



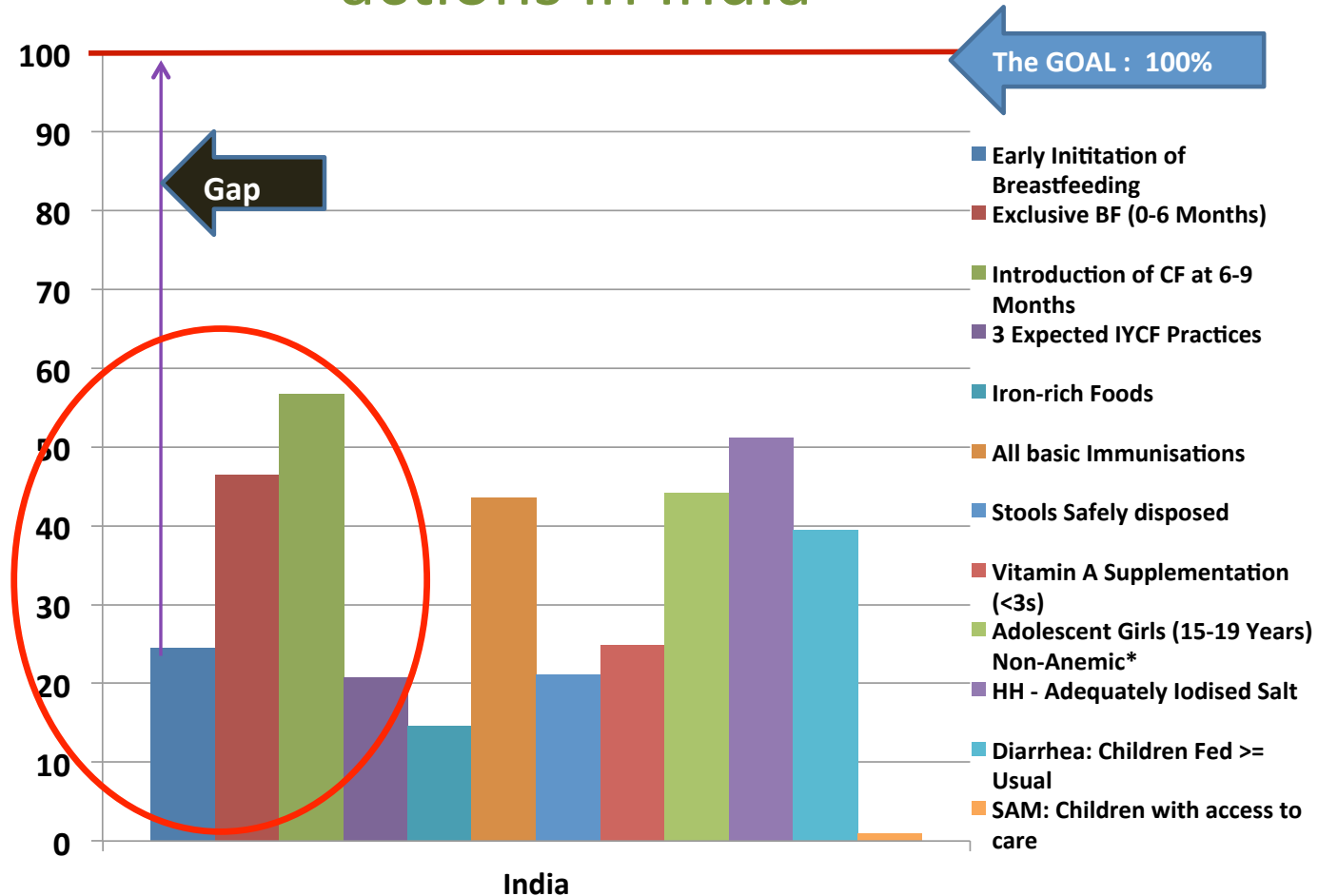
Scaling up nutrition-specific interventions to prevent undernutrition in India: How much would it cost?

Purnima Menon

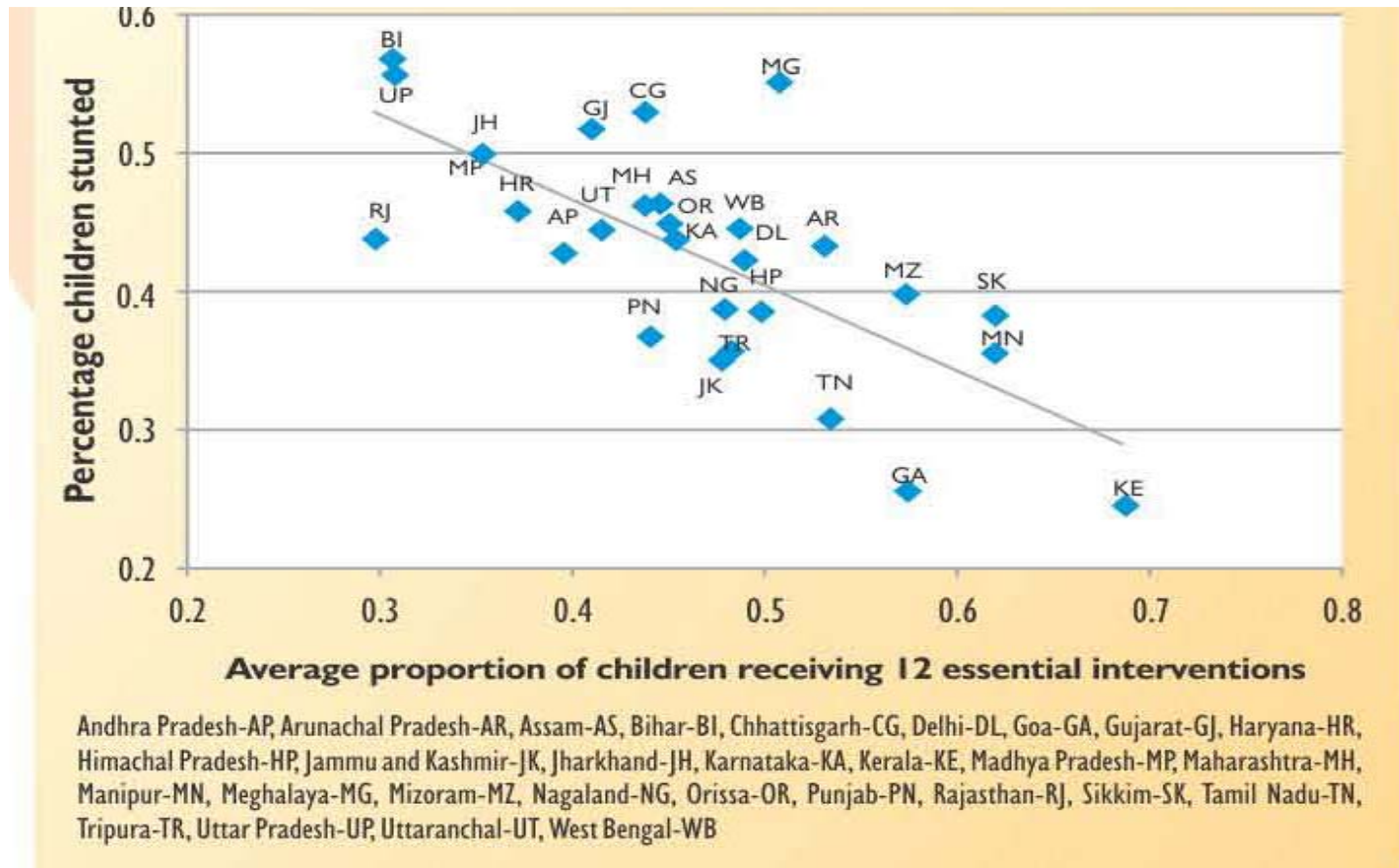
with

Christine McDonald & Suman Chakrabarti

The challenge: gaps exist in status of nutrition-specific actions in India



Status of essential nutrition actions is associated with the levels of stunting at the state level



What factors might be holding back delivery at scale?

POLICY GUIDANCE?

POSHAN
Led by IFPRI

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India

Research Note

No. 4 | JANUARY 2013

Understanding the Landscape of National Policies and Strategic Plans to Tackle Undernutrition in India: A Review

OBJECTIVES

In India, 46 percent of infants and children under 3 years old are underweight and more than two-thirds are anemic (MHW 2006). This is despite substantial economic growth and multiple policies developed over several decades to support diverse actions to tackle undernutrition.

The Indian response to tackling undernutrition must focus on the most effective strategies and interventions to ensure rapid improvement. Toward this end, the effective and efficient mobilization of evidence is critical.

This paper presents key findings from a policy review led by a team from the Public Health Foundation of India that documented the use of evidence in nutrition policymaking and planning in India and the facilitators of and barriers to its use.

METHODOLOGY

The team reviewed the extent of use and documentation of evidence in current national policies, guidelines, strategic reports, and plans on nutrition in India (Exhibit 1, next page). The team broadly defined evidence as the facts and information from datasets and surveys, knowledge generated through research and experiential learning at the national and global levels, and expert advice collated through working groups and taskforce activities.

FINDINGS

Strengths of the Nutrition Policy Environment

There are an increasing number of policies and plans focused on improving nutrition.

The commitment to tackle undernutrition has been steadily increasing in India. In the last decade, there has been an increasing prioritization of undernutrition as a public health challenge, as evidenced by the number of policies and plans that cite the issue and actions to address it.

Most nutrition policies are systematically revised and updated.

Government agencies have revised and added amendments to most policies over time to incorporate new issues and evidence. Some policies, such as the Policy on Infant and Young Child Feeding, have been actively revised and integrated at scale within existing programs. These include the Integrated Child Development Services scheme, National Rural Health Mission, National Blindness Control Programme, and nationwide initiatives for vitamin A and iron supplementation.

Most nutrition policies and plans are based on national and global evidence.

The majority of current nutrition policies, guidelines, and plans are evidence based, with the most common source of evidence being national survey data. Policymaking and planning has also made use of research findings, recommendations from international working groups and taskforces, and epidemiological surveys. The trend has been to identify global evidence on core issues affecting nutrition and then commission research in India to corroborate and contextualize this evidence before incorporating the evidence into policy. For example, some Indian nutrition policies focus on 14 direct essential actions for improving nutrition that are based on global evidence from *The Lancet Series on Maternal and*

IMPLEMENTATION EXPERIENCE?

POSHAN
Led by IFPRI

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India

Research Note

No. 2 | JANUARY 2013

A Review of Evidence-Based Interventions in Indian Nutrition Programs

OBJECTIVES

The persistence of undernutrition in the face of India's impressive economic growth continues to be of enormous concern. Though there are recognized essential inputs for child and maternal nutrition, less than 55 percent of mothers and children receive any of these inputs in India (Menon and Aguayo 2011).

To better clarify the extent to which current nutrition programs in India incorporate essential inputs for nutrition, a team from POSHAN reviewed nutrition programs in India for the inclusion of such inputs and examined how these inputs are implemented and delivered.

METHODOLOGY

The team compiled a list of the essential inputs for maternal and child nutrition and survival featured in *The Lancet* series on maternal health (Bhutta et al. 2008). The team then compared these with the inputs featured in the *Leadership Agenda for Action* (Coalition for Sustainable Nutrition Security in India 2008) and the *Scaling Up Nutrition Framework for Action* (2010) to generate a final list of 14 essential inputs for nutrition (Exhibit 1).

The team then searched the Cochrane Library, the World Health Organization's Electronic Library of Evidence for Nutrition Actions, the International

EXHIBIT 1 14 essential inputs for child nutrition

1. Timely initiation of breastfeeding within 1 hour of birth
2. Exclusive breastfeeding during the first 6 months of life
3. Timely introduction of complementary foods at 6 months
4. Age-appropriate complementary feeding, adequate in terms of quality, quantity, and frequency for children 6-24 months
5. Prevention of anemia
6. Safe handling of complementary foods and hygienic complementary feeding practices
7. Full immunization
8. Reducing vitamin A deficiency
9. Reducing burden of intestinal parasites
10. Prevention and treatment of diarrhea
11. Timely and quality therapeutic feeding and care for all children with severe acute malnutrition
12. Improved food and nutrition intake for adolescent girls, particularly to prevent anemia
13. Improved food and nutrients intake for adult women, including during pregnancy and lactation
14. Prevention and treatment of malaria

RESOURCING GAP? CAPACITY?

Objectives of POSHAN costing study

1. Calculate the total cost of delivering 14 nutrition-specific actions at 100% coverage
2. Derive state-specific costs for delivering these interventions
3. Analyze, where possible, expenditures against costed amounts

Scope and Limitations

- Estimate costs in financial or budgetary terms
- Does not calculate opportunity costs of time committed by beneficiaries accessing the services
- Does not account for state-level top-up funding for programs
- Does not predict the corresponding health and nutrition outcomes that are expected to result from the scale up of services.

Approach

- All interventions recommended by the GOI
- Accounts for delivery platforms used in India
- Uses India/S. Asia-specific data on unit costs
- Most recent demographic data to estimate target populations
- Derive state-specific cost estimates

Full Coverage!

For both sets of interventions, we define “full coverage” as 100% of the target population, except in the case of treatment of severe acute malnutrition, which we set to 80%.



Source: UNICEF India/2009/Tom Sampson

METHODS

Program Experience Approach

Step 1

- Described each intervention and define associated target population

Step 2

- Estimated the size of the target population (TP) in 2014 using India's 2011 Census, its Sample Registration System, and the National Family Health Survey III

Step 3

- Obtained/developed local unit cost (UC) data for each intervention

Step 4

- Multiplied the size of the target population by the unit cost to arrive at a total cost of implementing each intervention at 100% coverage (Total cost = UC*TP)

List of interventions and target populations

Intervention	Target Population
<i>Counseling actions</i>	
Counseling during pregnancy	Pregnant women
Counseling for breastfeeding	Caregivers of children 0-6 months of age
Counseling for CF and hand washing	Caregivers of children 6-24 months of age
<i>Supplementary food</i>	
Complementary food supplements	Children 6-36 months of age
Supplementary food rations	Pregnant and lactating women
Additional food rations for severely malnourished children	Children 6-59 months of age with WAZ < -3
<i>Micronutrient supplementation and deworming</i>	
Iron-folic acid supplements	Pregnant and lactating women for six months
IFA and deworming supplements	Adolescents 11-18 years of age
Iron supplements for children	Children 6-59 months of age
Vitamin A supplements	Children 6-59 months of age
ORS and zinc for diarrhea	Children 2-59 months of age with diarrhea
Deworming	Children 12-59 months of age
<i>Health interventions</i>	
Treatment of severe acute malnutrition	Children 6-59 months of age with a WHZ < -3
Insecticide treated nets	Pregnant women in malaria endemic areas
<i>Miscellaneous interventions</i>	
Maternity benefit for breastfeeding mothers	Six months after delivery

Unit Costs: Counseling Activities

Counseling Activities	Cost per beneficiary per year (US\$)	Cost per beneficiary per year (INR)*	Source of costing data	Assumptions
Counseling during pregnancy	0.80	41.6	Alive & Thrive costing study, Bangladesh**	Assumes 3.5 contacts
Counseling for breastfeeding for children 0-6 months of age	1.05	65.1	Alive & Thrive costing study, Bangladesh	Assumes 11.7 contacts
Counseling for complementary feeding and hand washing for children 6-12 months of age	4.72	292.64	Alive & Thrive costing study, Bangladesh	Assumes 11.6 contacts
Counseling for complementary feeding and hand washing for children 12-24 months of age	1.52	94.24	Alive & Thrive costing study, Bangladesh	Assumes 13.5 contacts

* Exchange rate as of October 10, 2013. US\$ 1 = INR 62

**Khan, J., et al. *Implementation Costs for Alive & Thrive in Bangladesh*. 2013.

Unit Costs: Supplementary Food

Supplement	Cost per beneficiary per year (US\$)	Cost per beneficiary per year (INR)*	Source of costing data	Assumptions
Complementary food supplements for children 6-12 mths	14.52	900	MWCD 2013 revised norms for supplementary nutrition	Rs 6 per day; Daily ration provided for 6 months, 6 days a week
Complementary food supplements for children 12-36 mths	29.03	1800	MWCD 2013 revised norms for supplementary nutrition	Rs 6 per day; Daily ration provided for 12 months, 6 days a week
Supplementary food rations for pregnant and lactating women	16.94	1050	MWCD 2013 revised norms for supplementary nutrition	Rs 7 per day; Daily ration provided for 6 months during pregnancy and 6 months during lactation, 6 days a week
Additional food rations for severely malnourished children	13.06	810	MWCD 2013 revised norms for supplementary nutrition	Rs 9 per day; Daily ration provided for 3 months. 50% of children 6-35 months with SAM are subtracted from the target population

* Exchange rate as of October 10, 2013. US\$ 1 = INR 62

RESULTS



Source: UNICEF/India/2010/Graham Crouch

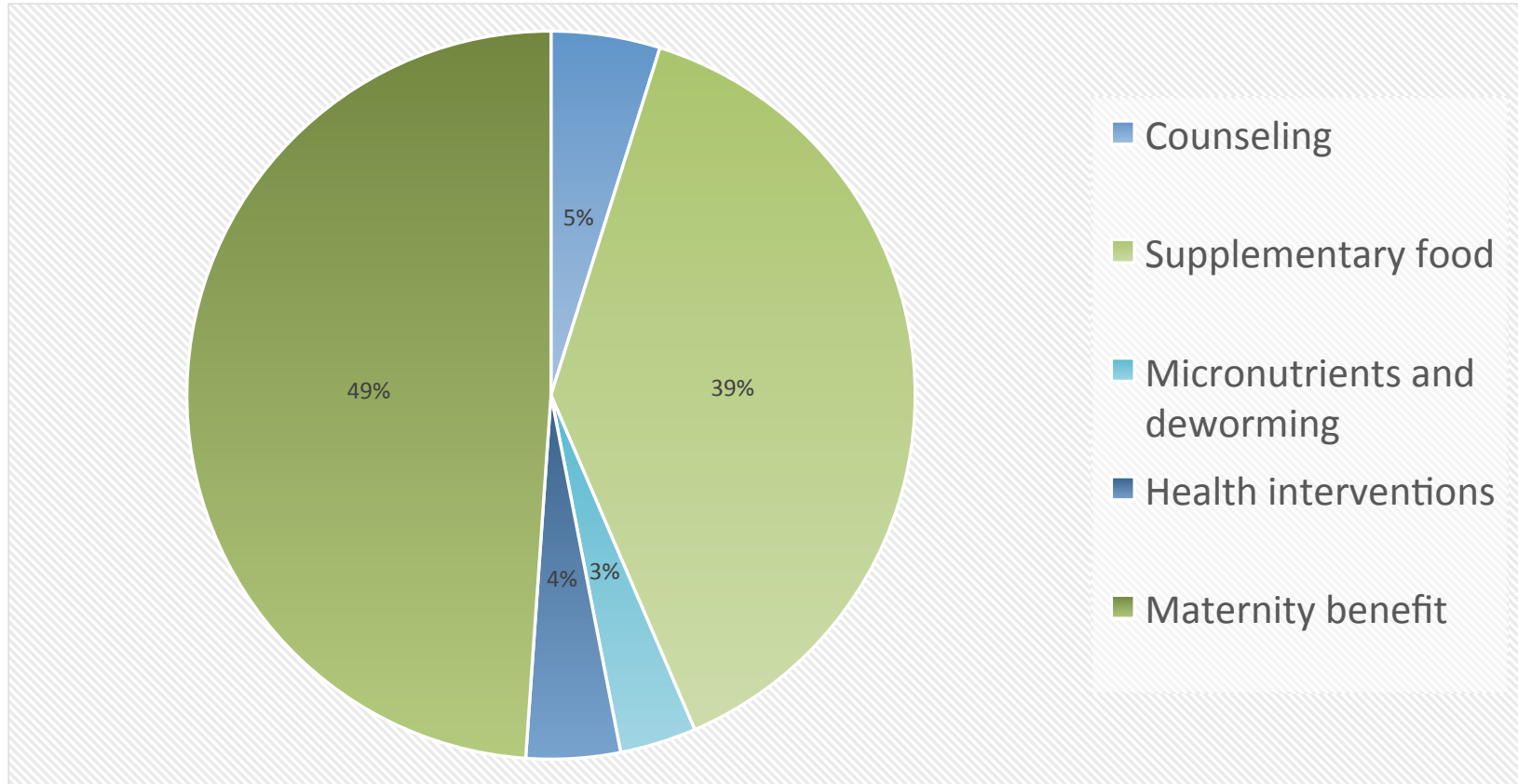
Total annual cost of implementing the full set of interventions at full coverage

Interventions	Cost (INR crore) per year 1US\$=62INR	Cost (US\$ million) per year
<i>Counseling actions</i>		
Counseling during pregnancy	307.58	49.61
Counseling for breastfeeding	110.79	17.87
Counseling for CF and hand-washing	1,361.27	219.56
<i>Supplementary food</i>		
Food supplements for children 6-36 months	9,461.26	1,526.01
Supplementary food rations for pregnant and BF women	4,081.77	658.35
Additional food rations for severely malnourished children	688.45	111.04

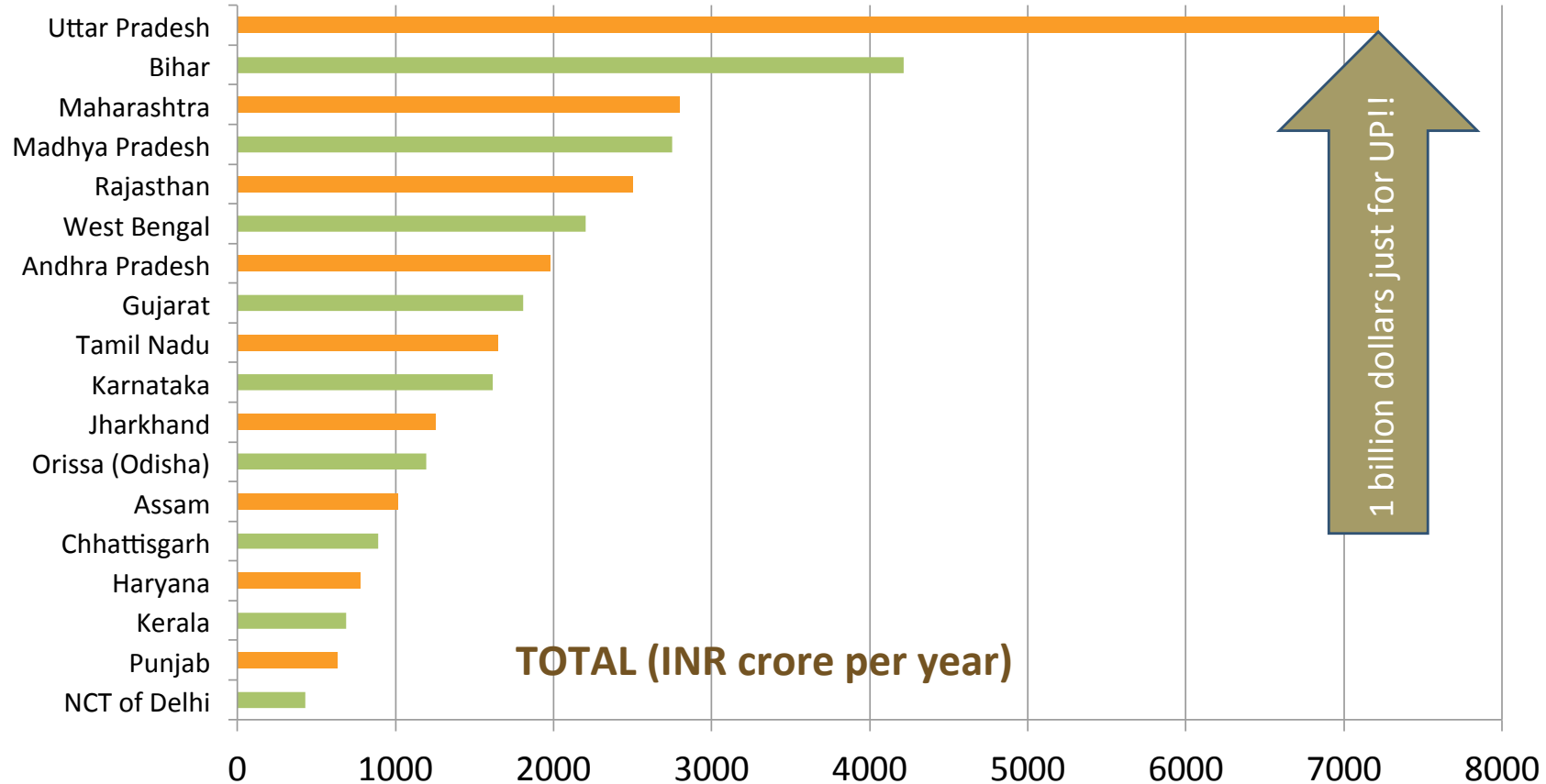
Total annual cost of implementing the full set of interventions at full coverage

Action	Cost (INR crore) per year 1US\$=62INR	Cost (US\$ million) per year
<i>Micronutrients and deworming</i>		
Iron-folic acid supplements for pregnant and BF women	122.95	19.83
IFA supplements and deworming for adolescents	249.18	40.19
Iron supplements for children 6-36 months of age	248.12	40.02
Vitamin A supplementation	46.93	7.57
ORS and therapeutic zinc supplements for treatment of diarrhea	440.14	70.99
Deworming	138.94	22.41
<i>Health interventions</i>		
Treatment of severe acute malnutrition	1,382.48	222.98
Insecticide treated nets for pregnant women in malaria-endemic areas	153.51	24.76
<i>Miscellaneous interventions</i>		
Maternity benefit for breastfeeding mothers	17,978.33	2,899.73
TOTAL	36,771.64	5,930.91

Breaking the costs down: by intervention category



Breaking the costs down, by state



Nutrition sensitive intervention areas

- **Cost Estimates for Public Distribution System**
 - Current PDS Cost: US\$ 14.7 billion/year (Khera)
 - PDS Costs under National Food Security Act: **US\$21.3 billion/year** (Chakrabarti and Rajkhowa, IFPRI, 2014)
 - Highest costs for UP, West Bengal and Bihar
 - These are not costs for making NFSA-PDS *nutrition-sensitive*
- **Cost components to scale up toilets and toilet use (Arghyam)**
 - Toilet subsidy: \$200/household x ~110 million households (?)
 - **>\$22 billion**
 - Behavior change communication costs: unknown
 - Maintenance costs: unknown

Take-away messages

- **US\$5.9 billion/year or 37,000 crores/year** to deliver nutrition-specific interventions.
- **Maternity benefit and supplementary food** account for the largest proportion of costs
- **Uttar Pradesh** requires the greatest amount of resources
- Costing estimates are challenged by **limited unit-cost data**
- Government expenditure reports do not align estimated costs to reported expenditures, **gaps difficult to compute.**
- Nutrition sensitive areas need more attention



Save the Children/India/2014

Thank you!

EXTRA SLIDES

How do costed amounts compare to expenditure? (Supplementary nutrition program in 2012-13)

Beneficiary Age Group	Current Expenditure Estimate	Cost Estimate for Current Coverage Levels and GoI Cost Norms	POSHAN Cost Estimate
		US\$ Millions (1US\$=62INR)	
6-36 months children	882.6	1202.6	1526
Pregnant & lactating Mothers	257.7	387.8	658.4
SAM Children	35.4	53.3	111

Source: MWCD website, reported expenditures

The ICDS in 2014 - Budget Allocations, Norms and Coverage

- **New Expenditure Norms:** SNP is now funded through a 50:50 (GOI:State) ratio
- ICDS Budget Allocation from GOI is **US\$ billion 3.2 for 2014-15**
Expenditure shortfall highest for Kerala (50%) and Punjab (42%)
Expenditure surplus highest in Andhra(22%), Bihar(23%) and Maharashtra(18%)
- **Coverage:**
Highest coverage in Odisha (74%), West Bengal (65%) and UP (61%) .
Lowest coverage in Rajasthan (28%), Kerala (25%) and Bihar (18%)

A look at the ICDS in 2014 - Performance

- **Reported malnourished children:**

As of December 2013, 28% of ICDS beneficiaries (children) in India were malnourished.

This is an improvement from FY 2009-10, when 37% were reported malnourished.

- **Over burdened AWCs:**

AWCs in Uttar Pradesh and Bihar cater to over 100 children.

In Bihar on average 1 service providing AWC caters to 194 children.

In contrast, each AWC in Himachal Pradesh services 23 beneficiaries

Comparing Costs to Expenditure (SNP in 2012-13) – the role of unit cost/expenditure gaps

UNIT COSTS FOR SNP

Beneficiary Age Group	<u>Effective Unit Cost</u> based on current expenditure and current coverage	POSHAN Unit Cost Estimate
Cost per child 6-12 months of age per year	\$10.66;	\$14.52
Cost per child 12-36 months of age per year	\$21.31	\$29.03
Cost per pregnant woman	\$12.42	\$16.93
Cost per mother of a child 0-6 months of age per year	\$12.42	\$16.93
Cost per severely underweight child 6-36 months of age per year	\$9.58	\$13.06

Comparing Costs to Expenditure (SNP in 2012-13) – the role of beneficiary coverage gaps

NUMBER OF BENEFICIARIES

Beneficiary Age Group	Number of beneficiaries (2012-13)	Estimated number of beneficiaries
6-36 months children	4,60,26,328	5,79,15,229
Pregnant & lactating mothers	1,90,82,210	3,88,86,721
SAM Children	67,56,665	85,01,956

BOTTOMLINE: CURRENT EXPENDITURES ARE LOWER BOTH BECAUSE OF LOWER EFFECTIVE UNIT COSTS AND LOWER COVERAGE OF BENEFICIARIES

Efficiency: How to do more at the least cost?

- Supplementary food (US\$ 2295 million)
- Maternity cash benefit (US\$ 2900)
- BCC (US\$ 288 million)
- Micronutrients and deworming (US\$ 210 million)
- Health intervention (US\$ 248)

Requires ~US\$ 5 billion at scale!

Requires less than US\$ 1 billion at scale!

Start with ensuring 100% coverage of Micronutrient and Health interventions

Methods: Unit Costs: Micronutrients and Deworming

Micronutrient or Deworming Intervention	Cost per beneficiary per year (US\$)	Cost per beneficiary per year (INR)*	Source of costing data	Assumptions
IFA supplements for pregnant women	0.51	31.4	Micronutrient Initiative's National Investment Plan	
Weekly IFA supplements + deworming for girls 11-18 years	0.40	25	UNICEF India's Adolescent Anemia Control Program	Includes the cost of IFA supplements, deworming, and counseling
Iron supplementation for children 6-36 months	0.37	23	Micronutrient Initiative's National Investment Plan	This is the GOI's current expenditure on iron supplementation per beneficiary
Vitamin A supplementation	0.07	4.04	Micronutrient Initiative's National Investment Plan	2 rounds per year
Therapeutic zinc supplements for diarrhea	0.25	15.8	Micronutrient Initiative's National Investment Plan	
Deworming	0.23	14	NRHM PIPs	2 doses per year

* Exchange rate as of October 10, 2013. US\$ 1 = INR 62

Methods: Unit Costs: Health & Misc. Interventions

Health Intervention	Cost per beneficiary per year (US\$)	Cost per beneficiary per year (INR)*	Source of costing data	Assumptions
Immunizations				
Facility-based SAM treatment	107.38	6657.5	Ministry of Health and Family Welfare 2011 Operational Guidelines	Provided to 15% of children with SAM; Assumes a 12.5 day stay
Insecticide-treated nets for pregnant women	4.84	300	UNICEF	ITNs are only distributed in highly malaria-endemic states of Assam, Odisha, West Bengal, Chattisgarh
ORS for treatment of diarrhea	0.38	12	NRHM PIPs	Average of 3 episodes/child/yr
Misc. Intervention	Cost per beneficiary per year (US\$)	Cost per beneficiary per year (INR)	Source of costing data	Assumptions
Maternity benefits for breastfeeding	96.77	6000	2013 Food Security Bill	Rs 1000 per month for 6 months provided to all new mothers, except those employed in government sector

* Exchange rate as of October 10, 2013. US\$ 1 = INR 62

SUN interventions and target populations

Intervention	Target Population
<i>Behavior change interventions</i>	
Community nutrition programs for behavior change communication	Children 0-59 months of age
<i>Micronutrient and deworming interventions</i>	
Vitamin A supplementation	Children 6-59 months of age
Zinc supplementation	Children 6-59 months of age
Multiple micronutrient powders	Children 6-23 months of age not receiving fortified complementary food*
Deworming	Children 12-59 months of age
Iron-folic acid (IFA) supplements	Pregnant women
Iron fortification of staple foods	General population
Salt iodization	General population
<i>Complementary and therapeutic feeding interventions</i>	
Complementary food for prevention or treatment of moderate malnutrition	Twice the prevalence of underweight (WAZ < -2) among children 6-23 months of age*
Treatment of severe acute malnutrition (SAM) using a Community-based Management of Acute Malnutrition (CMAM)	Incidence (estimated as twice the prevalence) of severe wasting (WHZ < -3) among children 6-59 months of age