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Food Policy and Nutrition Security: Lessons Learned and New Paradigms

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THE ASIA AND PACIFIC FORUM ON POVERTY
POLICY AND INSTITUTIONAL REFORMS FOR POVERTY REDUCTION



Overview

- 1) **Malnutrition is a poverty trap**
 - **intergenerational cycle**
 - **depresses economic growth**
- 2) **Asia is the big show: three-fourths of world's problem**
- 3) **Underweight Mothers and Children also suffer micronutrient deficiencies**
- 4) **Main consequences are premature death, disability, life-long susceptibility to illness, poor cognitive and learning skills, low achievement in school, low wages.**
- 5) **Educating girls and employing women is the key to improving child nutrition.**
- 6) **Community-based programs are more effective than untargeted food security measures**

Overview

- 7) Old food security approaches have failed, and failed expensively**
- 8) Better approaches succeed, and succeed cheaply, provided**
 - communities are involved, especially mothers**
 - potential of private sector is tapped to improve food technology and dietary quality for the poor**
- 9) Chronic diseases are exploding and new dietary strategies are needed**

International Development Goals by 2015

- 1) Eliminating most of infant, child, and maternal deaths.**
- 2) Reduction of extreme poverty by half.**
- 3) Universal primary school enrolment**

International Development Goals by 2015

- * Improved maternal and child nutrition is essential to accomplish these goals. Why?**
 - One fifth of maternal deaths (65,000 in low-income Asia each year) are caused by iron deficiency anemia**
 - 54% of under-five child deaths in Asia (2.8 million each year) are caused by moderate and severe underweight condition.**
 - Low birth weight infants (from short, undernourished mothers) are ten times more likely to die in their first year than normal weights.**
 - Stunted children enter school later and are more likely to drop out**
 - Malnutrition reinforces poverty, low mental competence, achievement, and earnings, and depresses economic growth by at least 5% of GDP.**

INVESTMENT IN NUTRITION

Direct Effects

Indirect Effects

Near-Term
(Improved
Intakes)

Long-Term
(Size, Stature)

(Cognitive
Ability,
Schooling)

PRODUCTIVITY

EFFICIENCY

EQUITY

ENHANCED HEALTH, EDUCATION, AND LABOR PRODUCTIVITY

ECONOMIC GROWTH AND NATIONAL DEVELOPMENT

The Main Problems

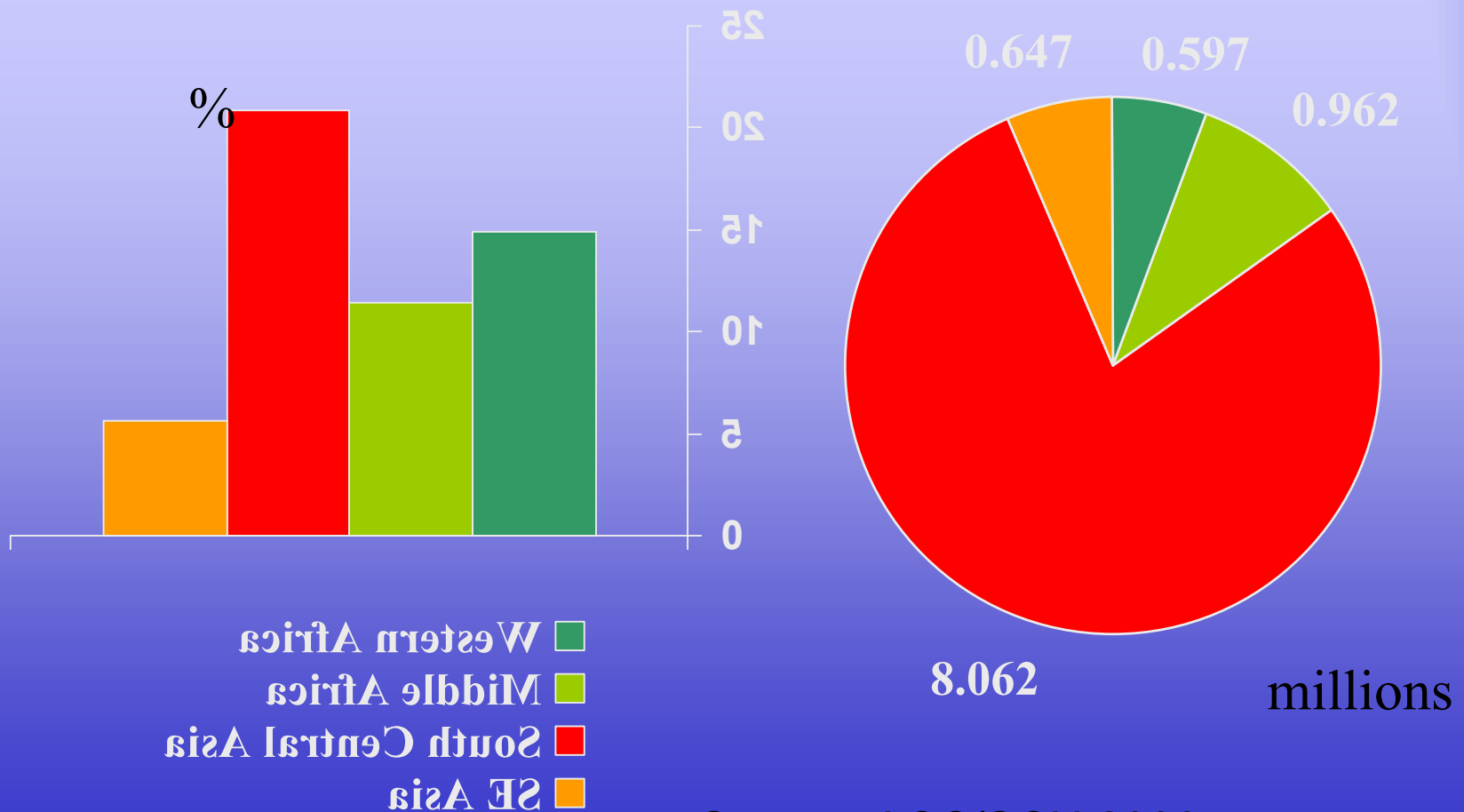
- **Undernutrition**
 - Low birth weight
 - Early childhood growth failure
 - Iron deficiency
 - Iodine deficiency disorders
 - Vitamin A deficiency
- **Overweight and obesity**
 - → risk factors for hypertension, coronary heart disease, diabetes, cancer etc.

The Life-Cycle Perspective

- There is new evidence on importance of:
 - Nutrition of girls → Fetal development → Nutrition of next generation of girls
 - Fetal development → Adult chronic disease (a linking of the two burdens)
- This gives us an expanded view of:
 - Productivity impacts of improved nutrition
 - Opportunities for action

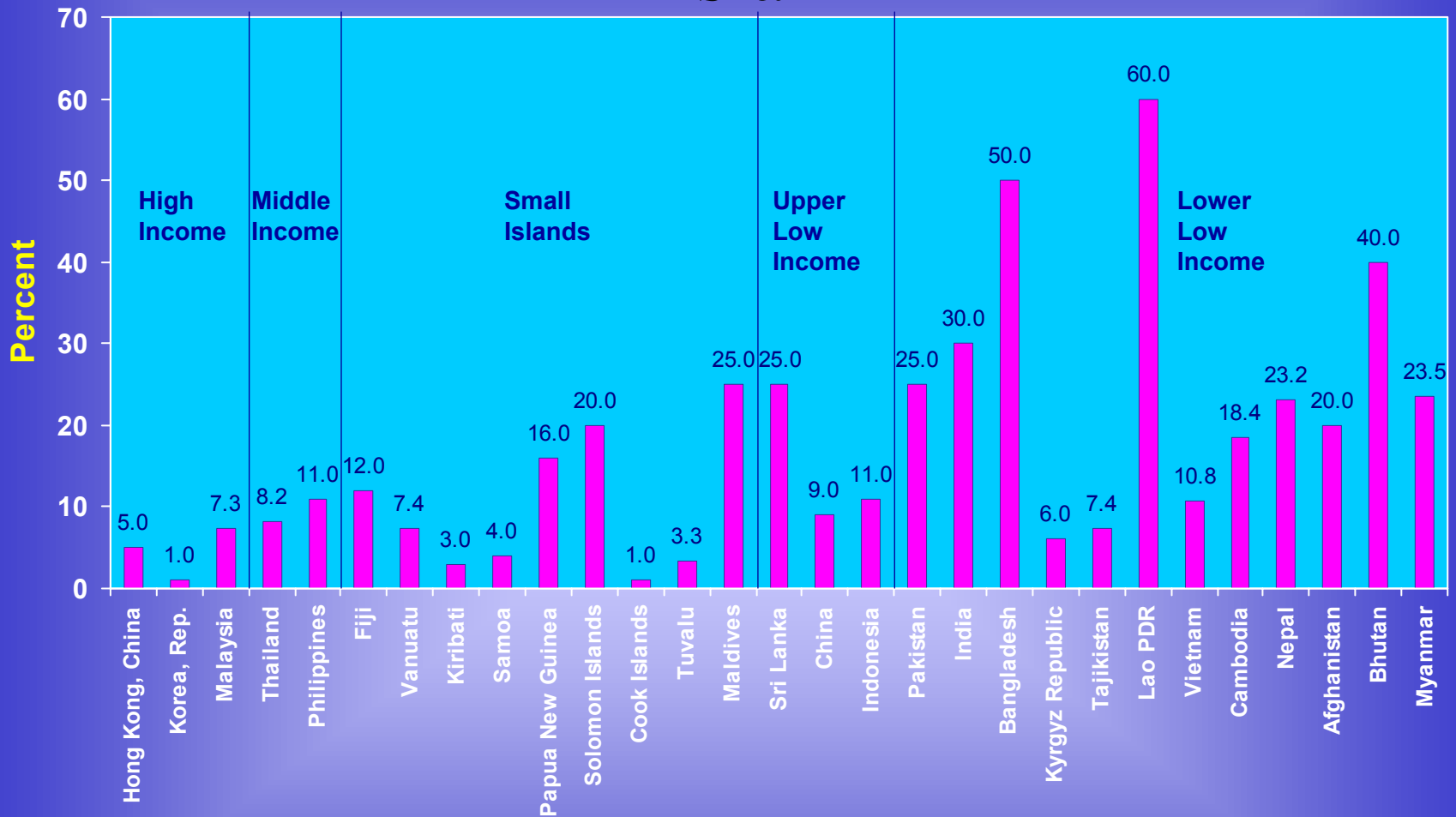
Most global undernutrition is in Asia

Newborns with low birth weight at term

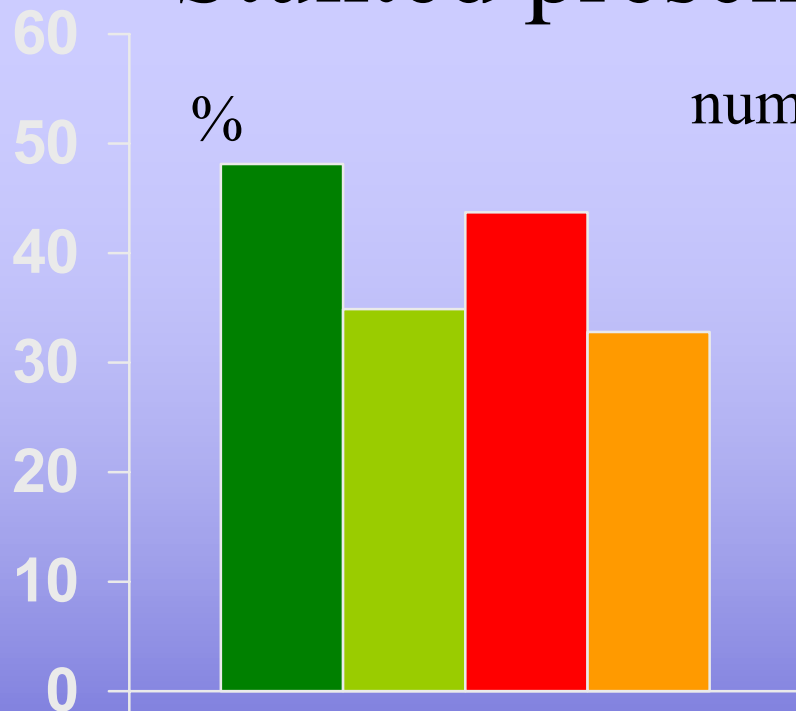


Source: ACC/SCN 2000

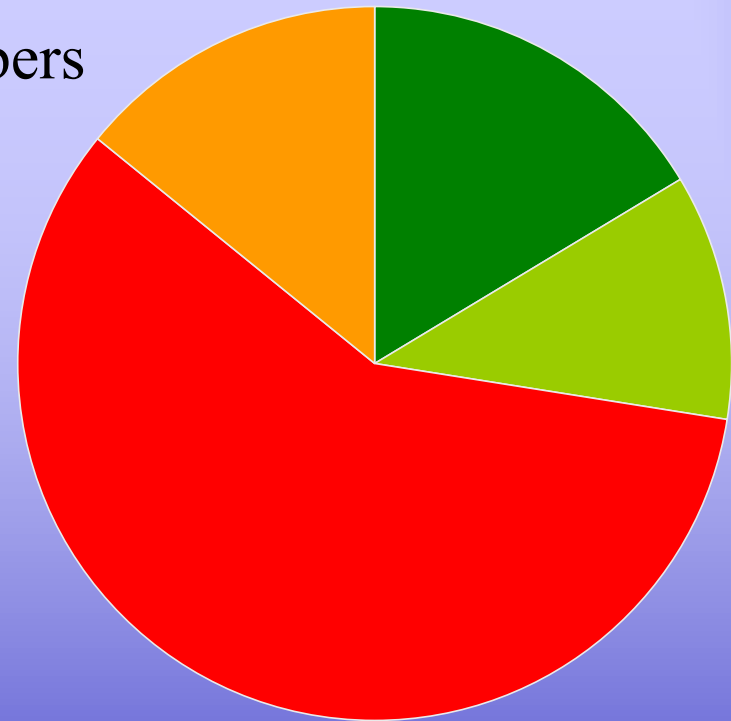
The Prevalence of Low Birth Weight in Asia



Stunted preschool children



numbers



■ Eastern Africa
■ Western Africa
■ South Central Asia
■ South-East Asia

■ Eastern Africa
■ Western Africa
■ South Central Asia 52%
■ South-East Asia

Source: ACC/SCN 2000

The Prevalence of Stunting in Asia (last data point in the 1990's)



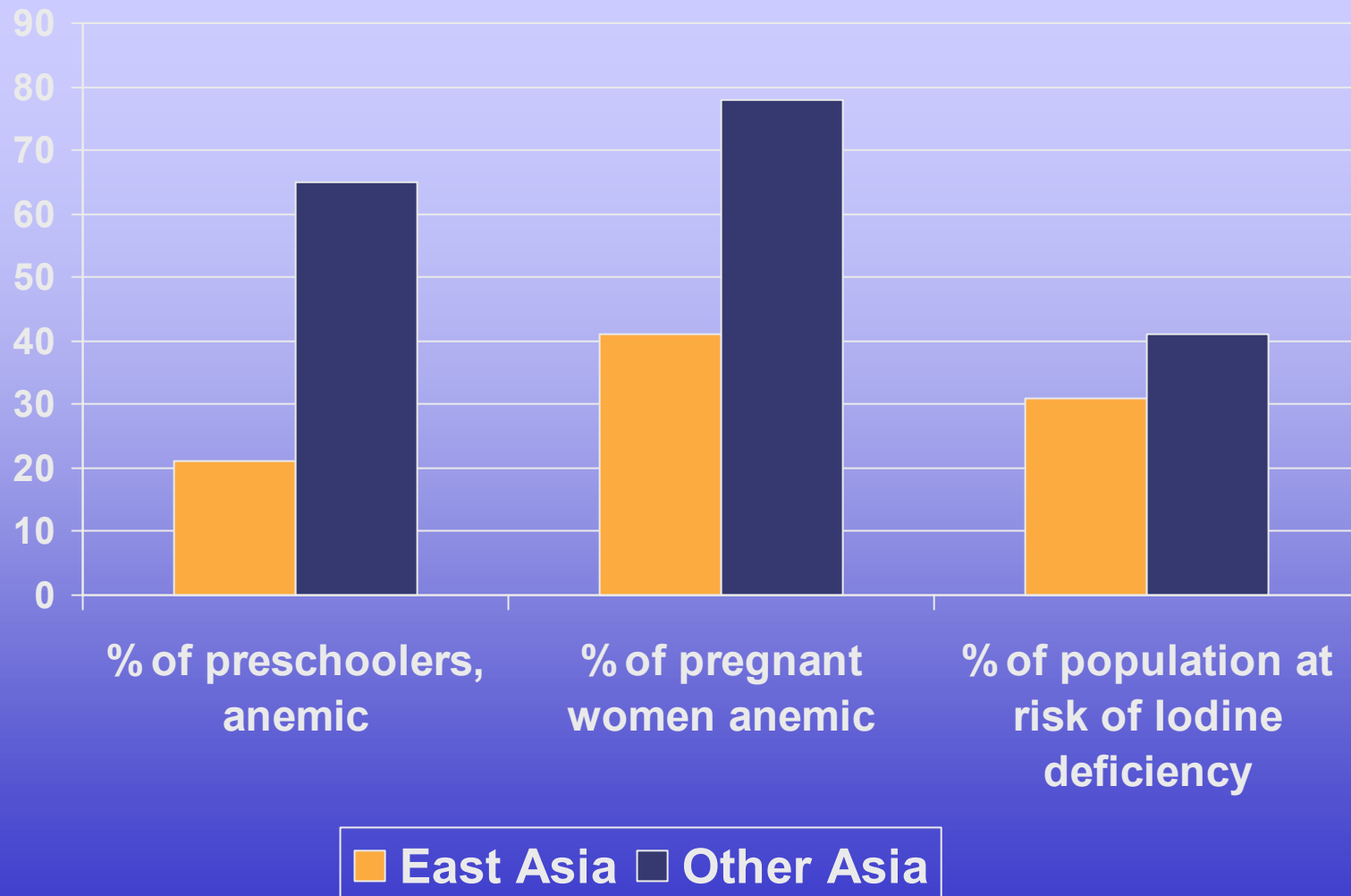
Source: Indonesian Family Life Survey, 1993 ; Vietnam Living Standards Survey, 1992-3;
China Health and Nutrition Survey, 1993; Kyrgyz Republic Multipurpose Survey, 1993;
Fiji and Bangladesh country reports.



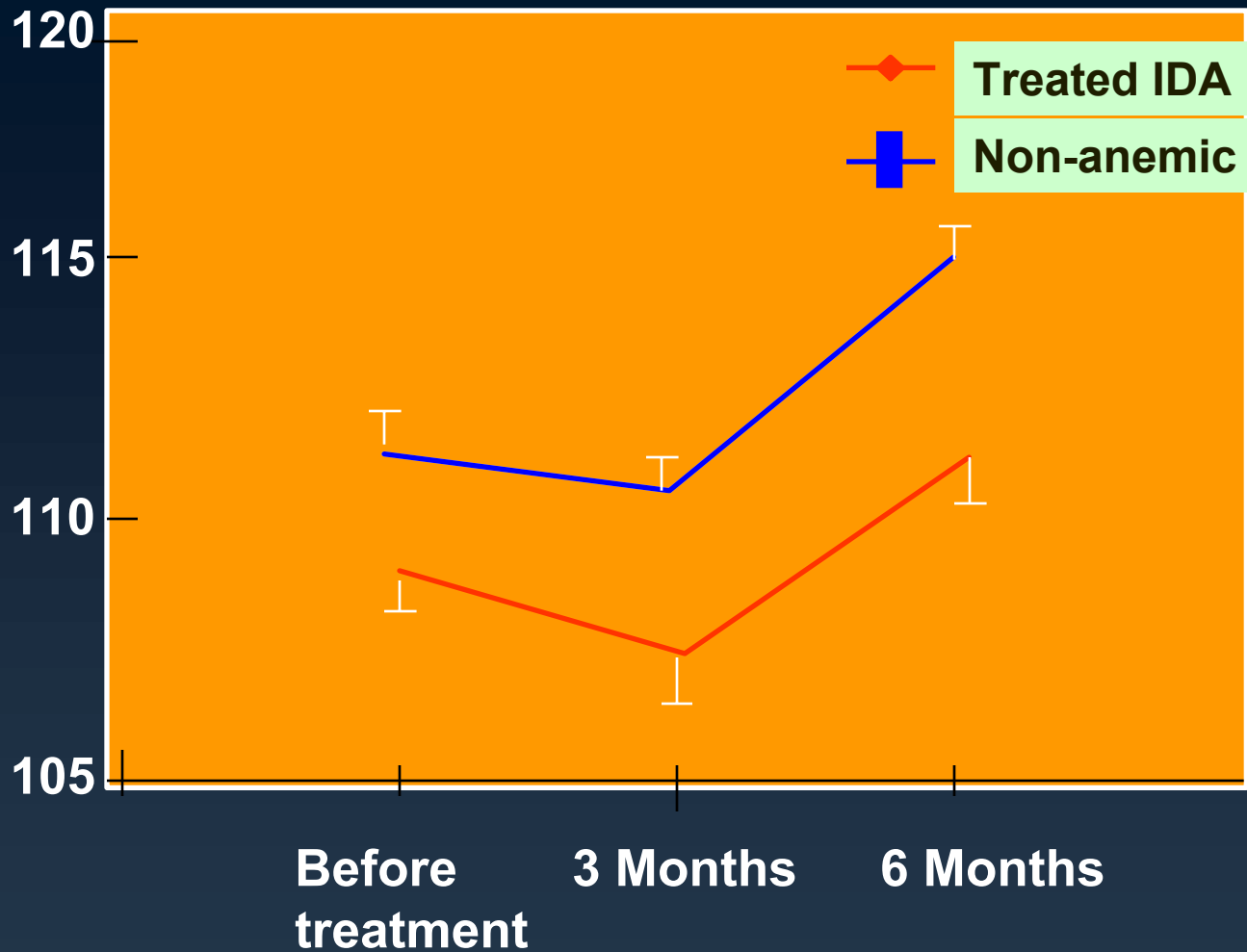
Significant Associations with Height-for-Age

Study	Country	Outcome
Agarwal	India	+ ability, arithmetic
Bogin	Guatemala	+ language
Clarke	Jamaica	+ achievement
Cravioto	Mexico	+ neurosensory integration
Florencio	Philippines	+ achievement, concentration
Freeman	Guatemala	+ language
Huda	Bangladesh	+ math score, learning
Jamison	China	+ achievement
Johnston	Guatemala	+ IQ
Moock & Leslie	Nepal	+ enrollment/ achievement
Sigman	Kenya	+ cognitive score (girls)
Wilson	Guatemala	+ achievement/verbal ability

Micronutrient status is very poor in the region



PDI of Bayley Scales in IDA and Non-Anemic Groups During Treatment



(Lozoff et al, 1995)

Table 1.

PERCEPTIONS AND RELATIVE PRIORITIES OF INTERVENTIONS

Problem	Presentation	Intervention
Vitamin A deficiency	Striking: blindness, increased child and maternal mortality risk	Easy in children: infrequent high dose capsules
Iodine deficiency	Striking: cretinism, dwarfs, goitre	Easy: iodized salt
Iron deficiency	Subtle: anemia, reduced cognitive development	Difficult: e.g. frequent supplementation
General malnutrition -- growth failure	Subtle: smaller children	Difficult: community-based programs
General malnutrition -- starvation in emergencies	Striking: emaciated and dying children and adults	Easy (in principle): emergency food aid and other assistance

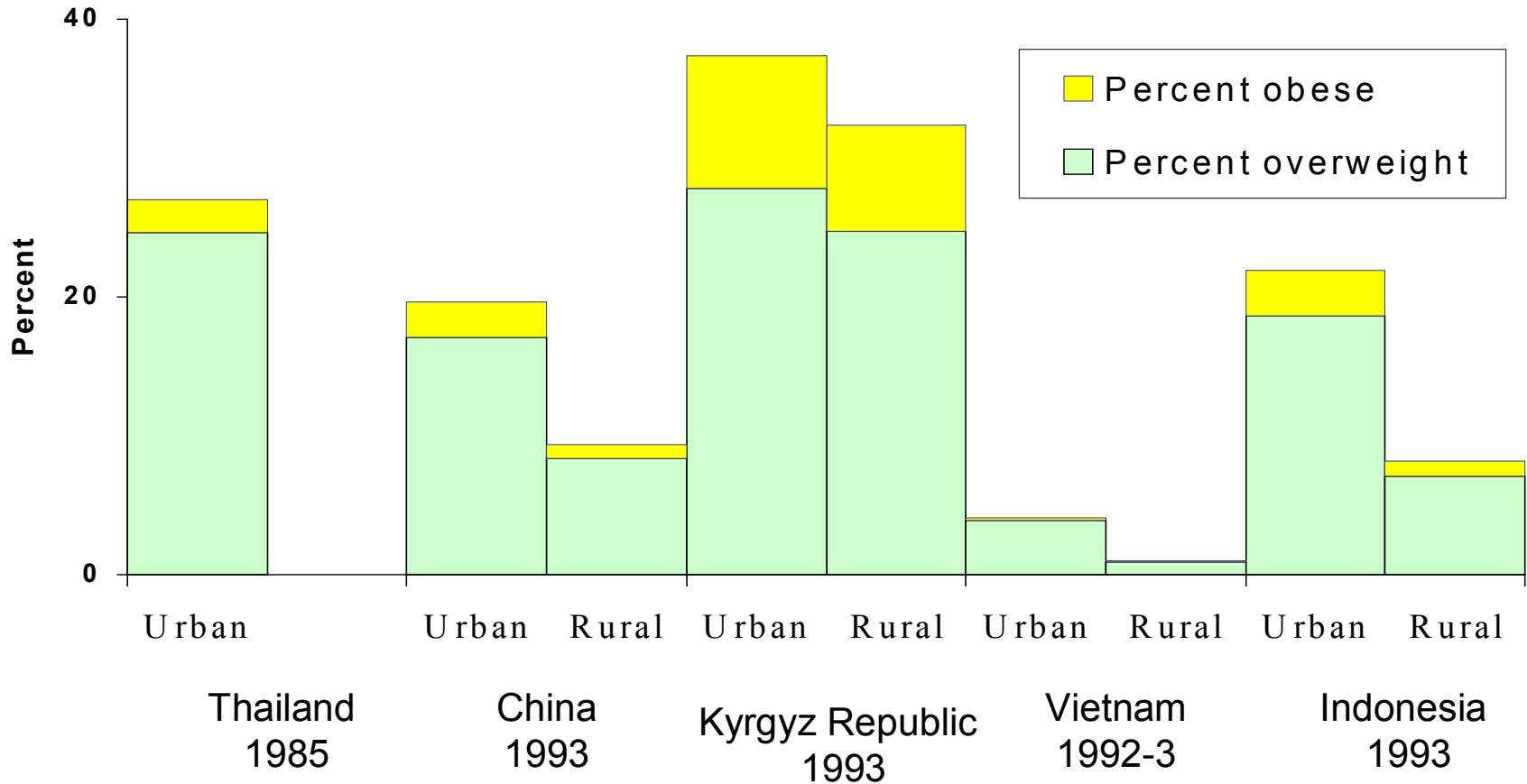
Source: JBM, Public Nutrition Policy, 1999.

Underlying Trends Leading to Increased Non-communicable Diseases

- Fetal and infant insults interacting with subsequent shifts toward positive energy balance
- Shifts in the structure of diet
- shifts in physical activity
- obesity trends
- morbidity and mortality shifts



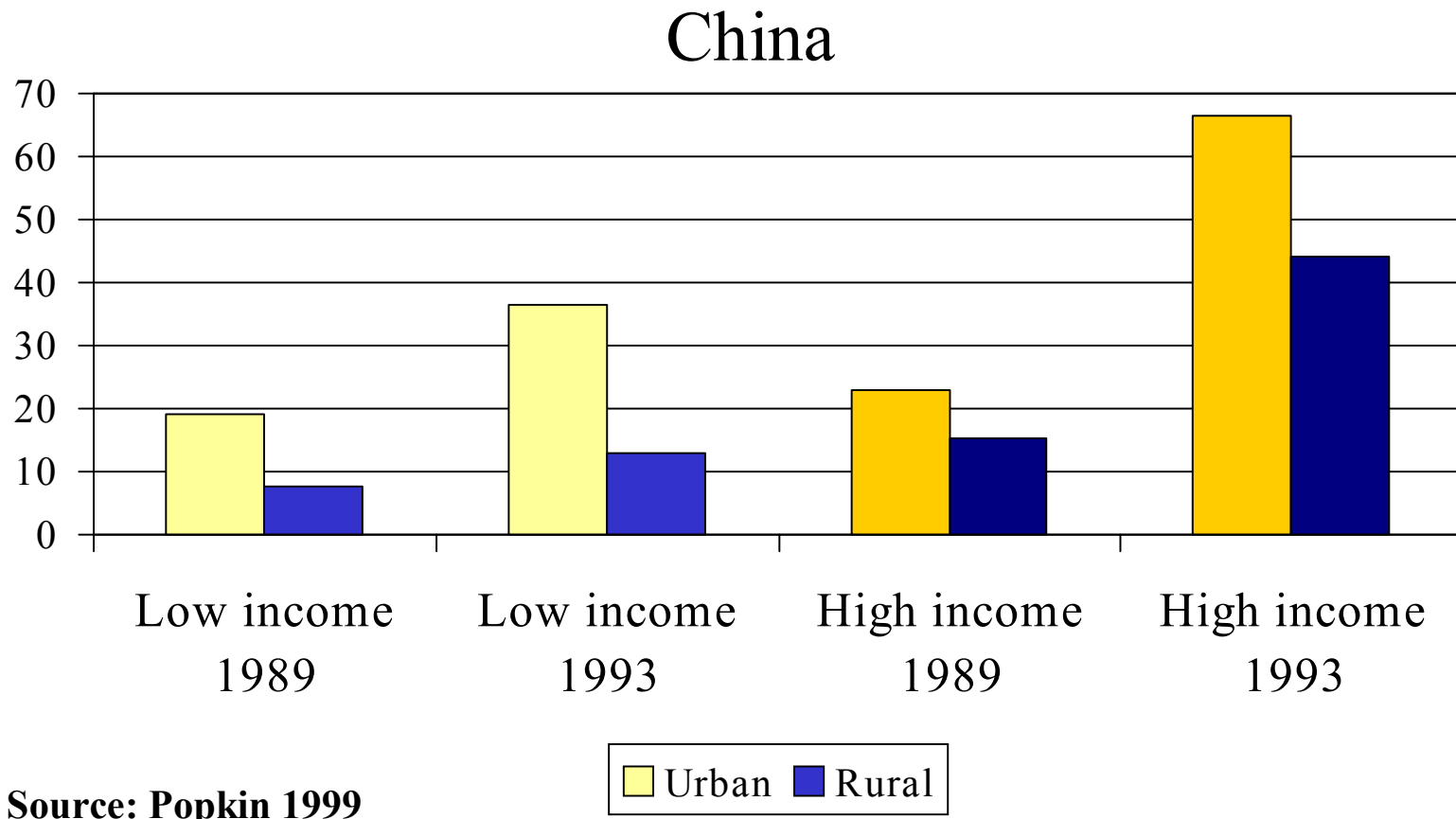
Obesity and overweight in Asian countries are significant



Source: Popkin and Doak 1998

Both poor and nonpoor are consuming increasing amounts of energy from fat

Trends in percent of population 20-45 years consuming more than 30% of energy from fat, by income group:



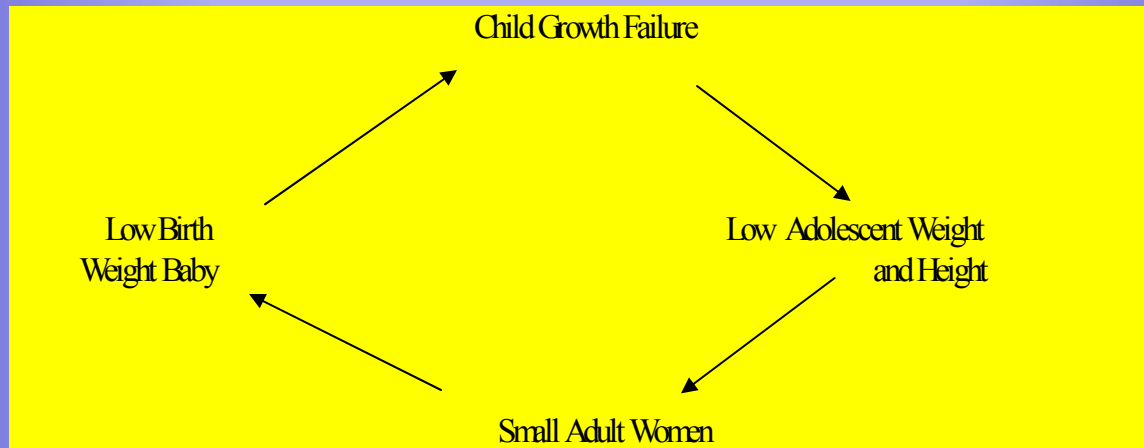
Source: Popkin 1999

China

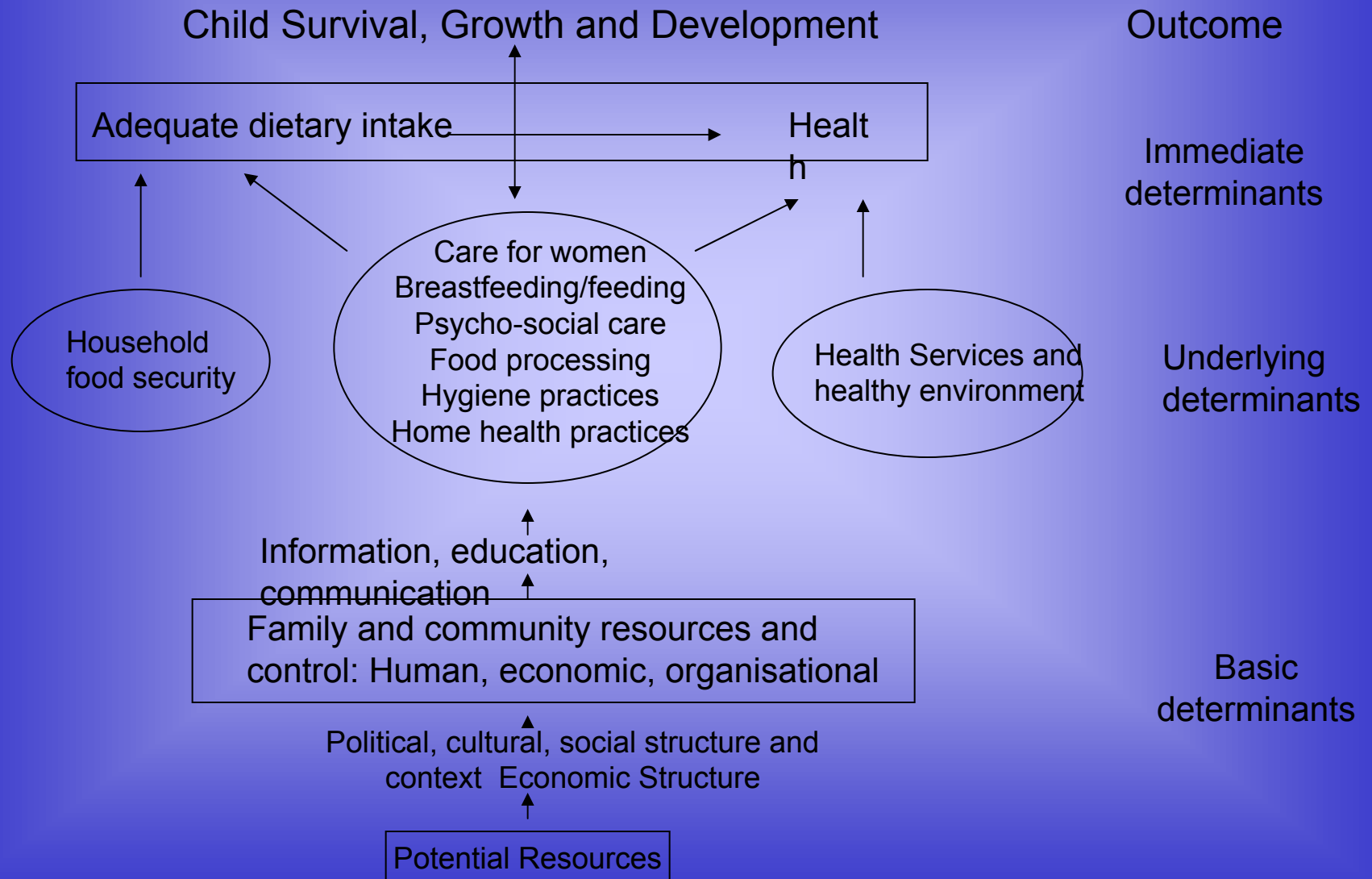
Nutrition Interventions for Obesity and Overweight

- School-based training for improving diet and activity levels (e.g. Singapore)
- Extension workers to teach traditional cooking methods (e.g. South Korea)
- Dietary Guidelines for nutritional well-being (e.g. China)
- Mass Media (e.g. campaign to reduce overweight in Brazil)
- Food Labeling
- Agricultural research to decrease the fat content of livestock products

The Inter-Generational Cycle of Malnutrition



Conceptual Framework of the Major Determinants of Nutrition



WOMEN'S EDUCATION AND EMPOWERMENT

**Conclusions of a Seven-Country Asian Review of
Women's Impact on Child Nutrition (ADB-UNICEF)
Equality in women's status relative to men has a
positive impact on children's survival, growth, and
development**

**The low status of women, particularly in South Asia,
inhibits the rapid improvement in children's profile**

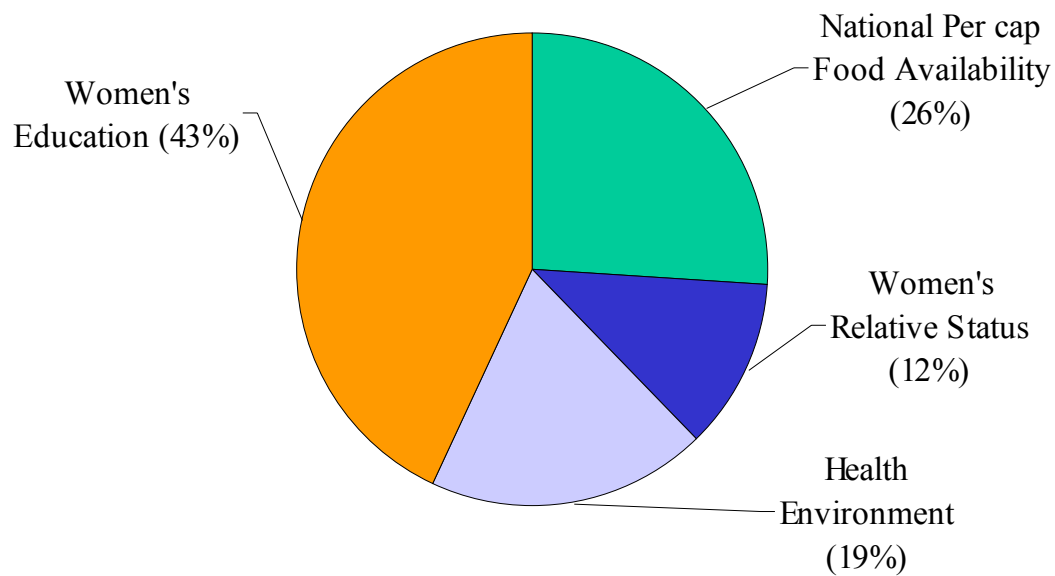
WOMEN'S EDUCATION AND EMPOWERMENT

Women's education, through formal and non-formal means is a major predictor for decline in total fertility rate, and infant and child mortality, and underweight incidence of under-fives.

Changing the legal environment to protect women's rights, including the right both to work and expect child care support, is essential.

Care for women is rights-based and an instrument for better child care.

Figure 4.1: Contributions of underlying determinants to reductions in child underweight, 63 developing countries: 1970-95



Source: Smith and Haddad 2000

CORE PACKAGE FOR MOTHERS AND YOUNG CHILDREN

The menu of options is well established, but must be adopted based on local situation analysis.

For young children, growth monitoring and promotion, promotion of exclusive breastfeeding for six months and appropriate complementary feeding practices (at about 6 months), disease management, appropriate nutritional management during and after illness, micronutrient supplementation, deworming, and possibly targeted food supplementation based on GMP.

For women, ante-natal and post-natal care for women including tetanus toxoid immunization, micronutrient supplementation, food supplementation during pregnancy, malaria chemoprophylaxis in endemic areas and reproductive health education.

Based on clinical trials ongoing, it is expected that integrated management of childhood illness (a WHO initiative) and multi-micronutrient supplement programs for pregnant and nursing mothers will be added to the core package around the world in the near future.

**What determines the
success of large-scale
community-based nutrition
programs?**

Community-govt partnership

GOVERNMENT

Convergent service delivery

Facilitator

Supervision/support

Program planning, design, implementation, M&E

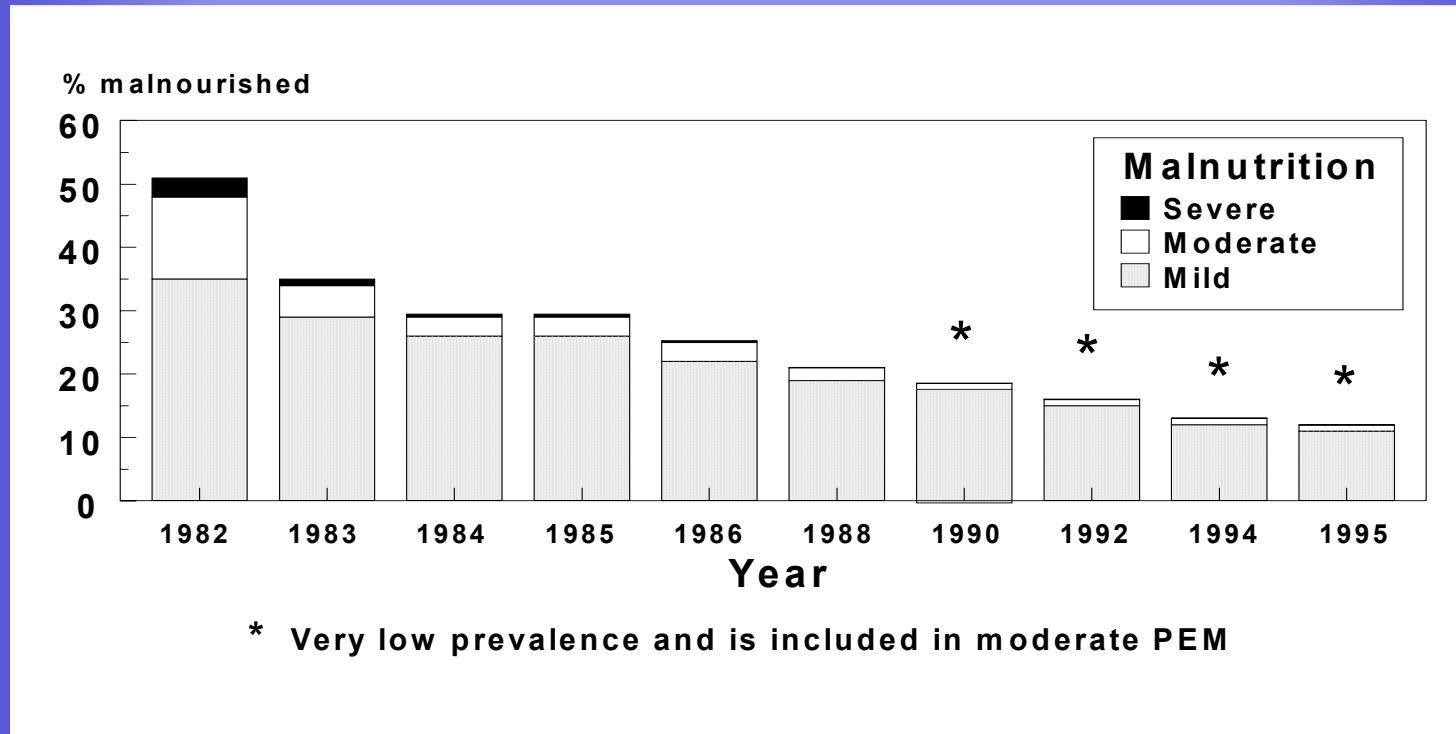
Mobilizer

Social mobilization

COMMUNITY

Setting goals, indicators, priorities

Trends in Preschool Child Malnutrition (weight for age) in Thailand



Source: ACC/SCN (1999)

THAILAND'S STUNNING SUCCESS STORY

1982: Half of preschoolers malnourished

1991: Only in five still malnourished, moderate and severe malnutrition virtually eliminated. Fastest rate of reduction in the world (3% per year)

Strategy

- Enfold PEM reduction in national poverty alleviation program, so local governments responsible for targets**
- Growth monitoring quarterly, to target at risk families with nutrition education and communication to encourage breast-feeding, timely introduction of complementary foods, correct hygiene and dietary practices.**

THAILAND'S STUNNING SUCCESS STORY

Strategy

- **Strengthen food security in very poor areas, selective school lunch program**
- **National iodized salt program**

Lessons

- **Integrate food and nutrition with poverty programs**
- **Link facilitators to mobilizers for family support of lagging children**
- **Sustained support of social infrastructure through “thick and thin” pays off**

ADB's Current Activities to Eliminate Child Malnutrition and Improve Educational Achievement

- 1 Philippines: Early Childhood Development Project
(1997 - 2003)
- 2 Regional Investment Plan for Fortification of Essential Staples
- 3 Rice Plant-Breeding to Reduce Anemia and Zinc Deficiency
- 4 Regional Salt and Flour Fortification in Central Asia and Caucasus

Health:
infant diarrhoea,
respiratory
infections,
malaria

Nutrition:
low birth weight,
iodine, iron, zinc deficits,
breastfeeding,
malnutrition,
hunger

**Child
Development**

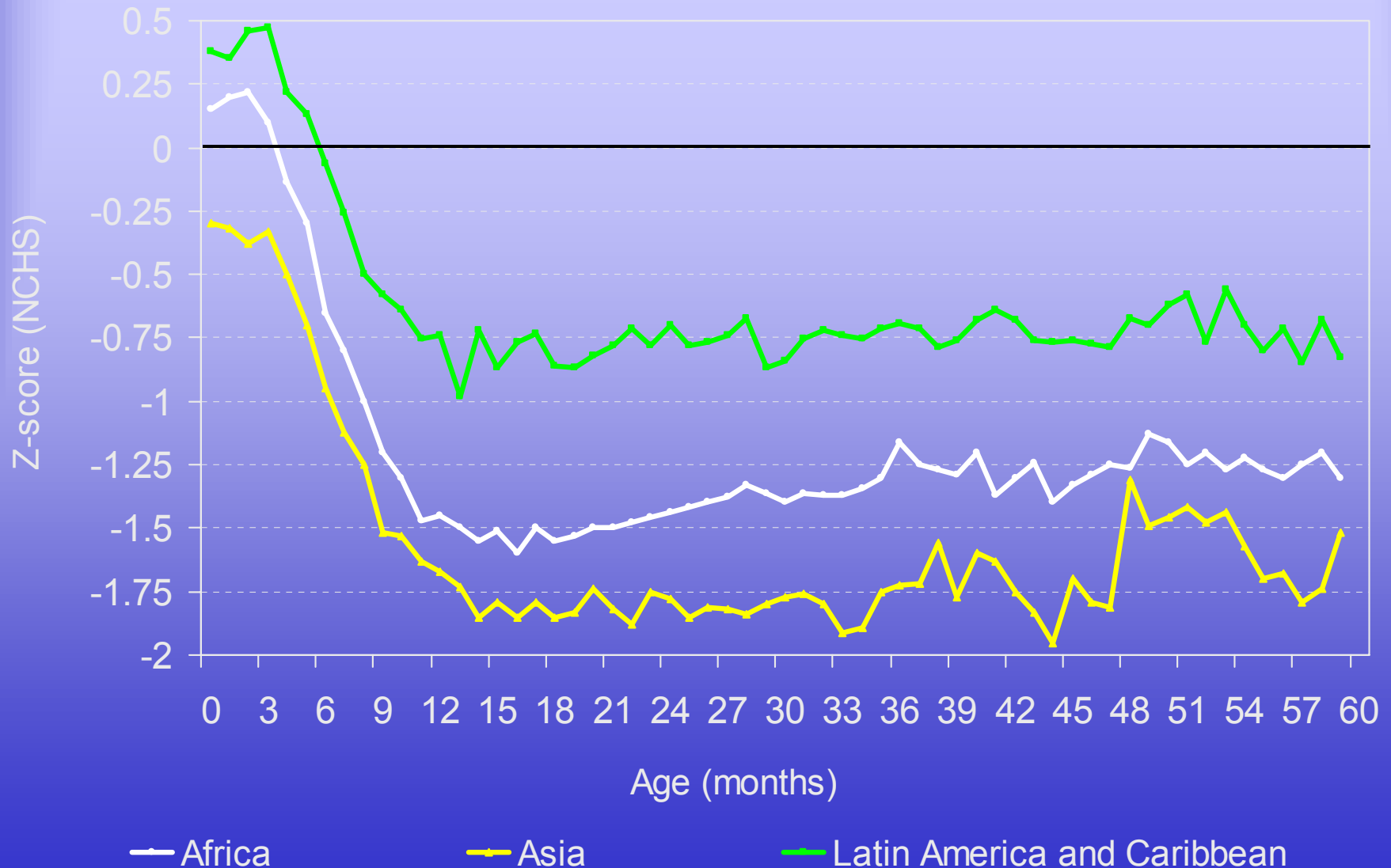
**Psychosocial
Environment:**
stimulation, stress,
discipline, care,
school



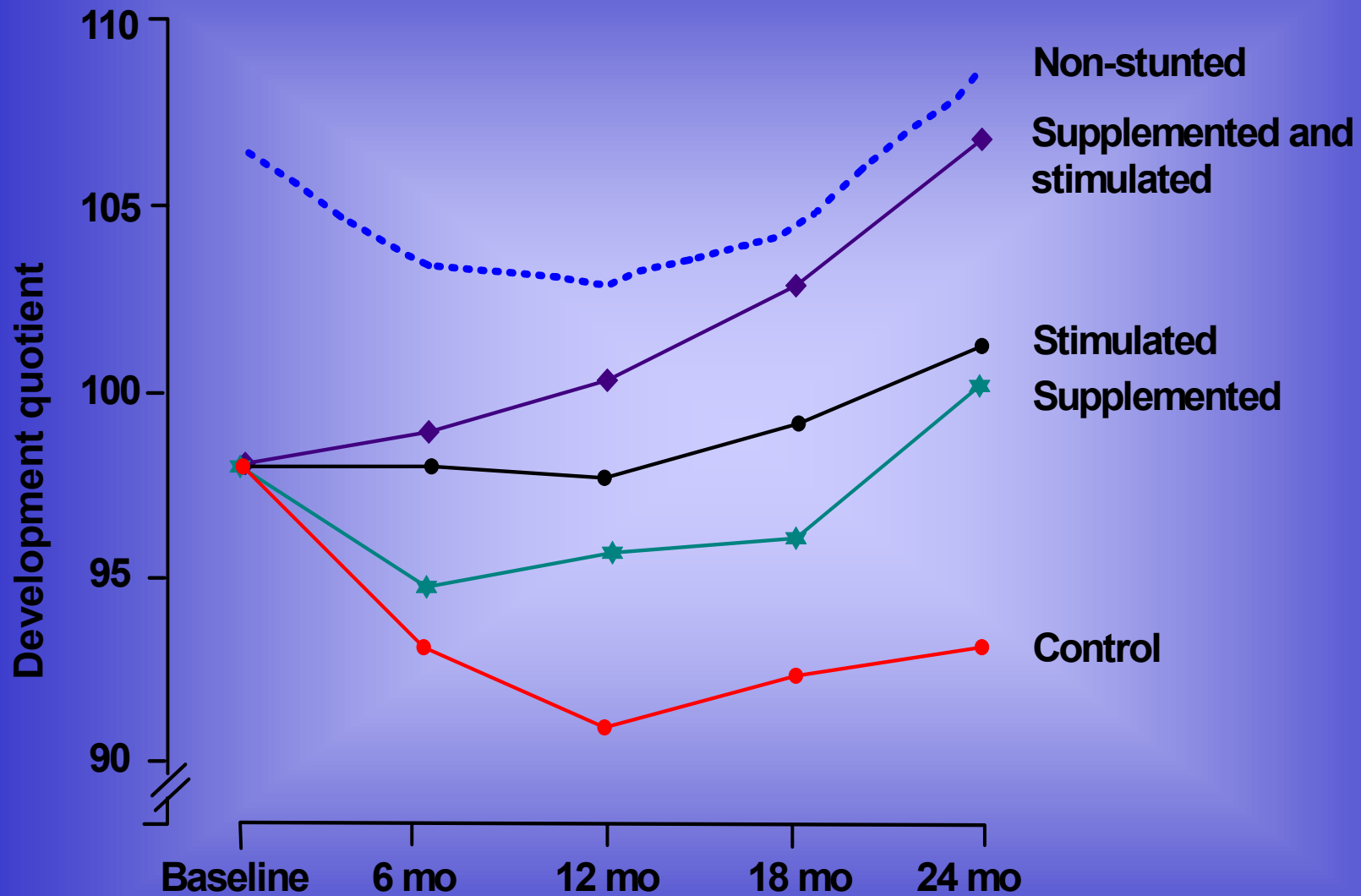
DESIGN PRINCIPLES

- Integrated Service Delivery
- Life Cycle Approach
 - Pregnancy & newborn care
 - Nutrition under twos
 - Psychomotor/brain development under threes
 - 4-6: PSD/cognitive development maintain H/N)
 - 7-8: enriched child readiness for School/School
- Readiness for kids
- National Support Systems for local capacity
- Local Support for Community/Family Environment
- R&D

Direct interventions need to have an effect very early in life



Development quotient of stunted children treated differently.



COUNTRY EXAMPLE: PHILIPPINES' EARLY CHILDHOOD DEVELOPMENT PROGRAM (1998 - 2007)

- Ten year investment program endorsed by the Cabinet of the Philippines.
- Integrated program addressing the health and nutrition needs of mothers and under-threes, early education for 4-5 year olds, and an ECD-enriched Curriculum for Grades I-II.

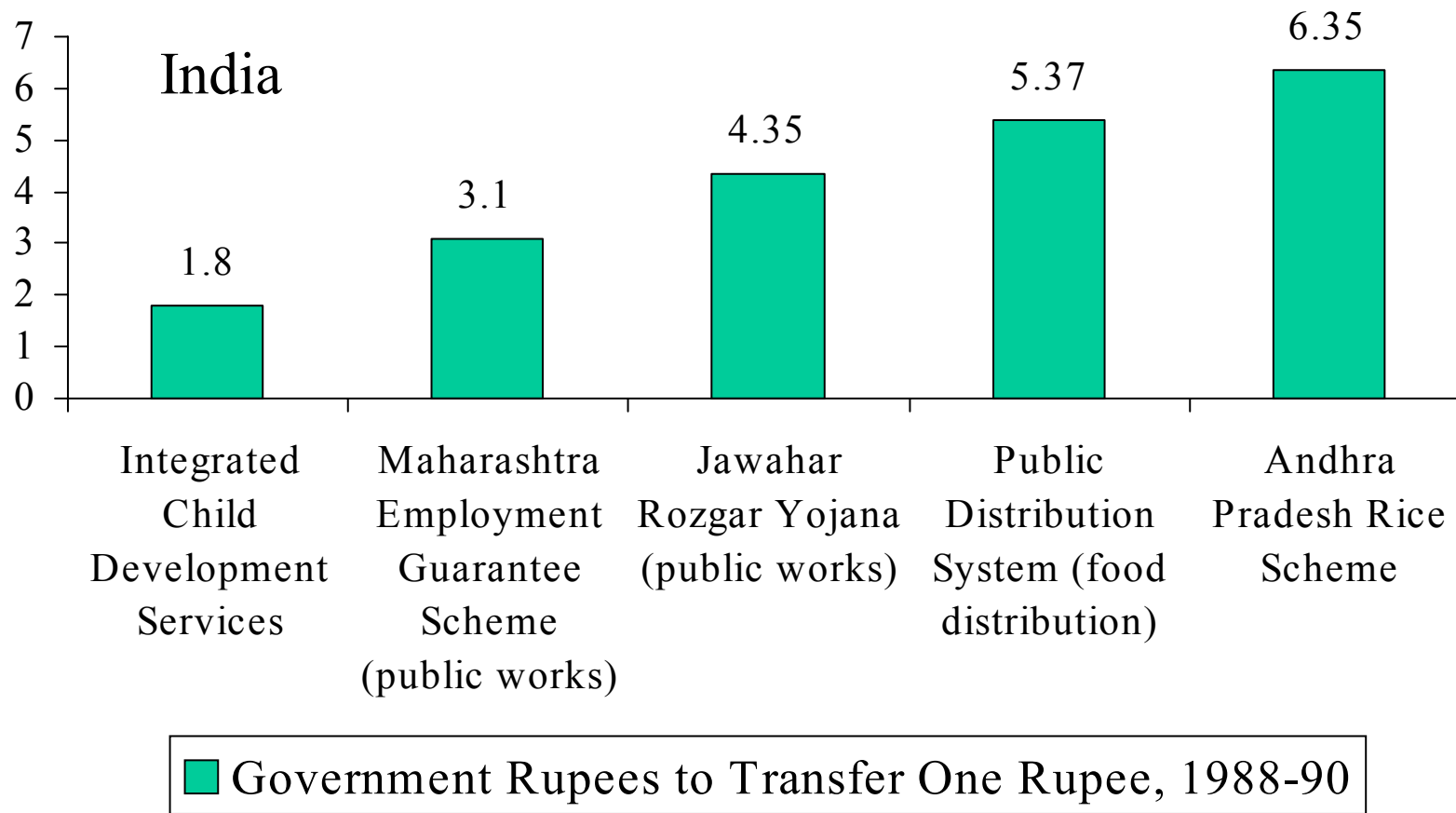
First Phase:

Targets 5 million pre-school children in 170 municipalities and chartered cities in Visayas and Mindanao (11% of local government units) - half the children at developmental risk, others to be helped in second phase.

Supporting or “indirect” actions

- Food Security: Increase the poverty and malnutrition focus of agriculture and agricultural research
- Care: Improve the status of women and girls
- Health and Sanitation Environment: Improve the delivery of effective sanitation and water infrastructure to the poor

Efficiency of resource delivery to poor varies by program



Source: Radhakrishna et al. 1997

ADB-ILSI-DANIDA

Regional Project on Food Fortification

Objectives:

- Accelerate production and consumption of micronutrient fortified foods
- Strengthen knowledge base about food technology, regulation, trade and population surveillance

- Raise awareness of fortified foods among the poor
- Link fortification policies with poverty reduction
- Develop Country Investment Plans to mobilize external resources
- Communicate Results through Website

Breeding for Iron-Rich Rice to
Reduce Anemia in Asia

2000-2003

ADB-IRRI-IFPRI

Breeding for Iron-Rich Rice to Reduce Anemia in Asia (2000-2003)

Implementing Partners:

- Asian Development Bank
- Micronutrient Initiative
- Danida
- USAID
- Waite Agricultural Research Institute (Australia)

Countries:

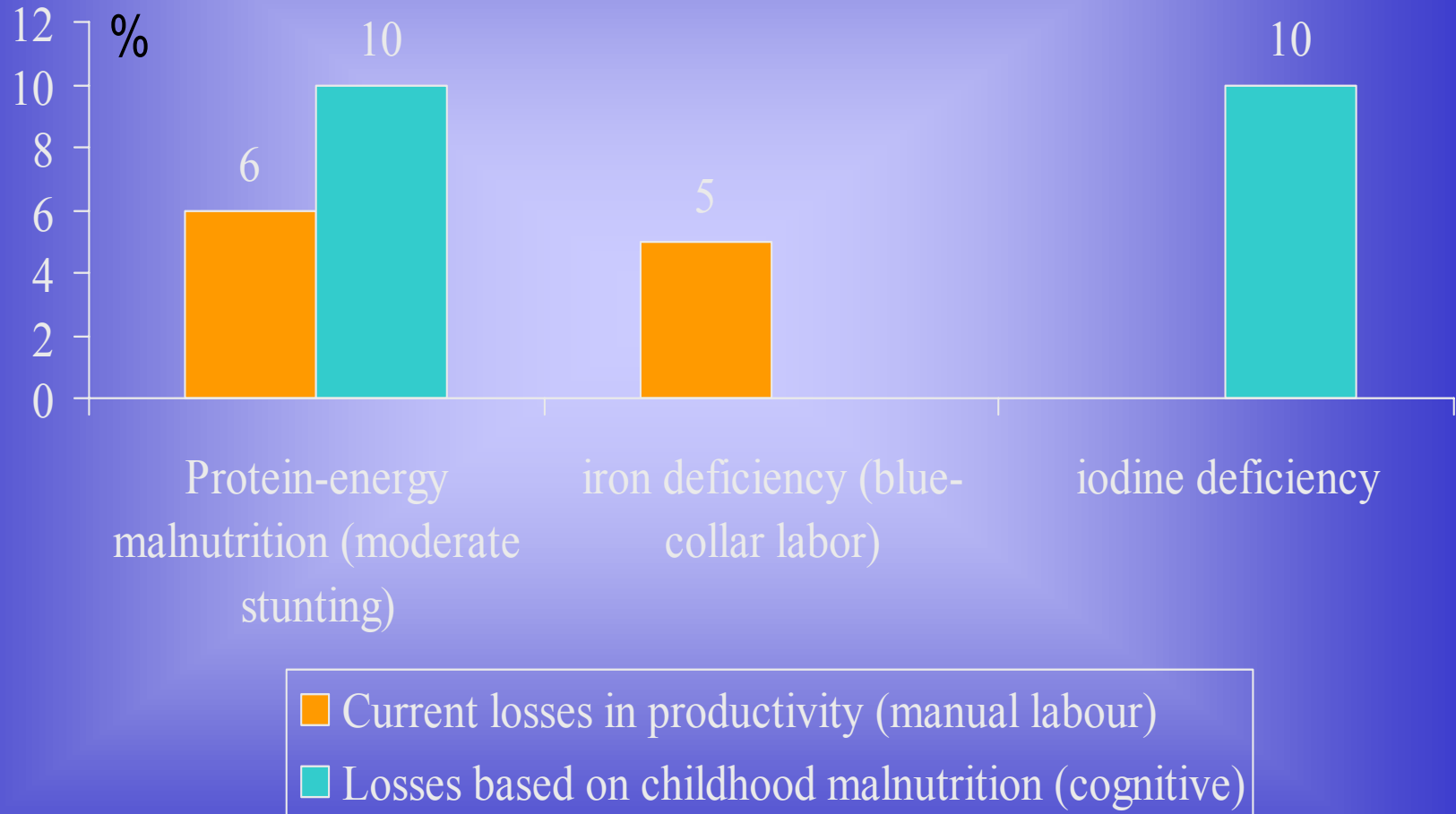
- Bangladesh
- Indonesia
- Philippines
- Viet Nam

Breeding for Iron-Rich Rice to Reduce Iron Deficiency Anemia in Asia (2000 - 2003)

Objectives

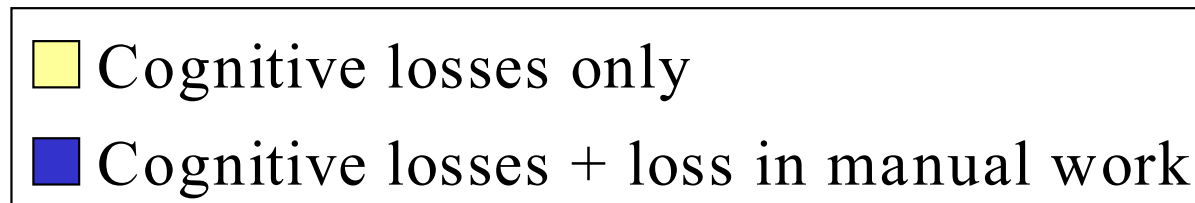
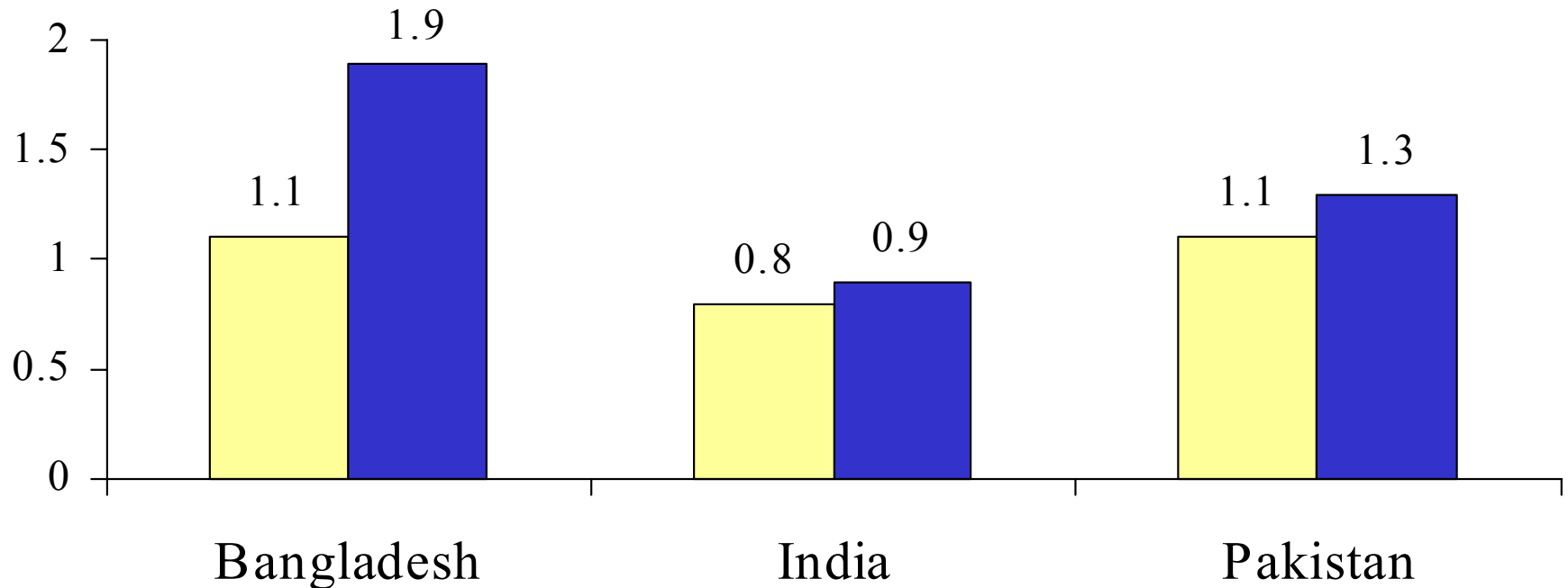
- carry out agronomic research and human nutrition efficacy trials to increase iron/zinc content of seed and iron/zinc bioavailability in rice diets;
- develop capacity in Asian agricultural research systems for adapting iron-dense varieties to local growing conditions for eventual dissemination to farmers
- support economic research for rice breeding: feasibility and cost effectiveness
- prepare a regional investment plan for seed distribution

The economic costs of undernutrition are high: productivity losses



Source: Horton 1999

Percentage loss in GDP due to iron deficiency



Source: Horton 1999

As are the economic costs of diet-related chronic disease

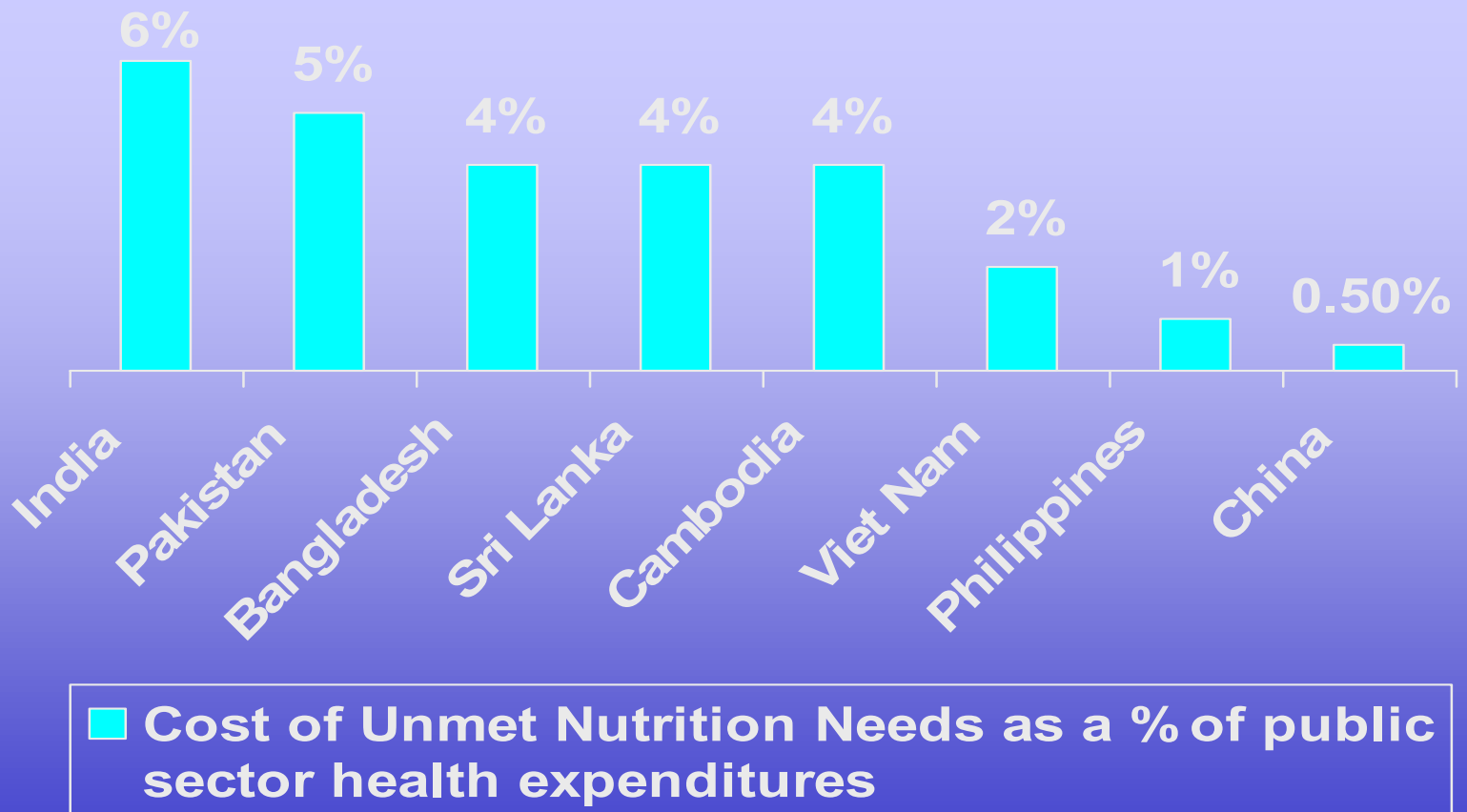
China's economic cost of diet-related chronic disease is 2.4 percent of GDP



Note: GDP loss likely to be much higher when taking into account morbidity

Popkin, Horton and Kim 2000)

Estimates of the cost of meeting undernutrition needs of preschoolers in the region via community based programs



Source: From Mason 1999