The University of Nottingham
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CROPS FOR THE FUTURE RESEARCH CENTRE

Session 2
Southeast Asian Region: Dietary Diversification
Chair: Prof Festo Massawe

GLOBAL FOOD SECURITY FORUM

'Meeting Nutritional Needs'

7 - 8 July, 2014

Putrajaya Marriott Hotel, Malaysia

CONTENTS

Nutrition Challenges and Priorities in South East Asia

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FAO, Thailand

Where are we at ?

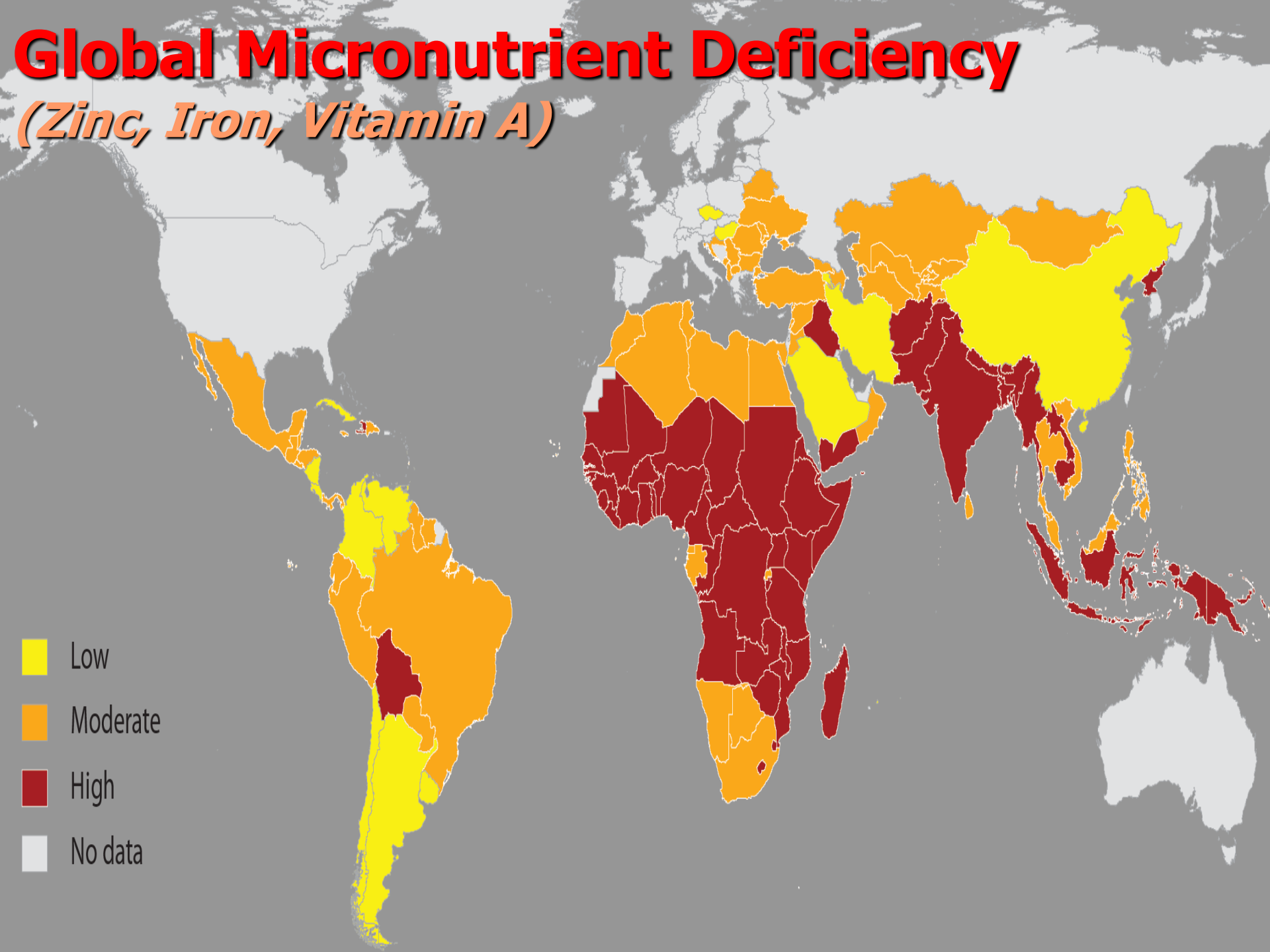
- 842 million people are undernourished and the vast majority (827 million) live in developing countries (FAO, IFAD and WFP. 2013. The state of food insecurity in the world 2013).
- 2 billion are deficient in essential vitamins and minerals. (FAO, IFAD and WFP. 2012. The state of food insecurity in the world 2012).
- 1 child in 4 under the age of five is stunted, 162 million under-five year olds were stunted in 2012 (UNICEF, WHO and The World Bank. 2013. Estimates for 2012).
- 1.4 billion are overweight (500 million obese) (WHO. 2013. Obesity and overweight fact sheet).

Economic growth has not resulted in alleviating hunger in the region

- Proportion of poor (living on less than US$ 1.25/day) in the total population dropped from 50% to 22% between 1990 and 2009 in Asia.
- Successes achieved in economic growth have not resulted in alleviating hunger.
  - They have resulted in inequitable distribution of benefit of economic growth.
- Widening inequity, income disparity and social inequality in both least developed and middle income countries

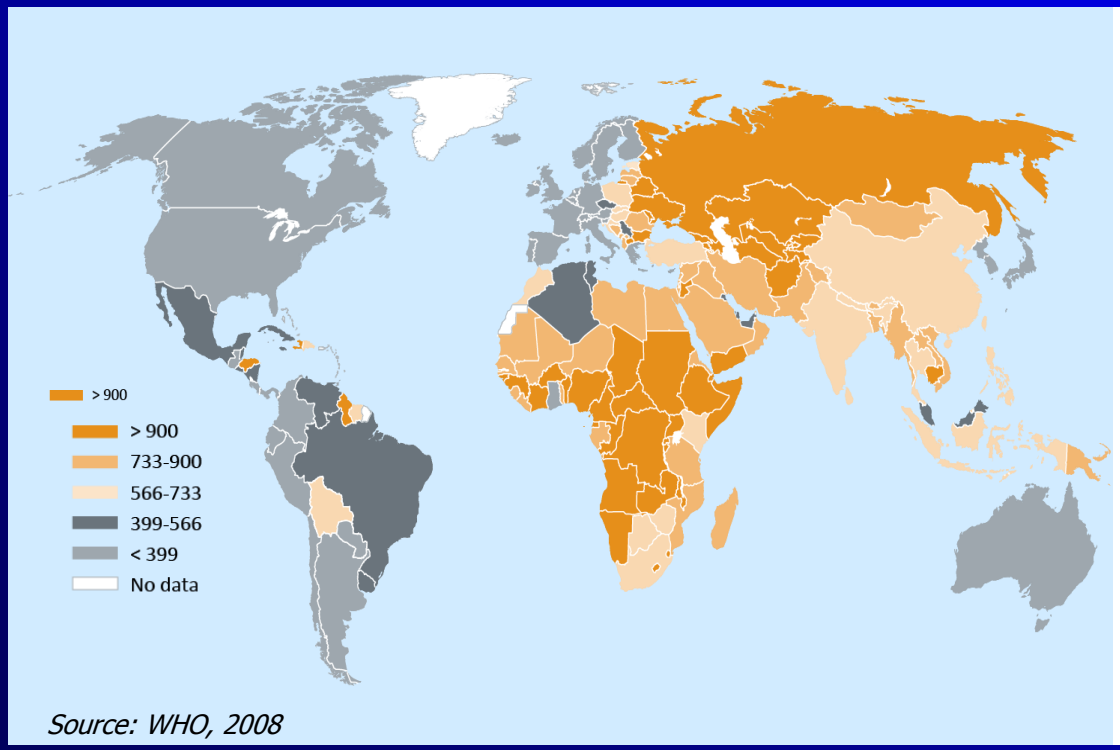
Global Micronutrient Deficiency

(Zinc, Iron, Vitamin A)



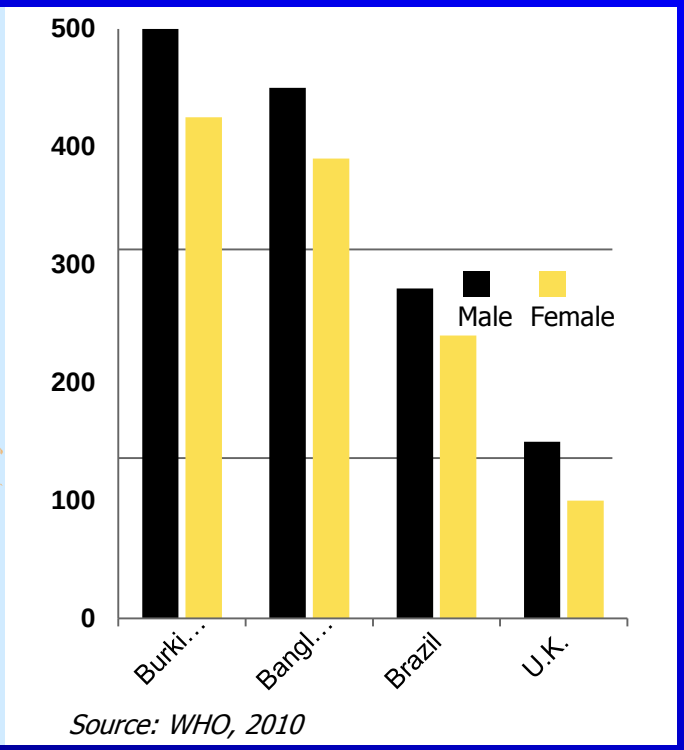
NCDs kill people at a younger age in developing countries

The highest increases in NCDs are expected in Africa, South-East Asia, and the Southern Mediterranean—an over 20 percent increase expected by 2020.



Source: WHO, 2008

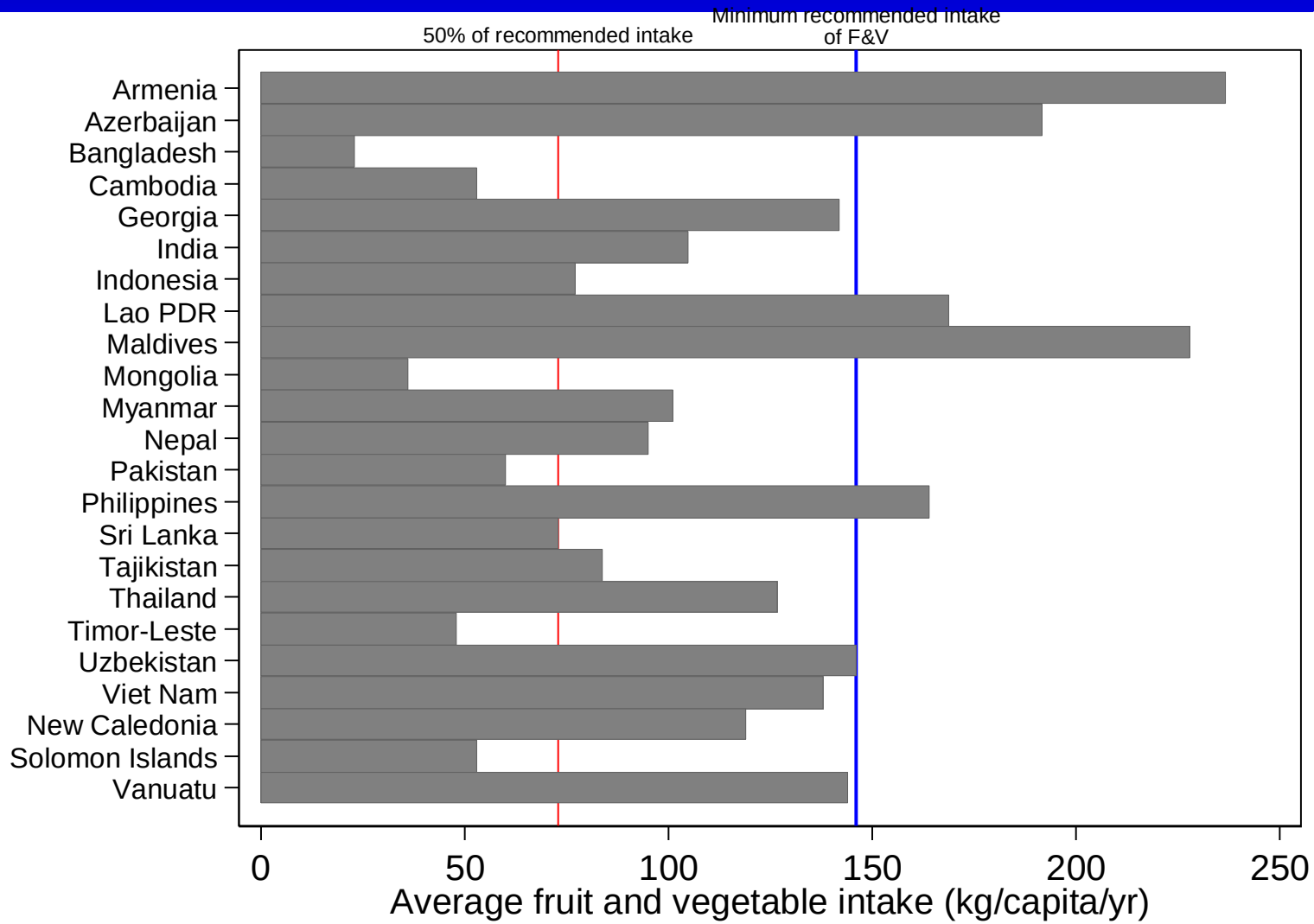
Age-standardized deaths per 100,000 from cardiovascular disease



Source: WHO, 2010

Age-standardized deaths per 100,000 from cardiovascular disease and diabetes

Diets of the poor in ASEAN+ and elsewhere are monotonous and imbalanced



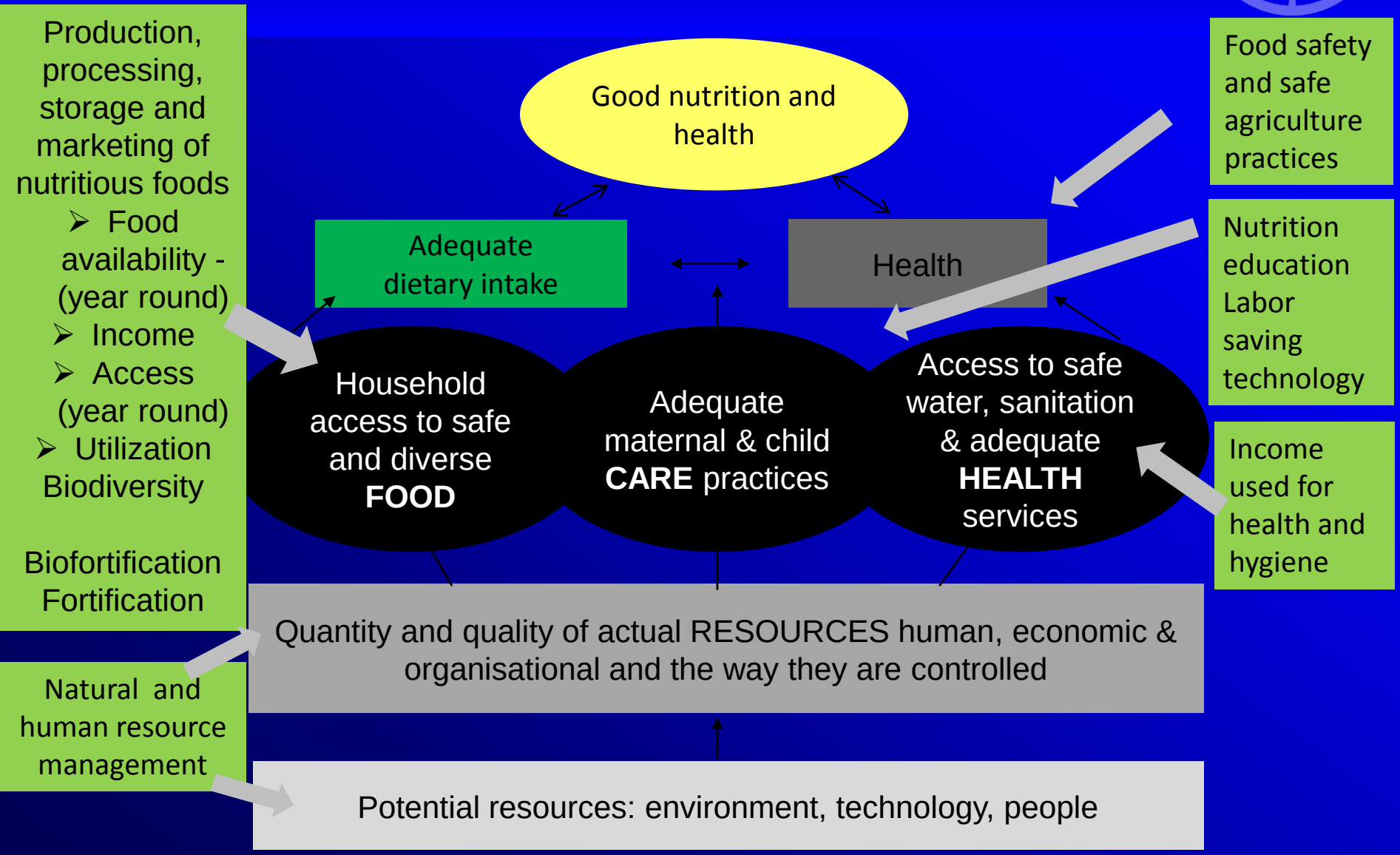
Note: Countries, listed in alphabetical order, have rates of undernourishment above 10 percent, or child underweight rates above 20 percent, or both.

Source: WHO (2003), ESCAP (2009) and FAOSTAT (Accessed June 22, 2009)

Narrowing the "nutrition gap"- the gap between what food are available and what foods are needed for a healthy diet

- Poor diets low in quantity, quality and variety lead to hunger and malnutrition
- Diversity production of foods (not only staples, also vegetable and fruits, small livestock, fisheries)
- Ensure local availability and access of the right mix of foods (dietary diversity) in all seasons
- Promote local underutilized crops that are more nutritious but also have high value
- Nutrition education

How can agriculture contribute?



Key Recommendations for Improving Nutrition through Agriculture Programmes

1. Incorporate explicit nutrition objectives and indicators into their design, and track and mitigate potential harms.

2. Assess the context at the local level, to design appropriate activities to address the types and causes of malnutrition.

3. Target the vulnerable and improve equity through participation, access to resources and decent employment.

4. Collaborate with other sectors (health, environment, social protection, labor, water and sanitation, education, energy) and programmes.

5. Maintain or improve the natural resource base. Manage water resources in particular to reduce vector-borne illness and to ensure sustainable, safe household water sources.

6. Empower women.

7. Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock.

8. Improve processing, storage and preservation to retain nutritional value and food safety, to reduce seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare.

9. Expand market access for vulnerable groups, particularly for marketing nutritious foods.

10. Incorporate nutrition promotion and education that builds on existing local knowledge, attitudes and practices.

Food and agriculture policies can have a greater impact on nutrition if they...

1. **Increase incentives (and decrease disincentives) for sustainable production, distribution, and consumption of diverse, nutritious and safe foods.**
   - Focus on horticulture, legumes, and small-scale livestock and fish – foods which are relatively unavailable and expensive, but nutrient-rich.
2. **Monitor dietary consumption and access to diverse, nutritious, and safe foods.**
   - Food prices of diverse foods, dietary consumption indicators
3. **Build capacity in human resources and institutions** to improve nutrition through the food and agriculture sector, supported with adequate financing.
4. **Support multi-sectoral strategies to improve nutrition** within national, regional, and local government structures.
5. **Include measures that protect and empower the poor and women.**
   - Safety nets, Land tenure rights; Equitable access to productive resources

Challenges for sustainable food production and consumption for resilient food systems

- Food Production is expected to increase 60% by 2050
- Agriculture is highly resource intensive:
  - ✓ Uses 70% of the water withdrawals
  - ✓ Cropping systems use 30% of the world's energy
  - ✓ Accounts for 30% of GHG emissions
  - ✓ Negative impacts on water, soil, air, wildlife and ecosystem biodiversity and human health

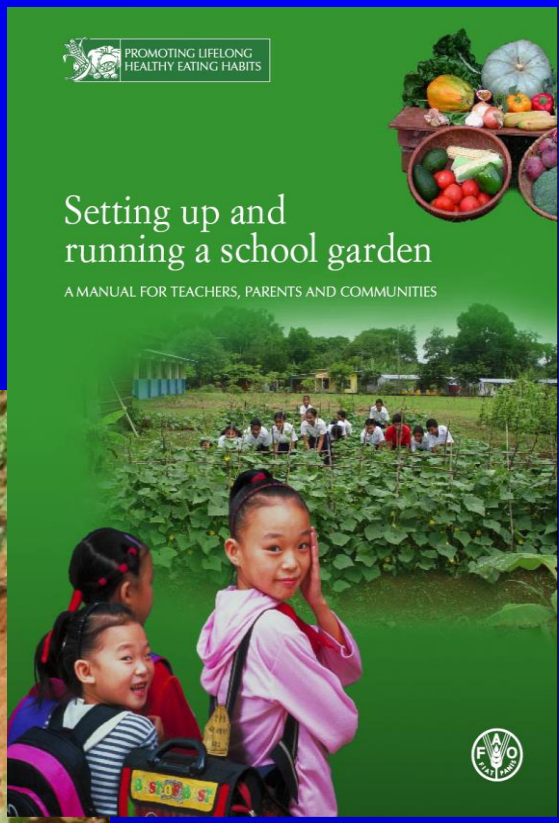
- Global food losses and waste amount to 1.3 billion tonnes per year (~ 1/3 of food production)
- Improving agricultural practices is an essential component of the transition to a more sustainable future

Impact of climate change on local food production: Plant breeding to ensure food and nutrition security

Wild Relative

Not relying on imports: Grow your own
Food and Dietary Diversification through Home and School Gardens

- A regular supply of fresh vegetables through community and school gardens
- Promote healthy and sustainable dietary habits and improve children's nutrition
- Improve quality of school meals
- Increase children's vegetable consumption
- Increase children's nutrition knowledge and appreciate the environment



Identification of What Could be Feasible - Seasonal Food Availability Calendars

- Types of foods produced or collected from nature
- To make better choice
- Seasons when the foods are available
- Implication of the food availability-access calendar on ability to have balanced family meals

Coping with urbanization and increased urban poverty

Vegetables can be grown in small areas but can earn big money

Ensuring Food and Nutrition Security

- Utilize food and agriculture system to encourage healthy choices, healthy diets
- Incorporating agricultural biodiversity into food and nutritional approaches;
- Ensuring the production of more nutritious foods through commercial pathways that reflect agricultural biodiversity practices and cultural preferences;
- Determining what agricultural biodiversity practices and delivery systems work on the ground in development programmes to improve nutritional security;
- Mainstreaming the role of agricultural biodiversity into public health and nutrition policy and practice;
- Promoting high value traditional and or underutilized crops (Wild foods, Lesser known grains, Crop wild relatives, Forest foods and etc.)
- Investing in research to enhance more resilient food systems for better nutrition
- Supporting public-private sector collaboration


Thank you

Mapping the issues facing Southeast Asia: Nutrition in transition and challenges

Pattanee Winichagoon, PhD

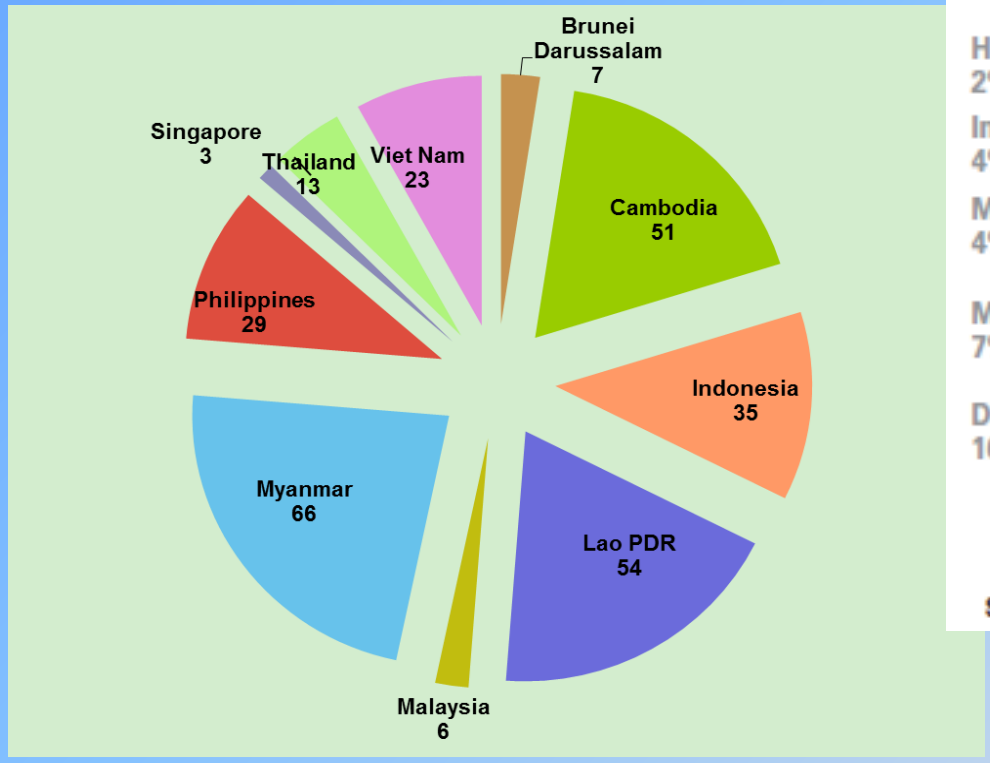
Institute of Nutrition, Mahidol University (INMU), Thailand

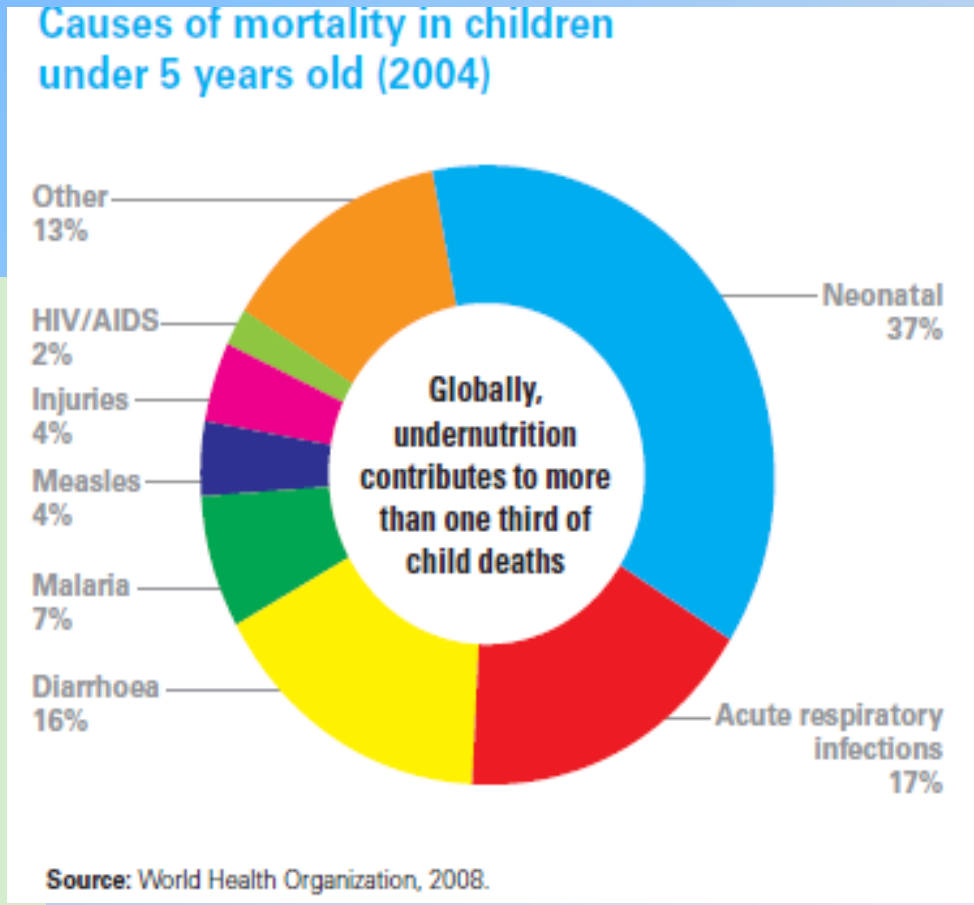
Presented at the Global Food Security Forum, Kuala Lumpur, July 7-8, 2014

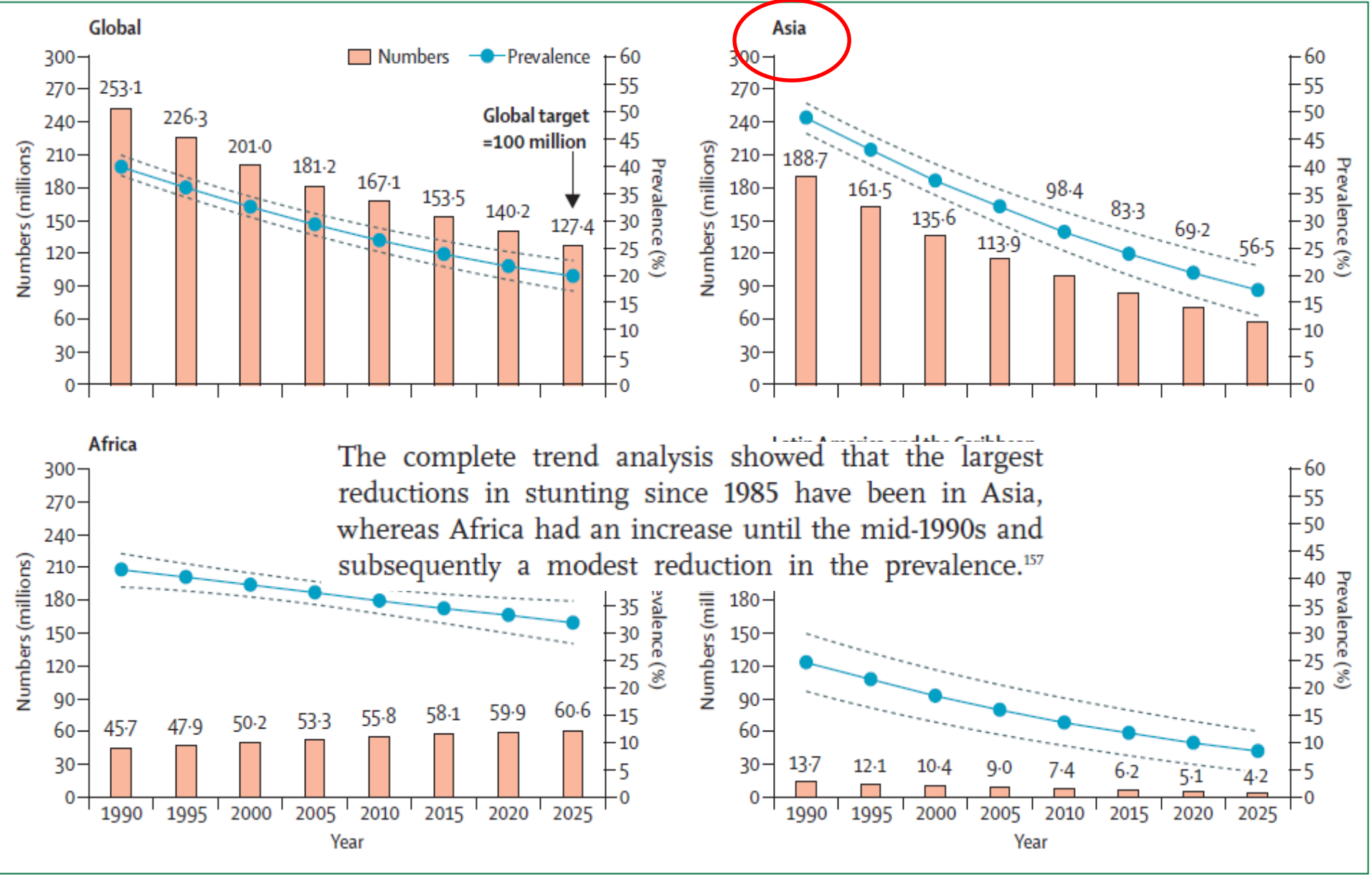
Issues to discuss

- Trends in nutritional situation of young children and women
- Unfinished agenda: Micronutrient situation in children and women & emerging problems
- Infant and young child feeding in development transition
- Nutrition, development and epidemiological transition in SEA
- Coexistence of under- and over-nutrition: Double burden of MN

Under five mortality rate 2010 (per 1,000 live births) in Southeast Asia







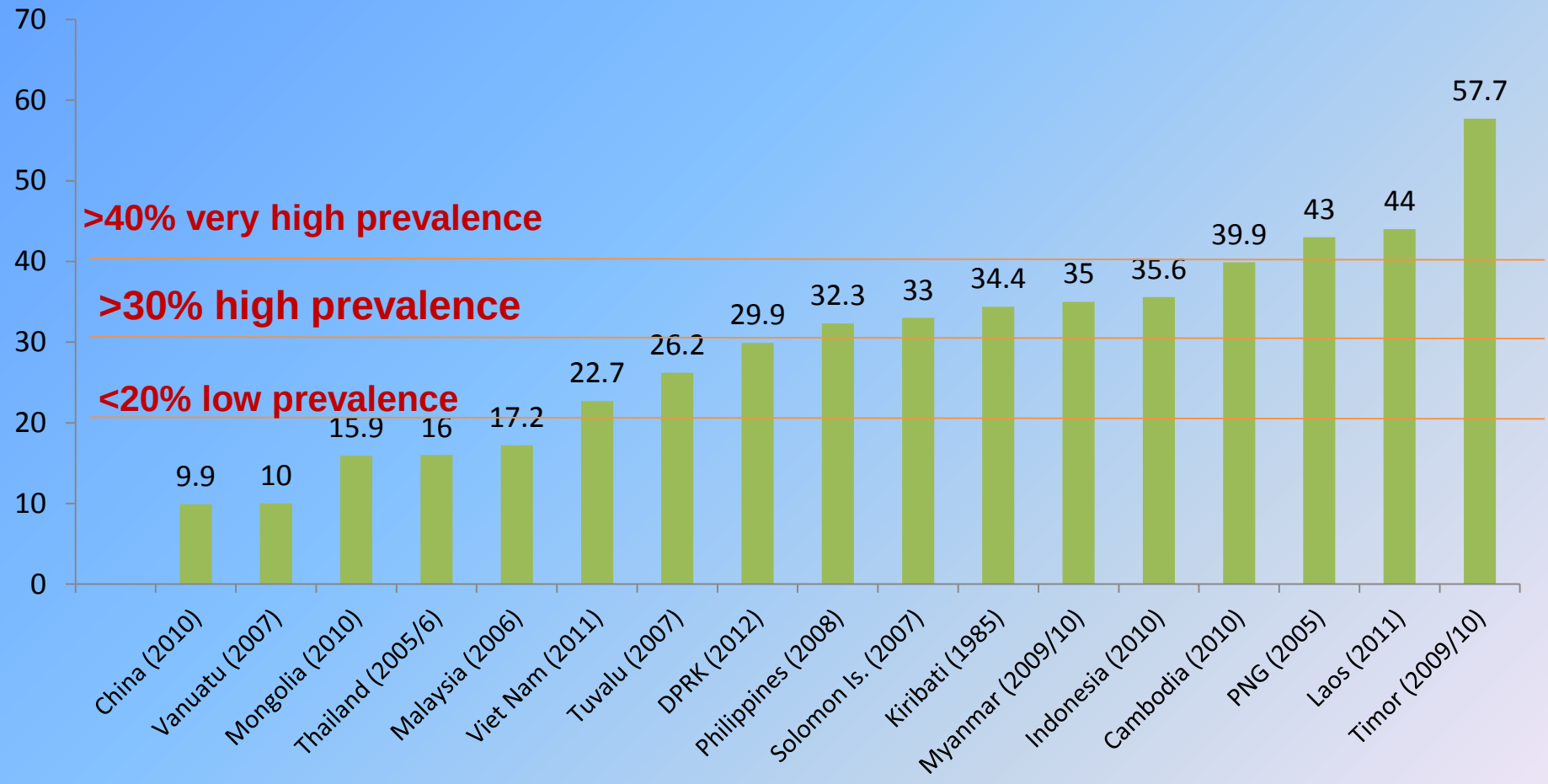
The complete trend analysis showed that the largest reductions in stunting since 1985 have been in Asia, whereas Africa had an increase until the mid-1990s and subsequently a modest reduction in the prevalence.[157]

Figure 4: Trends in prevalence and numbers of children with stunted growth (HAZ <–2), by selected UN regions and globally, 1990–2010, and projected to 2025 on the basis of UN prevalence estimates

HAZ=height-for-age Z score. Data from UNICEF, WHO, World Bank.[154]

Source: Lancet series on nutrition, 2013

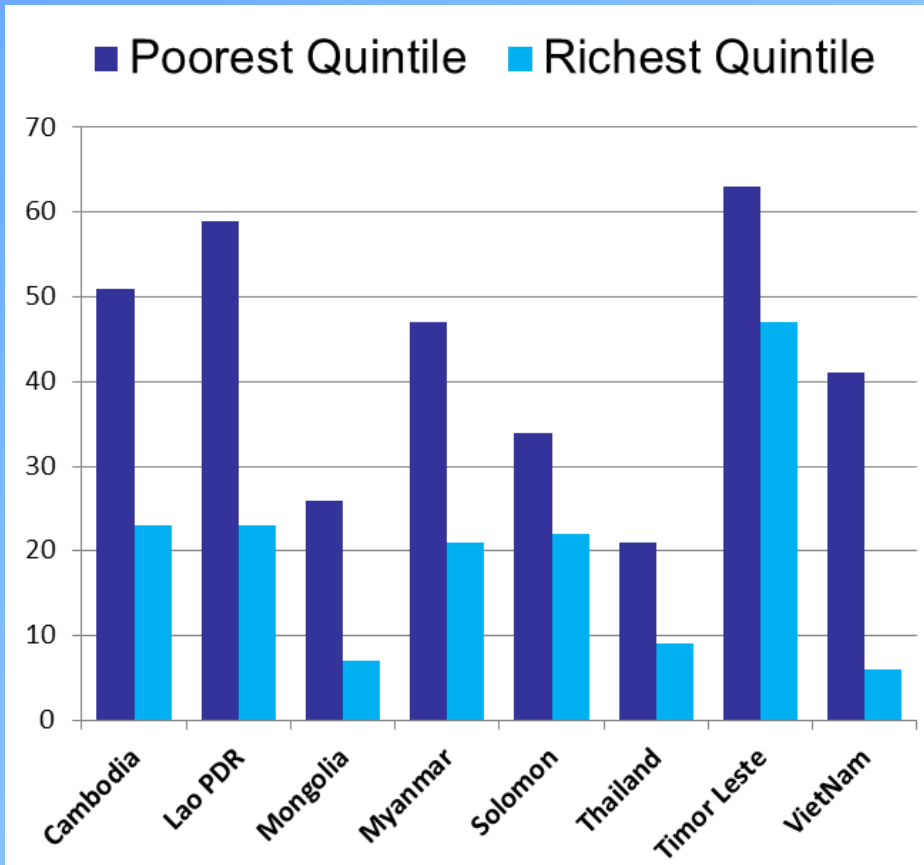
Stunting prevalence in children underfive UNICEF/EAPR



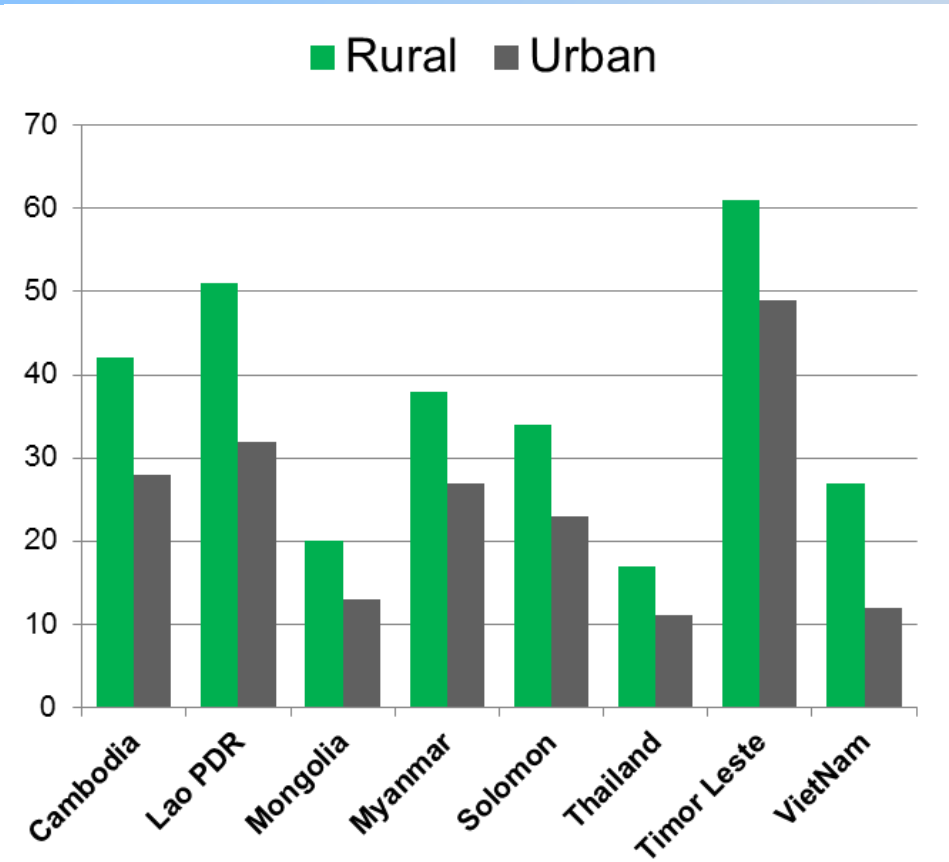
Source: UNICEF-WHO, Joint Global Malnutrition Analysis Data Set, 2011

Large Disparities in the prevalence of stunting among underfive children by wealth and residence in SEA

Stunting prevalence (%) among U5 children by Wealth Quintile

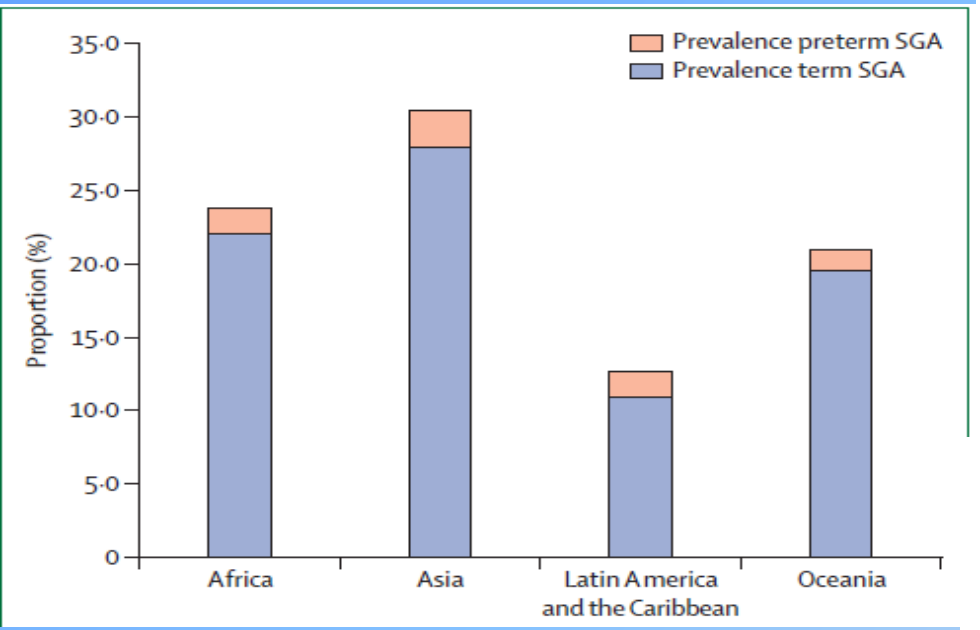


Stunting prevalence (%) among U5 children by Urban/Rural Area



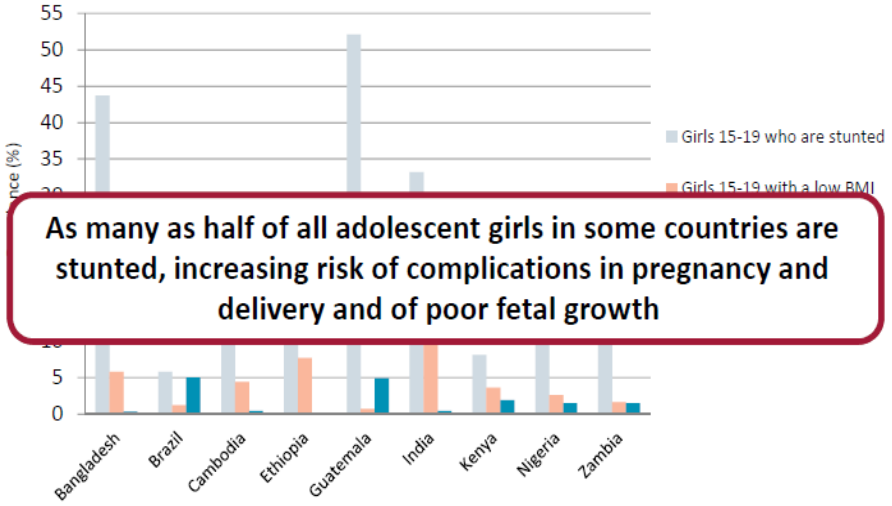
Source: MICS and DHS, 2005-2010

Small-for-gestational age (SGA)



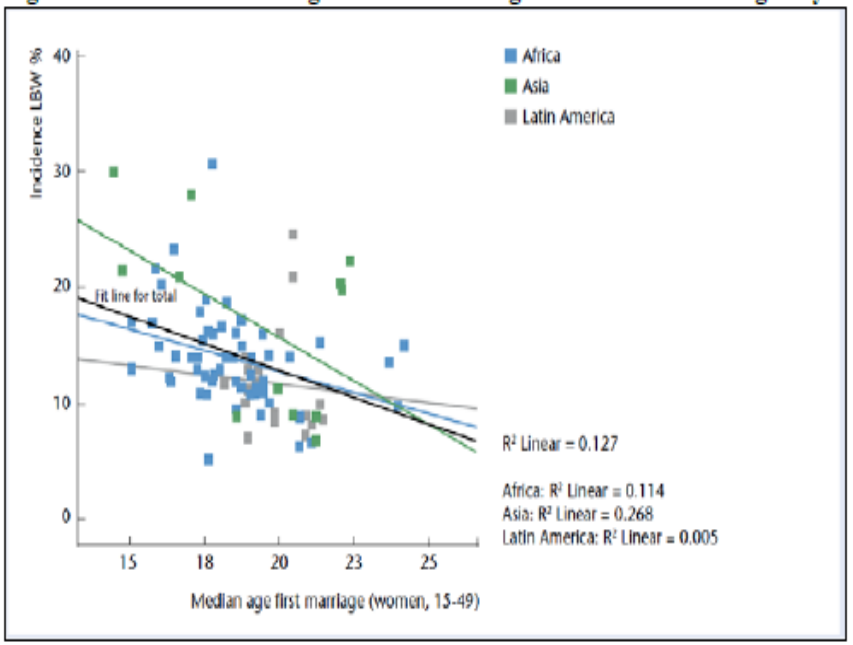
- Risk of neonatal mortality among SGA >> AGA;
- 1/5 stunted child was SGA
- SGA reflects maternal undernutrition

Adolescent Nutrition: Important for Girls, and for the Future Generation



As many as half of all adolescent girls in some countries are stunted, increasing risk of complications in pregnancy and delivery and of poor fetal growth

Figure 14. Scatter Plot of Age at First Marriage and Low Birth Weight by Region



Source: UNSCN 2010.

Issues on Infant & Young Child Feeding (IYCF)

- Declining BF, esp EBF upto 6 mo is not achievable in countries in development transition:
  - insufficient milk production – maternal MN
  - Working mothers – not EBF or BF for short duration
  - Cultural Beliefs – giving water or prelacteal feeds
- Time allocation patterns in the family, esp. women with young children
- Changing Infant and young child feeding
  - Use of infant formula & Commercial complementary foods: cost, inappropriate/unhygienic preparation
- Inappropriate complementary feeding (CF)
  - Timing – too early or too late
  - Quality/quantity of CF – nutrient density

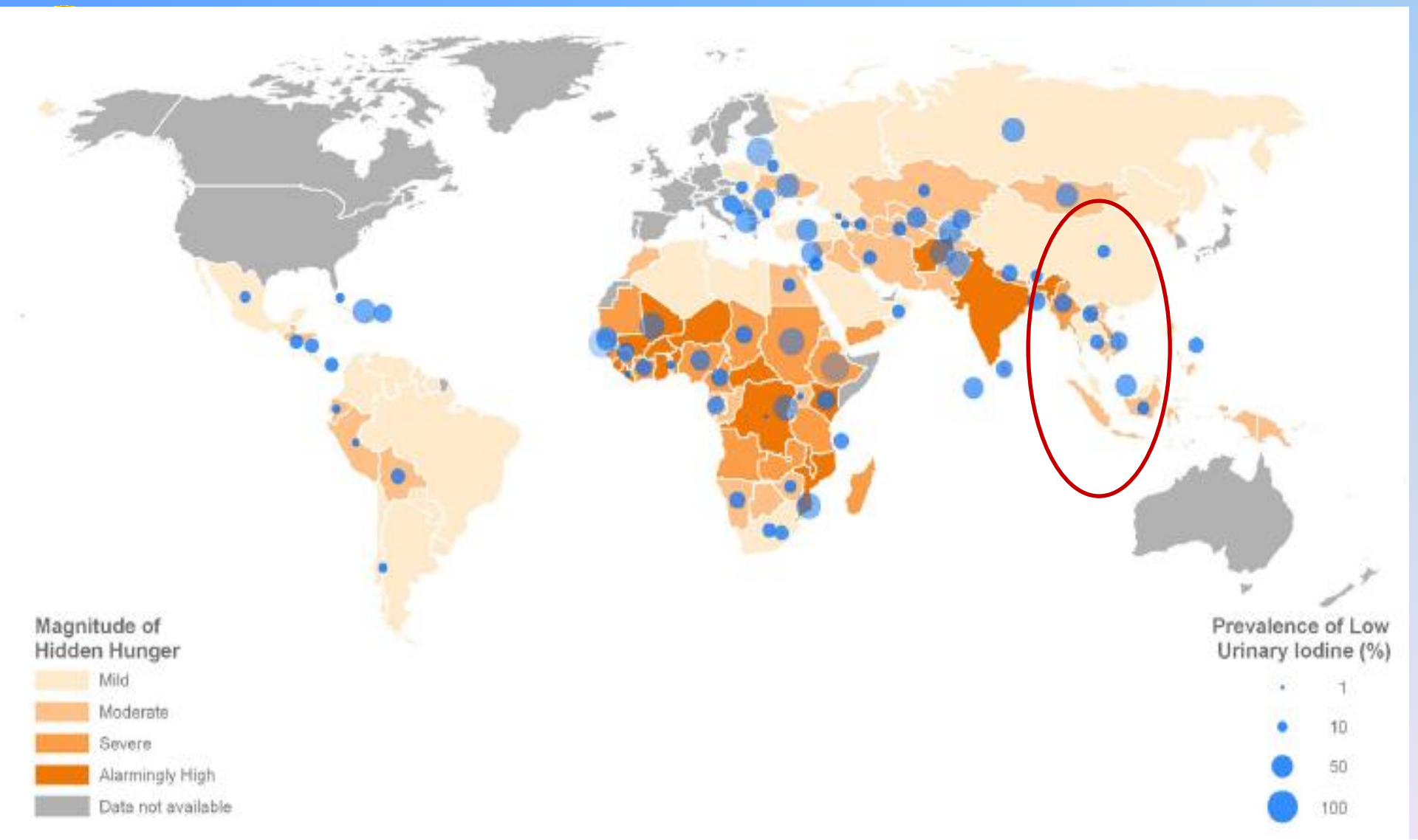


Figure 2. Global map presenting hidden hunger index based on the prevalence estimates (HHI-PD) in 149 countries and prevalence of low urinary iodine concentration in 90 countries with 2007 Human Development Index <0.9. The hidden hunger index HHI-PD was estimated based on national estimates of the prevalence of stunting, anemia due to iron deficiency, and low serum retinol concentration.

Muthayya, et al, Plos One 2013; 8(6): e67860. doi:10.1371/journal.pone.006780

Issues related to micronutrient deficiencies

- Iron, vitamin A and Iodine deficiencies remain PH problems in SEA, but severity declined to mild-moderate deficiency
- Multiple deficiencies in the same individual children/ women and population level
- Interventions:
    - Supplementation - Food fortification
    - Biofortification
    - Food–based (production, postharvest/cooking losses, consumption, bioavailability, impact)
- Food-based strategy: feasible and effective as a large scale program?

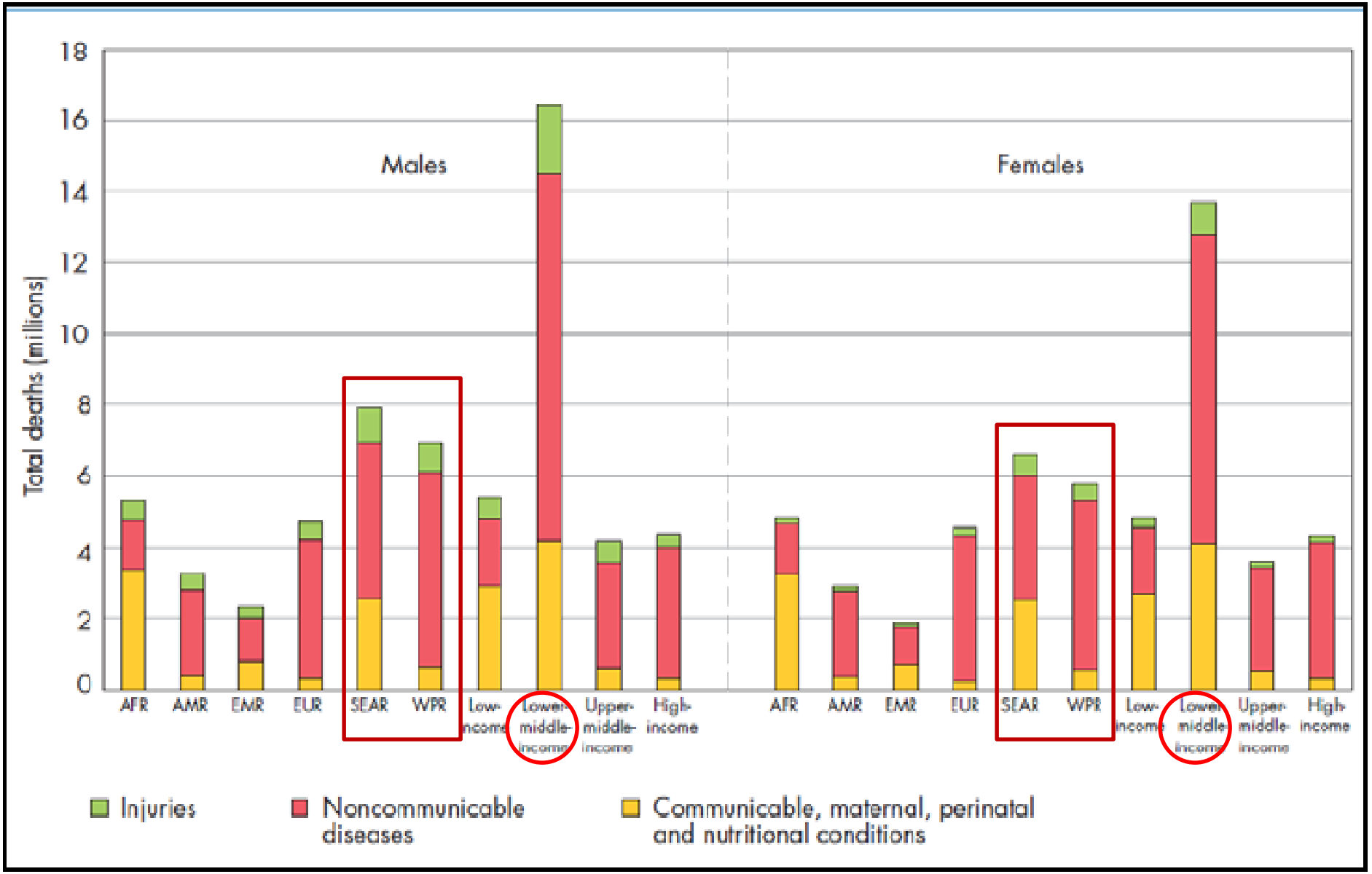
Emerging or unrecognized micronutrient MN

- Vitamin D deficiency
  - VDD is a problem in tropical countries with lots of sunshine -changed lifestyle (sedentary/indoor activity)
- Neural tube defects due to folate deficiency
  - Data on NTD not existed or inaccurate
  - Possible biomarkers e.g., serum folate for pop assessment – not yet established
- Zinc – insufficient intakes and low S. zinc
  - No large scale data to confirm PH problem
  - Zn supplement in treatment of diarrhea recommended and efforts on scaling up
- Micronutrient MN in overweight/obese – evidence on metabolically affected iron, iodine and vitamin A nutrition

Development transition in SE Asia

- Rapidly industrialized – 20-30 y
- Economic growth 7-10%
- Urbanization/industrial development
  - rural to urban migration
  - mechanization of agriculture
  - expansion of industry and sedentary living
  - Less physical activity (energy expenditure)
- Changing ‘availability’ and ‘access’ to foods and other services (both urban &rural)
  - Better reach of market -- Diversity of food choices
  - Less own food production, more ‘purchased’ foods of low nutritive quality
    - -- Processed foods -- low price fats/oils
    - -- Street foods (quality & safety)

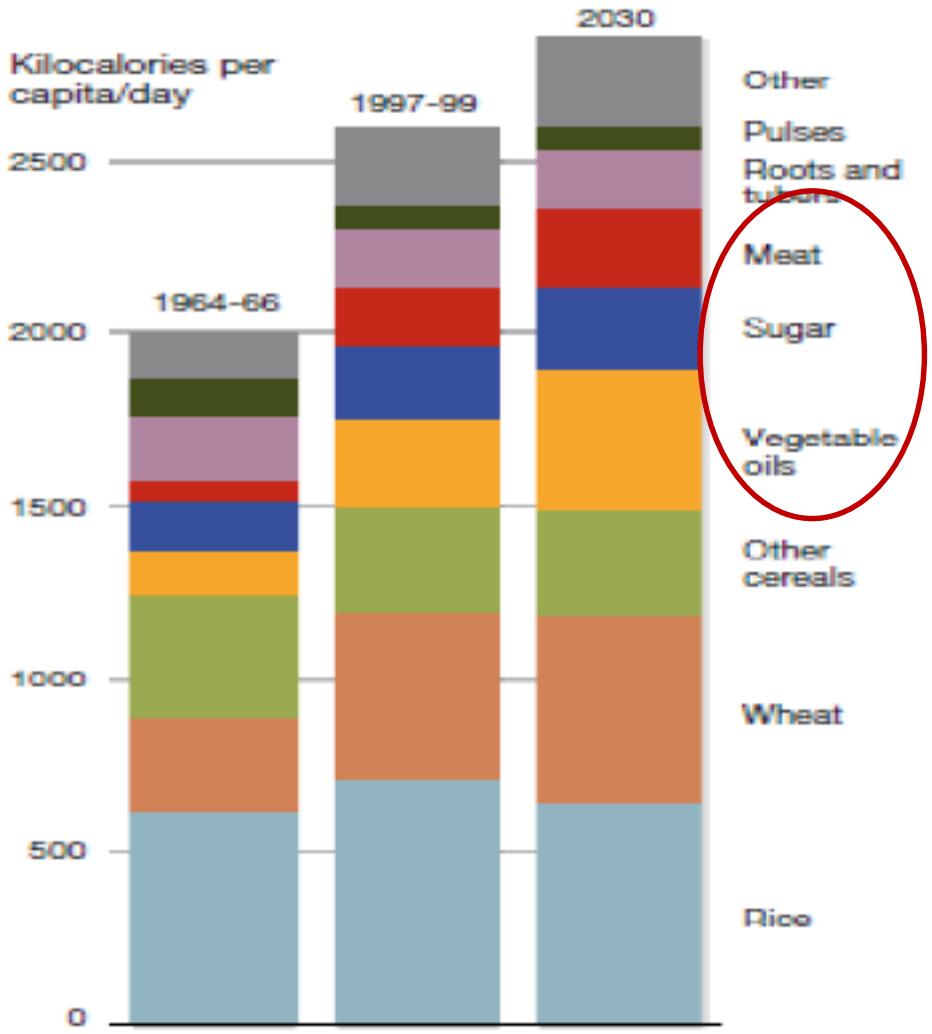
Figure 6. NCD Deaths in Low- and Middle-Income Countries



Source: WHO 2011

WHO recommendations

Figure 8. Changes in Historic and Projected Composition of Human Diet and the Nutritional Value

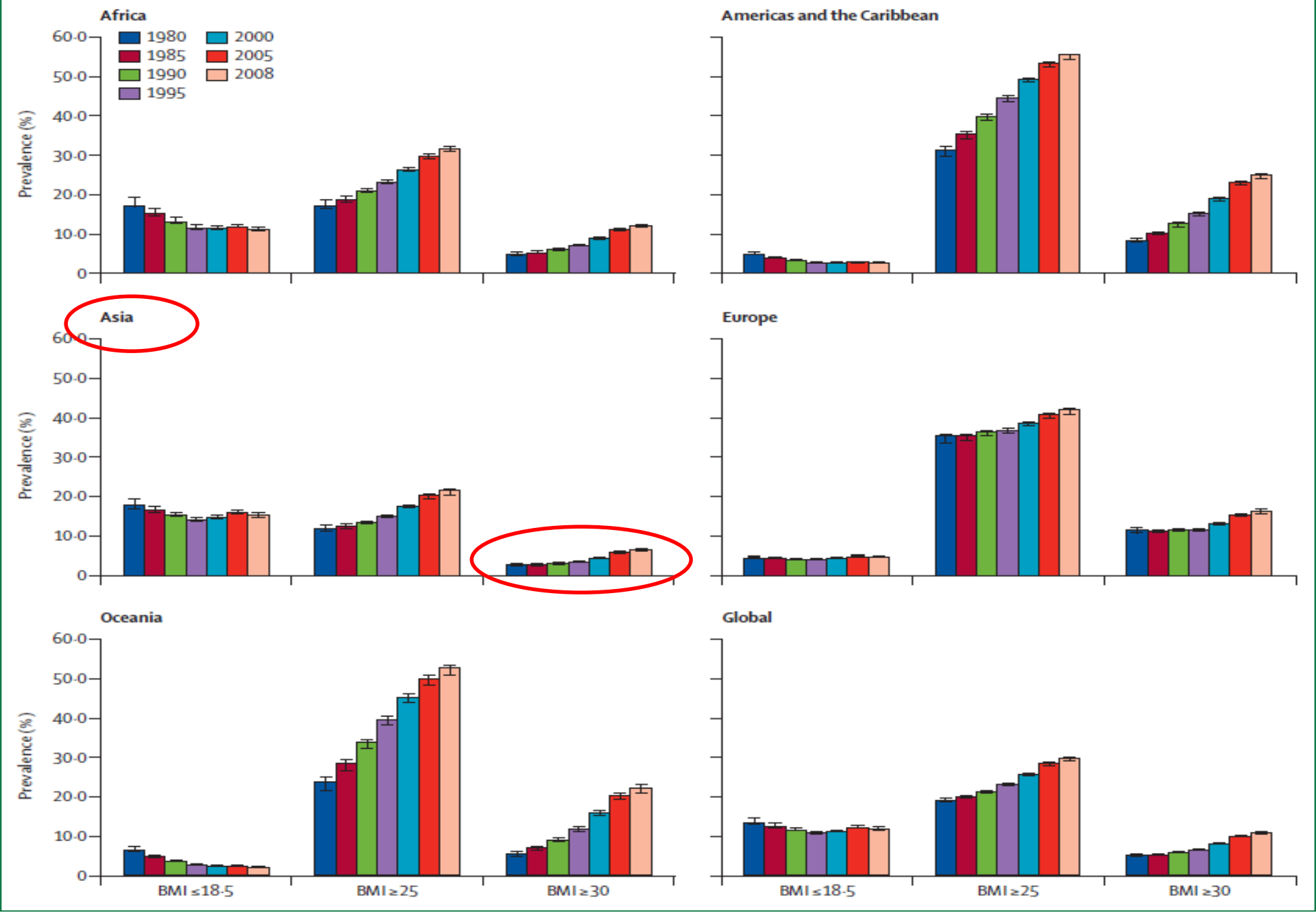


Source: FAO 2011.

Table 3. Recommendation for Daily Intake

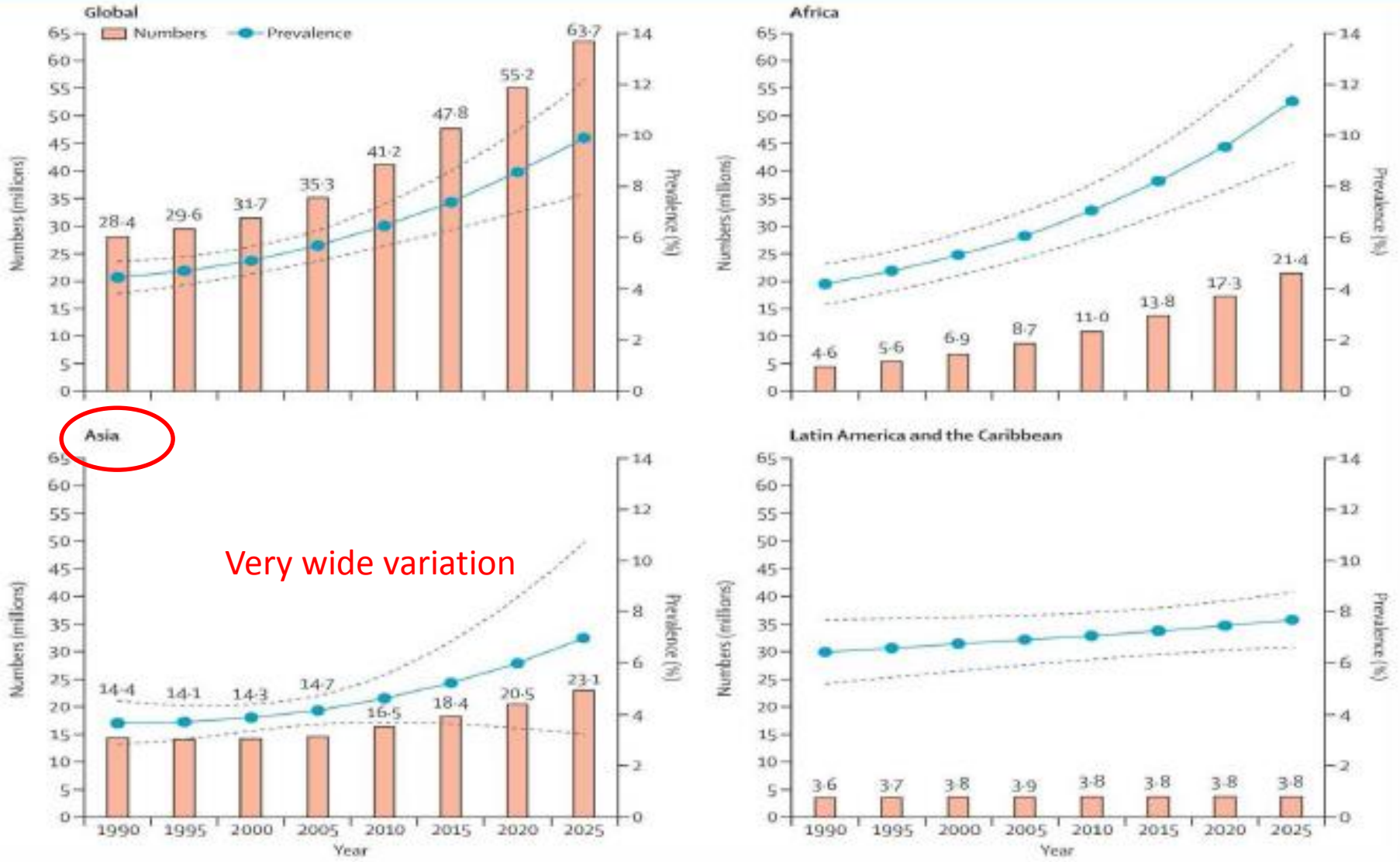
Dietary Factor		Goal (% of total energy unless otherwise stated)
Total Fat		16-30%
	Saturated fatty acids	<10%
	Polyunsaturated fatty acids (PUFAs)	6-10%
	n-6 Polyunsaturated fatty acids (PUFAs)	5-8%
	n-3 Polyunsaturated fatty acids (PUFAs)	1-2%
	Trans fatty acids	<1%
	Monounsaturated fatty acids (MUFAs)	By difference
Total Carbohydrate		55-75%
	Free sugars	<10%
Protein		10-15%
Cholesterol		<300mg/day
Sodium chloride		<5g/day
Fruit and vegetables		>400g/day

Source: WHO 2003



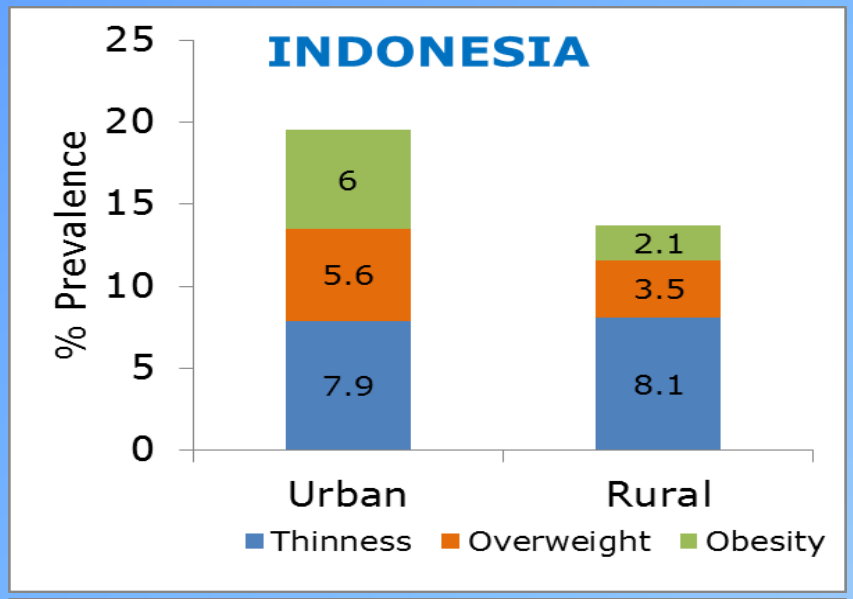
Trends in thinness vs overweight and obesity by geographical region

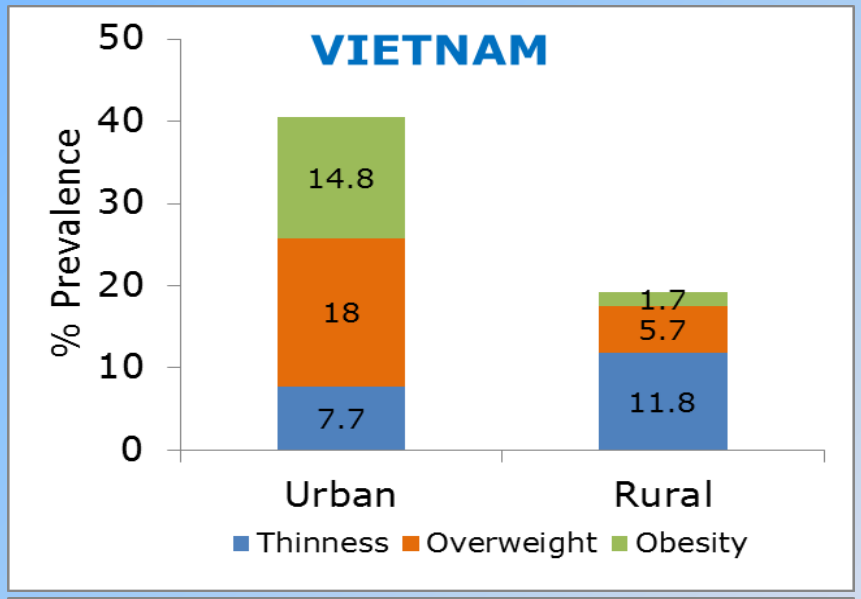
Child Obesity on the Rise

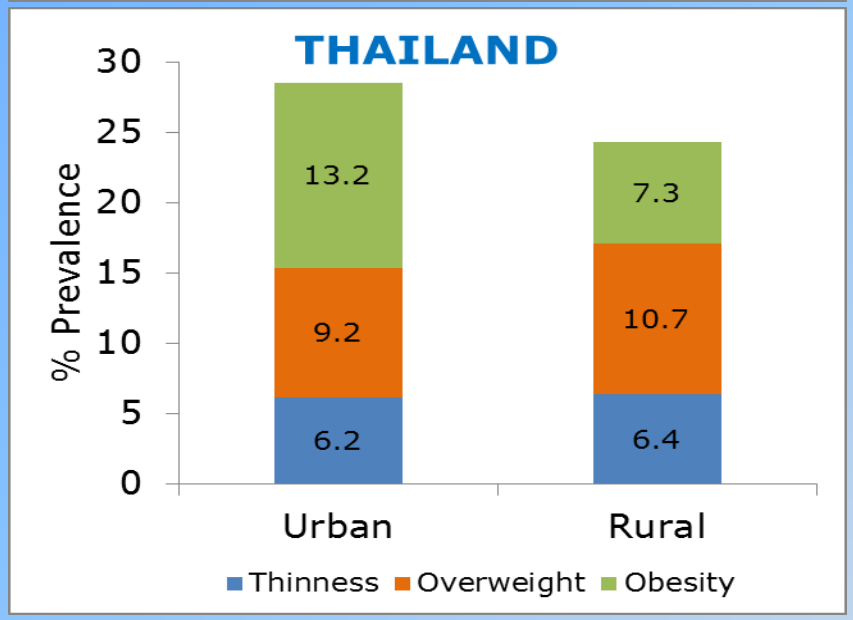


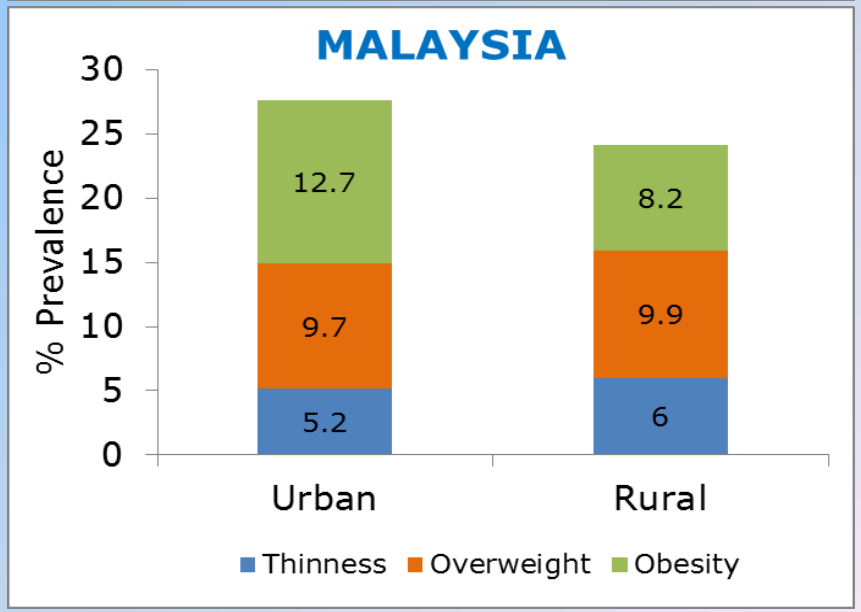
Black, et al, MCN 1, Lancet 2013;

Thinness, Overweight & Obesity* by BMI for age







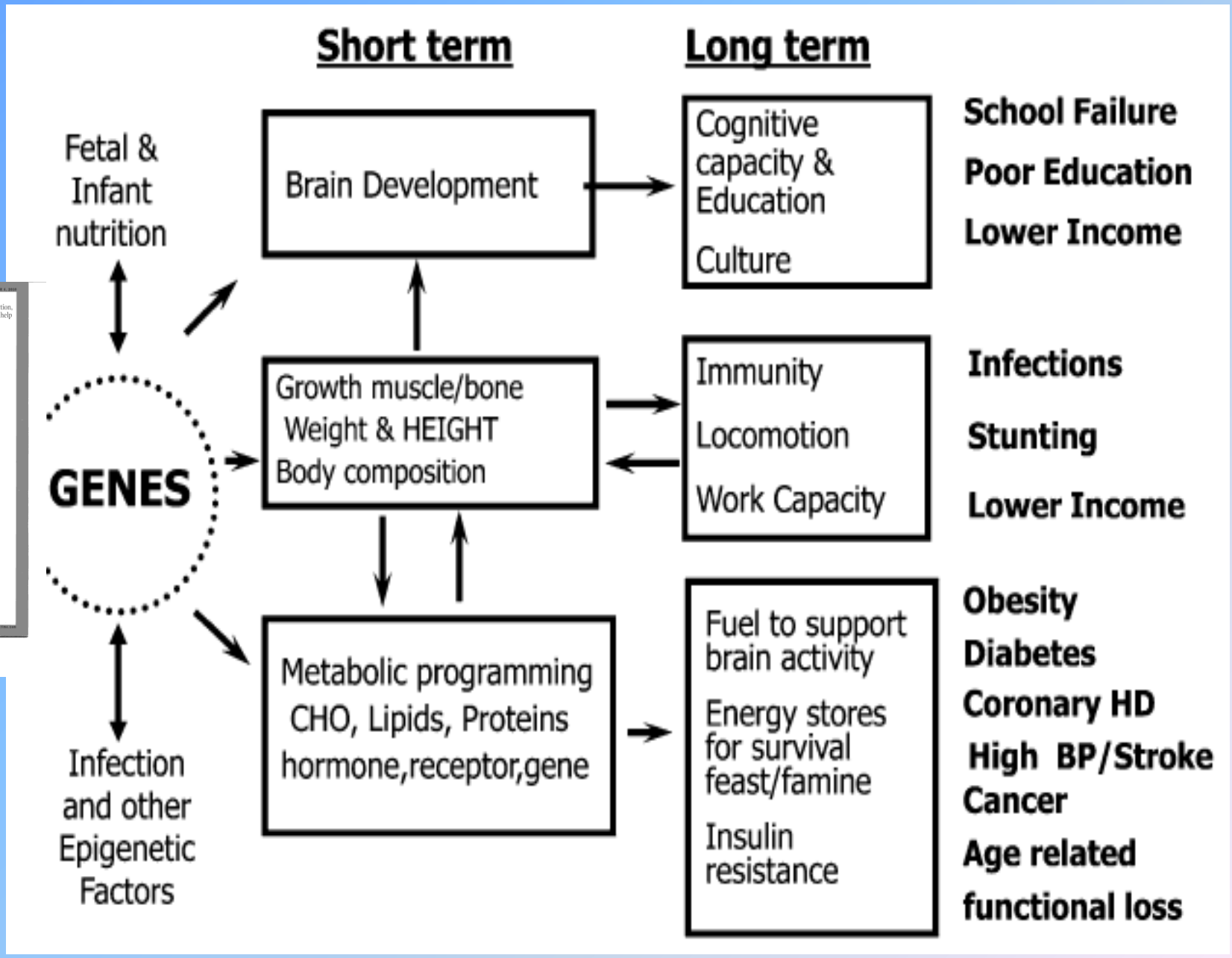


* BMI-for-age Z

SEANUTS, BJN 2013 (courtesy Dr. Nipa Rojroongwasinkul)

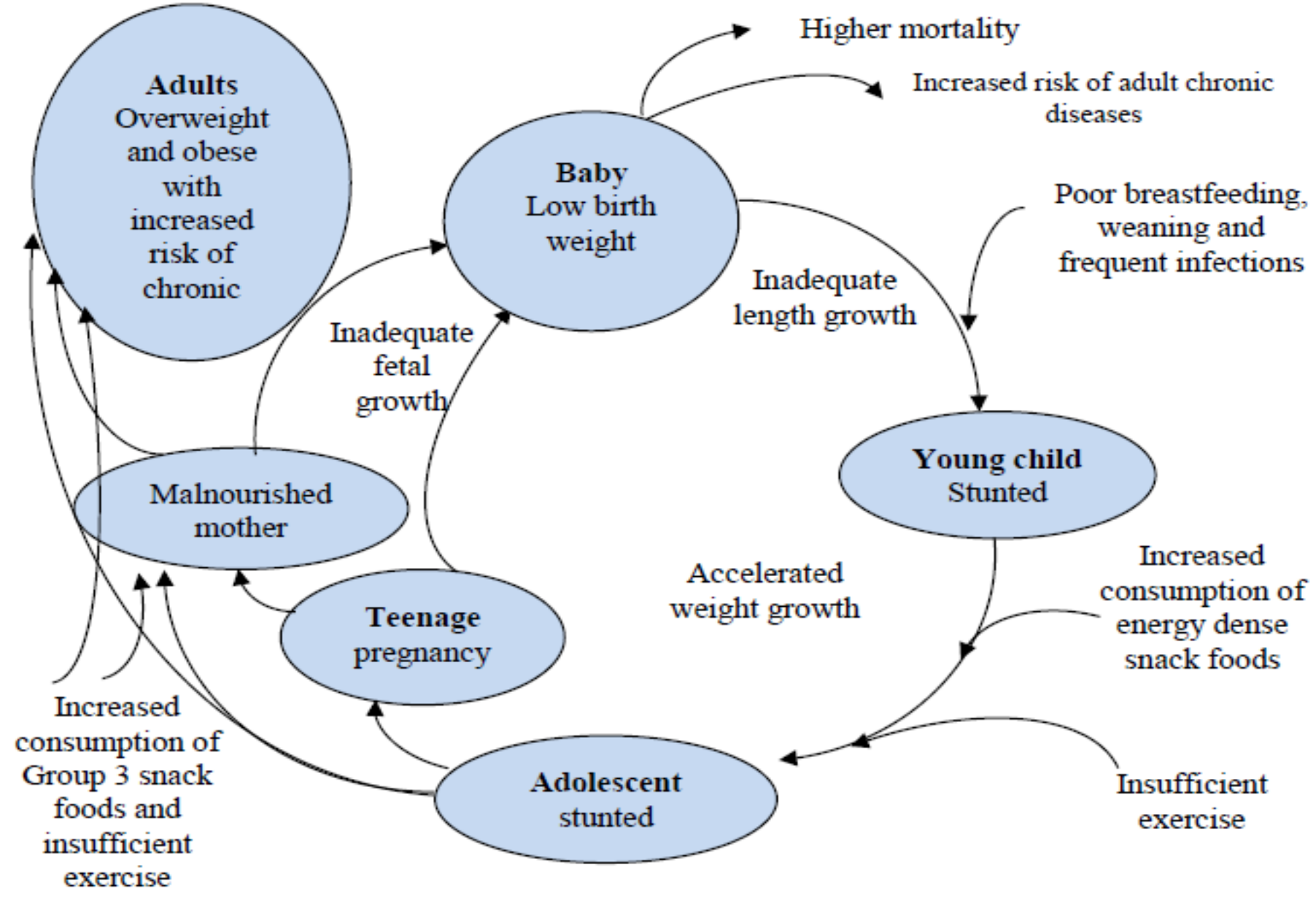
Issues related to obesity/NCDs

- Most data on obesity and NCD focused on problems in adults, and older children
- Are Obesity and NCDs only the problems of poor eating/physical activity behaviors in children and/or degenerative process in older adults?
- Early life nutrition (from conception to 24 mo infants, known as ‘1000d’ contributes to risk of obesity & NCDs – unrecognized by policy makers/planners



Uauy , et al, AJCN 2013

Figure 15. The Double Burden of Malnutrition: Causes and Effects across the Life Course



Shrimpton and Rohx, WB paper 2012


Thank you for your attention

Adapting Western products for South East Asian / DE market needs

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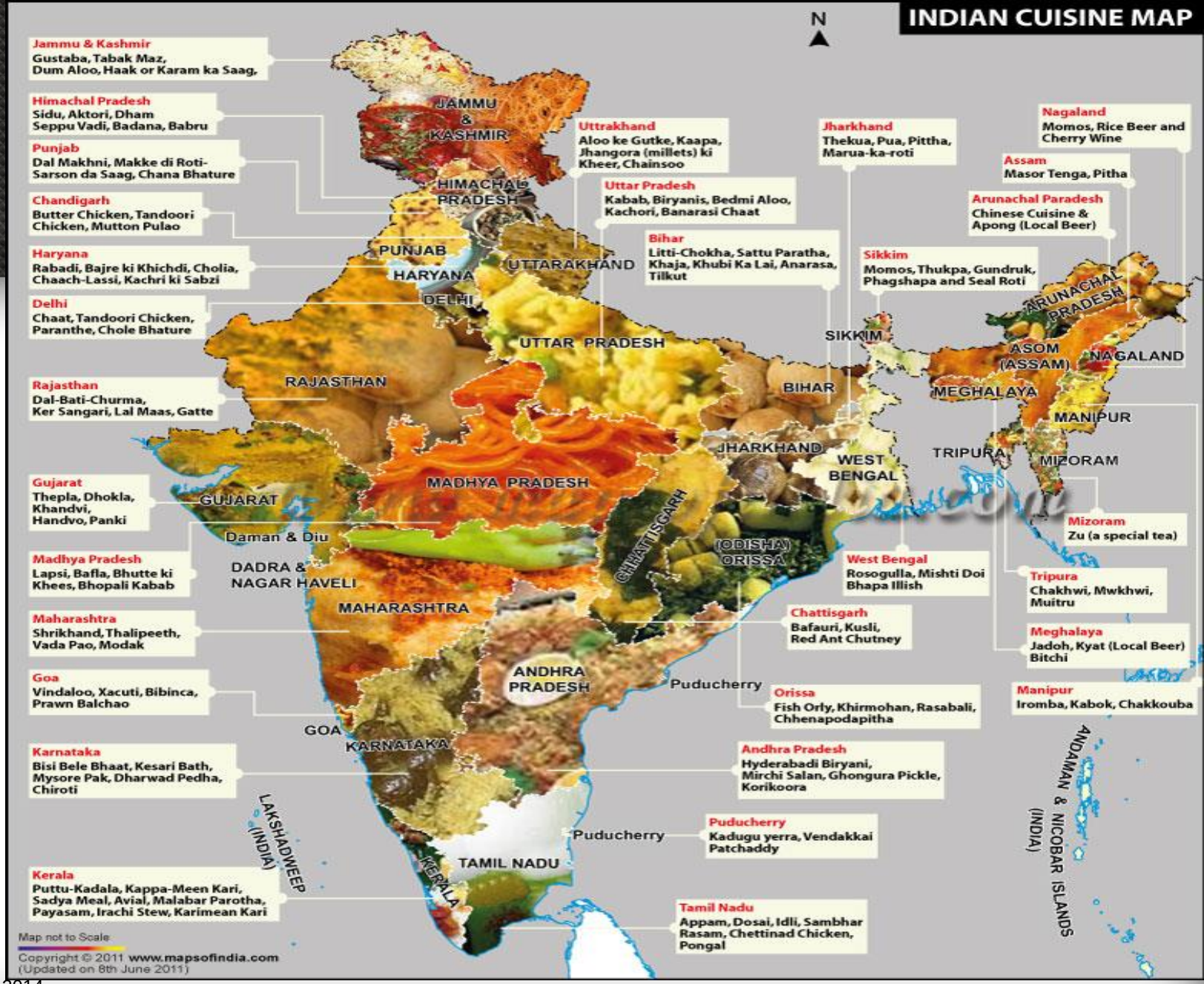
GFS Malaysia-2014


Greetings From
UNIVERSITY OF MYSORE

Outline

- Indian diets
- Food choices
- Dietary diversification
- Current scenario/ Evidence
- Adapting Western products- nutritional & health implications
- Concluding note


INDIAN CUISINE MAP
N
Jammu & Kashmir
Gustaba, Tabak Maz, Dum Aloo, Haak or Karam ka Saag,
Himachal Pradesh
Sidu, Aktori, Dham Seppu Vadi, Badana, Babru
Punjab
Dal Makhni, Makke di Roti-Sarson da Saag, Chana Bhature
Chandigarh
Butter Chicken, Tandoori Chicken, Mutton Pulao
Haryana
Rabadi, Bajre ki Khichdi, Cholia, Chaach-Lassi, Kachri ki Sabzi
Delhi
Chaat, Tandoori Chicken, Paranthe, Chole Bhature
Rajasthan
Dal-Bati-Churma, Ker Sangari, Lal Maas, Gatte
Gujarat
Thepla, Dhokla, Khandvi, Handvo, Panki
Madhya Pradesh
Lapsi, Bafla, Bhutte ki Khees, Bhopali Kabab
Maharashtra
Shrikhand, Thalipeeth, Vada Pao, Modak
Goa
Vindaloo, Xacuti, Bibinca, Prawn Balchao
Karnataka
Bisi Bele Bhaat, Kesari Bath, Mysore Pak, Dharwad Pedha, Chiroti
Kerala
Puttu-Kadala, Kappa-Meen Kari, Sadya Meal, Avial, Malabar Parotha, Payasam, Irachi Stew, Karimean Kari
Uttrakhand
Aloo ke Gutke, Kaapa, Jhangora (millets) ki Kheer, Chainsoo
Uttar Pradesh
Kabab, Biryanis, Bedmi Aloo, Kachori, Banarasi Chaat
Bihar
Litti-Chokha, Sattu Paratha, Khaja, Khubi Ka Lai, Anarasa, Tilkut
Jharkhand
Thekua, Pua, Pittha, Marua-ka-roti
Sikkim
Momos, Thukpa, Gundruk, Phagshapa and Seal Roti
Nagaland
Momos, Rice Beer and Cherry Wine
Assam
Masor Tenga, Pitha
Arunachal Paradesh
Chinese Cuisine & Apong (Local Beer)
West Bengal
Rosogulla, Mishti Doi Bhapa Illish
Tripura
Chakhwi, Mwkhwi, Muitru
Meghalaya
Jadoh, Kyat (Local Beer) Bitchi
Mizoram
Zu (a special tea)
Manipur
Iromba, Kabok, Chakkouba
Chattisgarh
Bafauri, Kusli, Red Ant Chutney
Orissa
Fish Orly, Khirmohan, Rasabali, Chhenapodapitha
Andhra Pradesh
Hyderabadi Biryani, Mirchi Salan, Ghongura Pickle, Korikoora
Puducherry
Kadugu yerra, Vendakkai Patchaddy
Tamil Nadu
Appam, Dosai, Idli, Sambhar Rasam, Chettinad Chicken, Pongal
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
HARYANA
DELHI
UTTARAKHAND
UTTAR PRADESH
RAJASTHAN
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASOM (ASSAM)
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
MADHYA PRADESH
GUJARAT
Daman & Diu
DADRA & NAGAR HAVELI
CHHATTISGARH
(ODISHA) ORISSA
MAHARASHTRA
ANDHRA PRADESH
Puducherry
GOA
KARNATAKA
LAKSHADWEEP (INDIA)
KERALA
TAMIL NADU
Puducherry
ANDAMAN & NICOBAR ISLANDS (INDIA)
Map not to Scale
Copyright © 2011 www.mapsofindia.com
(Updated on 8th June 2011)

Food diversity in India

- **Food diversity – implicit of India's multi-culture,**

  regions/ states

- **Traditionally, Indians like home-cooked meals.**

- **Concept supported 2 reasons- religious & individual**

Foods in India

Non- Convenience	Semi-convenience	Convenience
✓ Preparation meals	✓ Semi-preparation meals	✓ Fast meals/complete meals
✓ Cooking ingredients	✓ Cooking ingredients	✓ Meals at restaurant
		✓ Home delivery

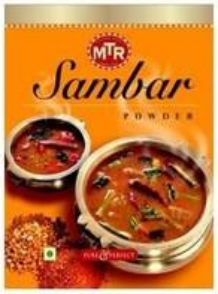
Non- Convenience Foods

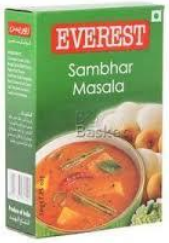
- **Preparation meals-** wheat, rice, pulses, vegetables, tubers, poultry, fresh meat , fish.
- **Cooking ingredients-** fats, spices, onion, tomato, coconut, green chilly, coriander

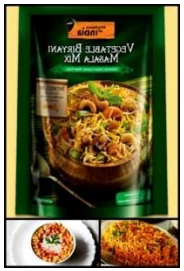

INDIAN MILLETS
Pearl Millet (Bajra)
Thinai Millet
Varagu Millet
Finger Millet (Ragi / Pampered Corn)
Sorghum
Jowar

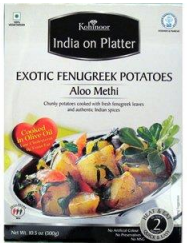
Semi- convenience

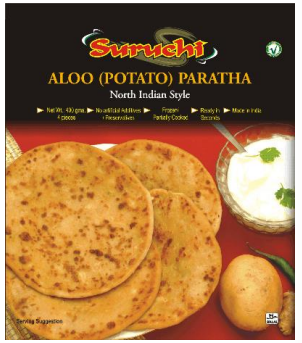
- **Semi preparation meals-** cut vegetables , frozen food products
- **Pre-mixes**: batter, ETR, curries, gravies, pulav mix
- **Cooking ingredients**: readymade masala's, puree, ready to mix items {rice mixes}

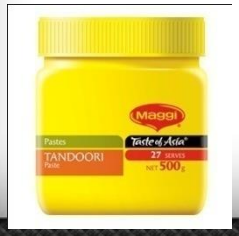








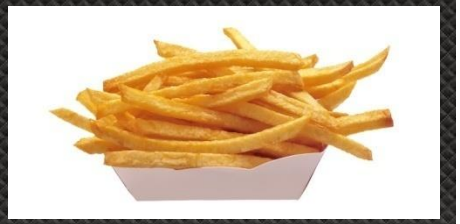




GFS Malaysia-2014

Convenience Foods

- **Fast meals -** pizza, burgers, sandwich, complete meals, soups, desserts, ice creams
- **Ready to eat -** Meals at restaurant, fast food centers, roadside eateries.










©Amit Basu

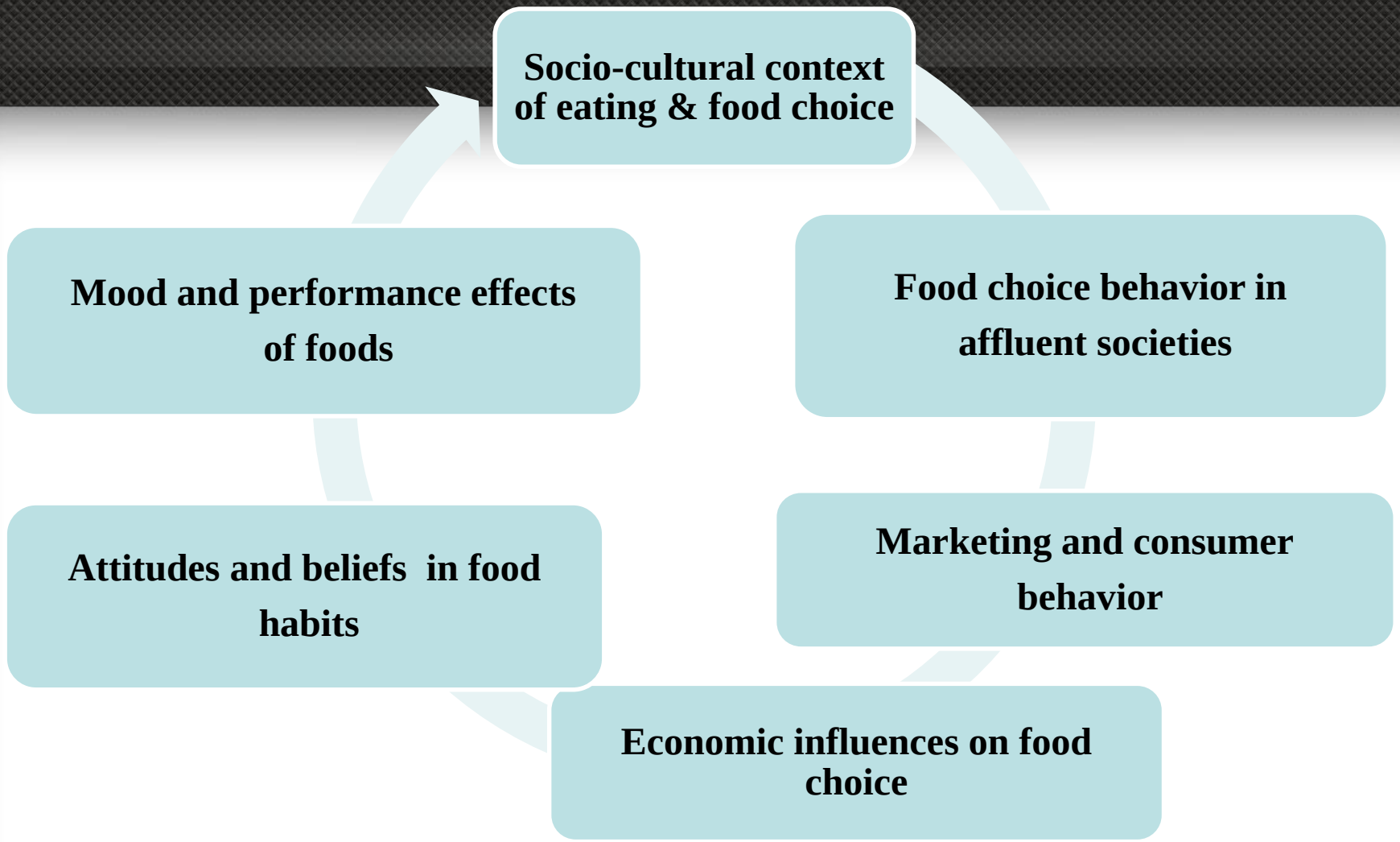
GFS Malaysia 2014


SEGMENTATION OF DIFFERENT SECTOR IN FOOD PROCESSING INDUSTRY

Sectors	Products
Diary	Whole Milk Powder, Skimmed Milk Powder, Condensed Milk, Ice Cream, Butter and Ghee, Cheese.
Fruits & Vegetables	Beverages, juices, concentrates, Pulp, Slices, Frozen and Dehydrated products, Potato Wafers/ Chips etc.
Grains & Cereals	Flour, Bakeries, Starch Glucose, Cornflakes, Malted Foods, Grain based Alcohol
Fisheries	Frozen and Canned products mainly in fresh form.
Meat and Poultry	Frozen and packed mainly in fresh form, egg Power
Consumer Foods	Snack food, Namkeens, Biscuits, Ready to eat food, Alcoholic and non Alcoholic beverages.

Source: Ministry of Food processing India

What governs Food choices?



Current scenario

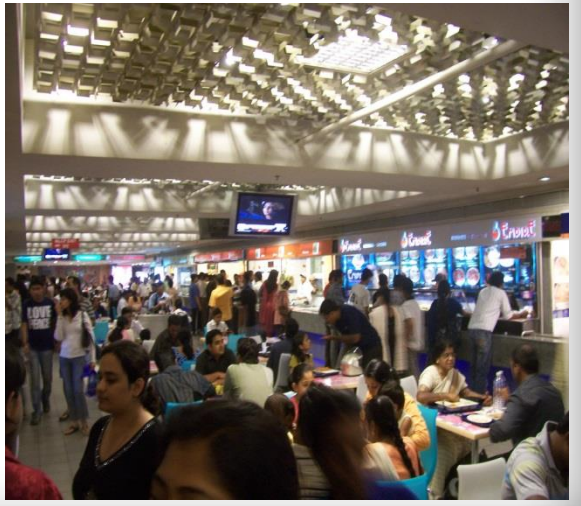
- **Rapid income growth, urbanization and globalization– major dietary shifts in India**
- **Declining consumption of staples - 15% in Rural & 12 % in Urban.**
- **Increasing consumption - livestock, dairy products, fats & oils**
- **Sharp drop - Pulse, nuts, dry fruits [1994-2004]**
- **Demand and supply lead to these changes**

What are the changes ????

Dietary mix and its flavor are fast changing on the plate of Indian consumers

Then

Now



GFS Malaysia-2014

Why these

Changes ?????

Demand	Supply side
✓Growing affluences	✓Global economics (closer integration)
✓ Lifestyle changes	✓Liberalization of FDI
✓Expansion of middle class	✓Reduction in freight & transportation costs
✓Higher participation of women in workforce	✓Growth of supermarkets & fast food outlets

Some facts

- **Liberalization of Indian economy in the early 1990s, entry of new players – change in lifestyles & food taste**
- **Food industries .. Advantage … of the change**
- **Diversification is not entirely demand driven**
- **Food processing sector attracts substantial FDI**
- **Top 10 sectors getting FDI equity.**

Some facts

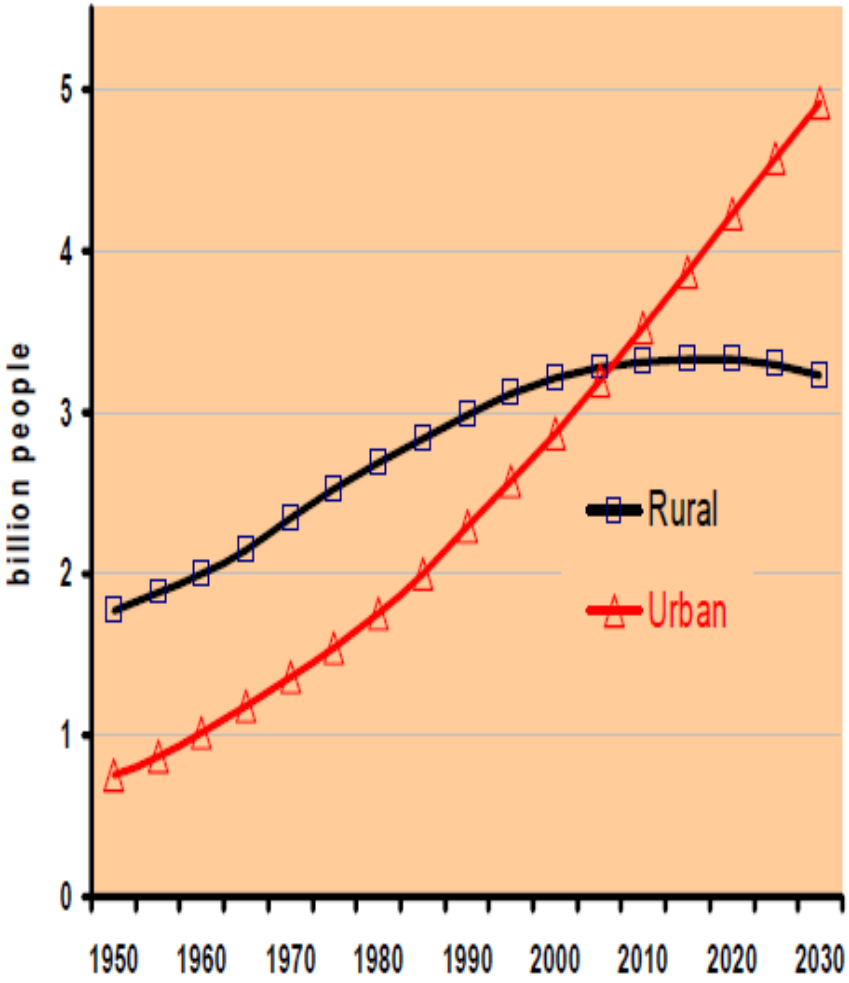
- Growth rate of 5-6% pa in GDP
- Per capita income grown by 3.5% p.a
- Sustained growth is **shifting** the consumption patterns

  Away from basic staples towards **high value**

  products

Urbanization to accelerate over the next 30 years

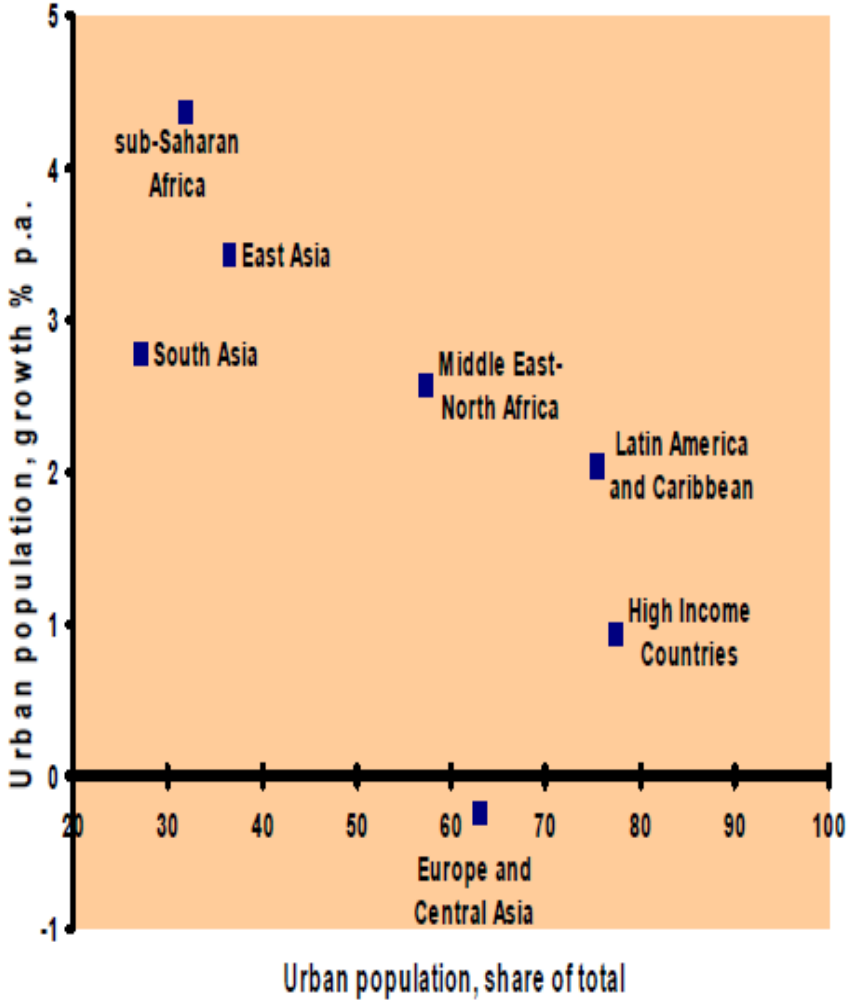
Urban-rural population, World, 1950-2030



Source, FAO, FAOSTAT, 2003

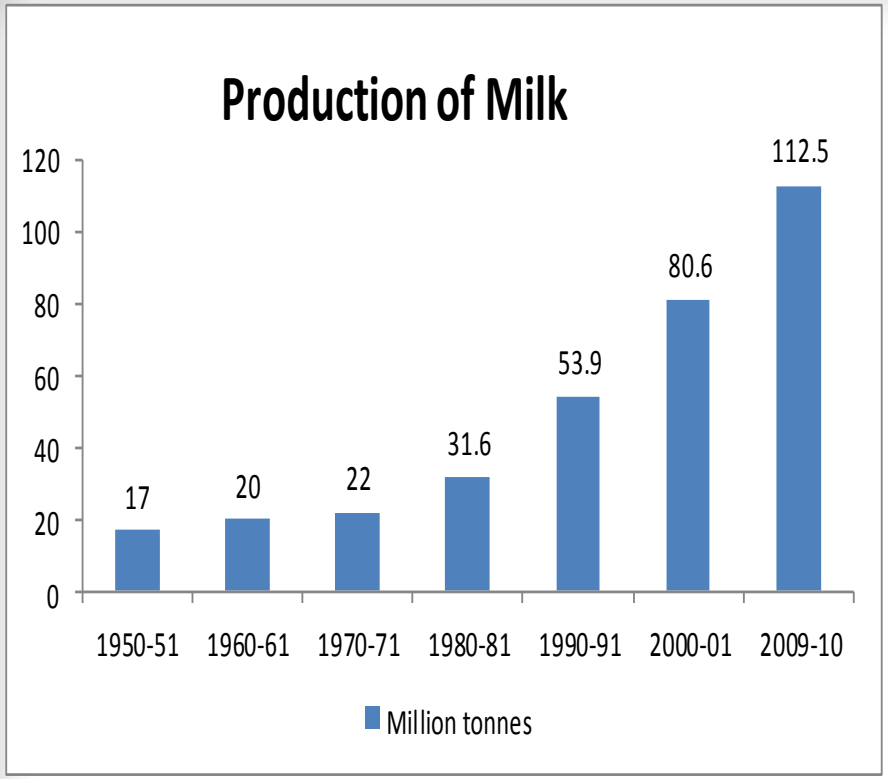
Africa and Asia are just beginning the urbanization process

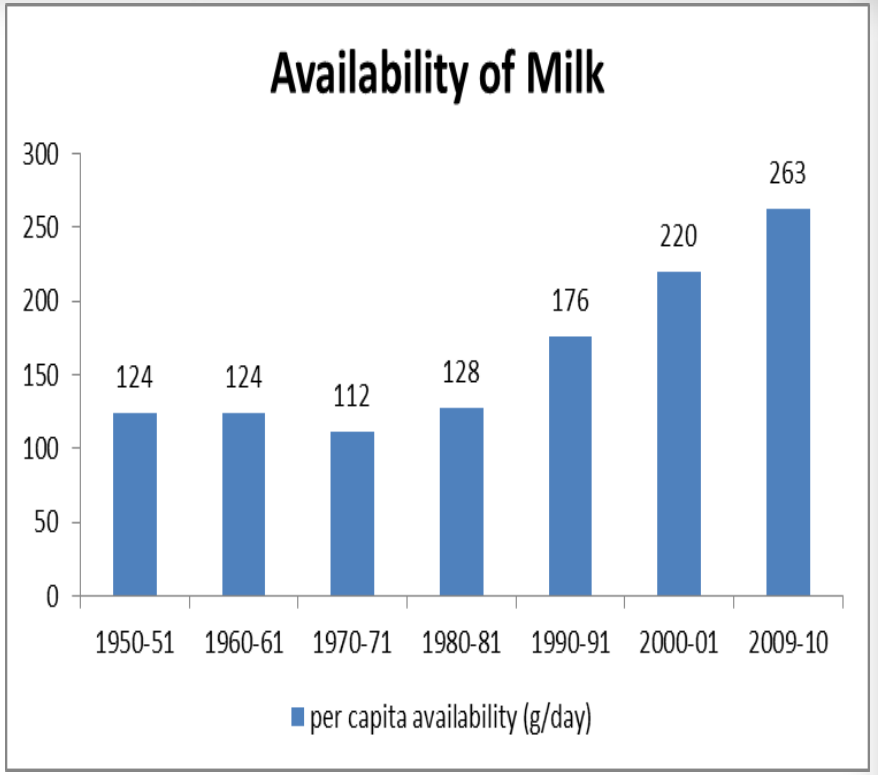
Urbanization rates and share of urban population: 1999/01



Source: World Bank, World Development Indicators, 2003

Indian Dairy Situation





3 decade analysis

- Dietary transition - slow in both rural && urban India
- Energy intake ⬇
- Protein , fat & hydrogenated fat ⬆
- Dietary shift has a mixed effect on nutritional outcomes

3 decade analysis

- A very small (2 to 4 cm) increase in adult height;
- A significant increase in **mean body weights**, due to **increased body fat** , greater in urban than rural areas.
- In the absence of increased energy consumption, increased **fat deposition is attributed to reduced physical activity.**
- **Very few studies** have documented changes in physical activity patterns over the last three decades,

Time trends in dietary intake

- Indians today **eat twice** as much meat, egg and fish as they did in the early 1980s.
- Consumption of fruits has **risen** even more spectacularly – almost **3 times** during the same period.
- What's eaten **less than** before are cereals - wheat, rice and pulses

WHAT WE EAT MORE & WHAT LESS

% growth in per capita consumption (between 1983 and 2000)

	Low income group	High income group
Cereals	-10.0%	-20.4%
Pulses	-9.2%	-6.2%
Edible oil	76.9%	87.7%
Vegetables	49.7%	39.3%
Fruits	162.5%	184.4%
Milk	30.6%	30.7%
Meat, eggs, fish	100.0%	120.8%

Growth in value of output
(between 1990 and 2000)

Evidences

National Sample Survey analyses

- 1/3rd of rural households in India – calorie deprivation, intakes < 1800 cals
- Protein & fat intakes of 1/5th of the population are high
- Diet diversification is aggravating NCD risk

Evidences

National Family Health Survey-2

- n- 90,000 women , 15-49 y, 26 states
- **Cereals-** daily, little dietary diversity
- **Fruits-** only 8% ate daily, 1/3rd ate once a week
- **Animal foods-** 1/3rd never eat, only 8% eat
- **Poverty has a strong negative effect on dietary diversity**

Trends in India

- Energy intake has increased for the poor and decreased for the rich, while fat intake has **risen for all income groups**.
- **Pace of decline** of cereal consumption in the upper-income group was faster than that of the lower-income group.
- Even **among lower income groups**, consumption of **high-value food** increased in the past decade.

Indian Diet Transformation

- **1st stage -** "**income-induced diet diversification**", economic growth lead to increased variety of foods consumed, but the diet maintains mostly traditional features.
- **2nd stage - "diet globalization",** diet is influenced by the process of globalization.

Extruded products-Indian

Extruded products-Western

Kellogg's® Smart Start® *Antioxidant*

Nutrition Facts
Serving Size 1 Cup (50g/1.8 oz.)

Amount Per Serving	Cereal	Cereal with ½ Cup Vitamins A&D Fat Free Milk
Calories	190	230
Calories from Fat	5	5
	% Daily Value**	
Total Fat 0.5g*	1%	1%
Saturated Fat 0g	0%	0%
Trans Fat 0g		
Polyunsaturated Fat 0g		
Monounsaturated Fat 0g		
Cholesterol 0mg	0%	0%
Sodium 280mg	12%	14%
Potassium 90mg	3%	9%
Total Carbohydrate 43g	14%	16%
Dietary Fiber 3g	11%	11%
Sugars 14g		
Other Carbohydrate 26g		
Protein 3g		
Vitamin A (10% as beta carotene)	25%	30%
Vitamin C	25%	25%
Calcium	0%	15%
Iron	100%	100%
Vitamin D	10%	25%
Vitamin E	100%	100%
Thiamin	100%	100%
Riboflavin	100%	110%
Niacin	100%	100%
Vitamin B_6	100%	100%
Folic Acid	100%	100%
Vitamin B_{12}	100%	110%
Pantothenate	100%	100%
Phosphorus	8%	20%
Magnesium	6%	8%
Zinc	100%	100%

* Amount in cereal. One half cup of fat free milk contributes an additional 40 calories, 65mg sodium, 6g total carbohydrates (6g sugars), and 4g protein.

** Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4

INGREDIENTS: RICE, WHOLE GRAIN WHEAT, SUGAR, OAT CLUSTERS (SUGAR, TOASTED OATS [ROLLED OATS, SUGAR, CANOLA OIL WITH TBHQ AND CITRIC ACID TO PRESERVE FRESHNESS, MOLASSES, HONEY, BHT FOR FRESHNESS, SOY LECITHIN], WHEAT FLAKES, CRISP RICE [RICE, SUGAR, MALT, SALT], CORN SYRUP, POLYDEXTROSE, HONEY, CINNAMON, BHT [PRESERVATIVE], ARTIFICIAL VANILLA FLAVOR), HIGH FRUCTOSE CORN SYRUP, SALT, HONEY, MALT FLAVORING, ALPHA TOCOPHEROL ACETATE (VITAMIN E), NIACINAMIDE, ZINC OXIDE, REDUCED IRON, SODIUM ASCORBATE AND ASCORBIC ACID (VITAMIN C), CALCIUM PANTOTHENATE, YELLOW #5, PYRIDOXINE HYDROCHLORIDE (VITAMIN B_6), RIBOFLAVIN (VITAMIN B_2), THIAMIN HYDROCHLORIDE (VITAMIN B_1), BHT (PRESERVATIVE), VITAMIN A PALMITATE, FOLIC ACID, BETA CAROTENE (A SOURCE OF VITAMIN A), VITAMIN B_{12} AND VITAMIN D.

CONTAINS WHEAT AND SOY INGREDIENTS.

Exchange: 3 Carbohydrates
The dietary exchanges are based on the *Choose Your Foods: Exchange Lists for Diabetes*, ©2008 by American Dietetic Association and American Diabetes Association.

NLI#07728

Kellogg's Corn Flakes®

Nutrition Facts
Serving Size 1 Cup (28g/1.0 oz.)

Amount Per Serving	Cereal	Cereal with ½ Cup Vitamins A&D Fat Free Milk
Calories	100	140
Calories from Fat	0	0
	% Daily Value**	
Total Fat 0g*	0%	0%
Saturated Fat 0g	0%	0%
Trans Fat 0g		
Cholesterol 0mg	0%	0%
Sodium 200mg	8%	11%
Potassium 25mg	1%	7%
Total Carbohydrate 24g	8%	10%
Dietary Fiber 1g	4%	4%
Sugars 2g		
Other Carbohydrate 21g		
Protein 2g		
Vitamin A	10%	15%
Vitamin C	10%	10%
Calcium	0%	15%
Iron	45%	45%
Vitamin D	10%	25%
Thiamin	25%	30%
Riboflavin	25%	35%
Niacin	25%	25%
Vitamin B_6	25%	25%
Folic Acid	25%	25%
Vitamin B_{12}	25%	35%

* Amount in cereal. One half cup of fat free milk contributes an additional 40 calories, 65mg sodium, 6g total carbohydrates (6g sugars), and 4g protein.

** Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4

INGREDIENTS: MILLED CORN, SUGAR, MALT FLAVORING, HIGH FRUCTOSE CORN SYRUP, SALT, IRON, NIACINAMIDE, SODIUM ASCORBATE AND ASCORBIC ACID (VITAMIN C), PYRIDOXINE HYDROCHLORIDE (VITAMIN B_6), RIBOFLAVIN (VITAMIN B_2), THIAMIN HYDROCHLORIDE (VITAMIN B_1), VITAMIN A PALMITATE, FOLIC ACID, VITAMIN B_{12} AND VITAMIN D. TO MAINTAIN QUALITY, BHT IS ADDED TO PACKAGING.

CORN USED IN THIS PRODUCT CONTAINS TRACES OF SOYBEANS.

Exchange: 1½ Carbohydrates
The dietary exchanges are based on the *Choose Your Foods: Exchange Lists for Diabetes*, ©2008 by American Dietetic Association and American Diabetes Association.

NLI#06730

Kellogg's® Special K®

Nutrition Facts
Serving Size 1 Cup (31g/1.1 oz.)

Amount Per Serving	Cereal	Cereal with ½ Cup Vitamins A&D Fat Free Milk
Calories	120	160
Calories from Fat	5	5
		% Daily Value**
Total Fat 0.5g*	1%	1%
Saturated Fat 0g	0%	0%
Trans Fat 0g		
Cholesterol 0mg	0%	0%
Sodium 220mg	9%	12%
Potassium 50mg	1%	6%
Total Carbohydrate 23g	8%	10%
Dietary Fiber less than 1g	2%	2%
Sugars 4g		
Other Carbohydrate 19g		
Protein 6g		
Vitamin A	15%	20%
Vitamin C	35%	35%
Calcium	0%	15%
Iron	45%	45%
Vitamin E	35%	35%
Thiamin	35%	40%
Riboflavin	35%	45%
Niacin	35%	35%
Vitamin B_6	100%	100%
Folic Acid	100%	100%
Vitamin B_{12}	100%	110%
Phosphorus	4%	15%
Zinc	4%	6%
Selenium	10%	10%

* Amount in cereal. One half cup of fat free milk contributes an additional 40 calories, 65mg sodium, 6g total carbohydrates (6g sugars), and 4g protein.

** Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4

INGREDIENTS: RICE, WHEAT GLUTEN, SUGAR, DEFATTED WHEAT GERM, SALT, HIGH FRUCTOSE CORN SYRUP, DRIED WHEY, MALT FLAVORING, CALCIUM CASEINATE, ASCORBIC ACID (VITAMIN C), ALPHA TOCOPHEROL ACETATE (VITAMIN E), REDUCED IRON, NIACINAMIDE, PYRIDOXINE HYDROCHLORIDE (VITAMIN B_6), RIBOFLAVIN (VITAMIN B_2), THIAMIN HYDROCHLORIDE (VITAMIN B_1), VITAMIN A PALMITATE, FOLIC ACID AND VITAMIN B_{12}.

CONTAINS WHEAT AND MILK INGREDIENTS.

Exchange: 1½ Carbohydrates
The dietary exchanges are based on the *Exchange Lists for Meal Planning*, ©2003 by The American Diabetes Association, Inc. and The American Dietetic Association.

NLI#05032

DUMDAAR TASTE

- More Masala+ = Tastier
- Iron Fortified
- Vegetable Bits (Carrot)

+15% more Masala as compared to MAGGI Masala Noodles

2 Minutes to Great Taste

1. Break the Noodle cake into four parts.
2. Add Noodles and TASTEMAKER® to 1½ tea cups (225ml) of boiling water.
3. Cook for 2 minutes in an open pan. Stir occasionally. Do not drain remaining water.

Good Food, Good Life™

Nestlé®

GOOD TO REMEMBER

MAGGI Masala Dumdaar Noodles is a source of Iron, which is found in green leafy vegetables & is an essential micronutrient for you at all stages of life.
Make your Noodles more nutritious and delicious by adding paneer/vegetables.

GOOD QUESTION

What 3 key nutrients does MAGGI Masala Dumdaar Noodles provide?

GOOD TO KNOW

76g of MAGGI Masala Dumdaar Noodles provides
- 24% RDA+ of Iron,
- 10% RDA+ of Protein &
- 20% RDA+ of Calcium.

GOOD TO TALK

Nestlé Consumer Services
PO Bag No 2, New Delhi-110001
contact@in.nestle.com
0124 4121212

NUTRITION® PER INFORMATION	100g
Energy (kcal)	412
Protein (g)	9.2
Carbohydrate (g)	58.9
-Sugar (g)	1.3
Fat (g)	13.6
Calcium (mg)	160.0
Iron* (mg)	5.4
Potassium (mg)	335.0

+ RDA for Adult Sedentary Male as per ICMR, 2010
® Reg.Trademark of Société des Produits Nestlé S.A.
◈ Approximate Values
NUTRITIONAL COMPASS™

100% VEGETARIAN PROPRIETARY FOOD
Instant Noodles with TASTEMAKER®

OTHER

DUMDAAR

INGREDIENTS: NO ADDED MSG

NOODLES: Wheat flour, Edible vegetable oil, Salt, Wheat gluten, Mineral (170(i)) and Guar gum.

MASALA DUMDAAR TASTEMAKER®: Mixed spices [(23.87%) (Onion, Coriander, Chilli powder, Garlic, Turmeric, Cumin, Aniseed, Black pepper, Ginger, Fenugreek, Clove, Nutmeg, Green cardamom and Capsicum)], Hydrolysed groundnut protein, Noodle powder (Wheat flour, Edible vegetable oil, Salt, Wheat gluten, Mineral (170(i)) and Guar gum), Sugar, Carrot (11.2%), Tapioca starch, Salt, Edible vegetable oil, Mineral (508), Acidifying agent (330), Mineral#, Flavour enhancer (635), Colour (150d) and Raising agent (500(ii)).

CONTAINS PERMITTED NATURAL COLOUR, ADDED NATURAL FLAVOUR AND ARTIFICIAL SAVOURY FLAVOURING SUBSTANCE.

MAY CONTAIN TRACES OF SOYA POWDER.

STORE IN A COOL, DRY AND HYGIENIC PLACE.

BEST BEFORE NINE MONTHS FROM MANUFACTURE.

Net Weight: 76g THE RAMEN RATER WWW.THERAMENRATER.COM

See side panel for:
M.R.P. (Incl. of all taxes): Rs.
Lot No:
MFD./MFG. By:
(Refer letter after MFD. & see below)
In case of A, B, D, G & H MFG. By
Nestlé India Limited
A) Ludhiana - Ferozepur Road, Moga - 142 001, (Punjab)
B) Village Maulinguem (North), Bicholim Taluka - 403 504,(Goa)
D) Plot No. 1A, Sector 1, Integrated Industrial Estate, Pantnagar - 263 145, (Uttrakhand)
G) Industrial Area Nanjangud, Mysore – 571 301, (Karnataka)
H) VPO-Nangal Kalan, Industrial Area Tahliwal, Tehsil-Haroli, Una - 174301 (Himachal Pradesh)
E) **SAJ FOOD Products Pvt. Ltd.,** WBIIDC, Ulubaria, Industrial Growth Centre, P.O. Birshibpur, Howrah – 711 316. (West Bengal)

Marketed By: NESTLÉ INDIA LIMITED, M-5A, CONNAUGHT CIRCUS, NEW DELHI - 110 001

8 901058 816730

Nutrition Facts

Serving Size 1 container (64g)

Amount Per Serving	
Calories 300 Calories from Fat 120	
	% Daily Value*
Total Fat 13g	20%
Saturated Fat 7g	35%
Trans Fat 0g	
Cholesterol 5mg	2%
Sodium 1410mg	59%
Total Carbohydrate 37g	12%
Dietary Fiber 2g	9%
Sugars 2g	
Protein 6g	
Vitamin A 6% •	Vitamin C 4%
Calcium 2% •	Iron 30%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat. Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

INGREDIENTS: ENRICHED WHEAT FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID), VEGETABLE OIL (PALM OIL, SESAME OIL), SALT, CONTAINS LESS THAN 2% OF SPICE AND COLOR, DRIED RED BELL PEPPER, DRIED CORN, MONOSODIUM GLUTAMATE, DRIED GREEN PEA, DRIED SHRIMP, MALTODEXTRIN, SODIUM DIACETATE, HYDROLYZED CORN AND SOY PROTEIN, CITRIC ACID, SUGAR, GARLIC POWDER, GLUCOSE, WHEAT, SOYBEAN, POTASSIUM CARBONATE, SODIUM CARBONATE, SODIUM TRIPOLYPHOSPHATE, ONION POWDER, CALCIUM SILICATE, NATURAL AND ARTIFICIAL FLAVOR, CARAMEL COLOR, MODIFIED FOOD STARCH, SHRIMP EXTRACT POWDER, DISODIUM GUANYLATE, DISODIUM INOSINATE, AUTOLYZED YEAST EXTRACT, TBHQ (PRESERVATIVE), SODIUM ALGINATE, RENDERED CHICKEN FAT, POWDERED CHICKEN, AUTOLYZED TORULA YEAST EXTRACT.

CONTAINS WHEAT, SOYBEAN, AND SHRIMP.

NISSIN® MANUFACTURED BY: NISSIN FOODS (USA) CO., INC. 2001 W. ROSECRANS AVE., GARDENA, CA 90249

MANUFACTURED IN A FACILITY THAT PROCESSES MILK, EGG, PEANUT, TREE NUTS, CRUSTACEAN SHELLFISH, AND FISH PRODUCTS.

THE RAMEN RATER WWW.THERAMENRATER.COM

SALSA PICANTE SHRIMP Flavor

Recommended Cooking Directions

1 • Pull back lid to dotted line.
• Fill cup to inside line with boiling water from kettle or microwave.

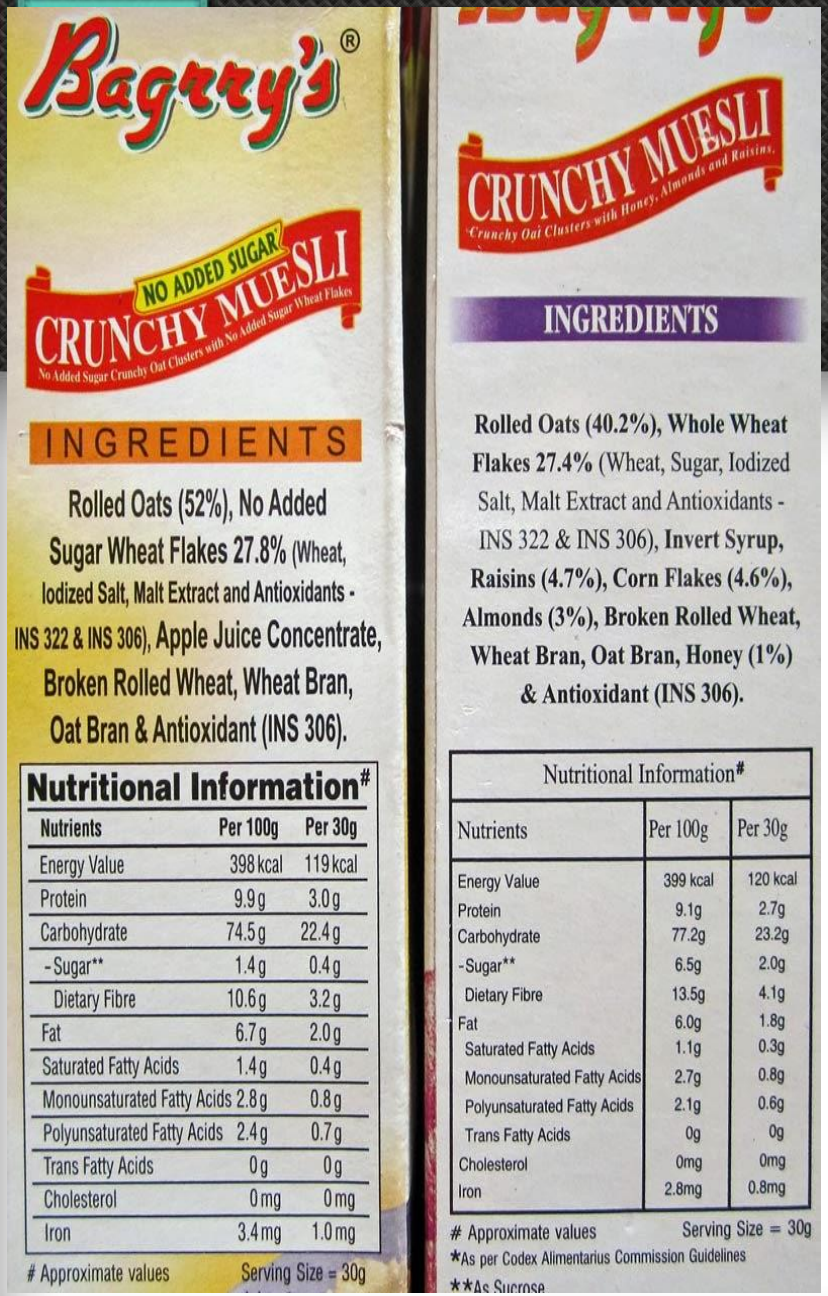
2 • Close lid and let stand for 3 minutes.
• Stir well and enjoy.

Do Not Microwave.

Caution: Product is hot; please handle with care. Do not purchase if cup is open or torn.

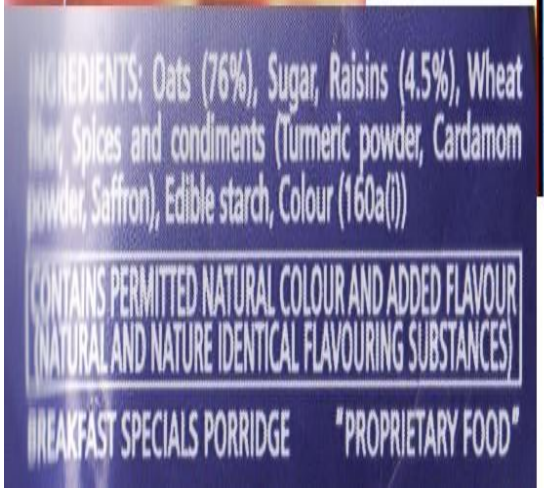
Cup Noodles.®
For the Very Best in Ramen Noodle Soup.®

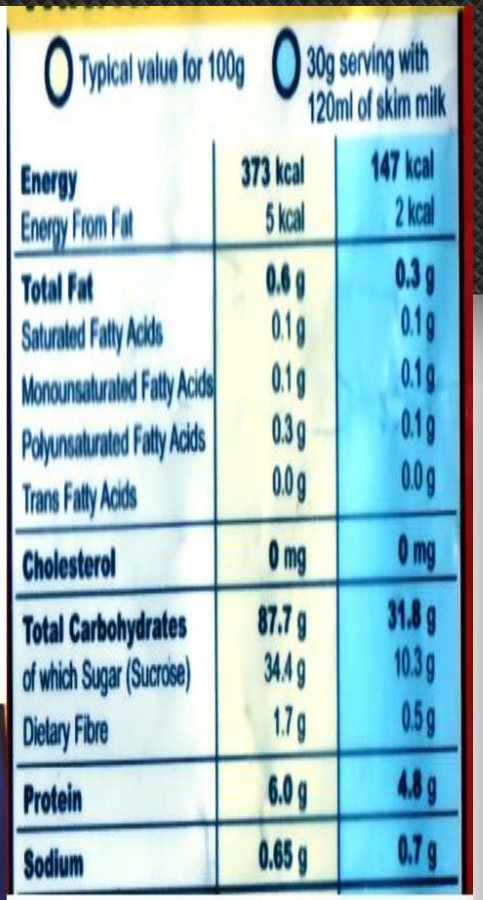
www.nissinfoods.com


Bagrry's
NO ADDED SUGAR
CRUNCHY MUESLI
No Added Sugar Crunchy Oat Clusters with No Added Sugar Wheat Flakes
INGREDIENTS
Rolled Oats (52%), No Added Sugar Wheat Flakes 27.8% (Wheat, Iodized Salt, Malt Extract and Antioxidants - INS 322 & INS 306), Apple Juice Concentrate, Broken Rolled Wheat, Wheat Bran, Oat Bran & Antioxidant (INS 306).
Nutritional Information#
Nutrients | Per 100g | Per 30g
Energy Value | 398 kcal | 119 kcal
Protein | 9.9 g | 3.0 g
Carbohydrate | 74.5 g | 22.4 g
-Sugar** | 1.4 g | 0.4 g
Dietary Fibre | 10.6 g | 3.2 g
Fat | 6.7 g | 2.0 g
Saturated Fatty Acids | 1.4 g | 0.4 g
Monounsaturated Fatty Acids | 2.8 g | 0.8 g
Polyunsaturated Fatty Acids | 2.4 g | 0.7 g
Trans Fatty Acids | 0 g | 0 g
Cholesterol | 0 mg | 0 mg
Iron | 3.4 mg | 1.0 mg
Approximate values
Serving Size = 30g

CRUNCHY MUESLI
Crunchy Oat Clusters with Honey, Almonds and Raisins.
INGREDIENTS
Rolled Oats (40.2%), Whole Wheat Flakes 27.4% (Wheat, Sugar, Iodized Salt, Malt Extract and Antioxidants - INS 322 & INS 306), Invert Syrup, Raisins (4.7%), Corn Flakes (4.6%), Almonds (3%), Broken Rolled Wheat, Wheat Bran, Oat Bran, Honey (1%) & Antioxidant (INS 306).
Nutritional Information#
Nutrients | Per 100g | Per 30g
Energy Value | 399 kcal | 120 kcal
Protein | 9.1g | 2.7g
Carbohydrate | 77.2g | 23.2g
-Sugar** | 6.5g | 2.0g
Dietary Fibre | 13.5g | 4.1g
Fat | 6.0g | 1.8g
Saturated Fatty Acids | 1.1g | 0.3g
Monounsaturated Fatty Acids | 2.7g | 0.8g
Polyunsaturated Fatty Acids | 2.1g | 0.6g
Trans Fatty Acids | 0g | 0g
Cholesterol | 0mg | 0mg
Iron | 2.8mg | 0.8mg
Approximate values
Serving Size = 30g
*As per Codex Alimentarius Commission Guidelines
**As Sucrose


INGREDIENTS: Oats (74%), Maltodextrin, Dehydrated Vegetables (Dehydrated Carrots, Dehydrated Onions, Dehydrated Tomatoes, Dehydrated Green Peas), Salt, Spices and Condiments (Coriander (0.5%)), Sugar, Corn Starch, Hydrolysed Vegetable Protein, Wheat flour, Emulsifier (414), Flavour Enhancers (627 & 631), Edible Vegetable Oil. CONTAINS ADDED NATURAL & NATURE IDENTICAL FLAVOURING SUBSTANCES.


INGREDIENTS: Oats (76%), Sugar, Raisins (4.5%), Wheat flour, Spices and condiments (Turmeric powder, Cardamom powder, Saffron), Edible starch, Colour (160a(i))
CONTAINS PERMITTED NATURAL COLOUR AND ADDED FLAVOUR (NATURAL AND NATURE IDENTICAL FLAVOURING SUBSTANCES)
BREAKFAST SPECIALS PORRIDGE "PROPRIETARY FOOD"


Typical value for 100g
30g serving with 120ml of skim milk
Energy | 373 kcal | 147 kcal
Energy From Fat | 5 kcal | 2 kcal
Total Fat | 0.6 g | 0.3 g
Saturated Fatty Acids | 0.1 g | 0.1 g
Monounsaturated Fatty Acids | 0.1 g | 0.1 g
Polyunsaturated Fatty Acids | 0.3 g | 0.1 g
Trans Fatty Acids | 0.0 g | 0.0 g
Cholesterol | 0 mg | 0 mg
Total Carbohydrates | 87.7 g | 31.8 g
of which Sugar (Sucrose) | 34.4 g | 10.3 g
Dietary Fibre | 1.7 g | 0.5 g
Protein | 6.0 g | 4.8 g
Sodium | 0.65 g | 0.7 g

Implications

Nutritional

Metabolic

Health

Nutritional attributes

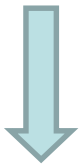
Food	Glycemic index
Cornflakes	103 - 123
Rice [brown, high-amylose, white]	53 - 79
White breads	90 - 130
Barley breads	39 - 69
Noodles, instant	67 – 76
Noodles, beans	37 – 56
Noodles & Vermicelli, rice	83 - 87

Nutritional attributes

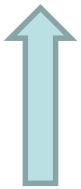
Food	Glycemic index
Spaghetti, gluten-free	97
Spaghetti, protein-enriched	38 - 45
Macaroni	64 - 69
French fries	63 - 68
Potato (boiled)	78 - 82
Beverages [cola's]	76 – 97
Juices	63 - 97

Metabolic

Diets high in refined Crabs, SFA + reduced physical activity + genetic predisposition



IGT— hyperinsulinemia – insulin resistance – impaired lipid profile, fatty liver -



NCD risk

Indian consumer market

- Dominated by youth - sophisticated & brand conscious
- Largest population in the world < 45 y [**> 890 million**]
- More English speaking compared to Europe
- Rising income, consumption expected to grow 4-fold [2006 to 2025]

Needs Of Indian Consumer From Processed Foods

Annual Household Income INR (in lakhs)	Number of Households (Million)	Need from Processed Food
>10.0	1.2	Lifestyle and aspiration(cheese, wine, gourmet food)
5.0-10.0	2.4	Convenience& time saving(RTE,RTC, purees)
2.0-2.5	10.9	Food inflation protection (frozen fruits and vegetables, fruit juices)
0.5-2.0	**91.3**	Wholesome nutrition (milk, juices, meat)
<0.5	101.0	Basic nutrition (fortified atta, iodized salt)

Dietary Diversity - Advantages

- **Diverse diet increases likelihood of meeting nutrient requirements**
- **Variety of nutrient sources**
- **Interactions between foods can improve benefit**
- **Diverse diet positively associated with nutritional status**

Diet Diversification

- Explain the **reduction in malnutrition** among children between 1-5 y in India.
- **Incidence of moderate malnutrition -** fell from 45.1 % to 41.3 %
- **Severe malnutrition** fell from 11.1 % to 6.4 %

Diet Diversification – impact

- **Protein intake -** No significant improvement despite diversification to non-cereal foods.
- **Fat intake -** in rural areas - from **24 g** **to** **36 g** / day urban areas - from **36 g** to almost **50 g** / day.

Human Biological Adaptability

- **Nutritional adaptation** – adapting to local nutritional opportunities – led to evolution of related genetic differences among populations
- Many Indians in US described as '**thrifty genes**'- unusually efficient at utilizing calories in their food, subsequently, consume less than other people of their size – stable weight.

Excess energy stores are for a famine that never comes

Health implications

- Matter of ongoing debate
- Diets contain more energy-dense, semi-processed foods, SFA, sugars → obesity, higher incidence of NCD.
- Nutritional implications of dietary shifts are + ve or – ve is an **empirical** issue.

Health implications

- **Incidence of under nutrition in India is decreasing**
- **Obesity, hypertension and diabetes associated with a high-calorie, energy-dense diet is increasing (urban areas)**
- **SFA Consumption is predicted to double next 30 years.**
- **Changes in consumption pattern signal a need for changes in Cropping patterns and Regulatory environment.**

Questions

- Do we need to adapt ?
- What makes people accept ?
- What is the long term impact ?

Some Solutions

- Vertical integration of the food market from **farm to firm to fork** to achieve efficiency and serve the interest of every stakeholder in the food chain-the farmer, the processor, the retailer and the consumer.


Thank You
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Chandu | www.mysoredasara.net

Global Food Security Forum

7 July 2014

Tee, E.-S. and Soon, J.M.

What's for dinner in 2035?

Changing Trends in Dietary Pattern and Implications to Food and Nutrition Security in ASEAN

Global Food Security Forum

7 July 2014

Tee, E.-S. and Soon, J.M.

Food Security

http://www.malaysiabest.net/2008/05/08/no-rice-no-worries/

When:

- All population,
- at all times
- have physical and economical access
- to safe and nutritious food

Is food readily available? **(Availability)**

Ease of physical access**(Accessibility)**

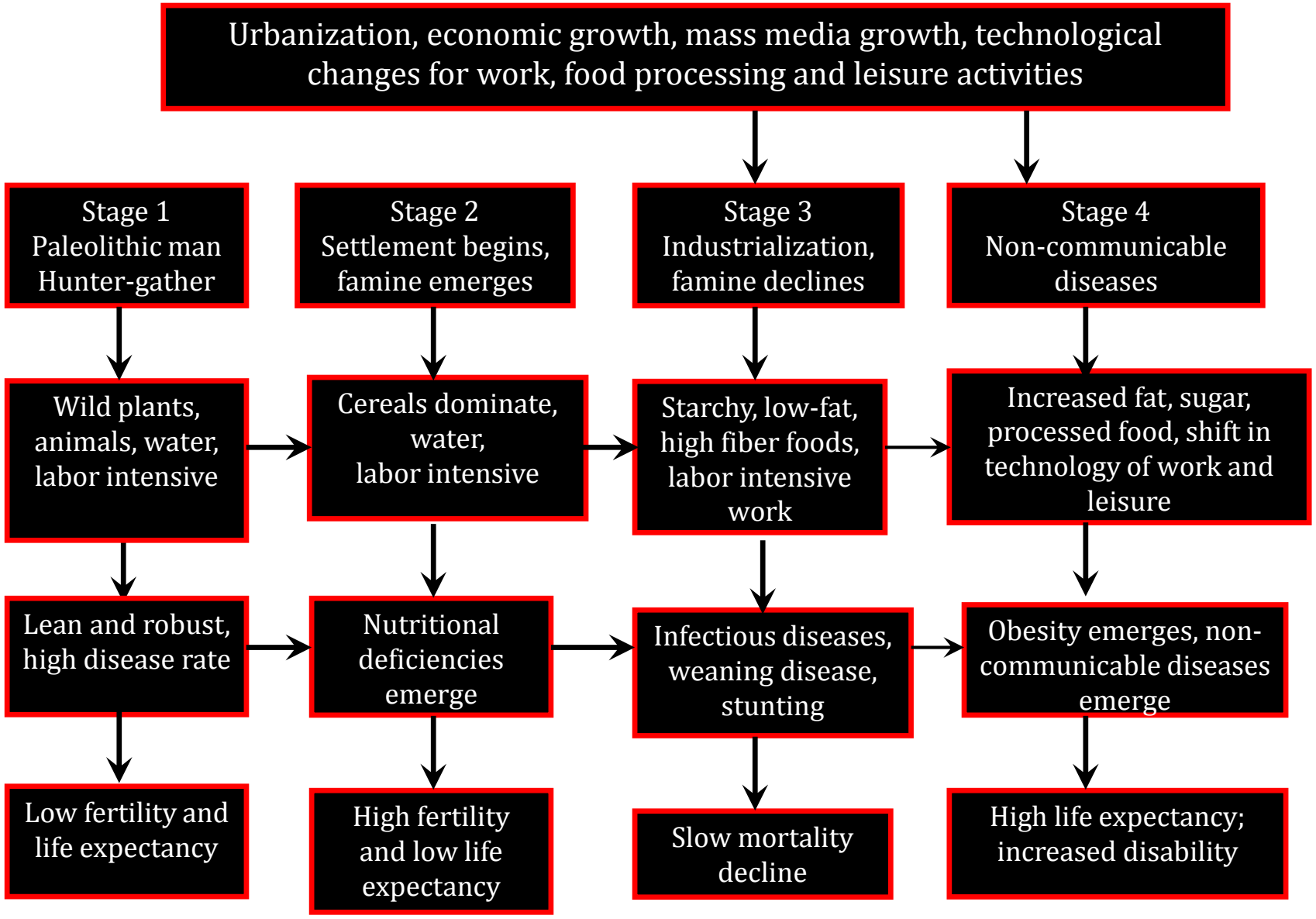
Ease of economical access**(Affordability)**

Nutrients metabolism and utilisation **(Utilisation)**

Nutrition transition

http://latitudes.nu/travel-guide/

Nutrition transition



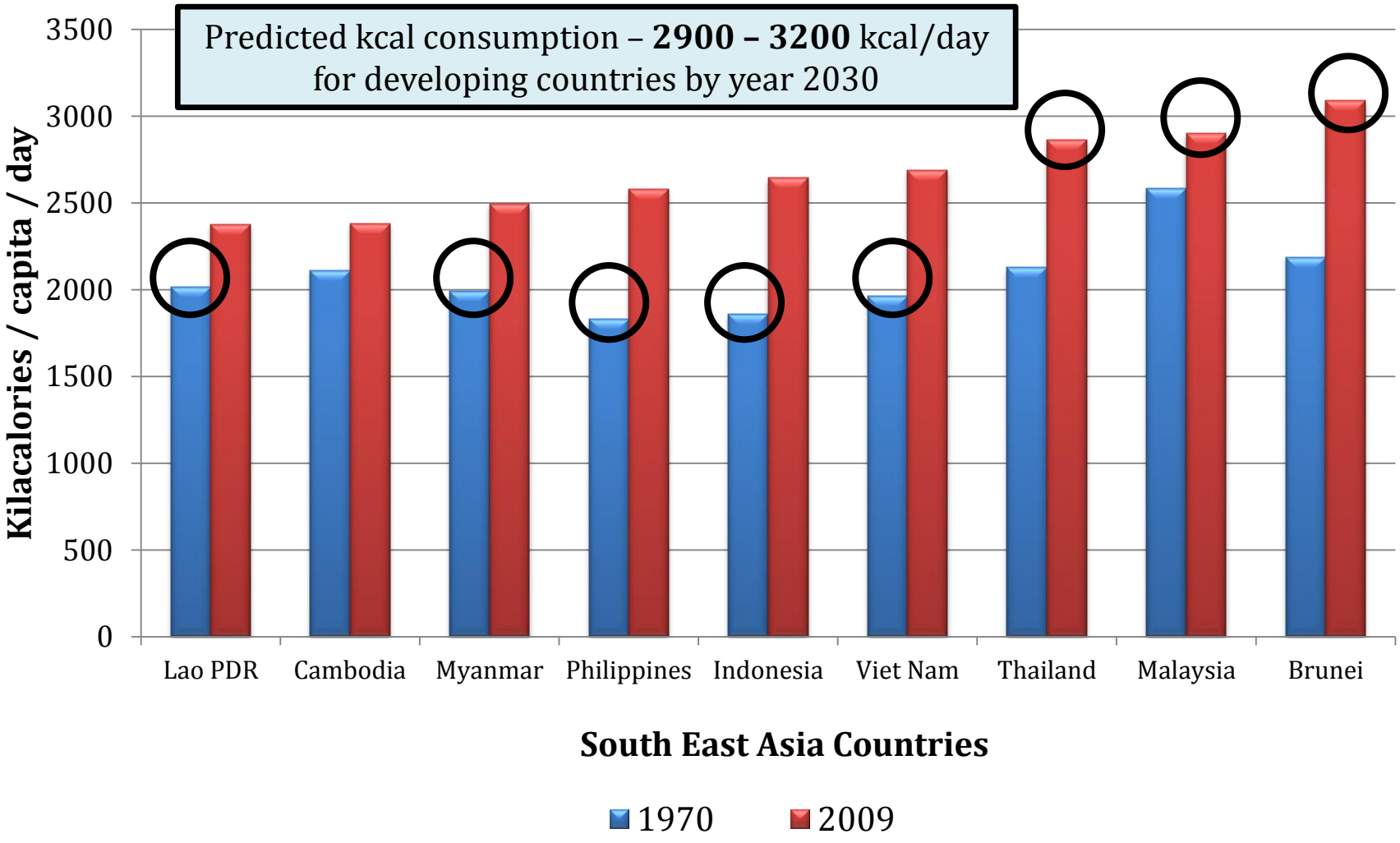


Figure 2. 1970 vs. 2009: Energy availability in ASEAN countries (kcal/capita/day)

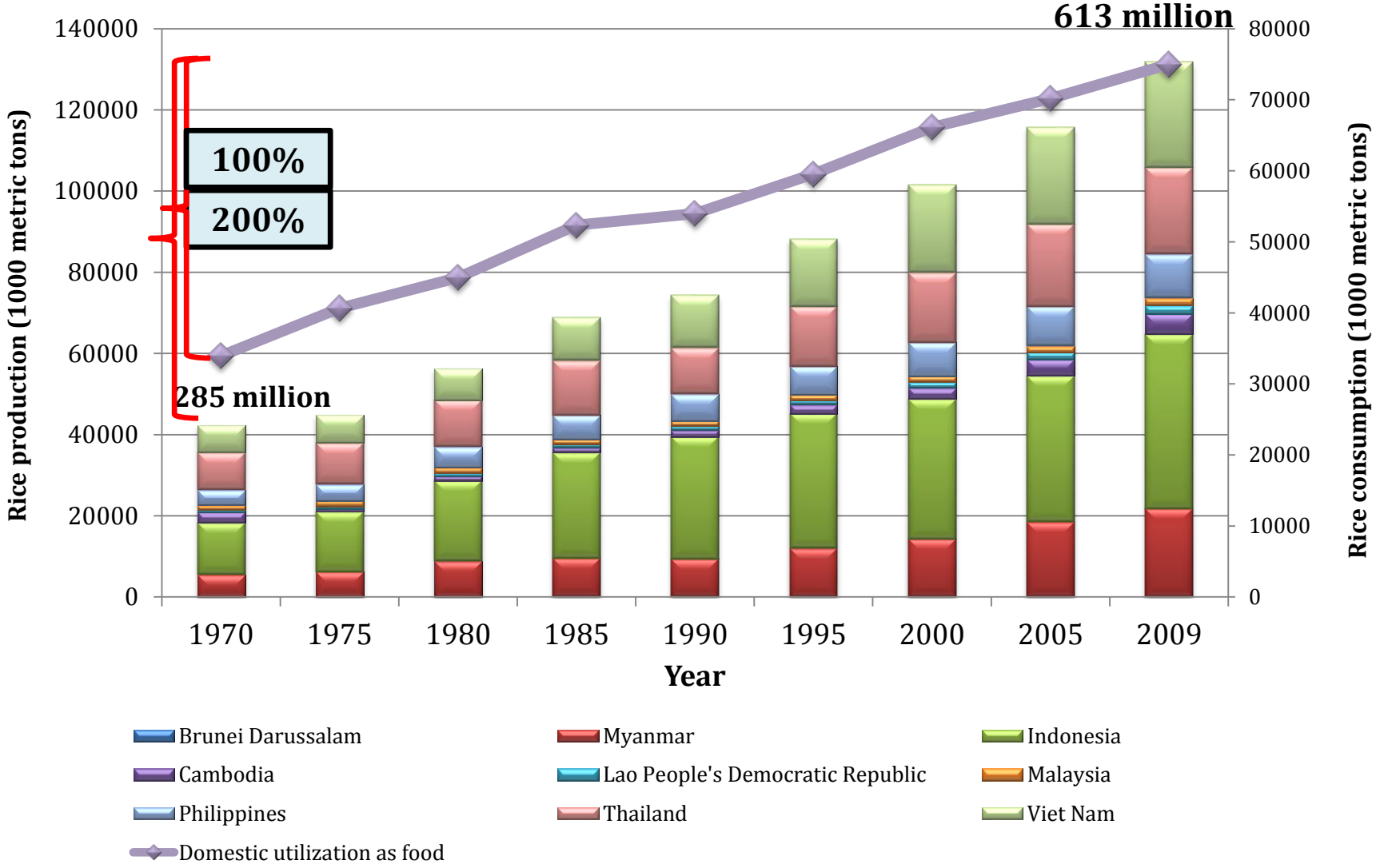
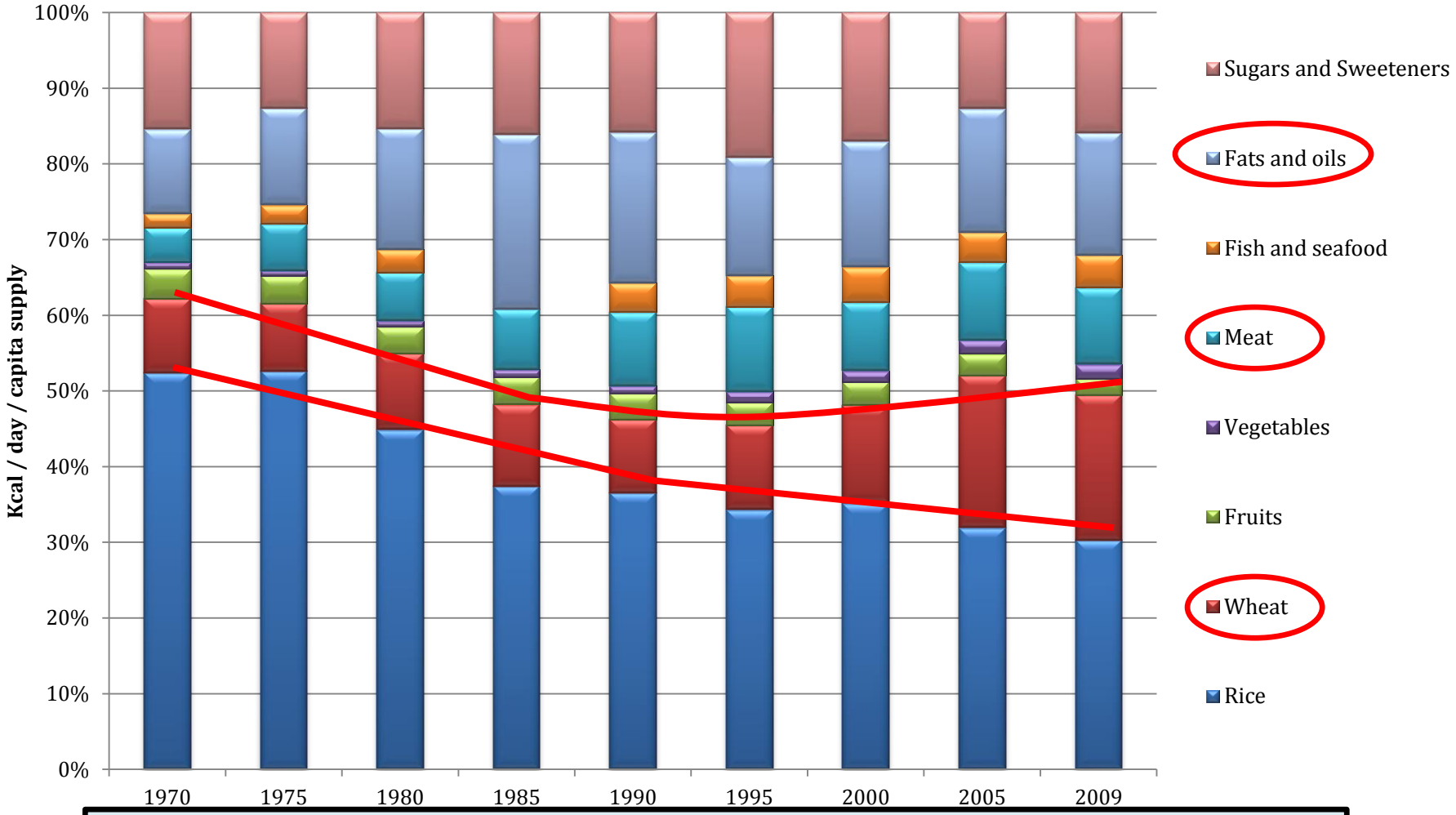


Figure 3. Rice production and consumption in SEA countries



From staple diet to WMOFS (Wheat, meat, oil, fat and sugar)

Figure 4. Kilocalorie contribution of various food commodity in Malaysia

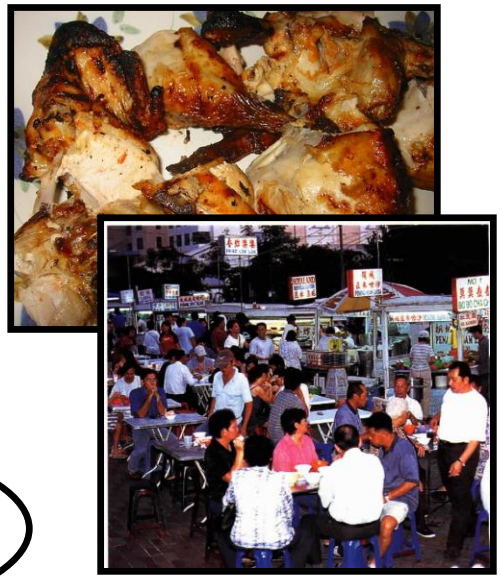
Drivers for change in dietary pattern

International food trade

Burgerization

Foreign direct investment

Emergence of supermarkets and fast food chains



Local fast food consumption

Urbanization and access to social and mass media

Increase in income and socioeconomic gains

Shift from fish, forestry and agricultural sector to manufacturing and services

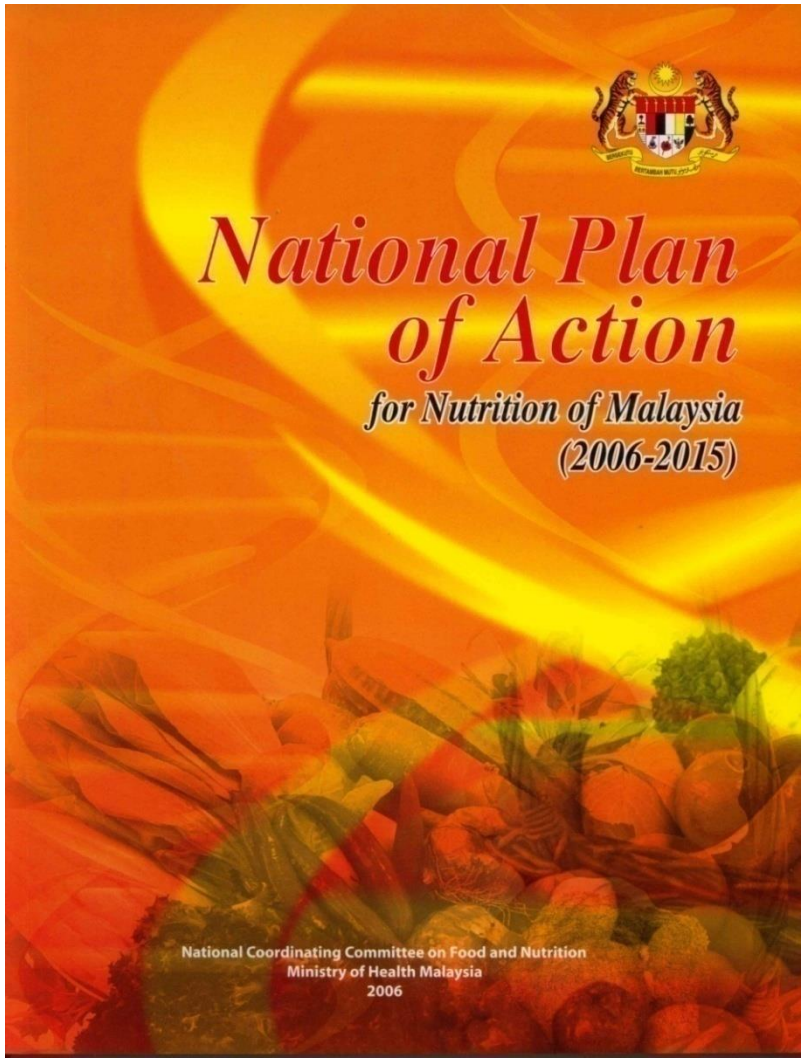
Implications to food and nutritional security

- Increase in non-communicable diseases
- Consequences of production and consumption of meat and fish
- Increasing pressure on environment
- “Food miles”
- Dietary change, less physical activities, sedentary lifestyle and occupational changes

Intervention Strategies

- Promote healthier food options
- Economic measures
- Malaysia's nutritional policies and National Plan of Action for Nutrition

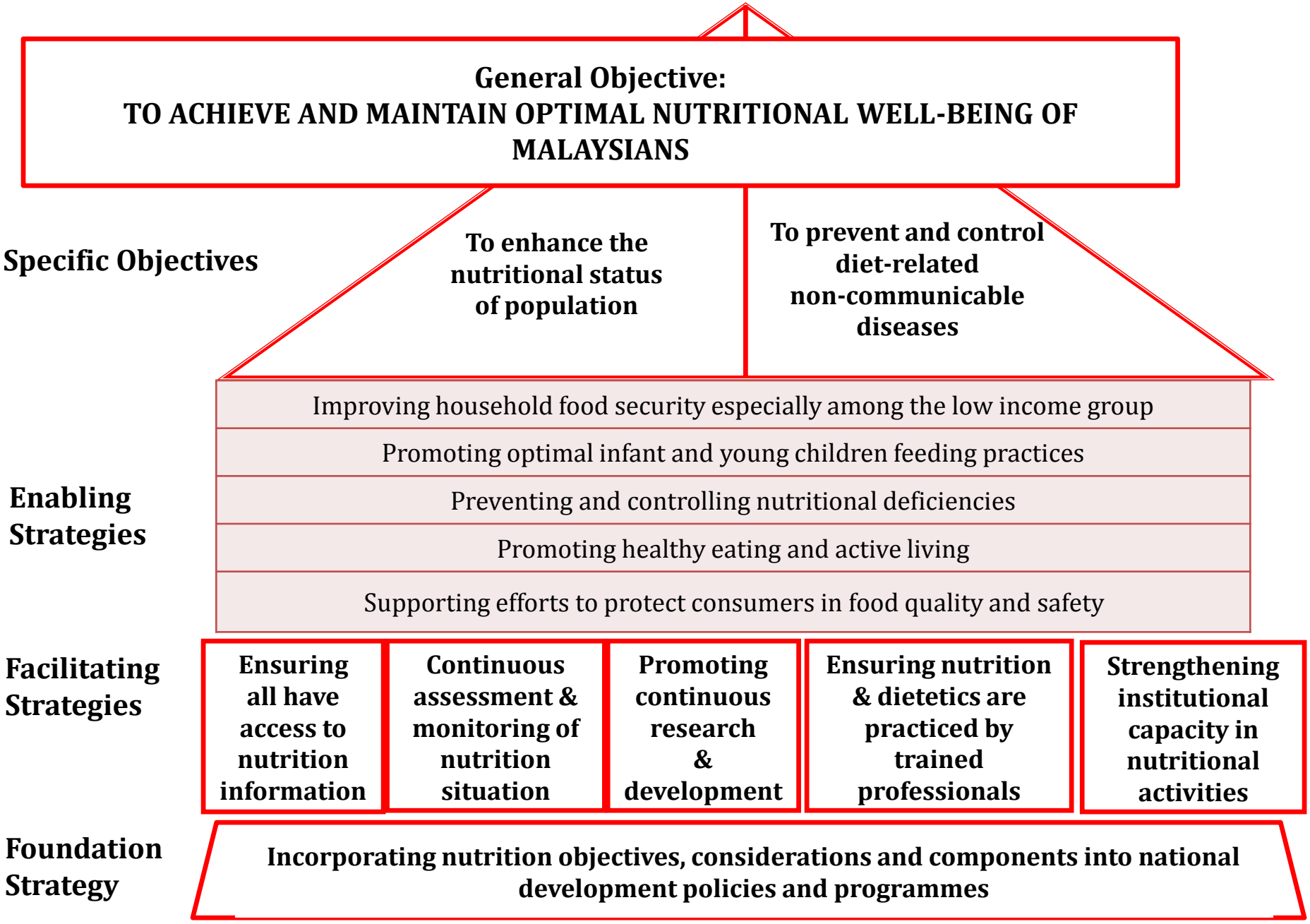
National Plan of Action for Nutrition II (2006 – 2015) (NPAN II)



Malaysia's nutritional policies and National Plan of Action for Nutrition

- General Objective of NPANM II:
  - to achieve and maintain optimal nutritional well-being of Malaysians

- To ensure effective implementation, monitoring and evaluation of the Plan of Action, strategies of the Plan are oriented into
  - Foundation
  - Enabling and
  - Facilitating Strategies


General Objective:
TO ACHIEVE AND MAINTAIN OPTIMAL NUTRITIONAL WELL-BEING OF MALAYSIANS
Specific Objectives
To enhance the nutritional status of population
To prevent and control diet-related non-communicable diseases
Enabling Strategies
Improving household food security especially among the low income group
Promoting optimal infant and young children feeding practices
Preventing and controlling nutritional deficiencies
Promoting healthy eating and active living
Supporting efforts to protect consumers in food quality and safety
Facilitating Strategies
Ensuring all have access to nutrition information
Continuous assessment & monitoring of nutrition situation
Promoting continuous research & development
Ensuring nutrition & dietetics are practiced by trained professionals
Strengthening institutional capacity in nutritional activities
Foundation Strategy
Incorporating nutrition objectives, considerations and components into national development policies and programmes

Conclusion

- Significant changes in dietary pattern in Southeast Asian countries
- Per capita energy availability has risen significantly over the years
- Changes in consumption pattern and lifestyle have led to obesity and non-communicable dietary related diseases
- Action plan and intervention strategies

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