

# **EVOLUTION OF NATIONAL PROGRAMMES TO IMPROVE FOOD SECURITY**



**DIRECTOR, NUTRITION FOUNDATION OF INDIA**

# PERSPECTIVE

# SIXTY FIVE YEARS AGO

When India became independent the country was not self sufficient in food grain production and over 80% of Indians were poor and food insecure

Country faced two major nutritional problems:

- ☀ threat of famine and the resultant acute starvation are due to low agricultural production and the lack of an appropriate food distribution system

- ☀ macro and micronutrient deficiencies are due to:

- 🌍 low dietary intake because of poverty and low purchasing power;
- 🌍 high prevalence of infection because of poor access to safe-drinking water, sanitation and health care;
- 🌍 poor utilization of available facilities due to low literacy and lack of awareness

Parameters	1951
Crude Birth Rate (per 1000 population)	40.8
Crude Death Rate (per 1000 population)	25.1
Total Fertility Rate	6.0
Maternal Mortality Ratio (per 100,000 live births)	NA
Infant Mortality Rate (per 1000 live births)	146 (1951-61)
Child Mortality Rate (0-4 yrs.) per 1000 children	57.3 (1972)
Couple Protection Rate (%)	10.4 (1971)
Expectation of life at birth in years -Male -Female	37.1 36.1 (1951)

The country was not self sufficient in food production

Birth rate was high 40.8

The crude death rate was also high but was falling

**Population growth rate was high due to high fertility and relatively lower mortality**

The focus of interventions was on

➤improving agricultural production to meet the needs of the growing population

➤reducing population growth to sustainable levels

➤Improve access to health care and improve health and nutritional status

**India with 2.5% of the global land mass and 16% of the global population recognised the importance of human resources as the engines powering national development .**

**The founding fathers of India recognised that human resources can function optimally only when they are well nourished and healthy and gave high priority to improvement of the health and nutritional status of the population.**

**Article 47 of the Constitution of India states that, “the State shall regard raising the level of nutrition and standard of living of its people and improvement in public health among its primary duties”.**

**Indian research studies showed**

- **the magnitude of the numerous nutritional problems**
- **adverse effect of these on work performance and health**
- **explored methods for prevention, tests for early detection and regimens for effective management of these problems**
- **showed that optimal nutrition improves health and quality of life of the citizens**

**India's nutrition and health programmes were based on the national situation analysis and appropriate research evidence based intervention strategies**

# **MULTI-PRONGED INTERVENTIONS FOR PROMOTING FOOD SECURITY**

# **MULTI-PRONGED INTERVENTIONS FOR PROMOTING FOOD SECURITY**

## **FOOD SECURITY**

- Increasing food production- building buffer stocks
- Economic improvement and poverty reduction
- Improving food distribution- building up the Public Distribution System (PDS)
- Improving household food security through
  - Improving purchasing power
  - Food for work programme
  - Direct or indirect food subsidy



# **MULTI-PRONGED INTERVENTIONS FOR IMPROVING NUTRITIONAL STATUS**

- **Food supplementation to vulnerable groups - Integrated Child Development Services (ICDS), Mid-Day Meal**
- **Efforts of the health sector to tackle**
  - **Adverse health consequences of under-nutrition**
  - **Adverse effects of infection and unwanted fertility on the nutritional status**
  - **Micronutrient deficiencies and their health consequences**
- **Nutrition and health education to improve awareness and optimal utilisation of available health and nutrition services**

# SUCCESSIVE FIVE-YEAR PLANS

- enunciated appropriate policies;
- laid down multi-pronged strategies;
- outlined multi-sectoral programmes to:
  - combat poverty & food insecurity at national, state and household levels,
  - bridge the energy gap in vulnerable segments of population,
  - provide health care to reduce nutrition toll of infections,
  - reduce under-nutrition and micronutrient deficiencies and improve nutritional status of the population;
- provided needed funds to implement intervention programmes &
- laid down the goals to be achieved in specified time frame.

This presentation is a brief review the evolution of some major interventions to improve food security .

# **PROGRAMME INTERVENTIONS TO IMPROVE FOOD SECURITY**

- 🌍 **Food production, nutrition orientation of food production**
- 🌍 **Access to food- food grains subsidy**
- 🌍 **Food inflation and food security bill**
- 🌍 **Integrated Child Development Services**
- 🌍 **Mid Day Meal programmes**

# FOOD PRODUCTION

# FOOD IS THE FIRST NEED : GREEN REVOLUTION FROM SHIP-TO-MOUTH TO SELF-SUFFICIENCY IN A DECADE

## ➤ Programme interventions :

- Investment in irrigation
- Land reforms
- Fertilizer production and subsidy
- Minimum support price
- Farm level procurement

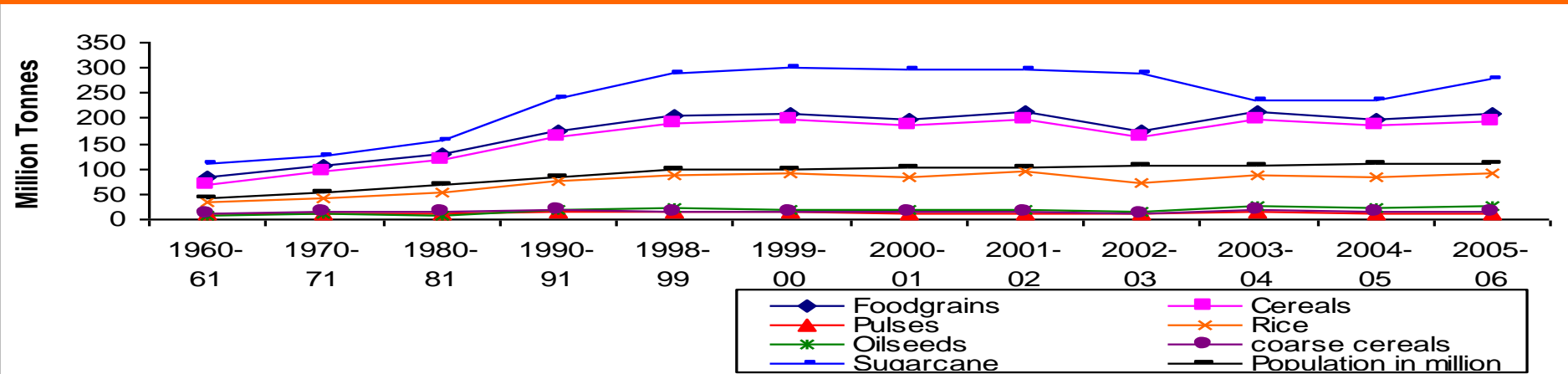
**R&D:** support for development of high yielding strains

- Lab-to-land extension education

**All these programmes were well implemented**

**PERHAPS THIS IS A GOOD EXAMPLE OF WHAT INDIANS CAN DO  
WHEN THEY WERE DRIVEN TO A CORNER- A MISSION MODE  
PUBLIC PRIVATE PARTNERSHIP TO ACHIEVE A NATIONAL GOAL  
IN RECORD TIME (AT A TIME WHEN NO ONE HAS HEARD OF PPP)**

# NUTRITION ORIENTATION OF FOOD PRODUCTION POLICIES : PULSE PRODUCTION



- Food grain production quadrupled and met the needs of the growing population
- But pulse production has been stagnant for 3 decades at 13 mt
- Gap between demand and supply necessitated import of pulses. The cost of pulses soared. In spite of continued expenditure on pulses, household consumption of pulses has come down.
- Reduction in pulse consumption will have adverse effect on nutrient intake and nutritional status of the population. Tenth plan focussed on nutrition orientation of food production policies and programmes

# NATIONAL FOOD SECURITY MISSION

National Food Security Mission (NFSM) was launched in August 2007 with the objectives to:

- increase production of rice, wheat through productivity increase
- increase in pulses production through area expansion and productivity enhancement in a sustainable manner ;
- restore soil fertility and productivity at individual farm level;
- enhance farm level economy (i.e. farm profits) to restore confidence of farmers for improving food production in selected districts.

## IMPACT :

India's food grain production has grown as envisaged. India will remain self sufficient in food grain production till 2030

Pulse production has grown by 2 MT/ year and India is expected to become self sufficient in pulses (production of 24 MT) by 2017 .

# **NUTRITION ORIENTATION OF FOOD PRODUCTION: VEGETABLES**

**Fruits and vegetables provide essential micronutrients vital for nutrition and health**

**India is No 1 or 2 in production of vegetables and fruits. Export earning from fruits and vegetables are growing but percapita vegetable and fruit consumption continues to be low in all segments of population including families with no economic constraints.**

**Low vegetable consumption is the major factor responsible for widespread anaemia& and micronutrient deficiencies**

**Nutrition education for increase in vegetable consumption to improve micronutrient status and reduce NCD will succeed only when vegetables are available throughout the year at affordable cost.**

**HORTICULTURAL MISSION HAS NOW THE MANDATE TO FOCUS ON PRODUCTION, PROCESSING & MARKETING OF LOW COST, NUTRIENT RICH VEGETABLES SO THAT VEGETABLES ARE AVAILABLE AND AFFORDABLE AND THE AWARE POPULATION CAN BUY AND EAT MORE VEGETABLES .**



# CHALLENGES FACED BY AGRICULTURE SECTOR

- continue to improve food grain production to meet the needs of the growing population;
- increase production of pulses and make them affordable to increase consumption;
- improve the availability of vegetables at an affordable cost throughout the year in urban and rural areas.
- combat the rising food prices at global, national and local levels
- meet the threat of globalisation on Indian agriculture
- ensure that the bio-fuel production does not hamper adequate food grain production
- measure and combat consequences of global warming on food production
- combat food inflation

**With the National Food Security Mission and National Horticultural Mission fully operational , the country is expected to be self sufficient in food production till 2030**

# ACCESS TO FOOD

## FOOD, NUTRITION & HEALTH STATUS IN 1970

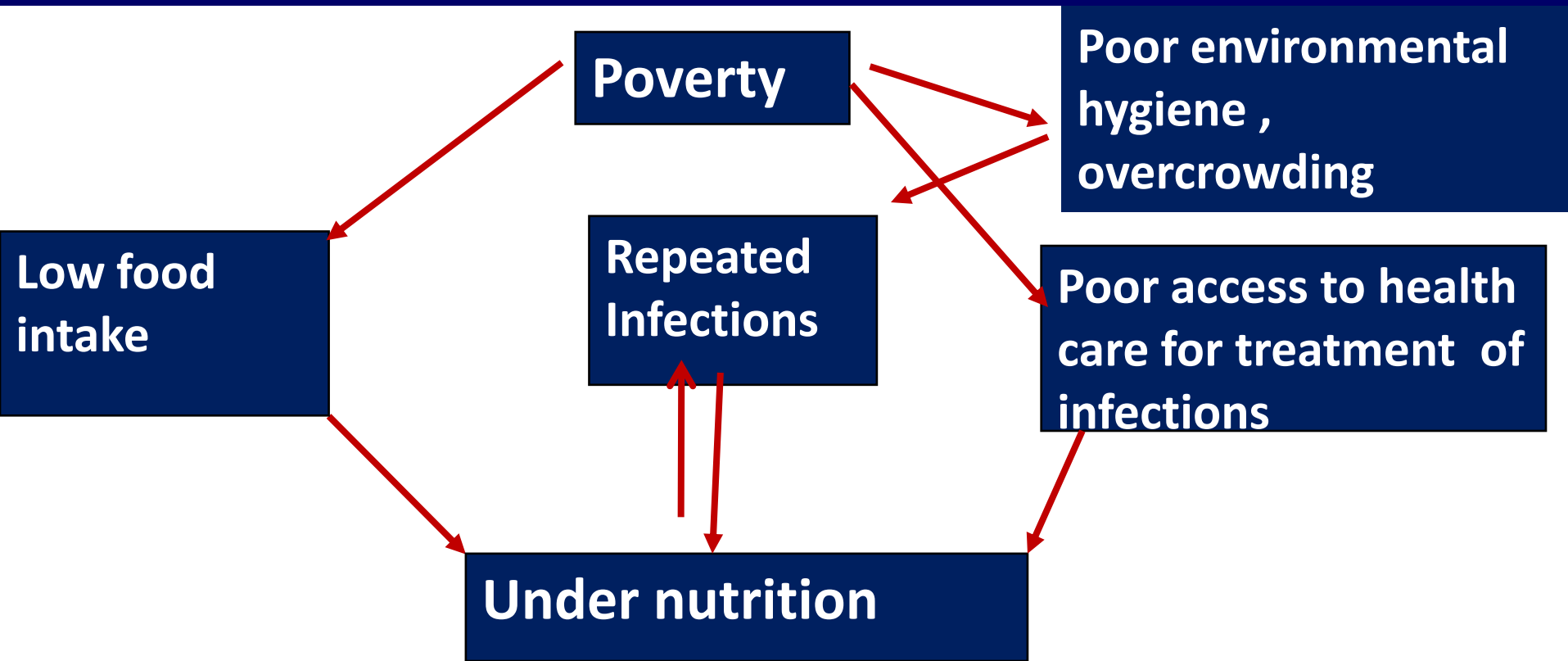
**India had become self sufficient in food grain production**

**But**

- ✱ Over 70% of India's population were poor;
- ✱ They spent over 70% of their income on food
- ✱ Despite this expenditure, over 70% were undernourished
- ✱ Morbidity due to infections was high and these extracted a heavy nutrition toll
- ✱ Access to essential health care was low
- ✱ Longevity at birth was low

**MERE SELF SUFFICIENCY IN FOOD GRAIN PRODUCTION WILL NOT IMPROVE HOUSEHOLD FOOD SECURITY OR NUTRITIONAL AND HEALTH STATUS OF INDIVIDUALS**

# POVERTY UNDER NUTRITION & HEALTH- INTER RELATIONSHIPS



In the seventies poverty (directly or indirectly) was the major factor responsible for high under-nutrition rates and illnesses - mostly due to infections.

Poverty reduction was and continues to be a major intervention to improve health and nutritional status of women and girls

# HOLISTIC STRATEGY FOR IMPROVING FOOD SECURITY AMONG THE POOR

## Criterion used for identification of poor

● expenditure group with energy intake <2100 Kcals for urban population and < 2400 Kcals for rural population

## Strategy

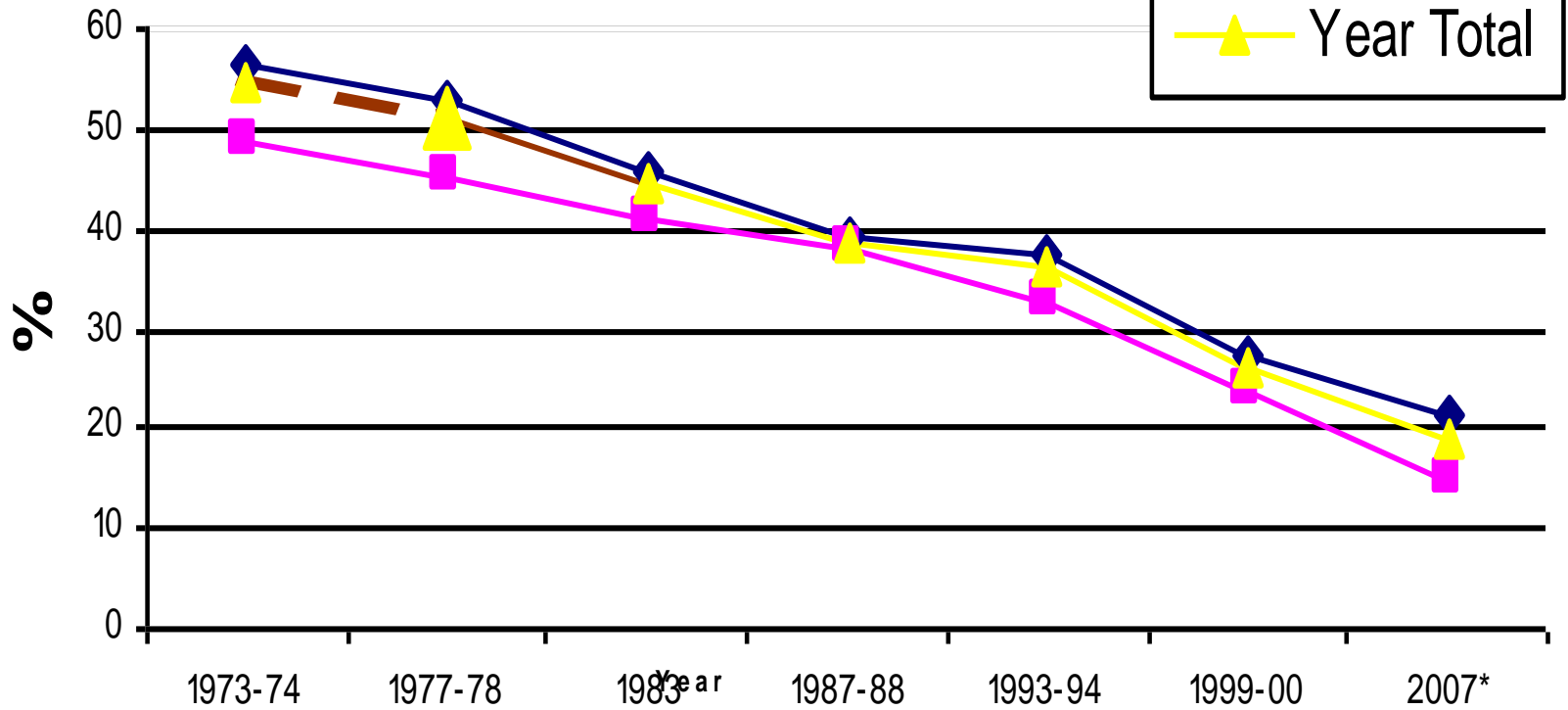
● Identify people living below poverty line

● Improve their purchasing power through employment programmes

● Provide them with essential goods (subsidized food grains, food supplementation programmes) & services free of cost (safe drinking water, sanitation, education and essential health care) based on need and not on ability to pay

It was expected that these steps will improve food security and will result in reduction in under-nutrition and micronutrient deficiency rates.

## Time trends -poverty



**Over three decades poverty ratio has declined by over 50% both in urban and rural areas**

	Poverty Ratio (%)			Number of Poor (million)		
	<i>Rural</i>	<i>Urban</i>	<i>Total</i>	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
1. 1993-94	50.1	31.8	45.3	328.6	74.5	403.7
2. 2004-05	41.8	25.7	37.2	326.3	80.8	407.1
3. 2011-12	25.7	13.7	21.9	216.5	52.8	269.3
Annual Average Decline: 1993-94 to 2004-05 (percentage points per annum)	0.75	0.55	0.74			
Annual Average Decline: 2004-05 to 2011-12 (percentage points per annum)	2.32	1.69	2.18			

**There has been a progressive decline in poverty. During the 11-year period 1993-94 to 2004-05, the average decline in the poverty ratio was 0.74% points per year. It accelerated to 2.18% points per year during the 7-year period 2004-05 to 2011-12. Rate of decline in rural poverty is higher than urban poverty**

**Until three years ago India had experienced high GDP growth which has been a major factor responsible for the poverty decline .**

# EXPENDITURE ON FOOD



## **ADMINISTERED PRICES FOR FOOD GRAIN & PUBLIC DISTRIBUTION SYSTEM FOR SUPPLY OF SUBSIDISED FOOD GRAINS TO BPL**

Administered prices for food grains especially wheat and rice have been in vogue for five decades

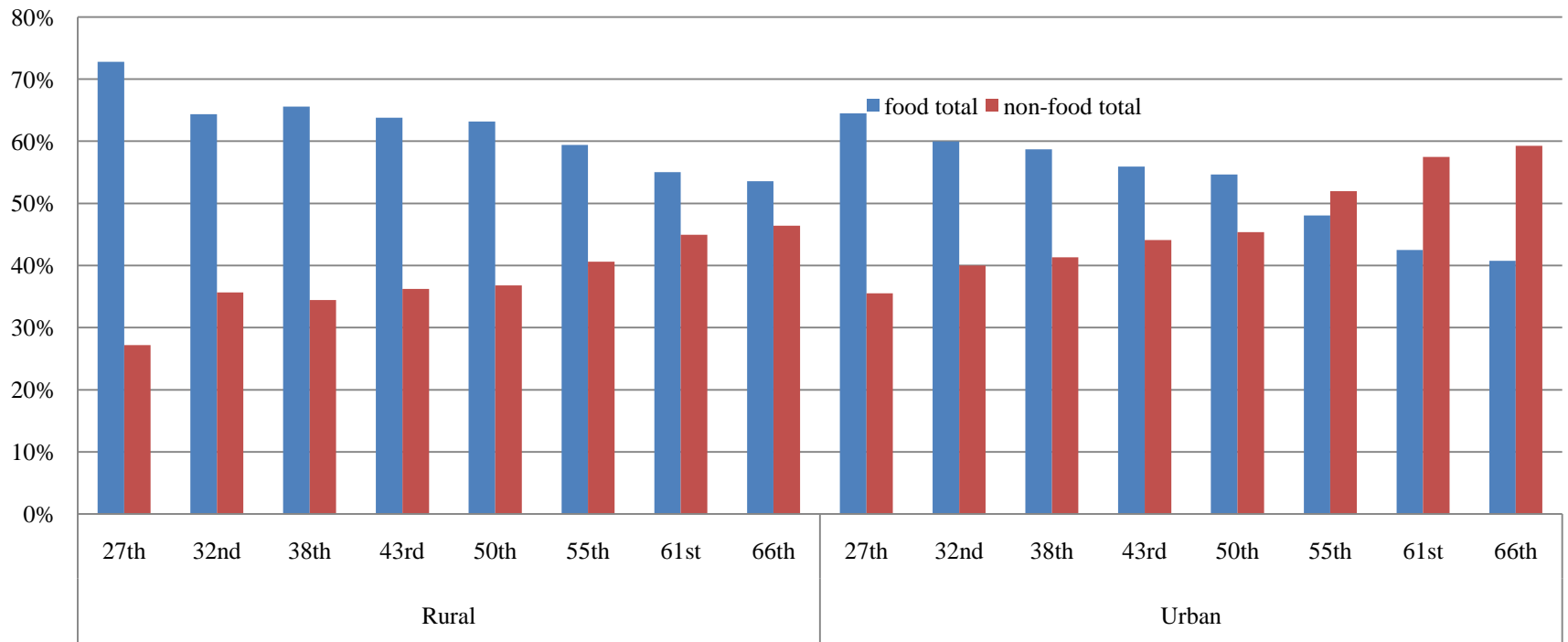
These have been helpful in getting the farmers to grow wheat & rice

But economists believe that the distortions introduced by these has been one of the reasons for stagnation in agriculture sector. Agriculture scientists believe mono-cropping with cereals, low pulse and vegetable production was due procurement policies

Evaluation of PDS either during the untargeted period and during the targeted PDS period have found large leakages, diversions and BPL families not getting the intended benefit of subsidised food grains

**POOR GOVERNANCE AND CORRUPTION RELATED ISSUES HAVE BEEN REPEATEDLY RAISED BOTH IN RESPECT TO PDS AND ADMINISTERED PRICES FOR FOOD GRAINS**

## TRENDS IN EXPENDITURE ON FOOD AND NON FOOD ITEMS (%)



**To improve household food security among the poor, programme focus was on**

- administered prices of food grains to keep food grain costs low
- improving public food distribution to improve access to food
- food subsidy especially to poor and marginalised segments of population

**Over decades the share of food in total consumer expenditure has fallen from 73% to 55% in rural areas and from 64% to 42% in urban areas without any decline in food grain consumption among the poor**

Quantity of Cereals (Kg)consumed by rural expenditure classes			
Rural	Expenditure classes / consumption kg/mth		
Years	0-30	30-70	70-100
1972-73	6.6	14.6	26.2
1977-78	6.0	14.6	24.7
1999-2000	9.8	12.9	14.4
2004-05	11.14	12.28	12.87
2009-10	10.62	11.43	11.96

Cereals are the major source of energy in in Indian diets.

In 1970s there was a large difference in cereal consumption between groups

Over the last four decades there has been a decline in cereal consumption (and energy intake) among the rich and increase in cereal consumption among the poor.

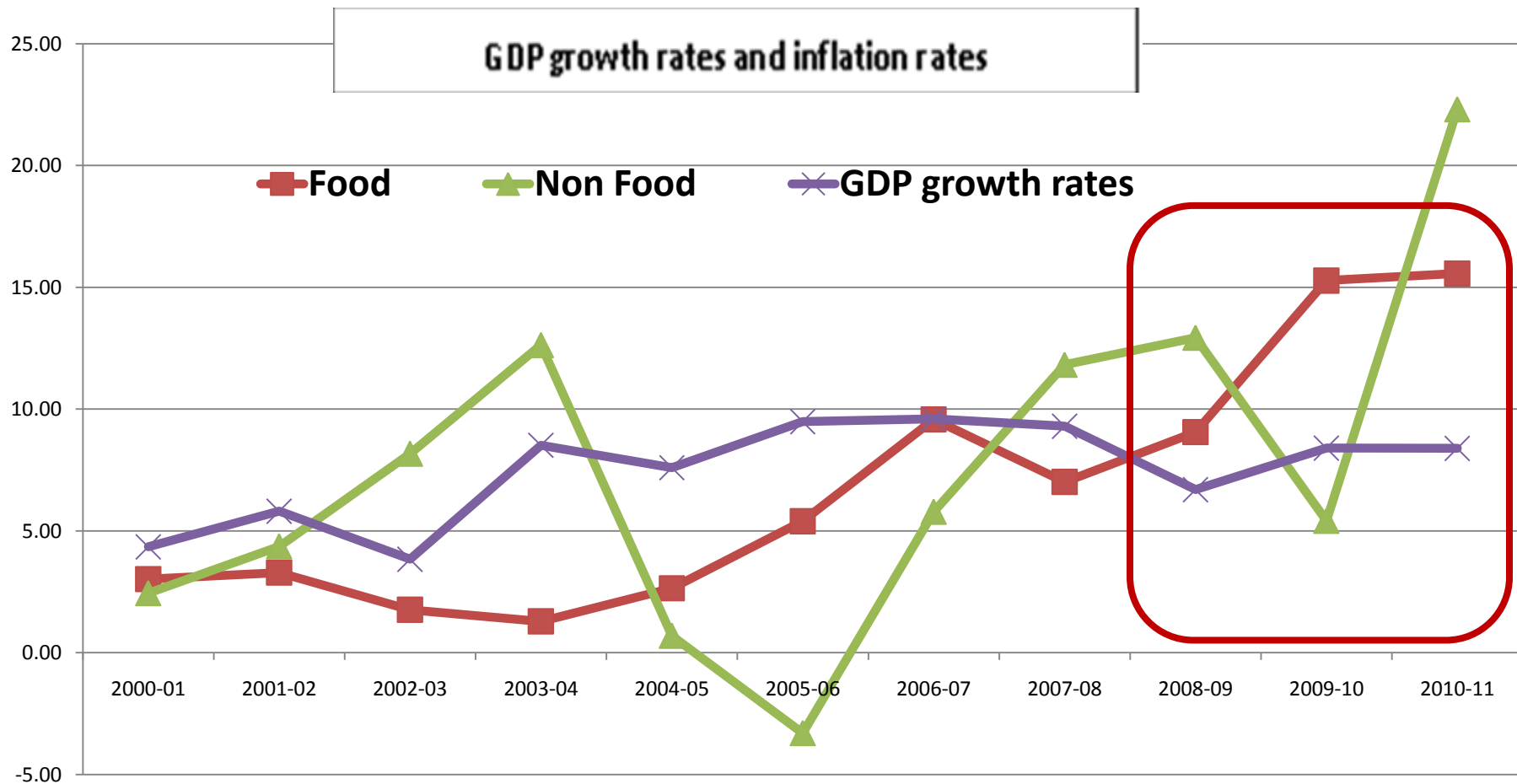
Urban and rural and different expenditure tertiles have narrowed

As of 2009-10 cereal intakes are essentially similar in all groups and is adequate to meet the cereal requirements of Indians

**SHOULD THE PROGRAMMES OF ADMINISTERED PRICES FOR FOOD GRAINS AND SUBSIDIZED FOOD GRAIN DISTRIBUTION TO THE POOR THROUGH PDS BE VIEWED AS SUCCESSFUL PROGRAMMES BECAUSE THEY KEPT FOOD EXPENDITURE LOW ?**

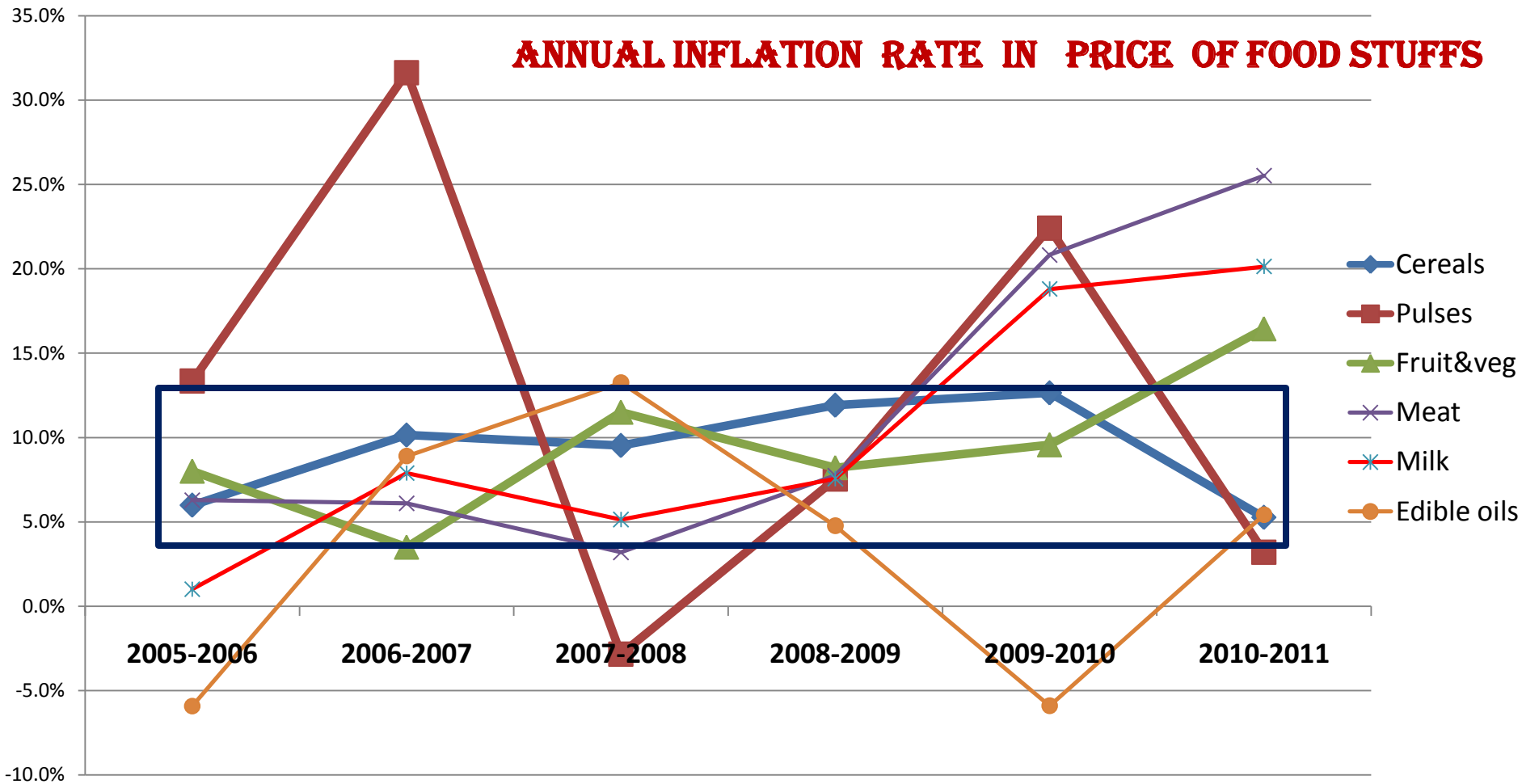
# **EMERGING THREAT OF FOOD INFLATION IN INDIA**

# EMERGING THREAT OF FOOD PRICE INFLATION IN INDIA



From 2005 India has witnessed high food inflation  
Till 2009 GDP growth rate was higher than food inflation  
Since then GDP growth has dipped and food inflation continues to rise

## ANNUAL INFLATION RATE IN PRICE OF FOOD STUFFS



Annual inflation for cereals was about 10% between 2006 and 2010 but dipped to 5.3 percent in 2010-11.

Pulse prices showed two peak periods of inflation: 31.5% in 2006-07 and 22.4% in 2009-10.

The annual inflation rates for vegetables ranged between 8% in 2005 to 11.5% in 2007-08 and rose to 16.4% in 2010-11

**There were growing concerns that sustained increase in food price inflation may adversely affect the household food security and nutritional status of the citizens**

**In September 2013, India became the first country to enact Food Security legislation through which over two third of the citizens are entitled to get subsidised food grains through the Public Distribution System.**



# **FOOD SECURITY BILL 2013**

## **MAIN PROVISIONS**

**National Food Security Act aims to improve household food security by providing subsidised food grains as a legal entitlement to over 67% of Indian citizens.**

**Priority households are entitled to 5 kgs of foodgrains/ person/ month.**

**The poorest of the poor (Antyodaya) households are entitled to 35 kgs/ household/ month.**

**The combined coverage of Priority and Antyodaya households (called “eligible households”) is up to 75% of the rural population and up to 50% of the urban population.**

**On going programmes of food supplementation to pregnant and lactating women and preschool and school children will be supported. The type of supplements and the composition of supplements for different groups is given below**

<b>Category</b>	<b>Type of food</b>	<b>Energy</b>	<b>Protein</b>
<b>6-36 mth</b>	<b>Take home rations</b>	<b>500</b>	<b>12-15</b>
<b>3-6yr</b>	<b>Morning snacks</b> <b>Hot cooked meal</b>	<b>500</b>	<b>12-15</b>
<b>Under nourished children 6mth-6yr</b>	<b>Take home rations</b>	<b>800</b>	<b>20-25</b>
<b>6-11yr</b>	<b>Hot cooked meal</b>	<b>450</b>	<b>12</b>
<b>11-14yr</b>	<b>Hot cooked meal</b>	<b>700</b>	<b>20</b>
<b>Pregnant and lactating women</b>	<b>Take home rations</b>	<b>600</b>	<b>18-20</b>

**The Central Government is to determine the state-wise coverage of proportion of the rural/urban population from Census.**

**The identification of eligible households is the responsibility of state governments.**

**Eligible households will receive subsidised food grains through Targeted Public distribution system ( TPDS).**

**The issue prices are: Rs 3/kg for rice, Rs2/kg for wheat and Rs 1 /kg for millets.**

**The issue price may be revised after three years.**

**Responsibility of the central government is to procure food grains, create and maintain adequate modern food storage facilities to prevent wastage, allocate and transport food grains to states.**

**The state governments will take delivery of the food grains and ensure its transport and distribution up through the targeted public distribution system.**

**Peoples representatives in the local self government will monitor the implementation at local level right upto the households or places where the food supplementation programmes are implemented.**

**There will be social audit of the programme at all levels .**

**Appropriate grievance redressed mechanisms will be set up and these will include call centres, help lines, designated nodal officers.**

**Food grains alone cannot provide a balanced meal needed for nutrition security. States like Chattisgarh and Tamil Nadu provide pulses at subsidized cost through PDS**

**There has been attempts to provide oil, iodised and iron and iodine fortified salt through PDS at subsidized cost**

**However it will never be possible to provide all the food stuffs at a subsidised cost to all the needy.**

**There is an urgent need for a nutrition awareness campaign with focus on women (who are head of the household for the ration card) on how the money saved because of subsidised food grains (approximately Rs Rs 500/pm) can be used for purchasing the other food stuffs such as vegetables pulses etc so that the family can have balanced food**

Improving access to food alone might not be adequate to improve nutritional status of the population if there is nutrient loss due to infections.

Therefore the Act also calls for improvement in access to

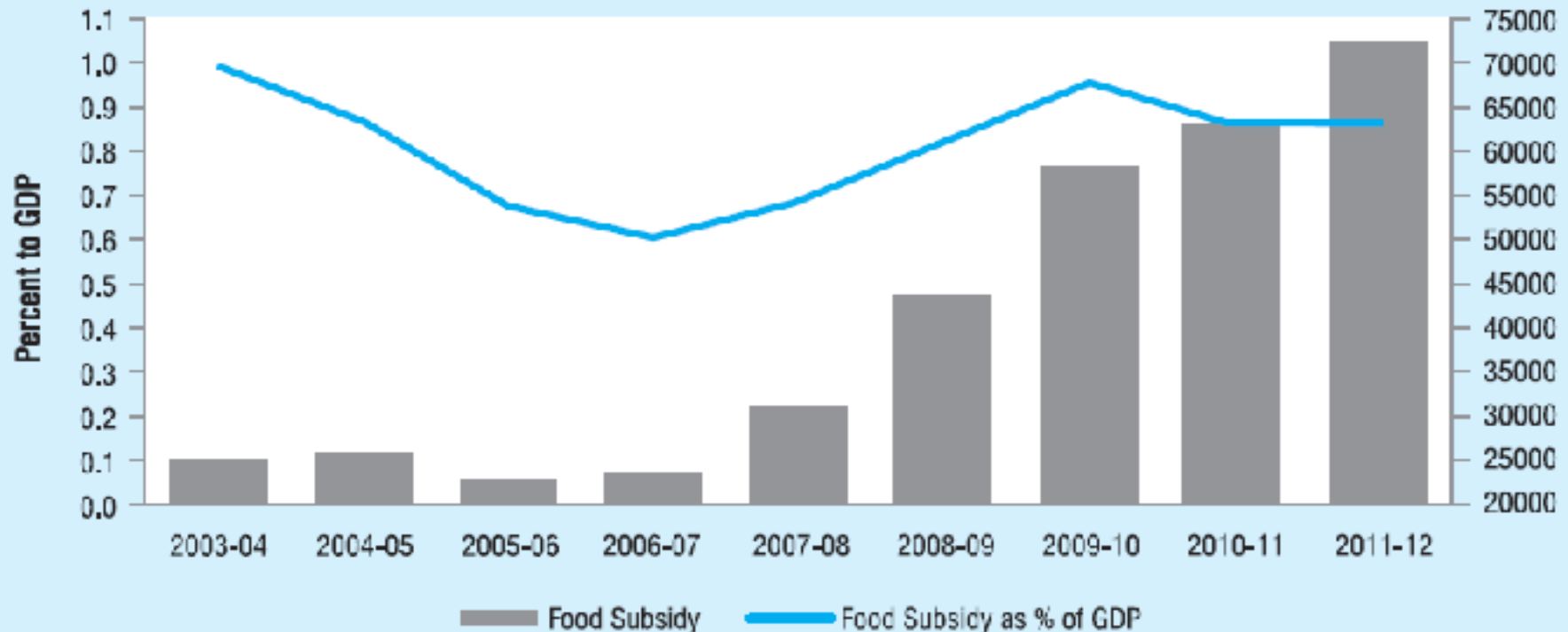
- 🌐 safe drinking water and improvement in environmental sanitation to prevent infections

- 🌐 health care for early detection and effective management of infections to prevent nutrient loss and deterioration in nutritional status

**But no time frame have been provided for universal access to these**

# FOOD SECURITY ACT AND ECONOMIC DEVELOPMENT

Quantum of food subsidies released by Government



Many economists worry that with implementation of the food security act, the already high food subsidy may double and seriously impair ability of the government to invest in developmental activities.

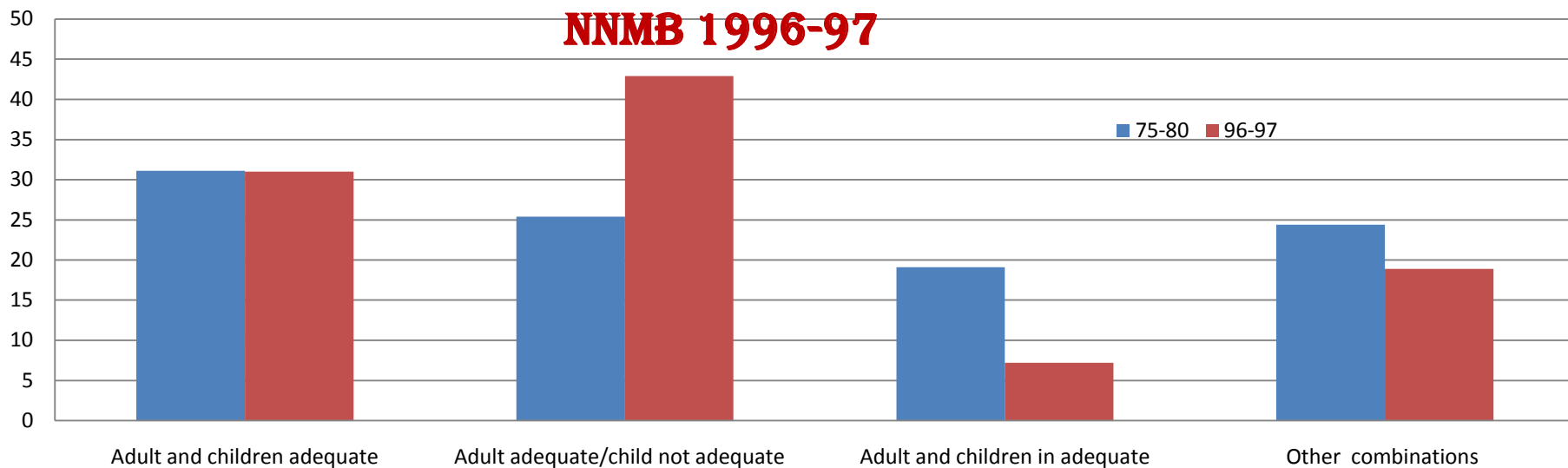
This in turn can lead to slower economic growth and all its adverse consequences



# NUTRITION PROFESSIONALS CONCERNS

## INTRA-FAMILY DIFFERENCES IN ENERGY INTAKE

NNMB 1996-97



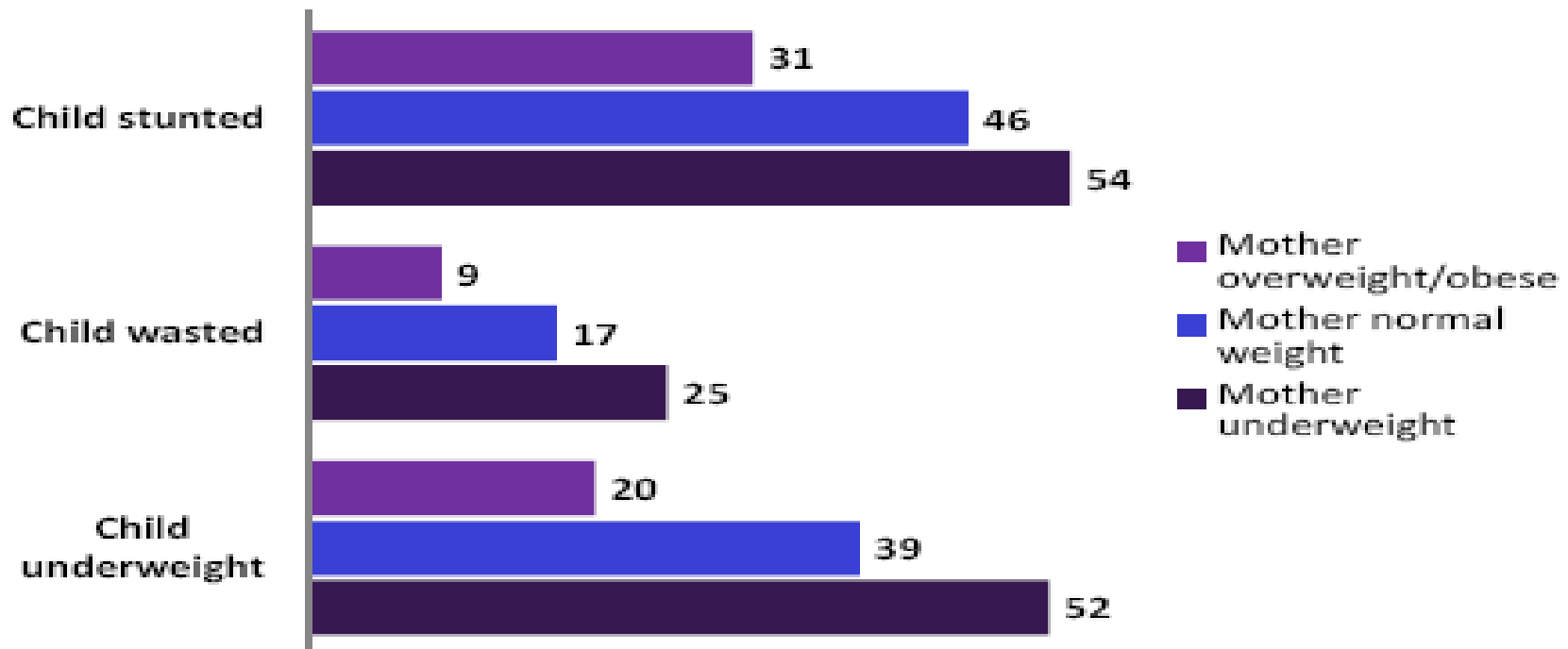
Since seventies there has been a rise in food secure families where adults and children get adequate food and fall food insecure ones. Currently in over half of the households adults get adequate energy but children do not

Poor intra-family distribution of food and not lack of household food security that plays a major role in low dietary intake in children

**FSA can only improve food security of the family but cannot modify the intrafamily distribution of food**

# NUTRITION PROFESSIONALS CONCERNS

## INTRA FAMILY DIFFERENCES IN NUTRITIONAL STATUS



Data from NFHS 3 showed that child under nutrition rates are higher when the mother is undernourished

But even when mother was over weight 20% of children are under weight  
Intra family differences in dietary intake and physical activity are sufficient enough to lead to differences in their nutritional status






**Food security act may improve household food security but is unlikely to have any effect on the intra family distribution of food , physical activity pattern and nutritional status .**

# **NUTRITION PROFESSIONAL'S CONCERNS**

## **PREVENTION OF UNDER NUTRITION IN 0-59 MONTHS**

**Attempt to achieve reduction in Low birth weight not an easy task**

**Nutrition education is the critical intervention**

-  **Exclusive breast feeding for first six months,**
-  **Appropriate adequate complementary feeding 3-5 times a day from six months of age,**
-  **Continued breast feeding and feeding family food 4-5 times a day upto 24 months,**
-  **Feeding 2-5 year old children 4-6 times a day from family food consisting of cereals, pulses and vegetables.**
-  **Timely immunisation, measures to prevent infections, and care and appropriate feeding during illness and convalescence.**

**None of these are likely to be accelerated by the food security act**

# PERCEPTIVE INDIANS

# ENERGY REQUIREMENTS FOR INDIAN ADULTS ( ICMR 2010)

Body Wt Kg.	MALE			FEMALE			
	BMR	PAL		Body Wt Kg.	BMR	PAL	
		1.53	1.4			1.53	1.4
45	1298	1986	1817	40	1031	1577	1443
50	1370	2096	1918	45	1101	1685	1541
55	1443	2208	2020	50	1171	1792	1639
60	1515	2318	2121	55	1241	1899	1737
65	1588	2430	2223	60	1311	2006	1835
70	1660	2540	2324	65	1318	2113	1933

**NNMB surveys indicate that median weight was 51kg in men and 46 kg in women**

**Precise estimation of energy expenditure using newer technologies have shown that the energy requirements are lower than what were recommended earlier**

**Current average energy intake is adequate to meet the energy requirement of average Indian adult ( RDA 2010 )**

## TIME TRENDS IN IN ENERGY INTAKE

### NUTRIENT INTAKE IN RURAL AND URBAN (CU/DAY) NNMB

	1975-79	1988-90	1996-97	2000-01	2004-05
Energy (Kcal)	2340	2283	2108	2255	1834
Protein (g)	62.9	61.8	53.7	58.7	49.4
Calcium (mg)	590	556	521	523	439
Iron (mg)	30.2	28.4	24.9	17.5@	14.8
Vitamin A	257	294	300	242	257
Folic acid	*	*	153	62	52.3

Data from NNMB surveys confirm the NSSO reports that there has been a decline in energy intake especially in the last decade  
The continued low intake of micro nutrients is responsible for the high prevalence of micronutrient deficiencies

# PHYSICAL ACTIVITY STATUS OF MEN & WOMEN IN RURAL INDIA

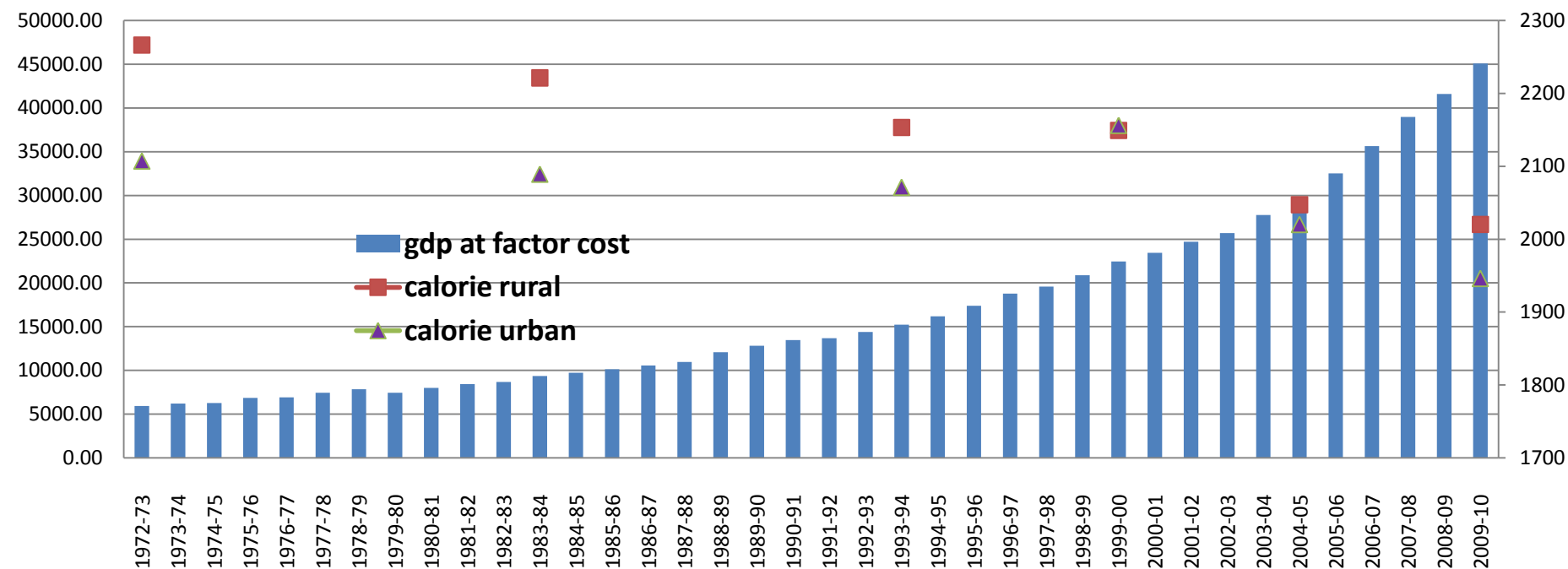
Source: Human nutrient requirements and RDA for Indians ICMR 2010

Activity status	Men		Women		Total	
	No	%	No	%	No	%
Sedentary	1349	33.3	2765	62.7	4114	48.6
Moderate	2650	65.5	1632	37.0	4282	50.6
Heavy	48	1.2	14	0.3	62	0.8

Over the last two decades, there has been progressive increase in mechanization of transport, occupational and household activities. Consequently there has been reduction in physical activity and energy needs in urban and rural areas even among the poor.

The population perhaps realised this and reduced their energy intake. Moderate physical activity is essential for good health. Efforts are underway to build awareness on importance of physical activity & create conducive environment to increase discretionary physical activity among all segments of population.

# UNIQUE INDIANS : GDP RISE GOES WITH FALL IN ENERGY INTAKE



**After a relatively slow growth for 3 decades , India became the second fastest growing economy in the last decade**

**Increase in GDP growth rate and percapita income was accompanied by a progressive reduction in energy consumption.**

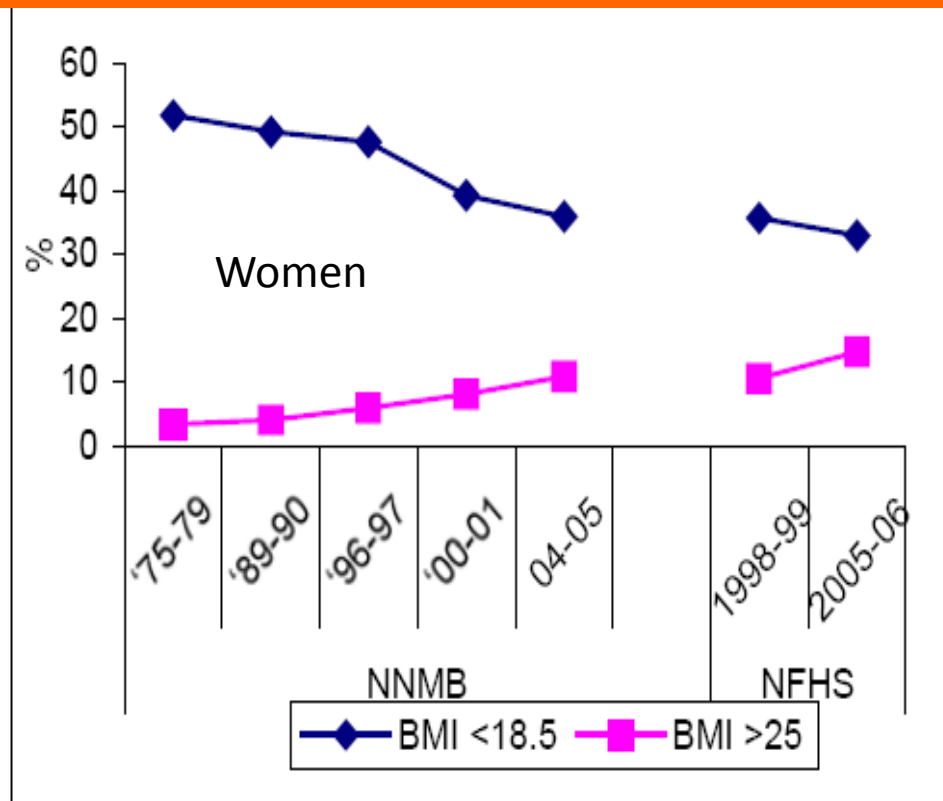
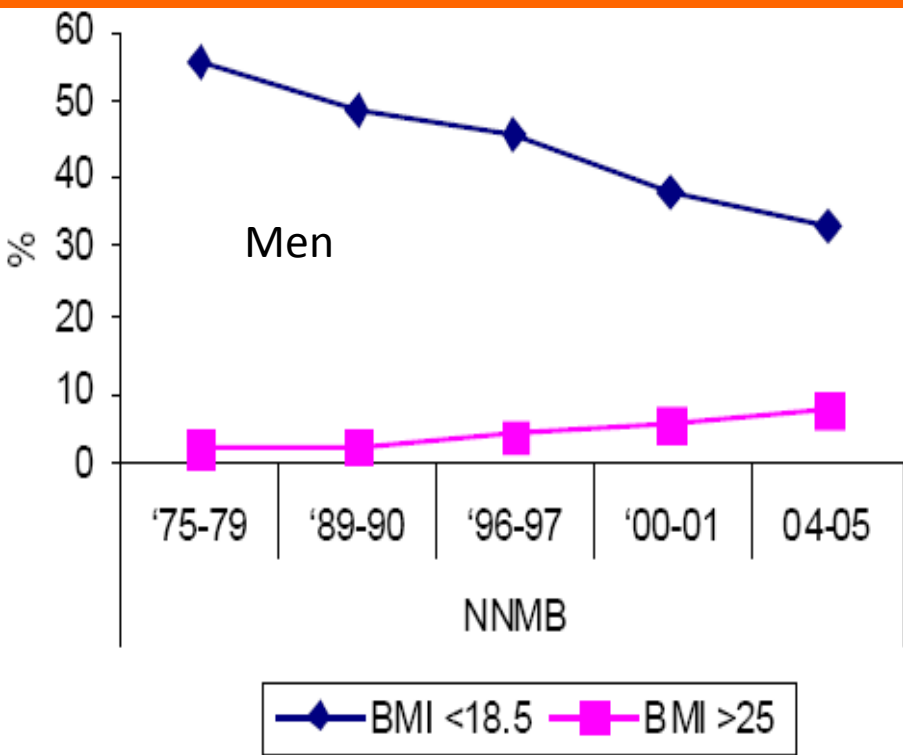
**The average intake is still adequate to meet the energy requirement because of the reduced physical activity.**

**This reduction might have protected Indians from rapid rise in overnutrition rates**



# **EMERGENCE OF DUAL NUTRITION BURDEN**

# TIME TRENDS IN NUTRITIONAL STATUS OF ADULTS



Data from National nutrition Monitoring Bureau indicate that

there has been a slow but steady decline in the prevalence of undernutrition in both men and women

since nineties there has been a slow but progressive increase in overnutrition heralding the dual nutrition burden era

# PARADIGM SHIFT IN TENTH FIVE YEAR PLAN

Tenth Five Year Plan envisaged a **paradigm shift** from

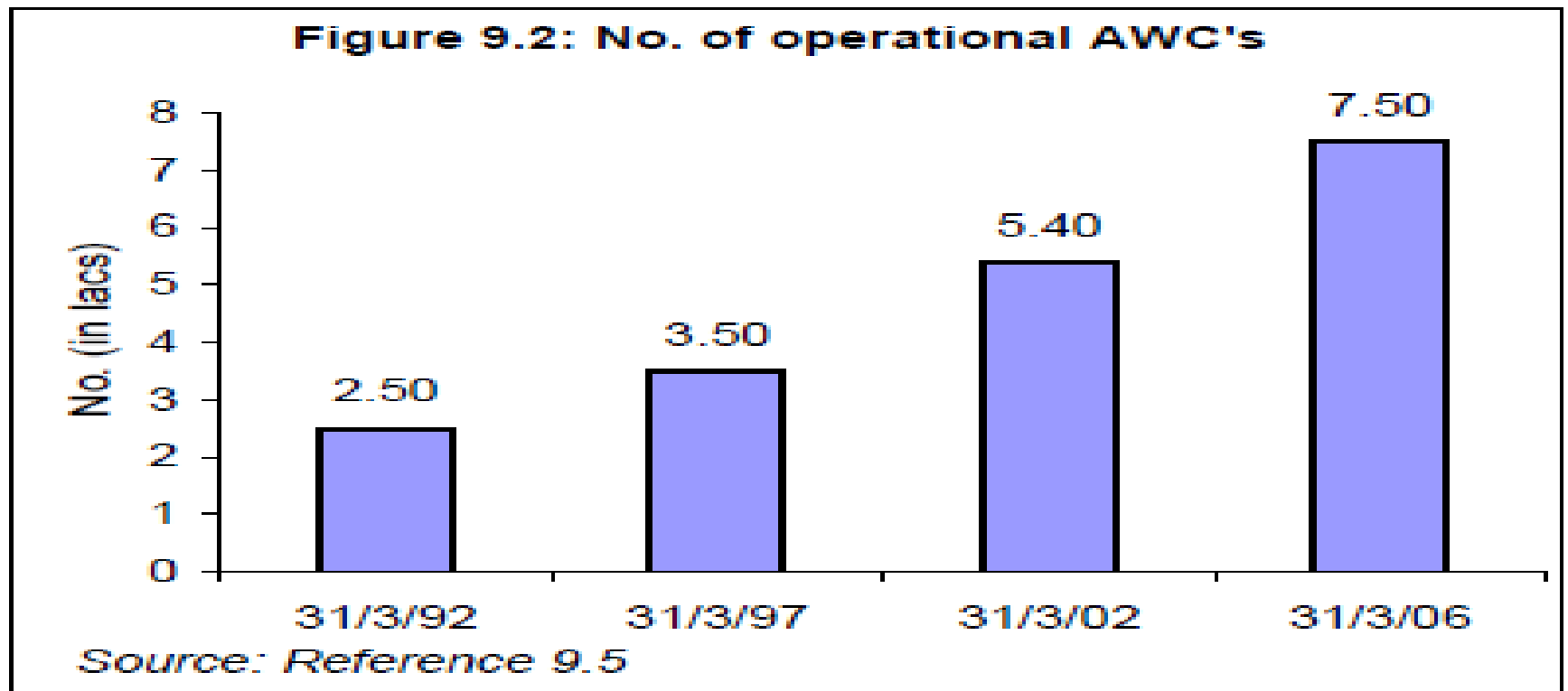
- household food security and freedom from hunger *to nutrition security for the family and the individual;*
- untargeted food supplementation *to screening of all the persons from vulnerable groups, identification of those with various grades of under-nutrition and appropriate management;*
- lack of focused interventions on the prevention of over-nutrition *to the promotion of appropriate lifestyles and dietary intakes for the prevention and management of over-nutrition and obesity and*
- vertical programmes *to convergence of related sectors to provide integrated comprehensive services to improve nutrition and health status*

*A beginning has been made in implementation of the paradigm shift*

# **INTEGRATED CHILD DEVELOPMENT SERVICES**

**INTEGRATED CHILD DEVELOPMENT SERVICES (ICDS)** was launched in 1975 with the following objectives:

- to improve the **health and nutrition status** of children in the 0-6 age group by providing supplementary food and coordinating with state health departments to ensure the delivery of the required health inputs;
- to provide conditions necessary for pre-school children's psychological and social development through early stimulation and education;
- to provide pregnant and lactating women with food supplements;
- to enhance the mother's ability to provide proper child care through health and nutrition education;
- to achieve effective coordination of policy and implementation among the various departments to promote child development



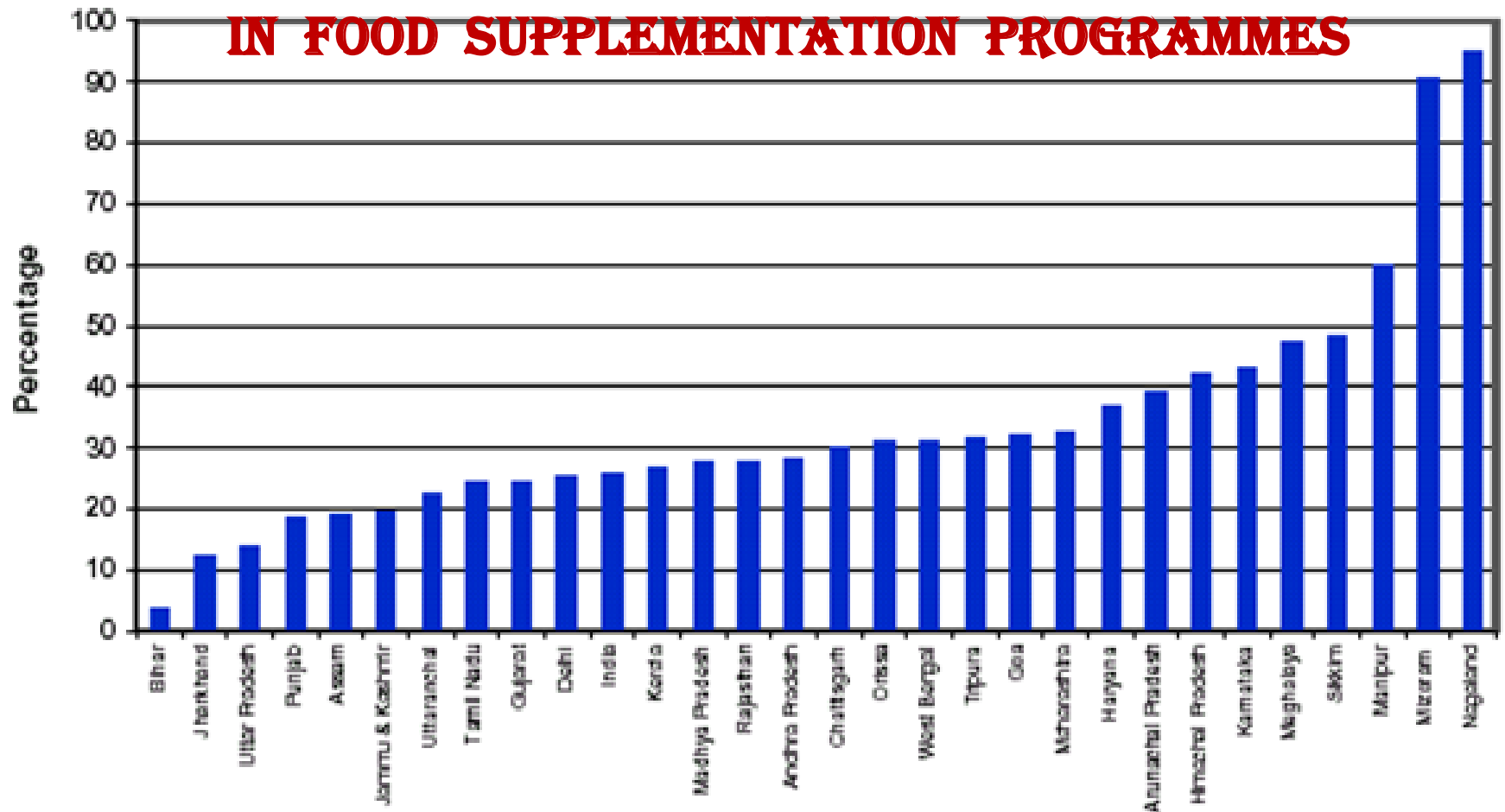
**Over the last decade there has been a huge expansion of the ICDS**

**Today over 14 lakh anganwadis are there**

**Coverage under ICDS is universal.**

**The programme which has a village level presence across India**

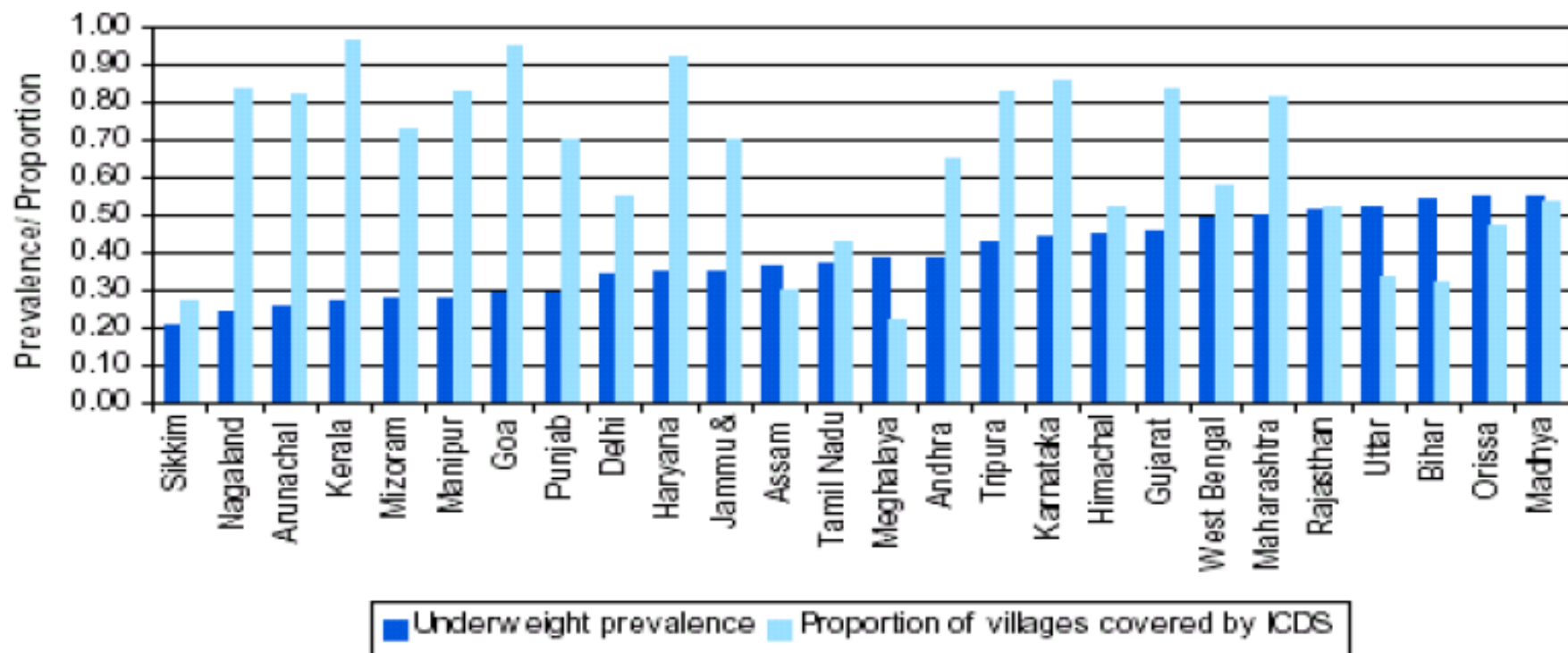
# INTERSTATE DIFFERENCES IN COVERAGE IN FOOD SUPPLEMENTATION PROGRAMMES



There are large interstate differences in persons accessing food supplementation in anganwadis

Coverage under food supplementation is two in States with high undernutrition rates

**Figure 9.13: Relationship between the proportion of villages covered by ICDS and underweight prevalence by state, 1998/99**



Source: Reference 9.9

**COVERAGE UNDER ICDS IS LOW IN THE AREAS WHERE UNDERNUTRITION RATES ARE HIGH**



# EVALUATION OF ICDS BY WORLD BANK

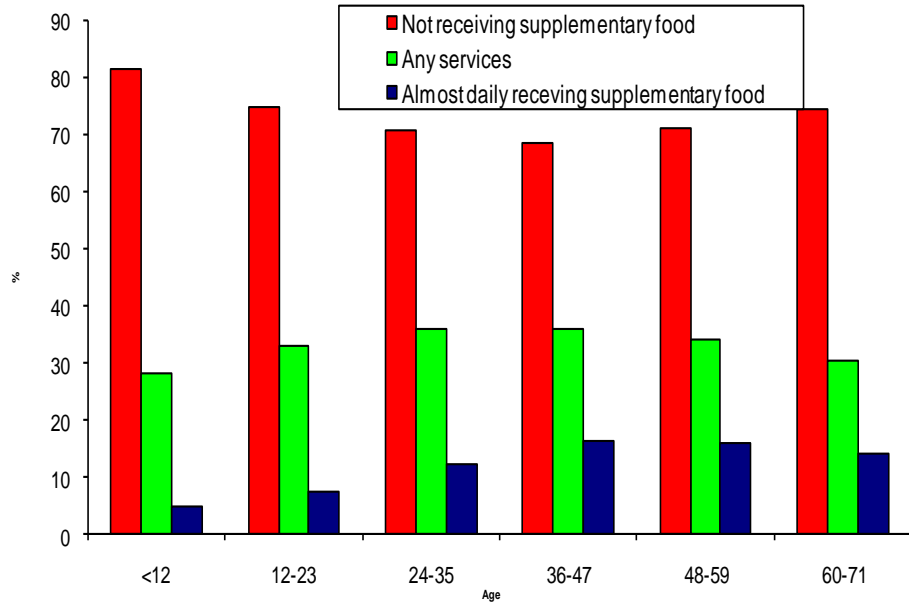
The dominant ***focus on food supplementation*** is to the detriment of other tasks envisaged in the program, which are for improving child nutritional outcomes. For example, not enough attention is given to improving child-care behaviors, and on educating parents how to improve nutrition using the family food budget;

***Service delivery is not focused on the youngest children*** (under three), who could potentially benefit most from ICDS interventions. ICDS is only partially succeeding in preferentially targeting girls and lower castes who are at higher risk of under-nutrition;

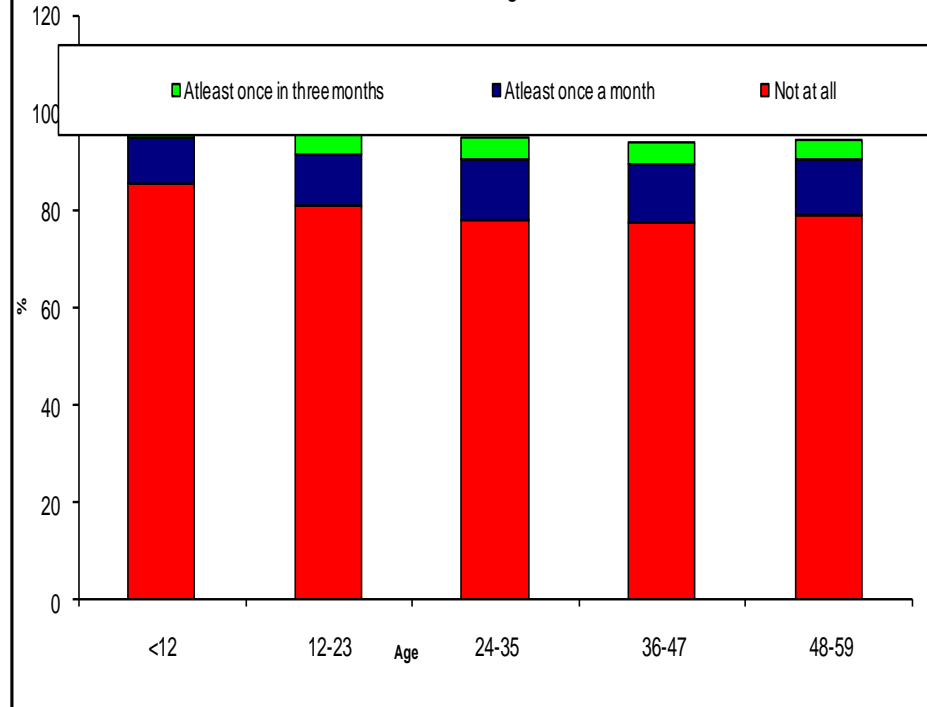
Although program growth was greater in underserved than well-served areas during the 1990s, the ***poorest states and those with the highest levels of under-nutrition still have the lowest levels of program funding and coverage*** by ICDS activities.

# Access to ICDS services for preschool children

% of children 0-71 months receiving services from an AWC



% of children 0-59 months weighed



**ICDS currently covers the entire country.**

**Data from NFHS 3 indicate that the coverage of children for weighing especially in the first two years is very low.**

**Growth monitoring and detection and correction of of undernutrition is not attempted**

**Coverage under food supplementation at Anganwadi is quite low.**

## TENTH PLAN RECOMMENDATIONS NUTRITION COMPONENT OF ICDS

The nutrition component of ICDS will be specifically directed to achieve reduction in both micro and macro-nutrient under-nutrition by

- strengthening the *nutrition and health education component*
- reaching children in the *6-36 months* age group, pregnant and lactating women;
- weighing all vulnerable population, identify those with CED and provide integrated health and nutritional support
- ensuring *universal weighing of all children* at least once a quarter to identify those children with growth faltering;
- providing *take-home supplements* to those with moderate and severe undernutrition and looking for and treating health problems associated with moderate and severe under-nutrition;
- enhancing the quality and impact of ICDS through capacity of the ICDS personnel and improved community ownership of the programme;
- concentrating on inter-sectoral coordination and *strengthening nutrition action by the health sector.*

Integrated Child Development Services  
National Rural Health Mission



Photograph of Mother & Child

<b>Family Identification</b>	
Mother's Name _____	Age <input type="text"/>
Father's Name _____	
Address _____	
Mother's Education: illiterate/primary/middle/high school/graduate	
<b>Pregnancy Record</b>	
Mother's ID No. _____	
Date of the last menstrual period	<input type="text"/> / <input type="text"/> / <input type="text"/>
Expected date of delivery	<input type="text"/> / <input type="text"/> / <input type="text"/>
No. of pregnancies/previous live births	<input type="text"/> / <input type="text"/>
Last delivery conducted at:	Institution <input type="checkbox"/> Home <input type="checkbox"/>
Current delivery:	Institution <input type="checkbox"/> Home <input type="checkbox"/>
JSH Registration No. _____	
JSH payment: Amount <input type="text"/>	Date <input type="text"/> / <input type="text"/> / <input type="text"/>
<b>Birth Record</b>	
Child's Name _____	
Date of Birth <input type="text"/> / <input type="text"/> / <input type="text"/>	Birth Weight <input type="text"/> kg <input type="text"/> gms
Girl <input type="checkbox"/> Boy <input type="checkbox"/>	Birth Registration No. <input type="text"/>

<b>Institutional Identification</b>	
ANM _____ AWC/Block _____	
ASHA _____ ANM _____	
BHC / Clinic _____	
PHC / Town _____ Hospital / FRU _____	
Contact Nos. ANM _____	Hospital _____
Transport Arrangement _____	

AWC Reg. No. <input type="text"/>	Date <input type="text"/> / <input type="text"/> / <input type="text"/>	Sub-centre Reg. No. <input type="text"/>	Date <input type="text"/> / <input type="text"/> / <input type="text"/>
Referral <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Ministry of Women & Child Development, Government of India  
Ministry of Health and Family Welfare, Government of India

## 0 to 6 months

### Feeding



- ◆ Start breastfeeding immediately after birth – within 1 hour
- ◆ Exclusively breastfeed for 6 months. Do not give any other food or drinks and not even water
- ◆ Breastfeed as many times as the child wants
- ◆ Breastfeed day and night

## 1 to 2 years

### Feeding



- ◆ Continue to offer a wide variety of foods including family foods, such as rice/ chappati, dark green leafy vegetables, orange & yellow fruits, pulses and milk products
- ◆ Feed the child about 5 times a day
- ◆ Feed from a separate bowl and monitor how much the child eats
- ◆ Sit with the child and help her finish the serving
- ◆ Continue breastfeeding upto 2 years or beyond

## 6 to 12 months

### Feeding



- ◆ On completion of 6 months, start with small amounts of soft mashed cereal, dal, vegetables and fruits
- ◆ Increase the quantity, frequency and thickness of the food gradually
- ◆ Understand child's signals for hunger and respond accordingly
- ◆ Feed the child 4-5 times a day and continue breastfeeding

## 2 to 3 years

### Feeding



- ◆ Continue to feed family foods 5 times a day
- ◆ Help the child feed herself / himself
- ◆ Supervise feeding
- ◆ Ensure hand washing with soap before feeding



**ZERO ERROR  
CORRECTED**

**ZERO ERROR  
CORRECTION  
SCREW**





# WEIGHING CHILDREN AND ADULTS



Weighing using a digital balance is very easy.

Keep the balance on level ground.

Step on it to switch on the battery.

Tell the person clearly that he/she should stand straight on the digital balance.

Check for compliance.

The pictures show breast-feeding mother, a pregnant women, a child are standing straight on the digital balance in their home settings.

## MEASUREMENT OF INFANT'S WEIGHT

Weigh the mother when she is carrying the infant. Their combined weight is 59.3 kg.

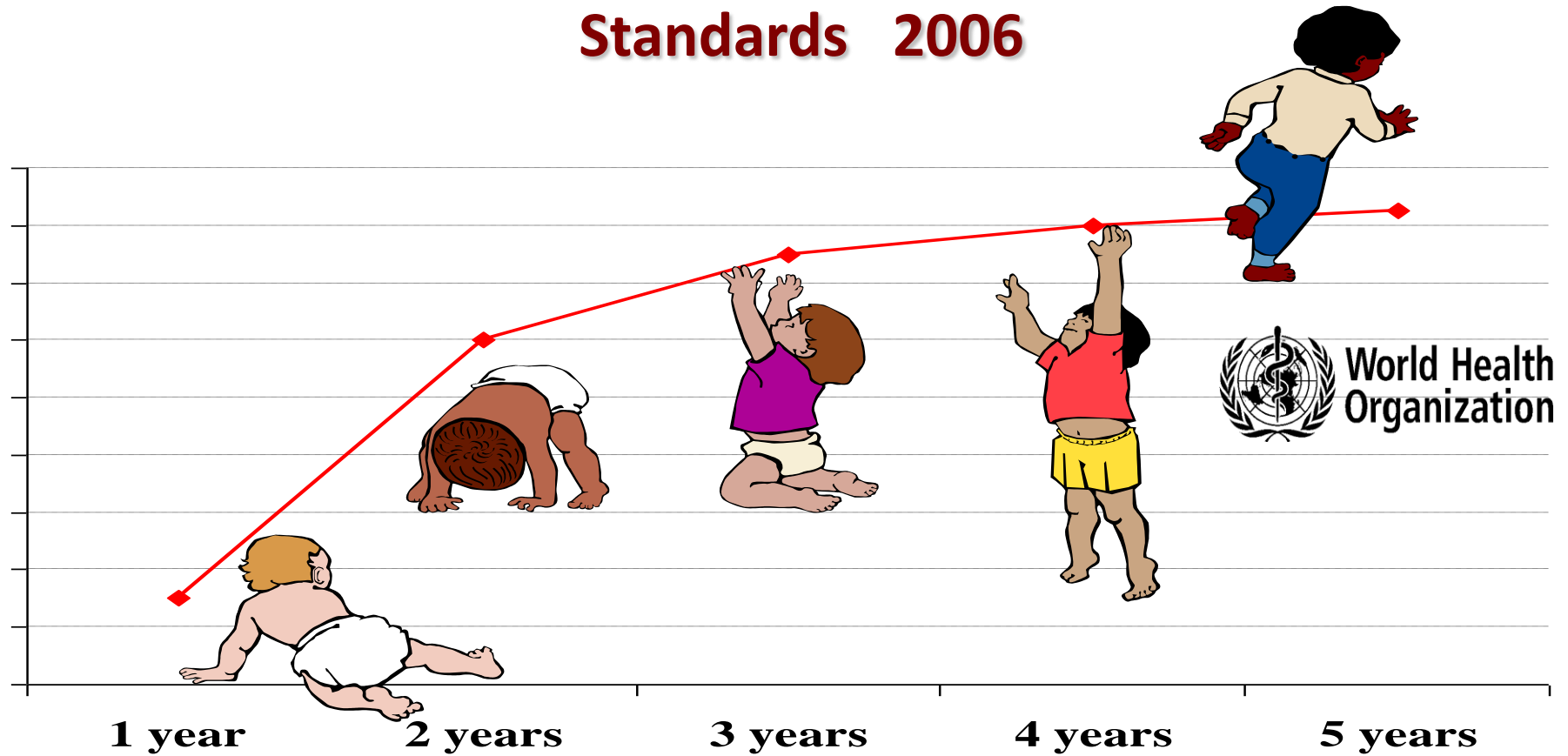
Weight of mother alone ; her weight is 54.2 kg.

Therefore infant's weight is  $59.3 - 54.2 = 5.1\text{kg}$ .





# Detection of under nutrition using WHO Child Growth Standards 2006



WHO growth standards provide standards for assessment of nutritional status using height, weight and BMI for age in 0-5 year children based on growth of breast fed infants in six countries (MGRS standards )

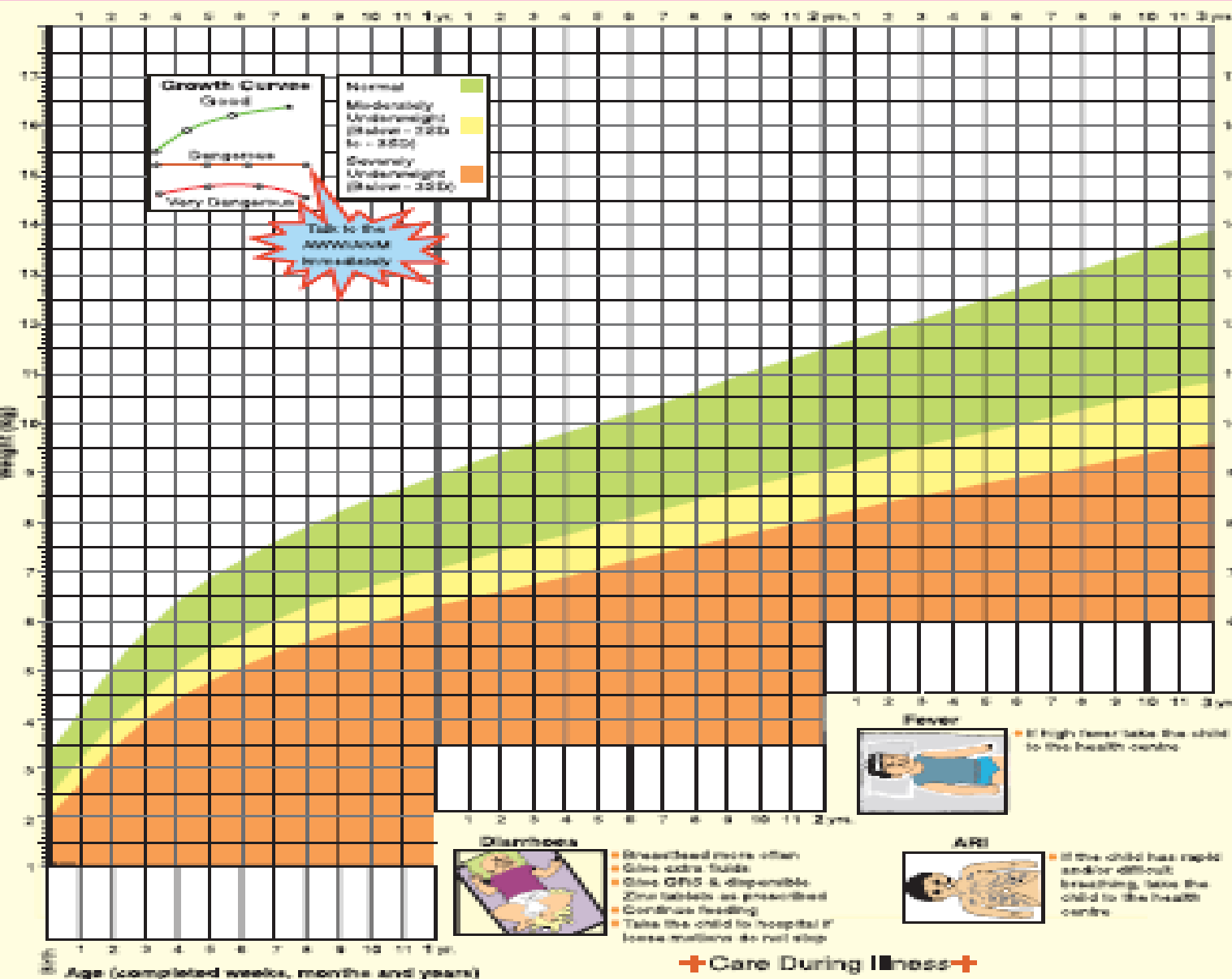
5+ to 18 years based on NCHS data base

These have been accepted by GOI and is incorporated in MCPC





## GIRL: Weight-for-age – Birth to 3 years (As per WHO Child Growth Standards)



Monitor growth of infants and under five children using mother child protection card.

Detect growth faltering and undernutrition early  
Provide double rations for undernourished children

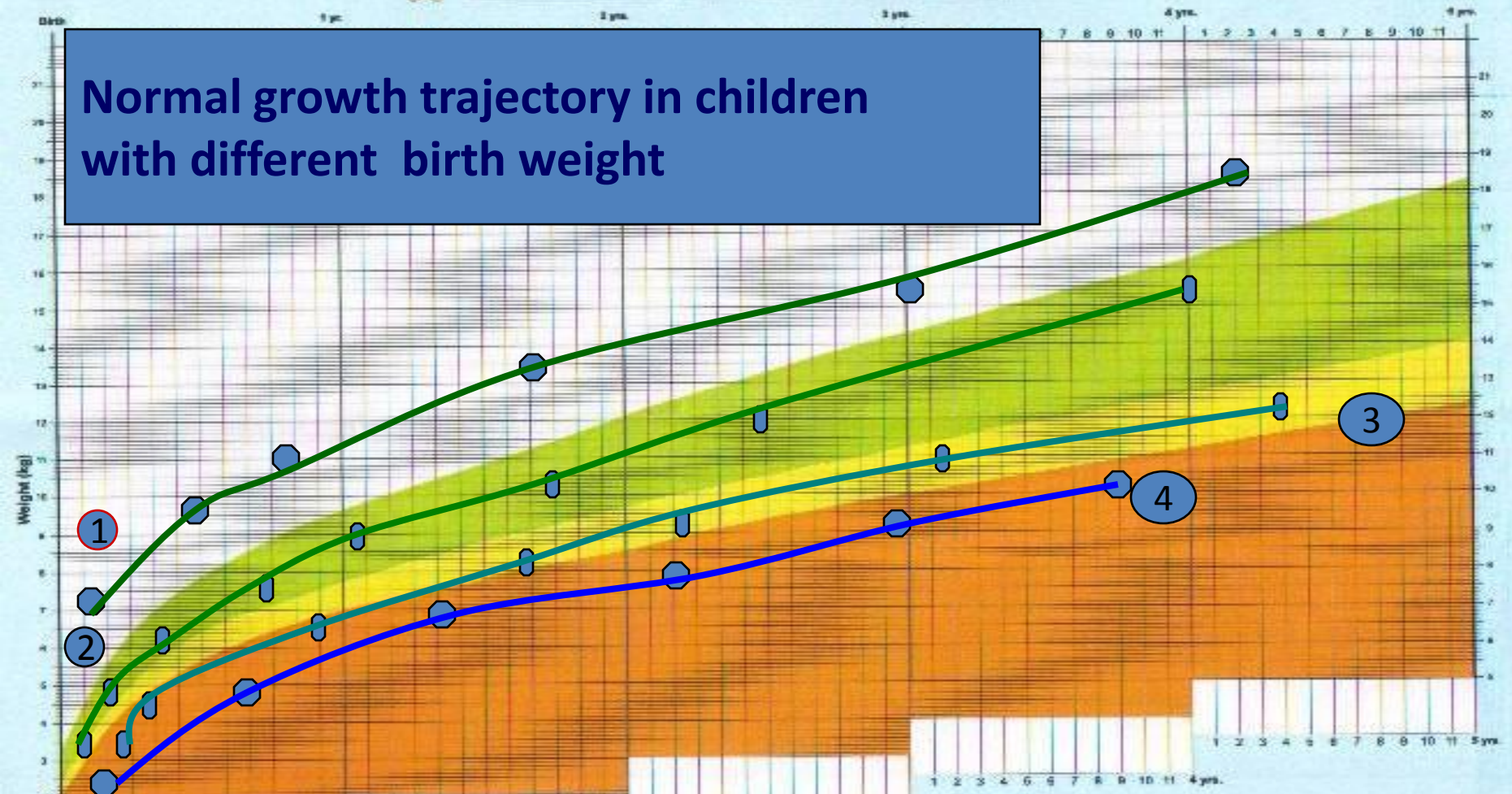
Ensure early detection and effective management of infection

Ensure equal care for the girl child



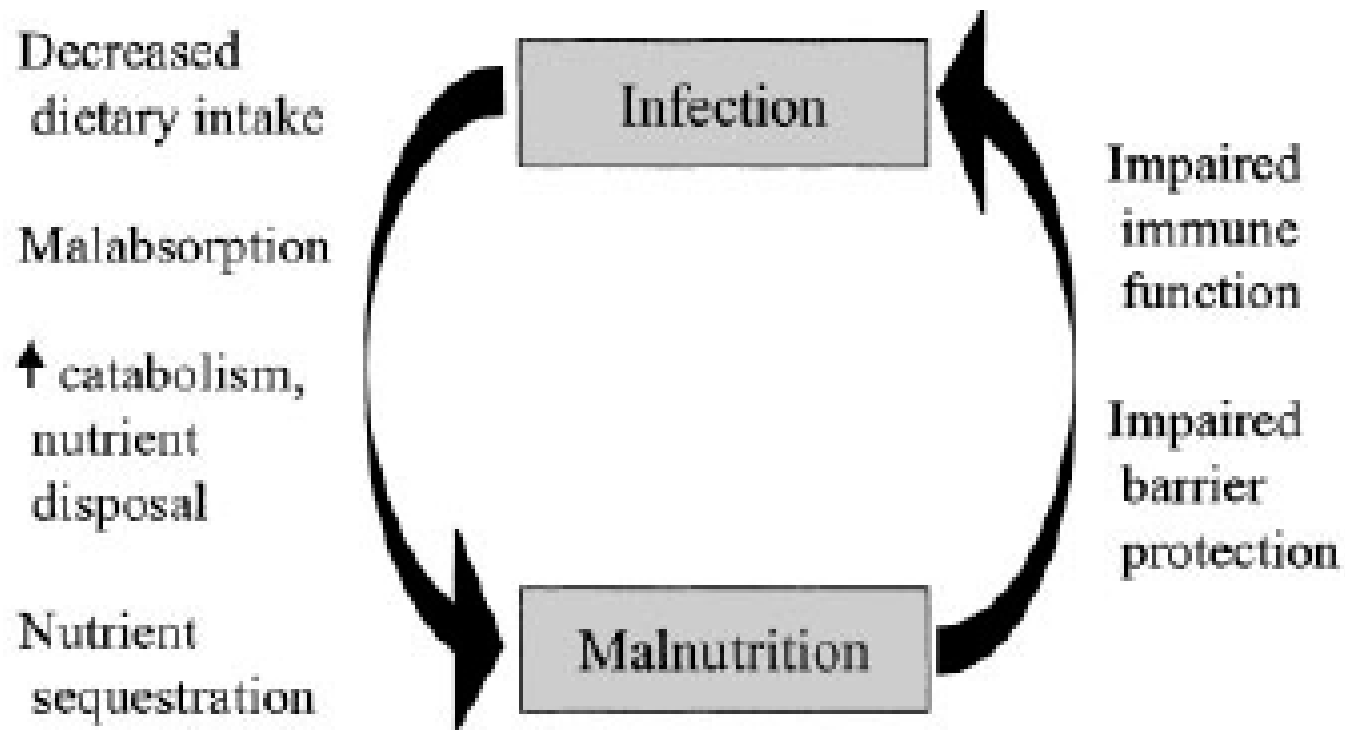
## BOY : Weight-for-age – Birth to 5 years (As Per New WHO Child Growth Standards)

Normal growth trajectory in children  
with different birth weight



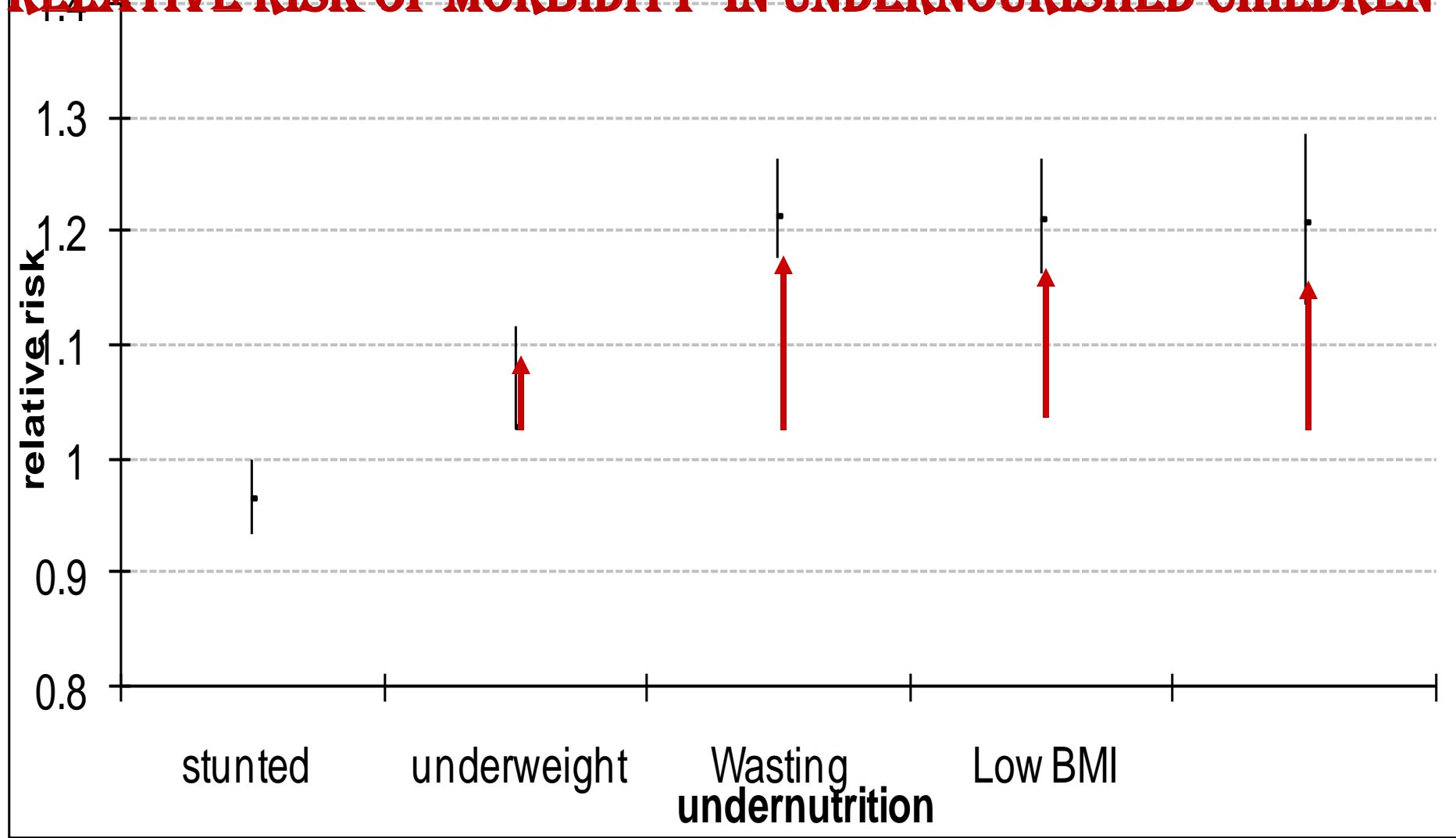
Birth weight is a major determinant of growth in infancy. If serial measurements are not taken child 3 and 4 will be classified as under-nourished; but serial measurements show that they are growing normally according to their trajectory.

# Relationship Between Nutrition and Infection



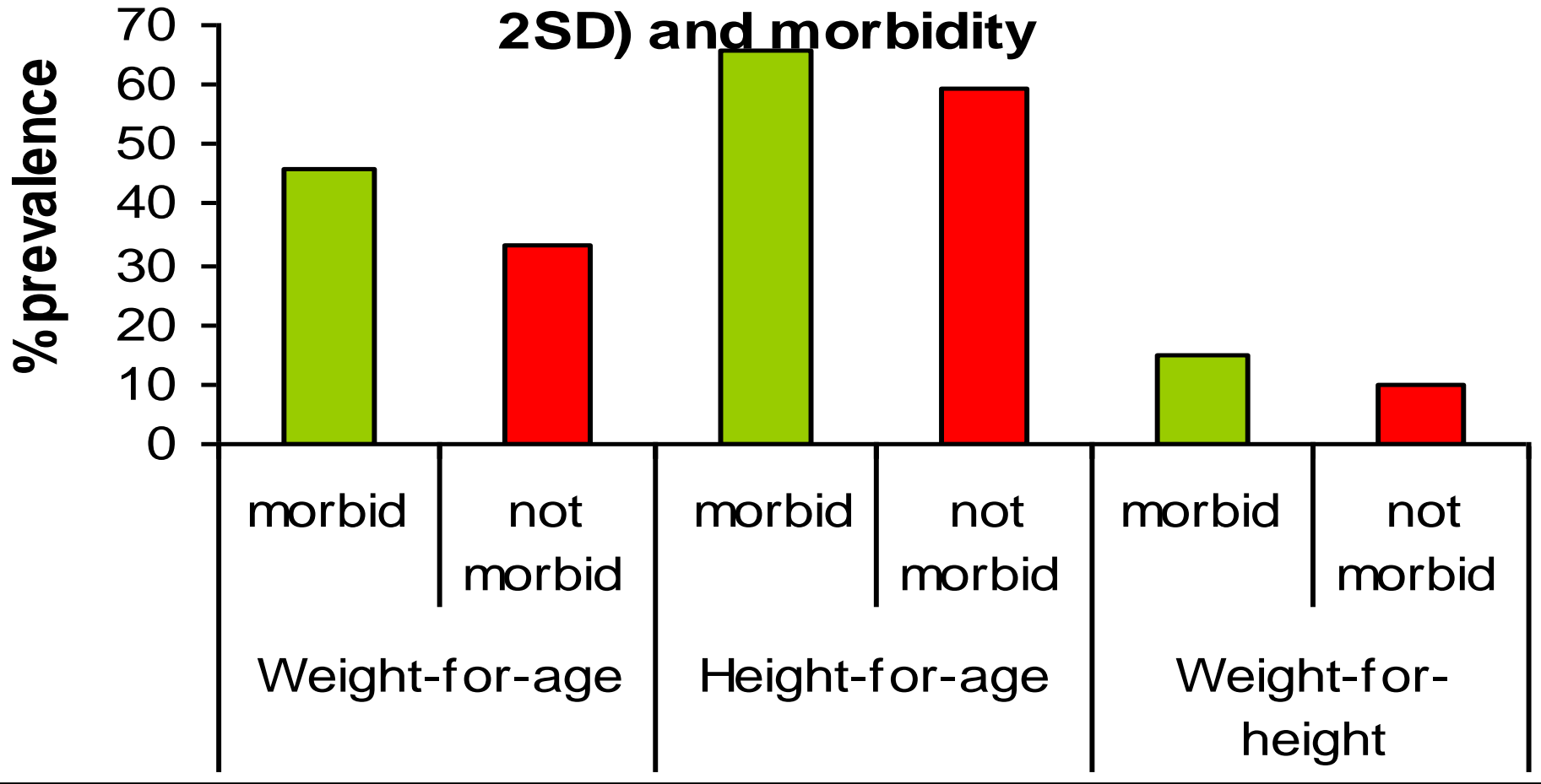
**Undernutrition predisposes to infection; infections aggravate undernutrition. This is a vicious cycle**

# RELATIVE RISK OF MORBIDITY IN UNDERNOURISHED CHILDREN



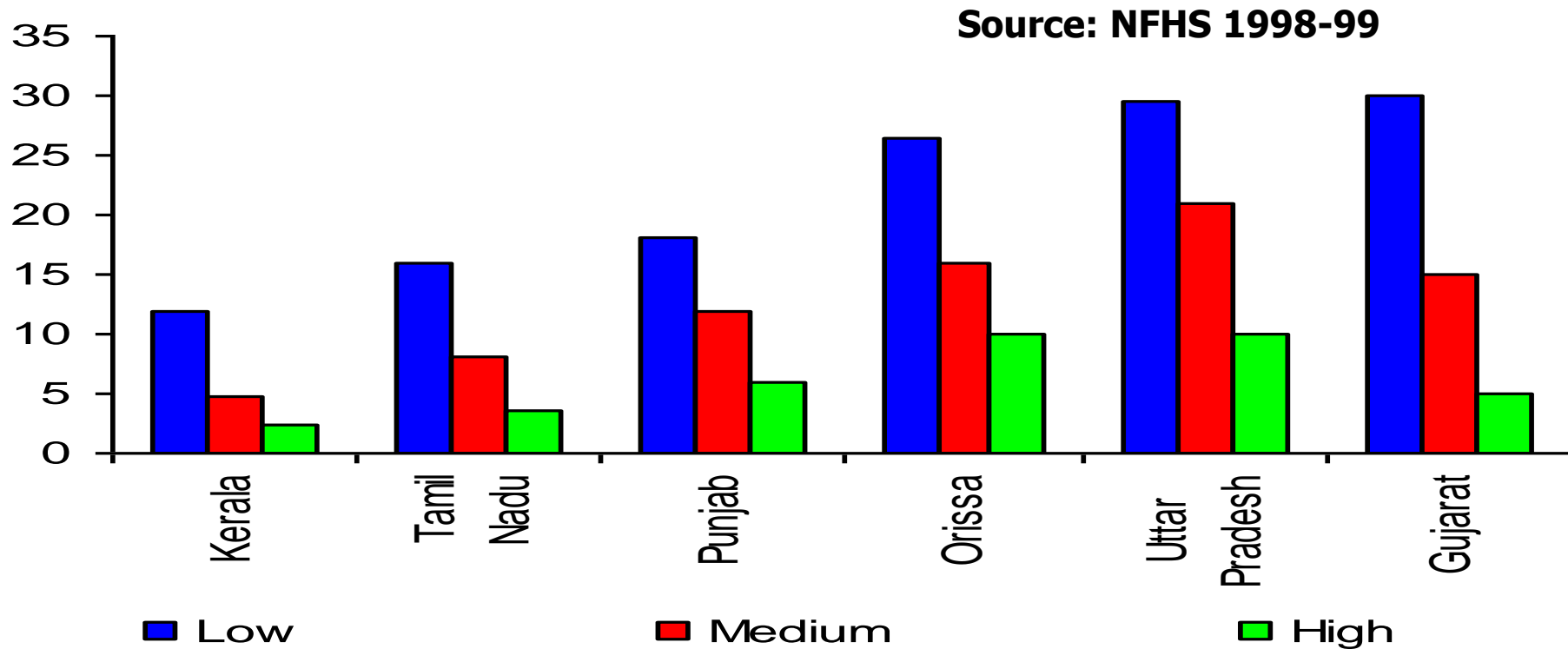
Analysis of data from NFHS 3 at NFI showed that risk of infection is higher in children with current energy deficiency manifested as low BMI or stunting and low BMI.

## Percent prevalence of undernutrition (<-2SD) and morbidity



**Prevalence of under-nutrition is higher among children who have suffered infections in the last fortnight.**

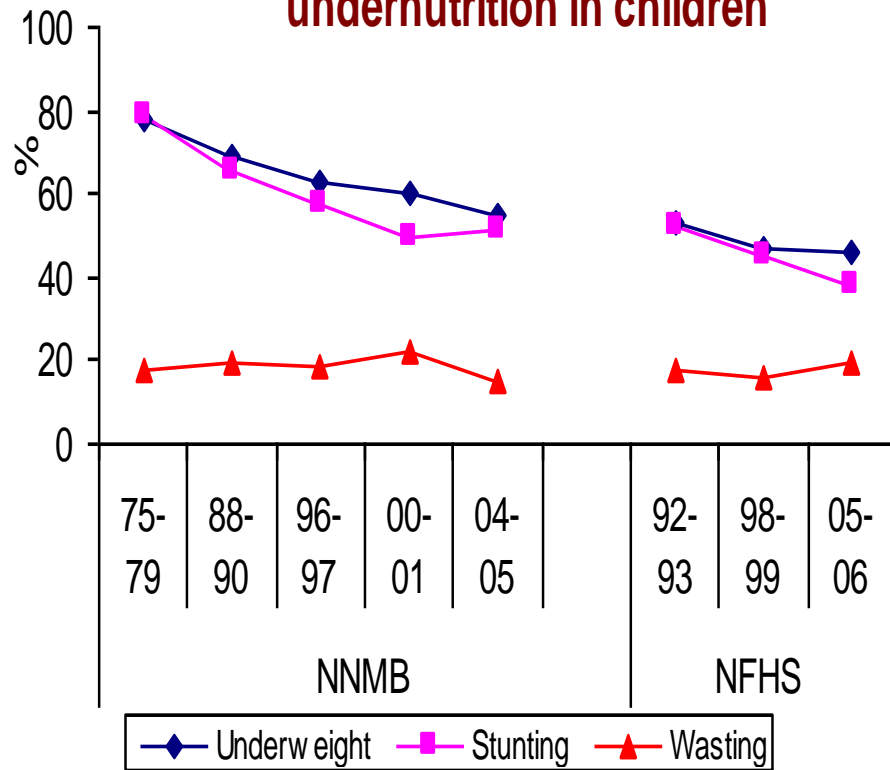
# Nutritional Status of children by Income



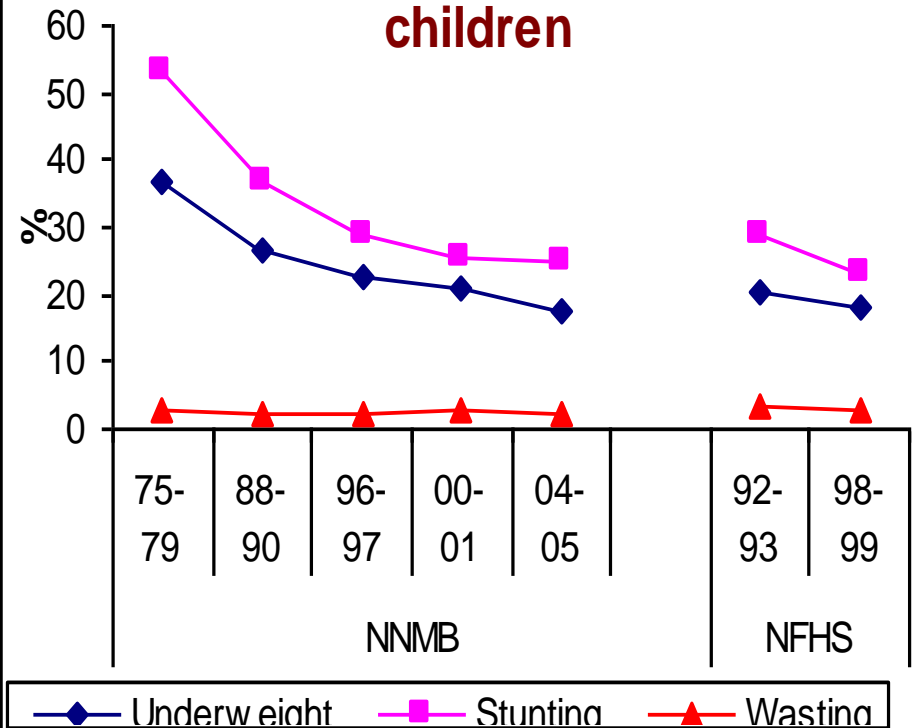
Under-nutrition rates among poor in Kerala are similar to under-nutrition rates among the rich in UP.

Adequate access to health care can lead to reduction in under-nutrition rates even among the poor .

**Trends in prevalence (%) of undernutrition in children**



**Trends in prevalence (%) of severe undernutrition in children**



**Over years there has been a decline in severe and moderate under nutrition (weight-for-age and height- for-age) but not in wasting (weight-for-height).**

**The reduction is largely due to better access to health care and reduction in nutrition toll of infections**

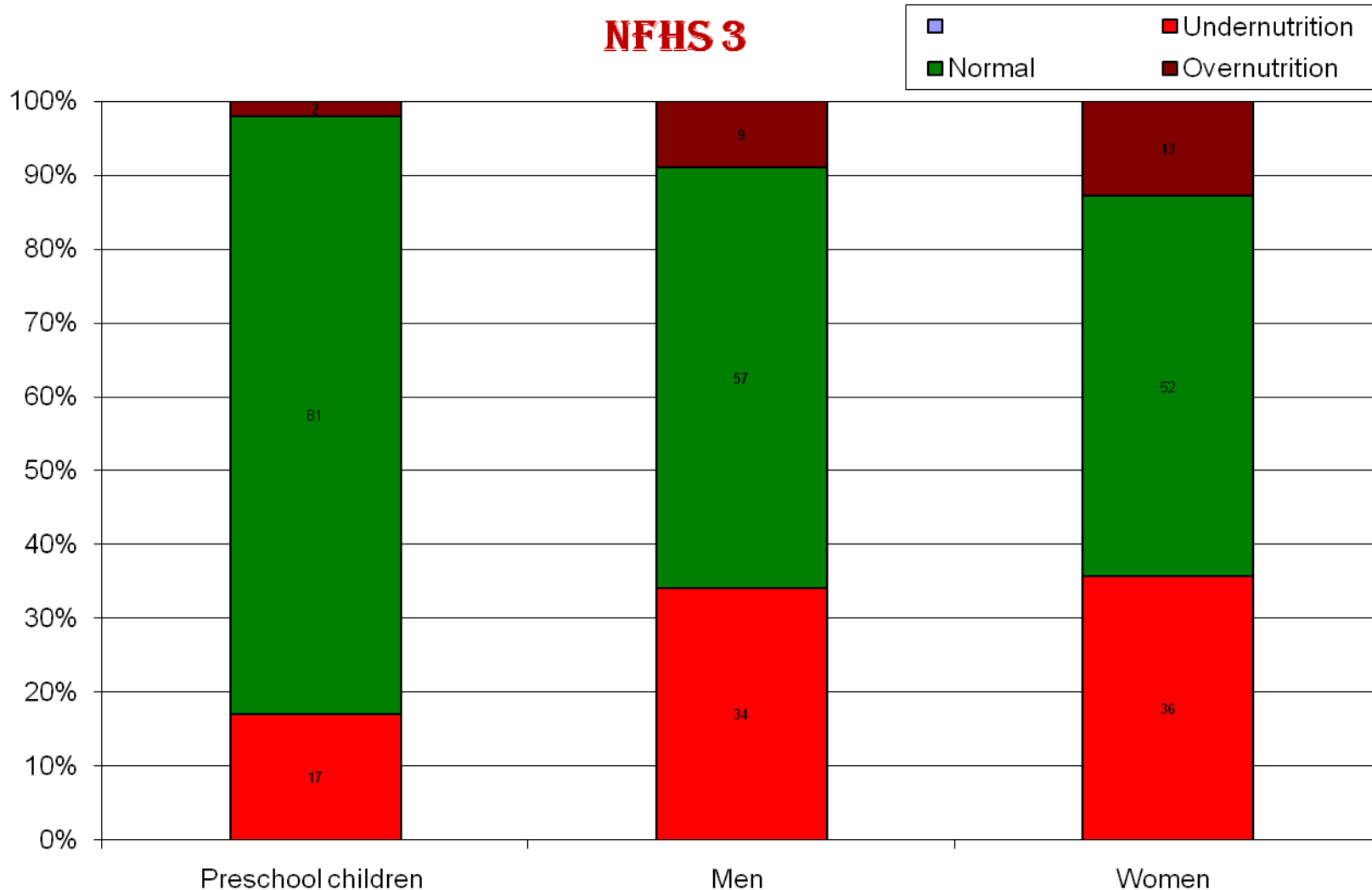
# MID DAY MEAL PROGRAMME



**Government of India in 1995 initiated the National Programme for Nutrition Support for Primary Education, commonly known as Mid day meal programme (MDM) with the objectives of :**

- increasing enrolment, improving school attendance and retention,**
- inculcating good food habits in children**
- promotion of social integration and**
- improving nutritional status of the primary school children**
- Initially 3 kg/month of food grains were provided to children who had more than 80% school attendance in the previous month**

## NUTRITIONAL STATUS OF CHILDREN AND ADULTS- NFHS 3



**There is rise in under and overnutrition during school age**

RDA FOR INDIANS 2010					MDM is aimed to bridge the gap between actual intake and nutrient requirements.
Group	current mean wt	req for current wt	Actual intake	Gap	
adult man	51	2346	2000	-346	Initially only primary school children were covered .
adult woman	46	1886	1738	-148	
Pregnant		2236	1726	-510	Gap in 5-9 year age group is lower as compared to adolescents
lactating		2386	1878	-518	
1 – 3 y	10.5	840	714	-126	The gaps between the requirement and actual intake in highest among adolescent girls and boys
4 – 6 y	14.6	1095	978	-117	
7 – 9 y	19.7	1379	1230	-149	
Boys					So MDM was extended to upper primary school children
10 - 12 y	26.6	1729	1473	-256	
13 – 15 y	36.8	2208	1645	-563	
16 – 17 y	45.7	2514	1913	-601	
Girls					
10 – 12 y	26.7	1469	1384	-85	
13 – 15 y	36.9	2030	1566	-464	
16 – 17 y	42.6	2130	1630	-500	

**Following supreme Court directive in 2003, hot cooked meal has been provided to all primary school children .**

**Subsequently MDM was extended to the upper primary school children also**

**Currently Ministry of Human Resource Development is providing cooked mid day meal with 450 calories and 12 grams of protein to every child at Primary level and 700 calories and 20 grams of protein at Upper Primary level.**

**This energy and protein requirement for a primary child comes from cooking 100 gms of rice/flour, 20 gms pulses and 50 gms vegetables and 5 gms oil and for an upper primary child comes from 150 gms of rice/flour, 30 gms of pulses and 75 gms and 7.5 gms of oil.**

## **CURRENT STATUS OF MDM**

- 🌐 Under the food security act MDM will be supported for providing hot cooked meals to school children for foreseeable future
- 🌐 Currently more than 10.35 crore children (75% of the enrolled children) in 11.55 lakh schools in the country get MDM .
- 🌐 MDMs has helped in preventing classroom hunger, promoting school enrolment, fostering social integration and improving gender equity
- 🌐 MDM can play a major role in reducing under-nutrition and preventing overnutrition in school children by
  - undertaking height and weight measurements and computing BMI for age twice a year
  - identifying undernourished children (lean children)
  - getting them checked by school health system for infections
  - providing them with double helping of MDM if low food intake is the problem
  - Identifying over nourished children and ensuring that they play and improve physical activity

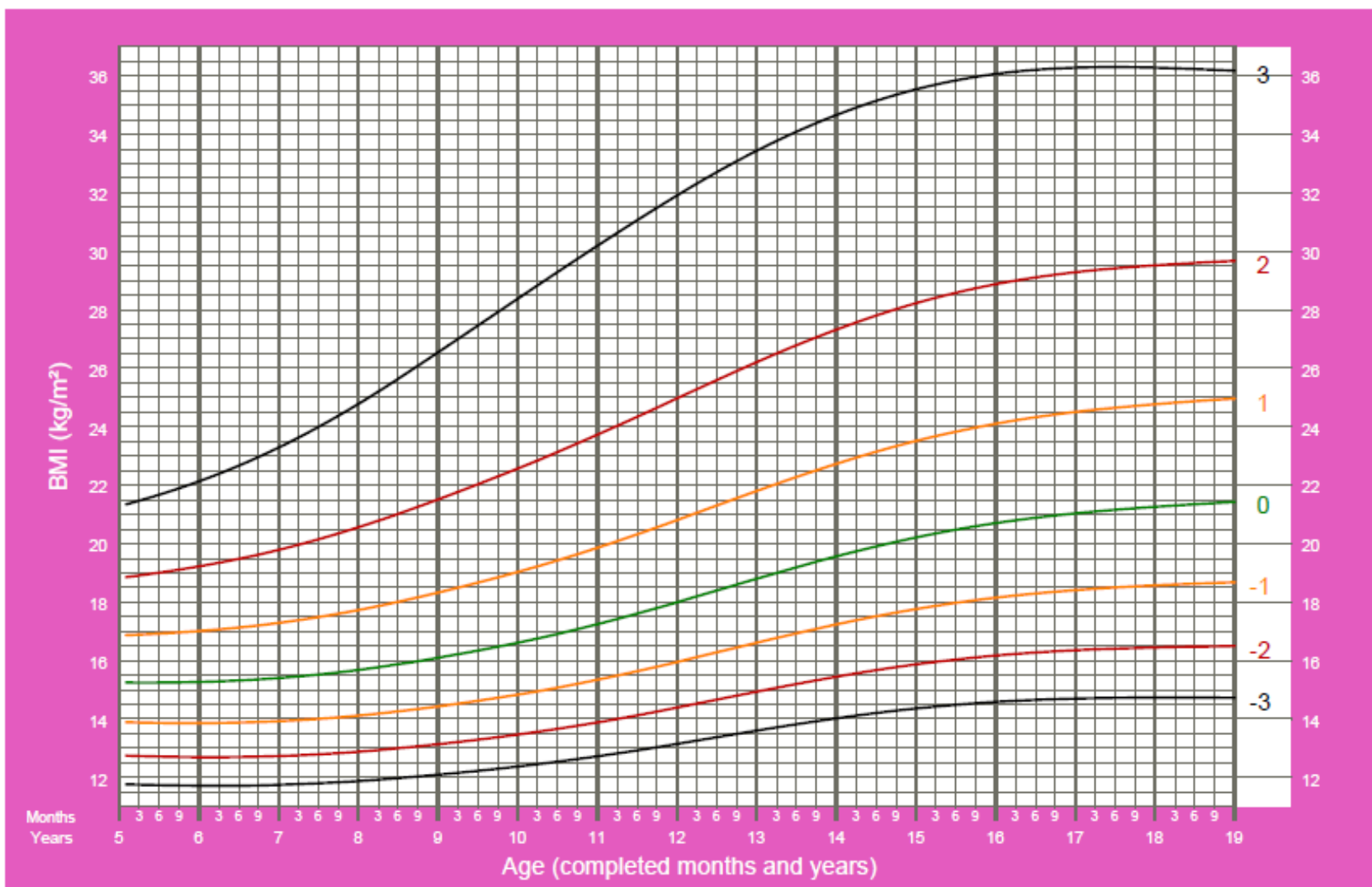
# WHO GROWTH CHARTS 5-19 YEARS

[www.who.int/growthref/en](http://www.who.int/growthref/en)



# BMI-for-age GIRLS

5 to 19 years (z-scores)



2007 WHO Reference

# TECHNOLOGY FOR COMPUTING BMI

WALL MOUNTED STATURE METER  
FOR MEASURING HEIGHT ( CMS )

LIGHT WEIGHT BATTERY OPERATED  
DIGITAL WEIGHING MACHINE FOR  
WEIGHING ( KG )

READILY  
AVAILABLE  
MOBILE CAN BE  
USED FOR  
CALCULATING  
 $WT/HT^2$





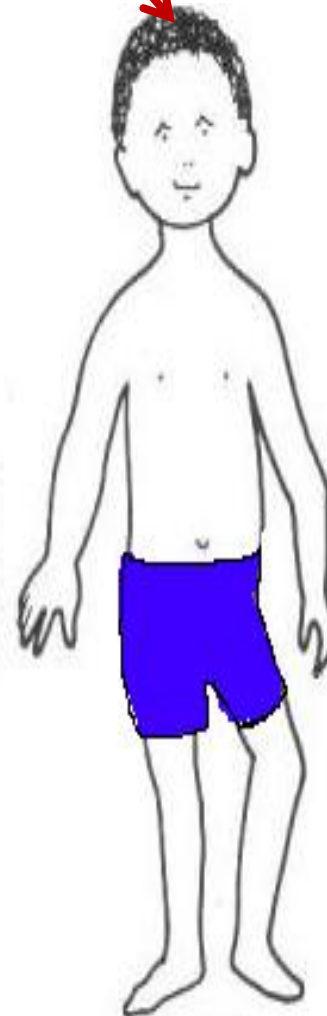
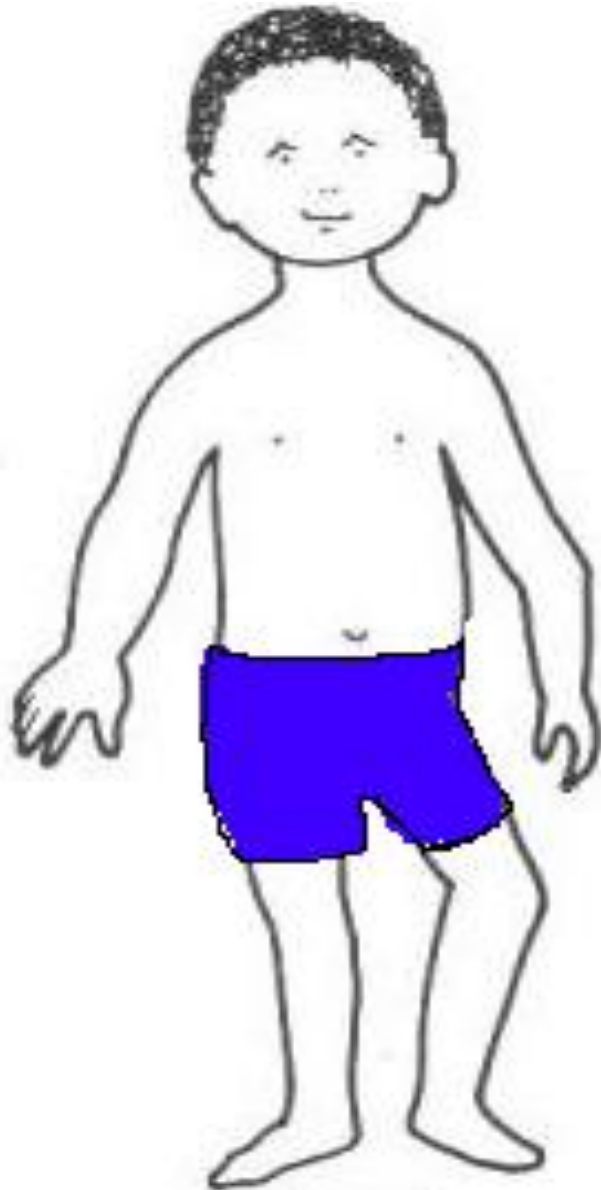
## BMI IN CHILDREN ( 7YR)

Normal height, weight  
& BMI; **BMI 15.5**

Normal height low Wt & low  
BMI; **BMI 12.5**

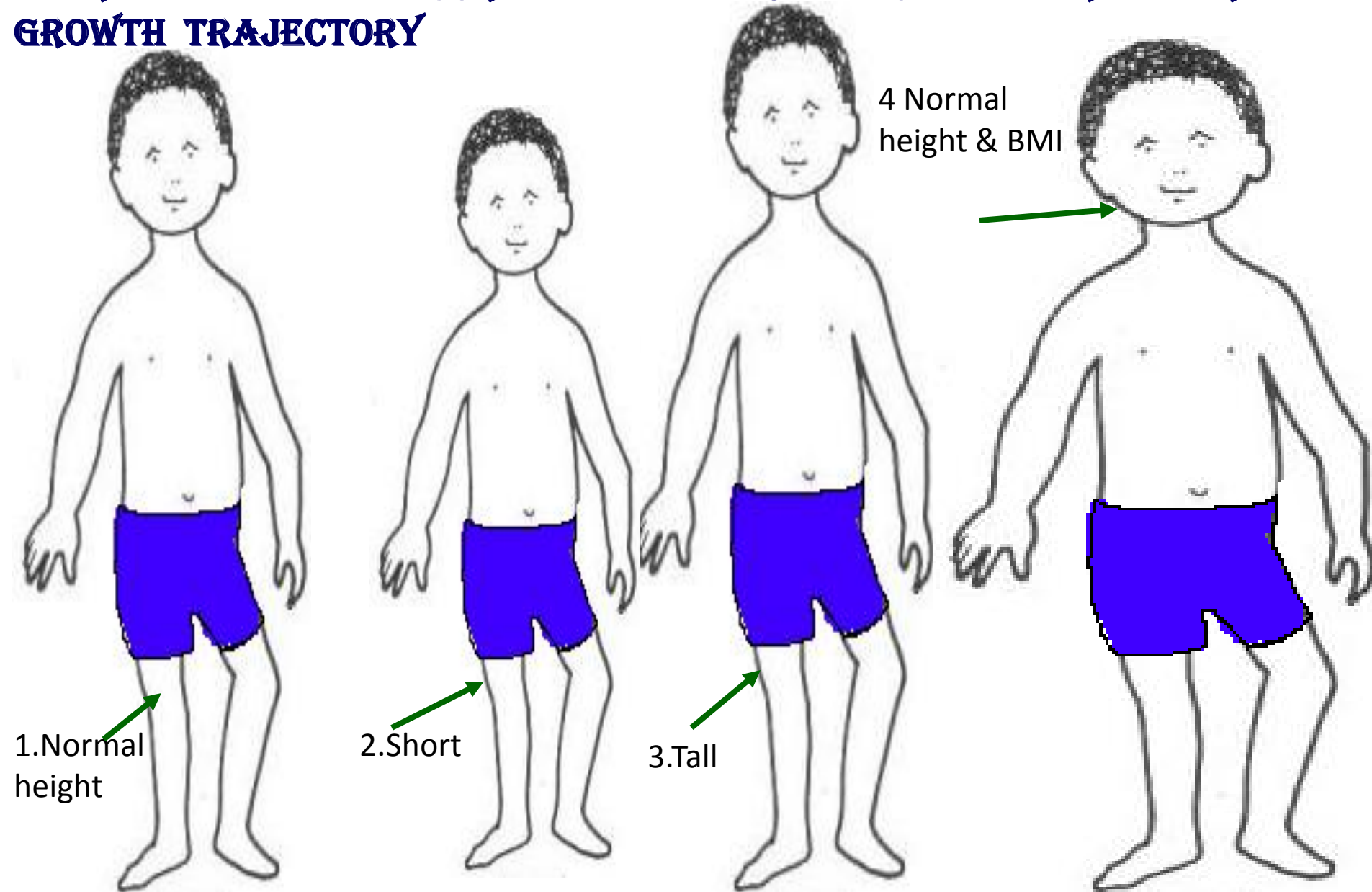
Stunted, low wt &  
normal BMI  
**BMI 14**

Stunted, low wt &  
low BMI  
**BMI 12**



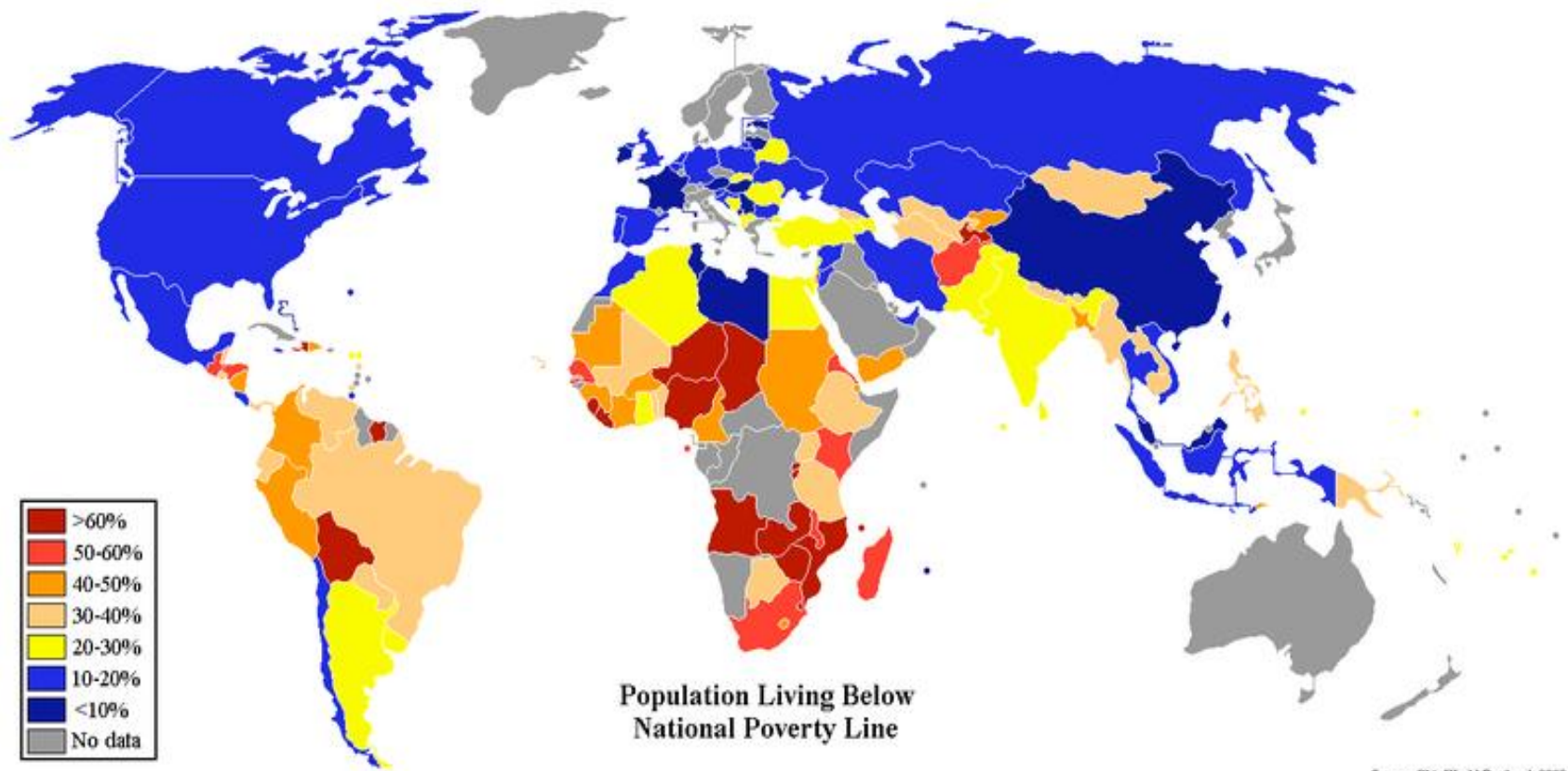
These thin children need more food

**CHILDREN 1, 2 & 3 HAVE LOW BMI. CHILDREN WITH LOW BMI CAN HAVE NORMAL HEIGHT, BE TALL OR SHORT. THEY **ALL** REQUIRE ADDITIONAL ENERGY INTAKE TO ENSURE THAT THEY CONTINUE IN THEIR LINEAR GROWTH TRAJECTORY**



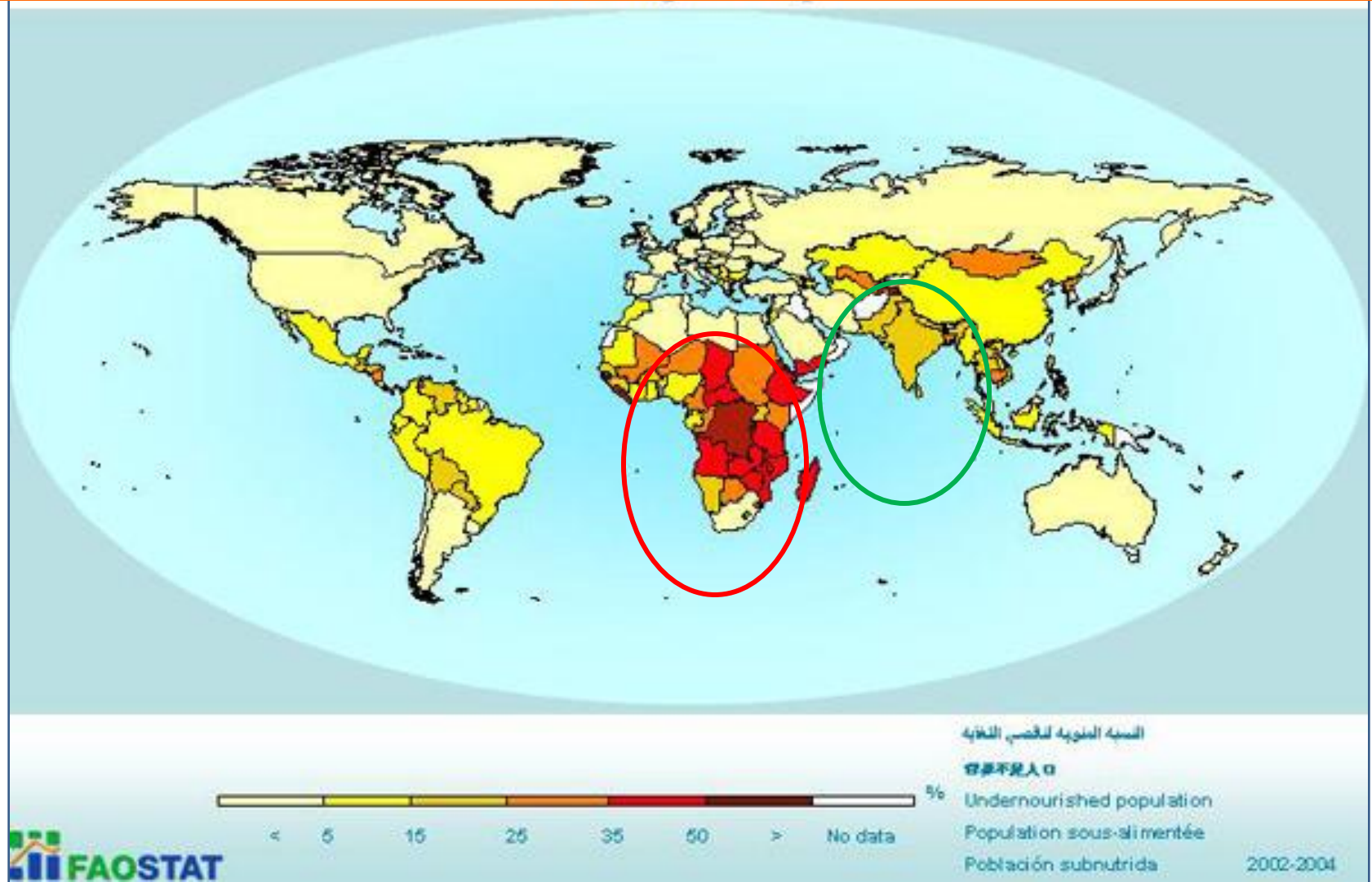
**TO SUM UP**

# Population living below poverty line



**South East Asian countries have relatively low poverty ratios. Poverty is no longer the major factor responsible for under-nutrition and micronutrient deficiencies.**

# World hunger map

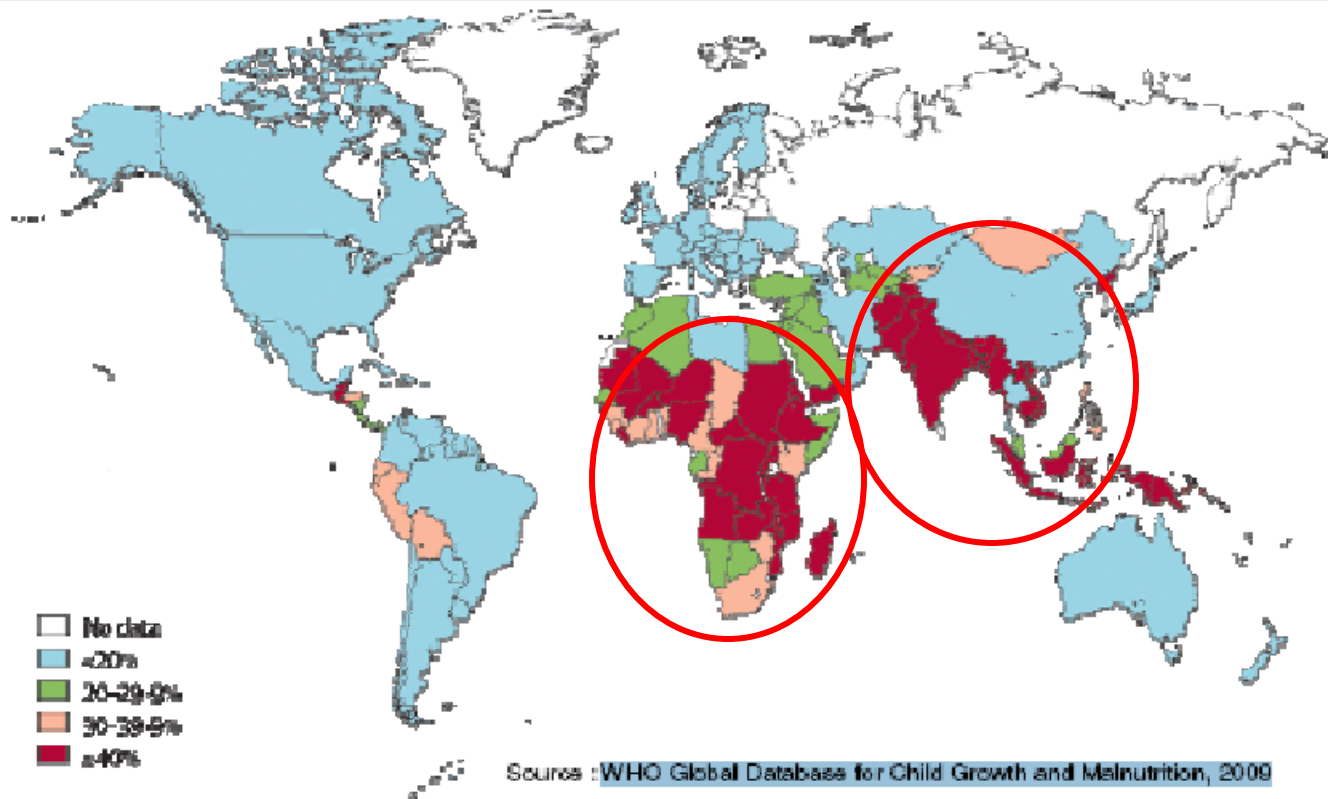


Prevalence of hunger in South Asia is lower than Sub-Saharan Africa; hunger rates are lower in East Asia.



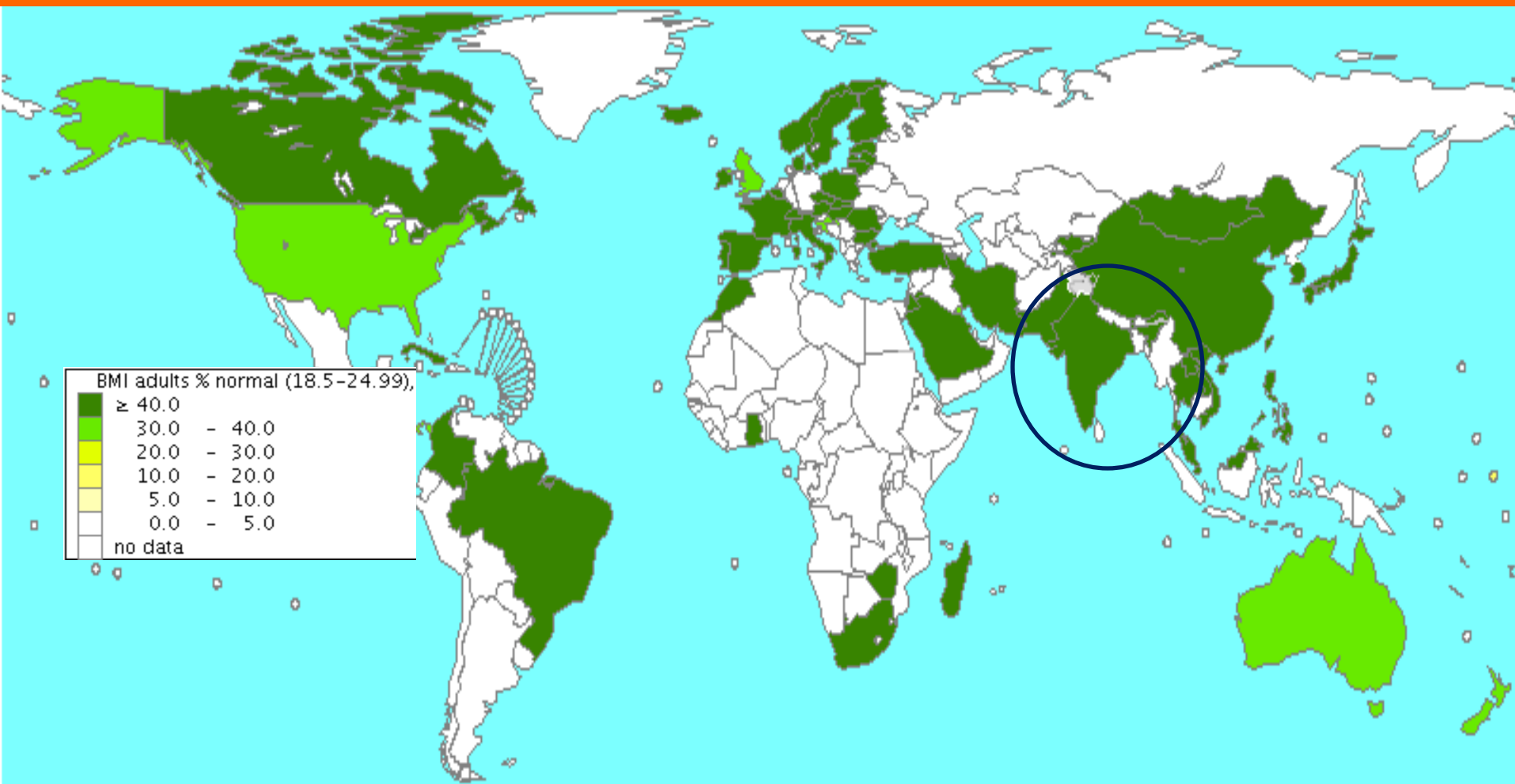
# STUNTING AND UNDERWEIGHT IN <5 CHILDREN

178 million children are stunted  
(under 5 years of age)



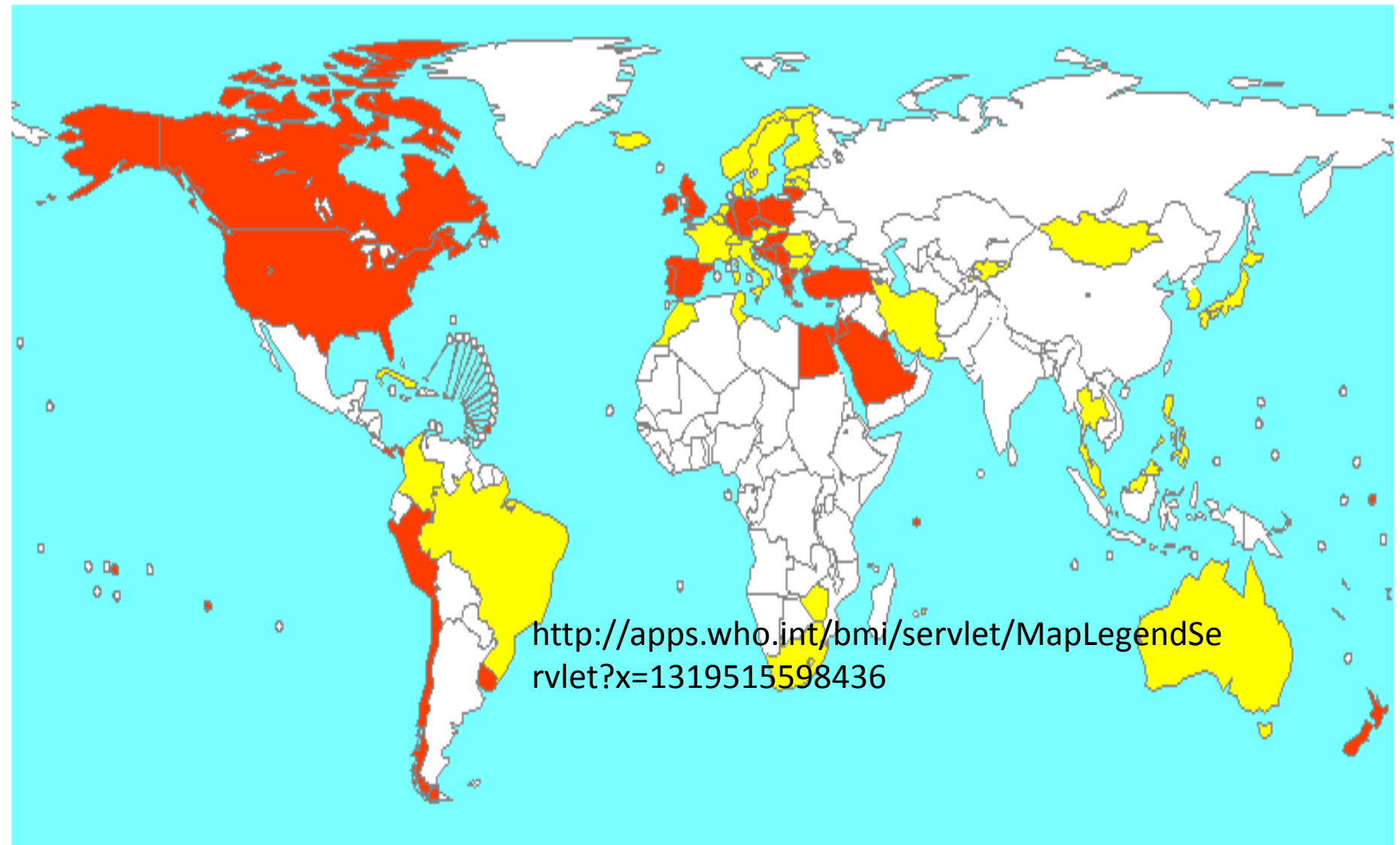
If stunting and underweight in pre-school children are used as indicators for assessment of nutritional status under-nutrition rates in India is similar to Sub-Saharan Africa. But if BMI is used a different picture emerges –only 20% are undernourished

# PREVALENCE OF NORMAL NUTRITION (BMI )



**MORE THAN 50 % OF THE ADULT POPULATION AND 80% OF < 5 CHILDREN IN INDIA ARE NORMALLY NOURISHED**

# PREVALENCE OF OVER NUTRITION (BMI )



**IN INDIA PREVALENCE OF OVERNUTRITION IS LOW**



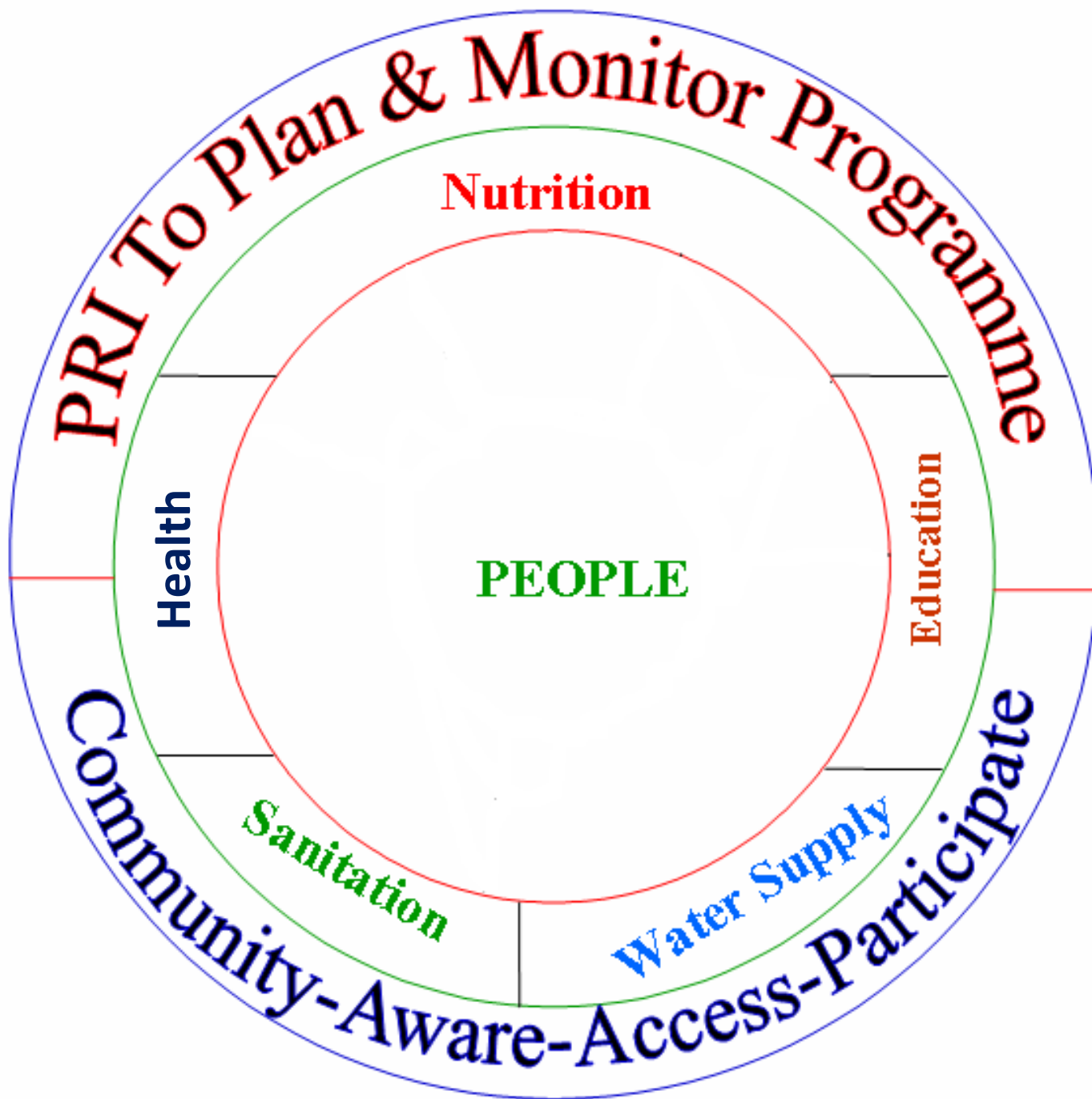
# COMBATING DUAL NUTRITION BURDEN – CHALLENGE OR OPPORTUNITY?

Combating the dual nutrition burden has generally been viewed as a major challenge but in the Indian context it may in fact be an opportunity because

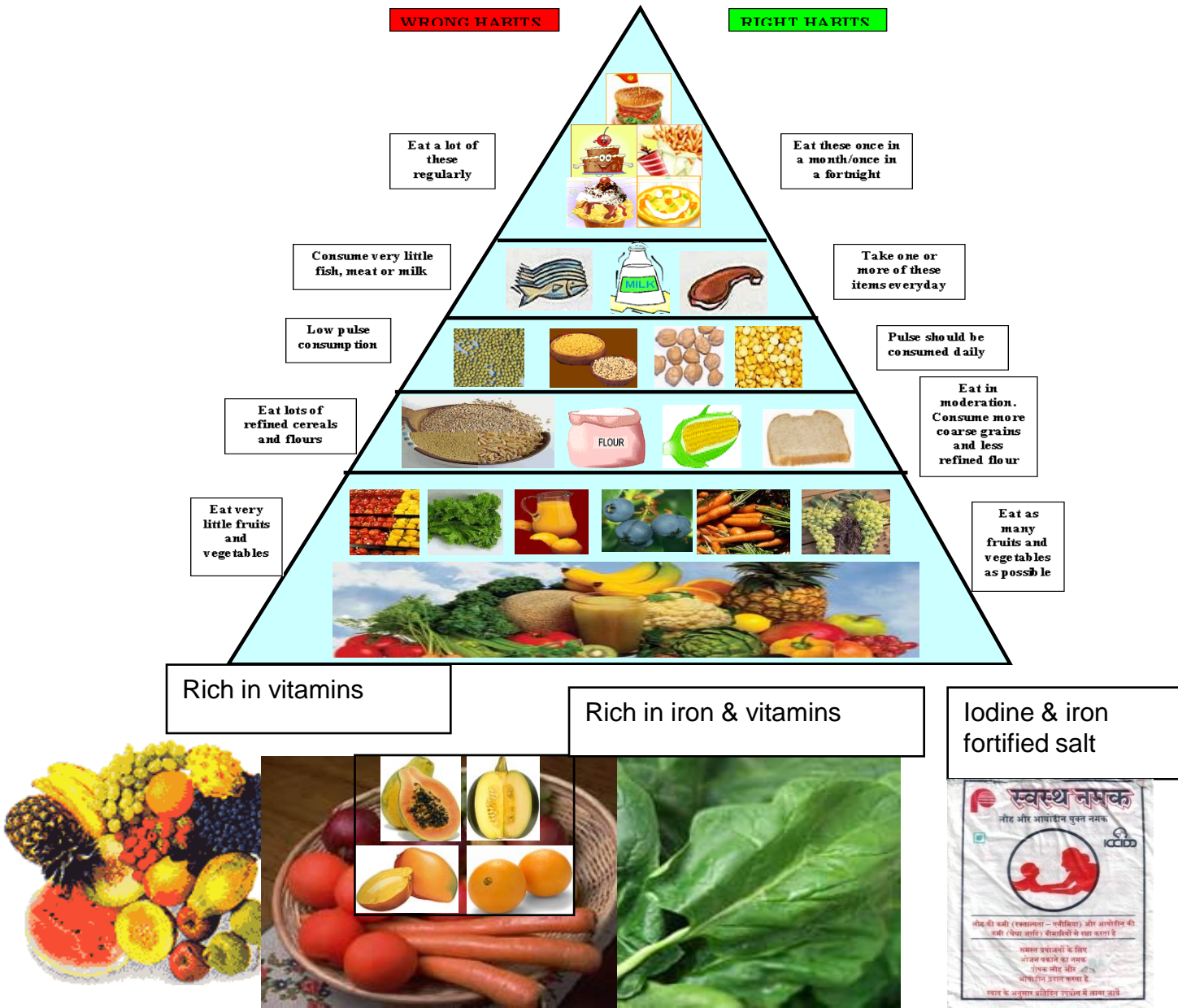
- Poverty and household food insecurity are no longer the major determinant of under-nutrition;
- nutrition education on appropriate IYCF, how to prepare inexpensive balanced diet for the family and health education on how to access needed health care are the key interventions to reduce undernutrition in preschool children
- Optimal use of MDM and school health interventions can reduce under nutrition in school children
- overnutrition rates are still low;
- Overnutrition can be combated through adequate balanced diet and appropriate exercise regimen

# COMBATING DUAL NUTRITION BURDEN – CHALLENGE OR OPPORTUNITY?

- Nutrition and health education can be communicated through all modes of communication
- As coverage under health and nutrition services are universal, the needed nutrition and health care can be provided by improving the content and quality of health and nutrition services
- The rational, responsible and responsive population can be expected to utilise the knowledge and access needed services to improve their nutritional and health status



# Eat adequate amounts of balanced meal



## Lead an active healthy life



**The country should take this opportunity to show case how it can cope with major challenges in health and nutrition sectors effectively within a short period, at an affordable cost**

Thank You