwadi* centers (AWCs)	AWWs and ANMs were trained on the importance of vitamin A supplementation; ANMs provided the doses; vitamin A supplementation was made a priority at public health centers.
Improved food intake for pregnant and lactating women	Provision of monthly THRs for mothers as well as for children	A Nutrition and Health Day was organized every month on fixed days at AWCs to distribute THRs.

[21] See Avula et al. [13] for more details on the review of the use of evidence-based interventions in nutrition programs in India.

Essential input addressed	Evidence-based intervention	Intervention platform
UMANG Program (2001)		
Prevention of anemia in adolescent girls	Weekly IFA supplementation, provision of deworming tablets to children to improve anemia in populations with high rates of intestinal helminthiasis	*For weekly IFA supplementation, nonschool-going girls:* The fourth Saturday of every month was fixed for providing the girls with IFA tablets. Three girls who were part of the Adolescent Girls Scheme formed the UMANG group. Each girl was given 4–5 IFA tablets per month from a blister pack of 30 tablets. The consumption of tablets in this group was not supervised. UMANG group members provided IFA tablets to adolescent girls in their neighborhoods. *For deworming, school-going girls:* Two teachers were trained per school. Posters with culturally relevant information were provided to each classroom. Every Saturday was UMANG Day, when the girls received IFA.
MCHN Program (2000)		
Timely initiation of breastfeeding	Individual counseling of pregnant, lactating mothers of children under 2, and newlywed women by community health workers called *Bal Parivar Mitras* (BPMs)	BPMs counseled mothers about initiation of breastfeeding. BPMs used a pictorial card for promoting appropriate behavioral practices and monitoring at the family level. Messages were also promoted through wall posters.
Exclusive breastfeeding	Individual BPM counseling of pregnant, lactating, mothers of children under 2, and newlywed women	BPMs were the primary contact points for the “at risk” families. They worked in coordination with ICDS functionaries and linked with the ANM “outreach” sessions. In ICDS blocks, the weekly contact point with mothers distributed THRs at the AWC. BPMs participated in ICDS Health Meals and Mother and Child Days, and linked with ANMs for routine immunization. BPMs counseled mothers about exclusive breastfeeding, visited families once a week, and counseled and returned after 15 days to follow up on the implementation of the messages. If BPMs found it difficult to convince people, they were advised to contact AWWs or ANMs. Standardized messages were promoted by BPMs in counseling families. BPMs used a pictorial card for promoting appropriate behavioral practices and monitored at the family level. This card was developed using the “life-cycle approach,” depicting messages through colored instructions. The BPMs easily recorded the information and used it as a monitoring and counseling format. The card had six sections: (1) information of the cluster and messages for newlyweds; (2) key messages for pregnant women; (3) care of newborns; (4) care of children 6–24 months; (5) household water sanitation, iodized salt; and (6) key messages.

Essential input addressed	Evidence-based intervention	Intervention platform
Timely introduction of complementary feeding at 6 months	Individual BPM counseling of pregnant, lactating mothers of children under 2, and newlywed women	BPMs counseled mothers.
Safe handling of complementary feeding	Individual BPM counseling of pregnant, lactating mothers of children under 2, and newlywed women on hygiene and sanitation	Messages on washing hands with soap before preparing foods and washing vegetables and fruits before eating and cooking were communicated during interpersonal interactions.
Prevention/treatment of diarrhea	Counseling on hand washing and provision of oral rehydration solution (ORS)	BPMs and ANMs provided ORS. BPMs promoted hand washing after defecation and counseled on the use of covered water sources.

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IFPRI-NEW DELHI

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

NASC Complex, CG Block,
Dev Prakash Shastri Road,
Pusa, New Delhi 110012, India
T+91.11.2584.6565 to 6567
F+91.11.2584.8008