Food and Agriculture Organization
of the United Nations

Regional Inception Workshop for Regional TCP on Creating Enabling Environments for Nutrition-Sensitive Food and Agriculture to Address Malnutrition

Dr. Xuan Li

Senior Policy Officer, Delivery Manager for Zero Hunger Initiative

FAO Regional Office for Asia and the Pacific

30 March 2017

ZERO HUNGER CHALLENGE

Objectives

1. Review draft Regional TCP work plan
2. Review draft Questionnaire on Policy, Laws and Regulations
3. Review draft National Policy Dialogue plan
4. Review draft scoping reports on FSF and identify sites for field survey
5. Brainstorming on way forward on agricultural diversification

Country Coverage

- Cambodia
- Lao PDR
- Myanmar
- Nepal

Participants

- National focal points on Zero Hunger Challenge:

  CARD (Cambodia), Ministry of Agriculture and Forestry (Lao PDR), Ministry of Agriculture, Livestock and Irrigation (Myanmar), Ministry of Agricultural Development (Nepal)

- National research institutes:

  Cambodian Agricultural Research and Development Institute, Department of Agricultural Research (Myanmar), National Agriculture and Forestry Research Institute (Lao PDR), Nepal Agriculture Research Council

- International research partners:

  ICARDA, ICRISAT, leading intellectuals, etc.

- FAO

Agenda

Session 1	Opening and Setting the Scene
Session 2	Regional TCP Overview and Work Plan
Session 3	Questionnaire on Policy, Laws and Regulations and National Policy Dialogue Plan
Session 4	Identification of Site for Field Survey
Session 5	Brainstorming on Way Forward on Agricultural Diversification

Ground Rules

- ✓ Kindly turns off their cell phones
- ✓ Punctuality
- ✓ Speak within allocated time slots
- ✓ Be specific and keep discussion focused
- ✓ Wear your name tag on a visible spot


Thank you!

Food and Agriculture Organization of the United Nations

Regional Inception Workshop

Regional TCP on Creating Enabling Environments for Nutrition-Sensitive Food and Agriculture to Address Malnutrition

Setting the Scene: Conceptualization and Justification for Agricultural Diversification to Address malnutrition and Climate Change

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ZERO HUNGER CHALLENGE

Outline

I. Regional Challenges

- 1.1 Hunger and Malnutrition
- 1.2 Climate Change
- 1.3 Feature and Gaps in the Food System

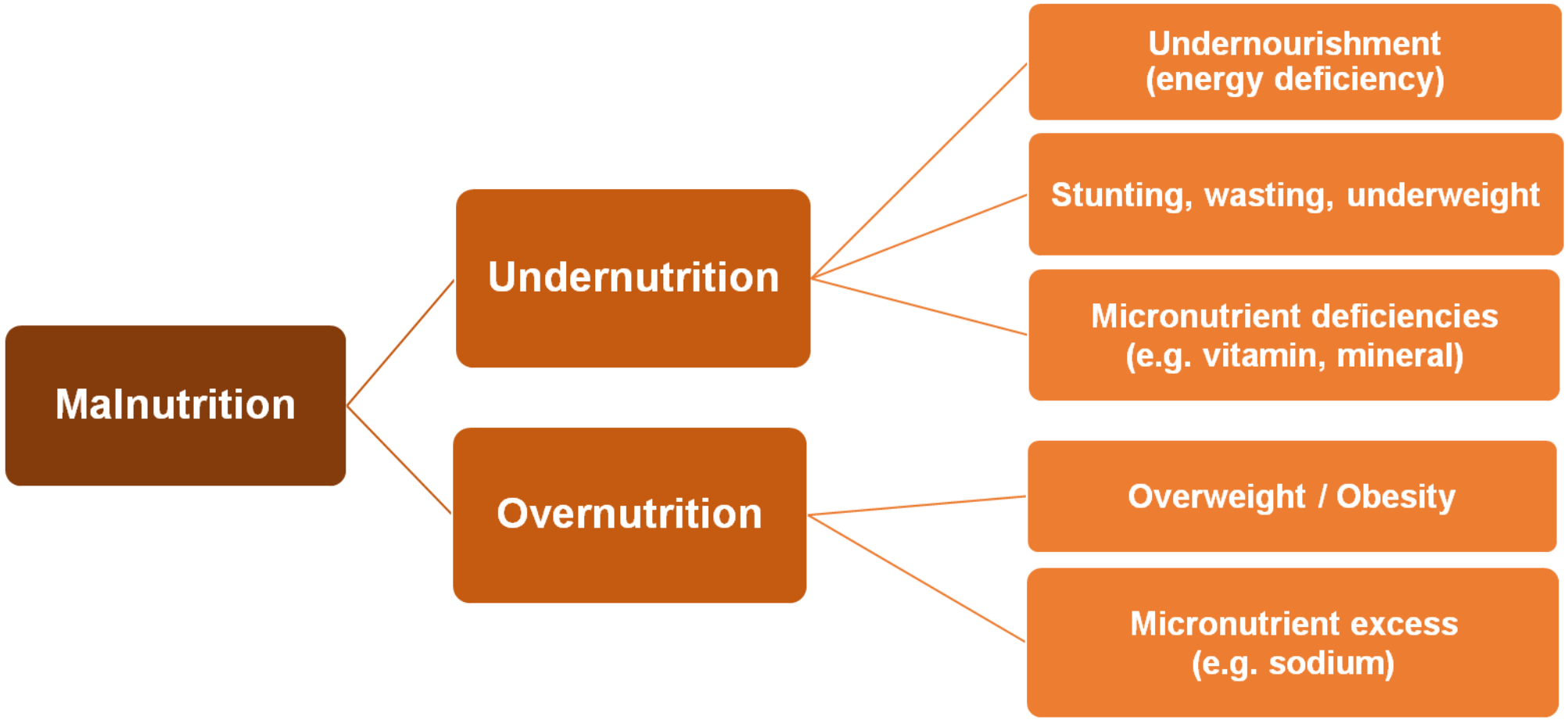
II. Justification: Future Smart Food to Address the Dual Challenge

III. Roadmap for Agricultural Diversification

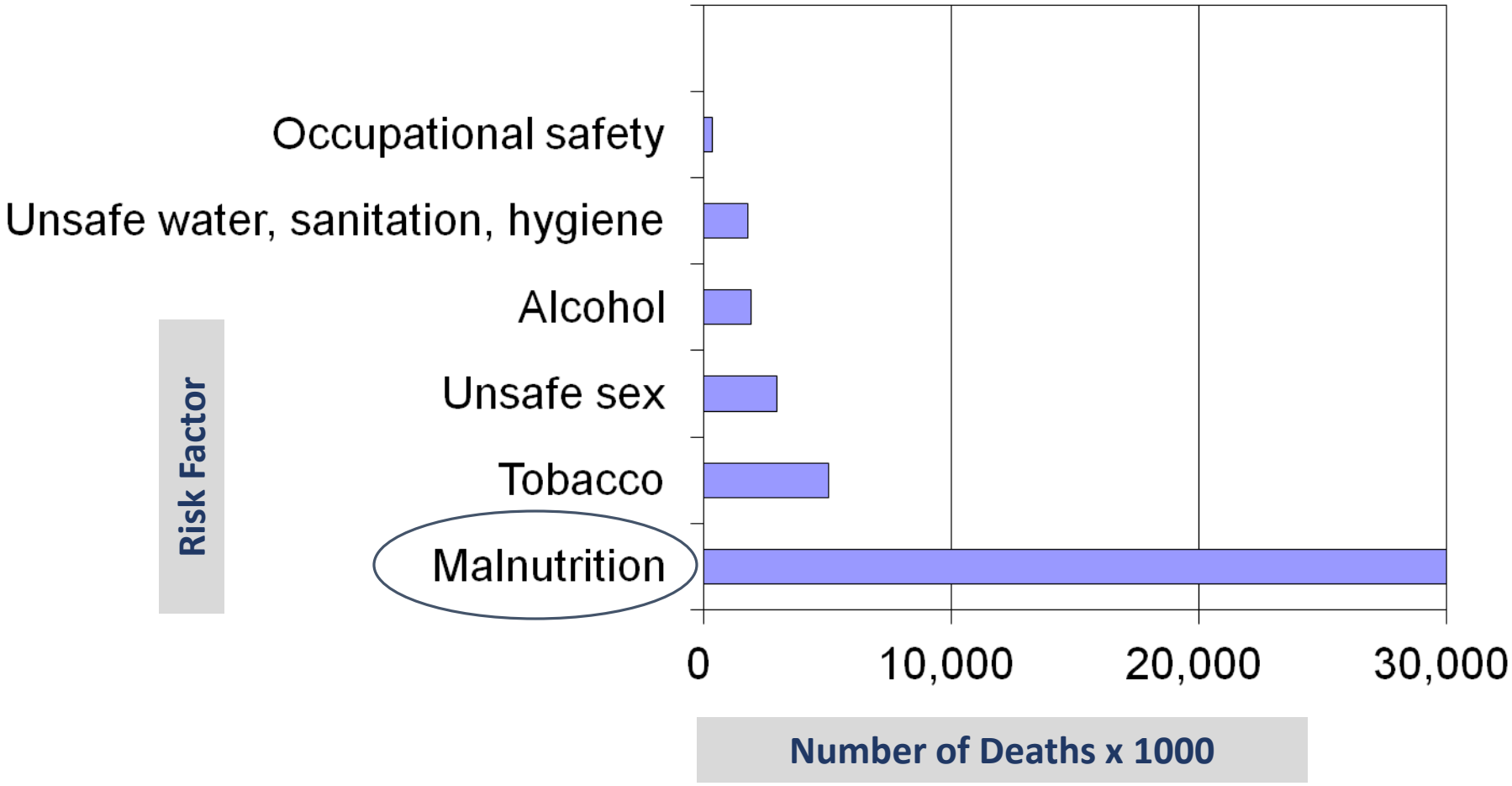
I. Regional Challenges

1.1 Hunger and Malnutrition

Malnutrition



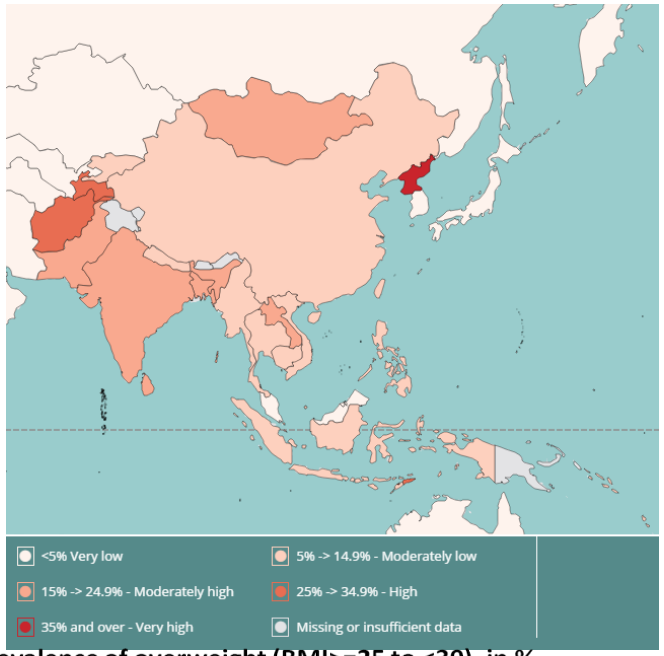
Major Global Risk Factors Causing Death

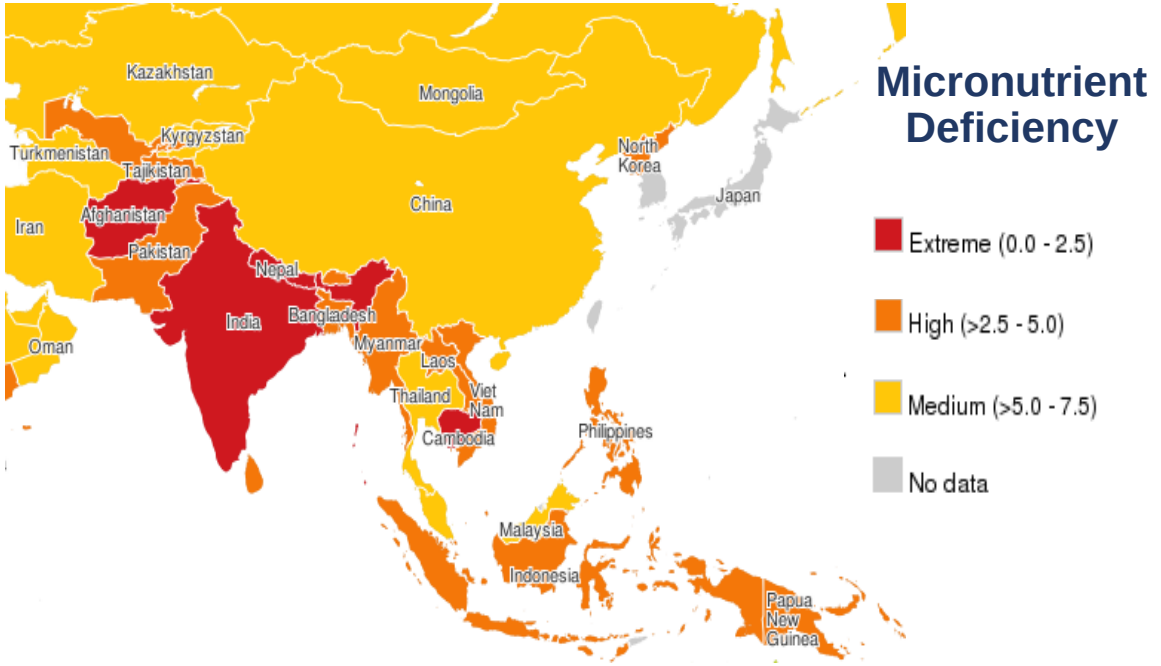


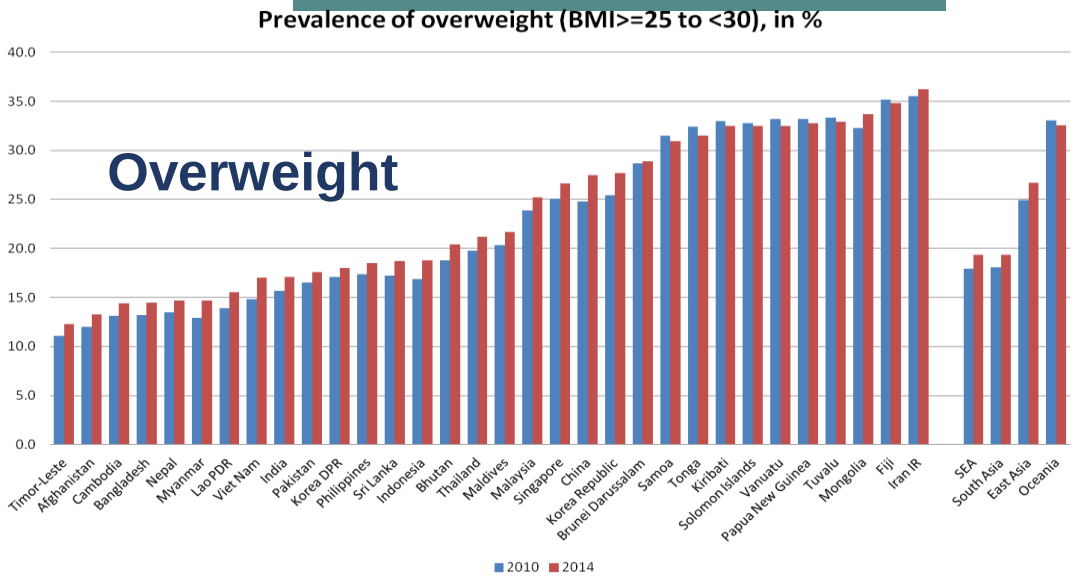
Malnutrition accounts for ≈ 30 million deaths per year
≈ 1 death per second (WHO estimate)

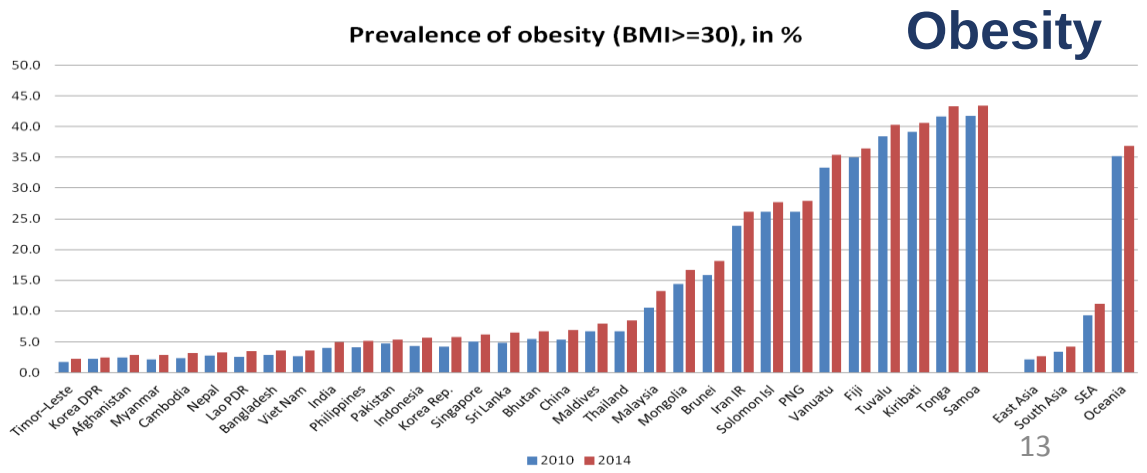
Hunger and Malnutrition in Asia & Pacific

Hunger

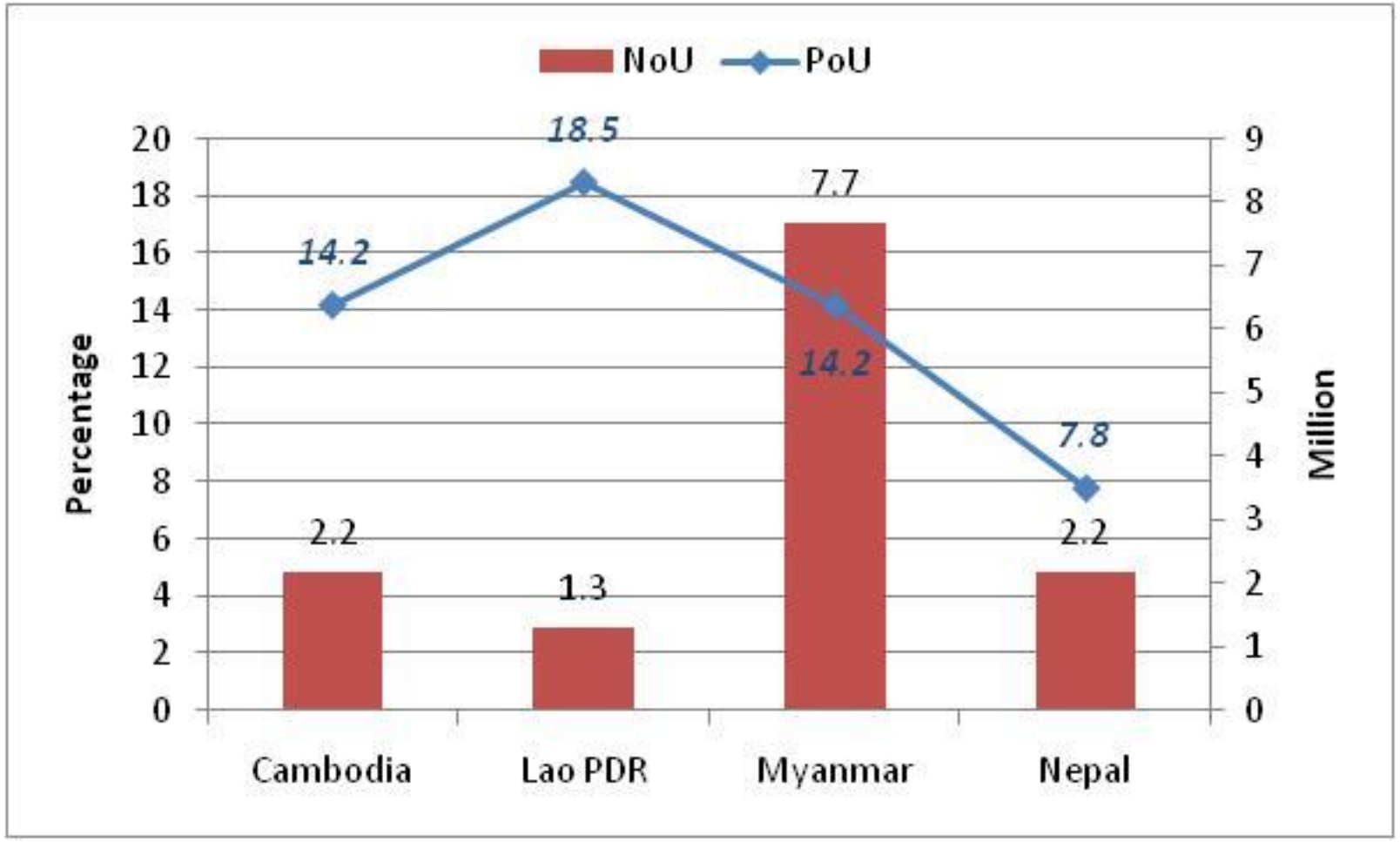








Countries' Prevalence of Undernourishment



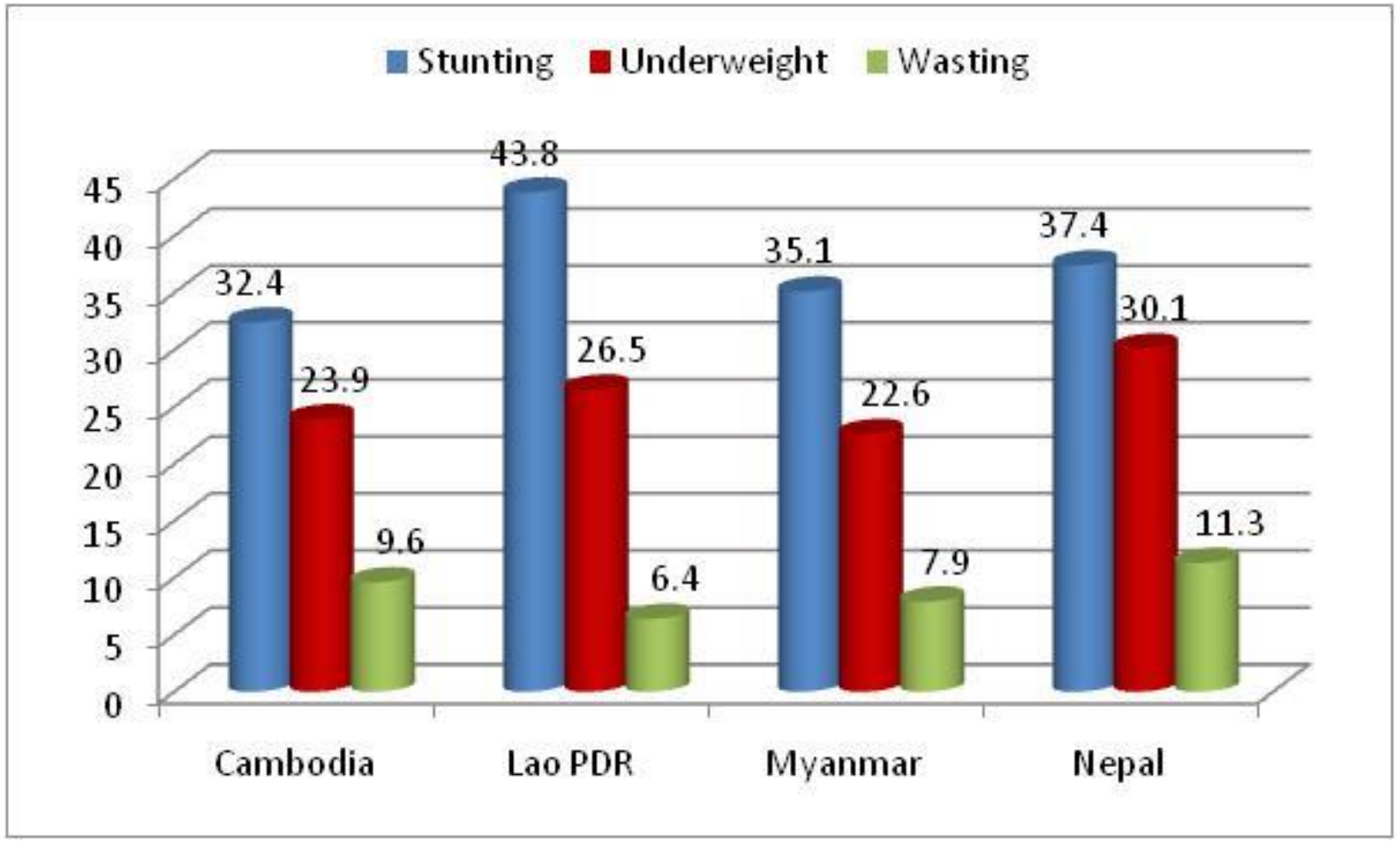
Prevalence of Undernourishment (PoU)

Number of Undernourished People (NoU)

Source: FAO (2015)

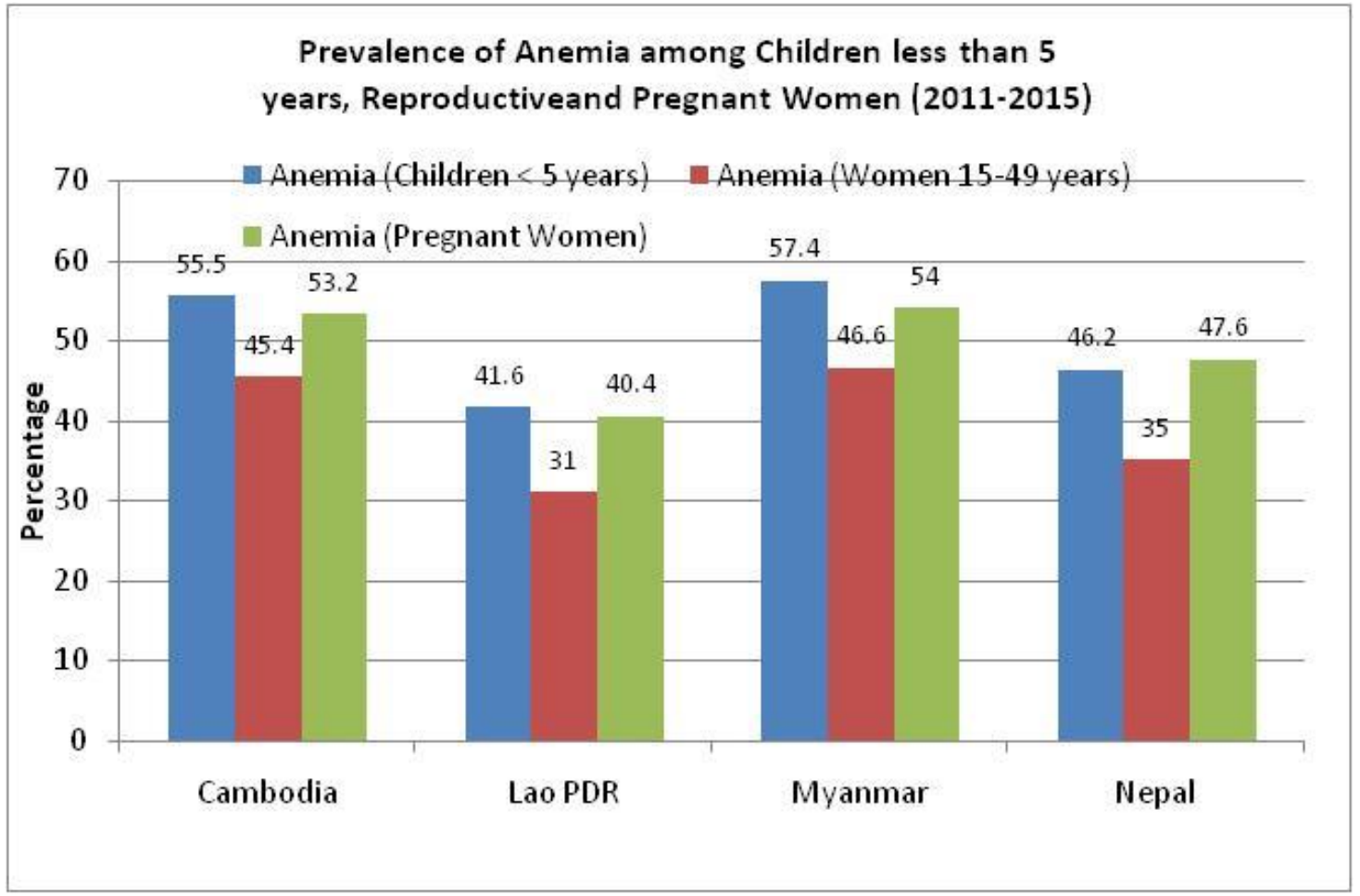
Countries' Stunting, Wasting and Underweight

Country's Child Malnutrition Indicators 2011-14



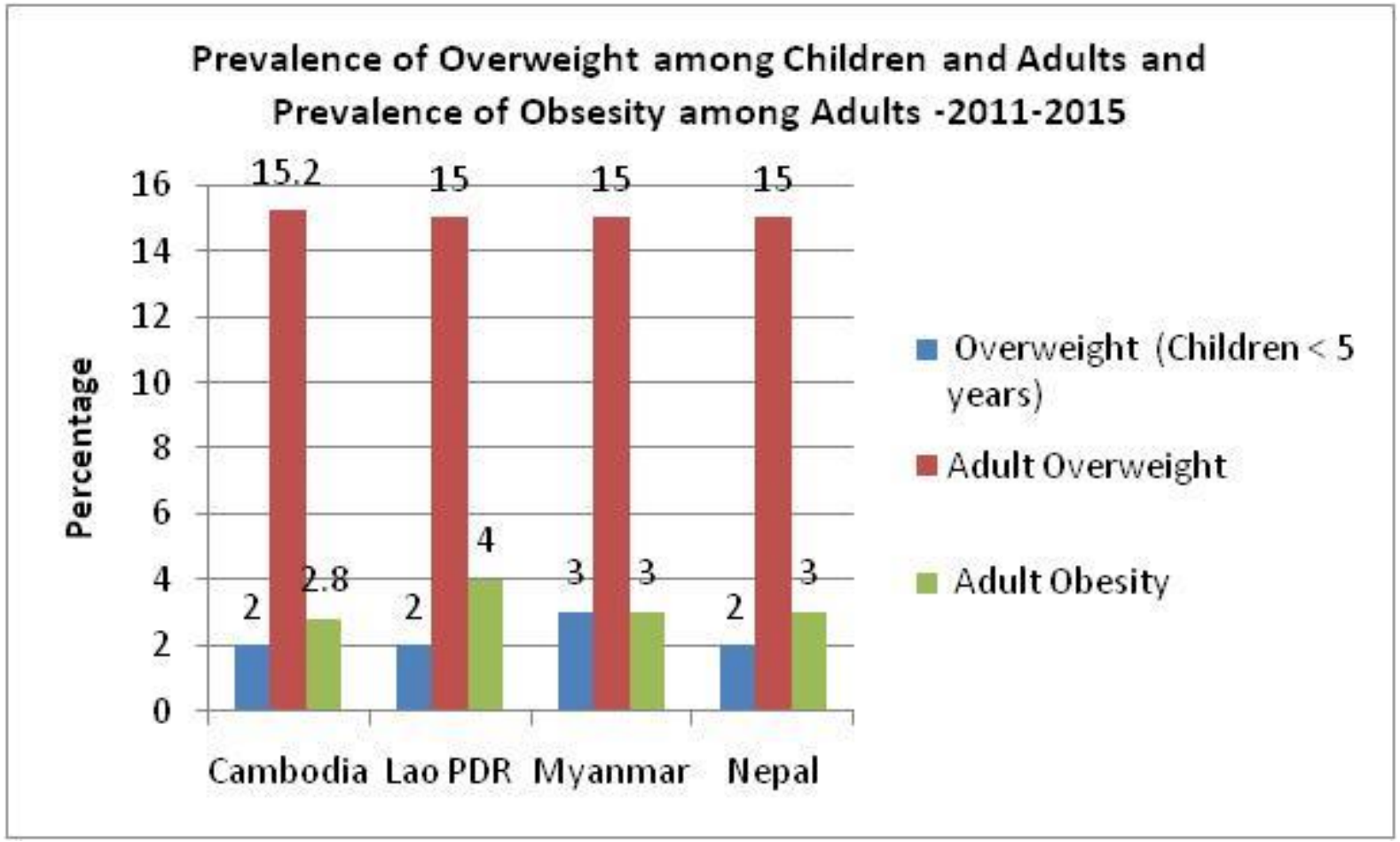
Source: UNICEF-WHO-World Bank joint database

Countries' Prevalence of micronutrient deficiencies: Anaemia



Source: WHO (2015) the prevalence of anaemia

Countries' Overweight and Obesity

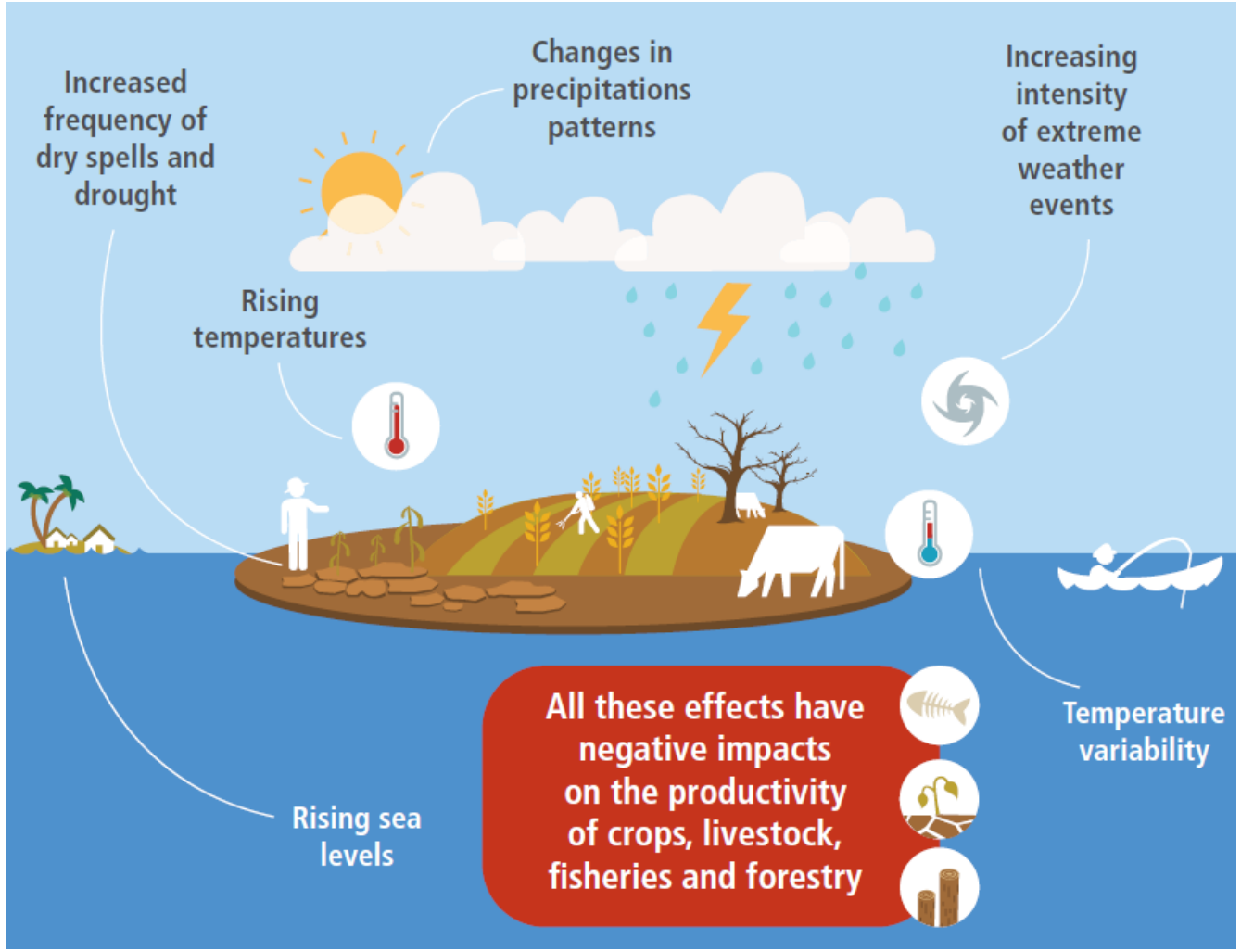


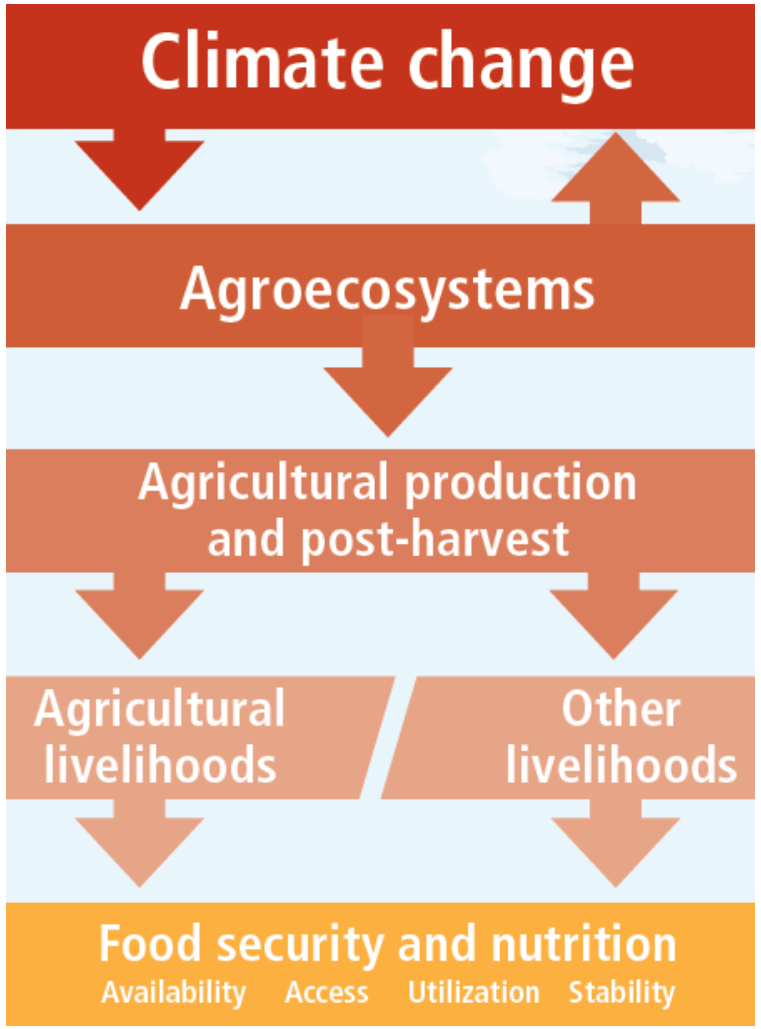
Source: WHO, NCD Country Profiles (2014); SUN (2015)

I. Regional Challenges

1.2 Climate Change

Climate Change Affects Agriculture and Food Security

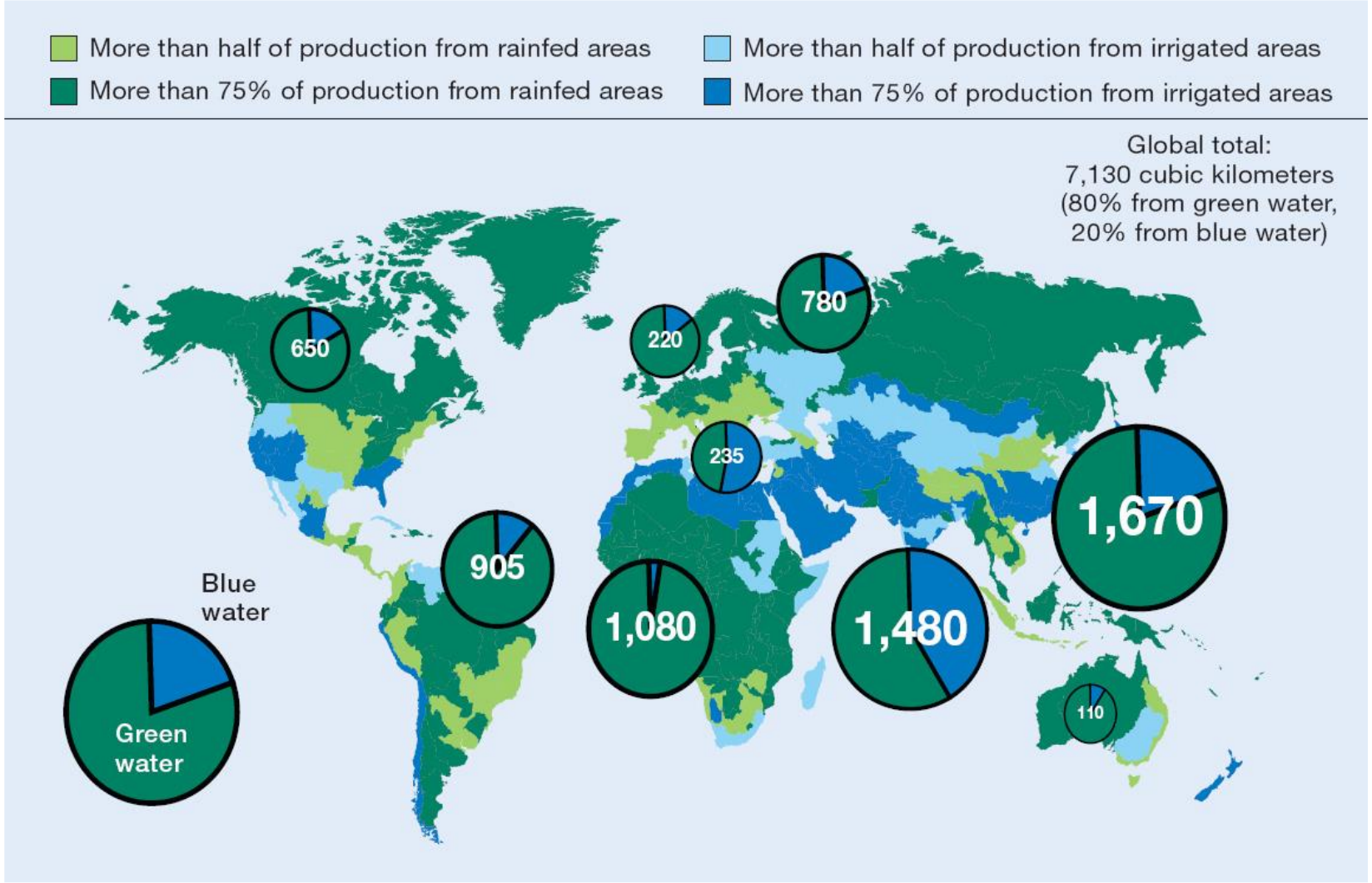




Source: FAO (2016)

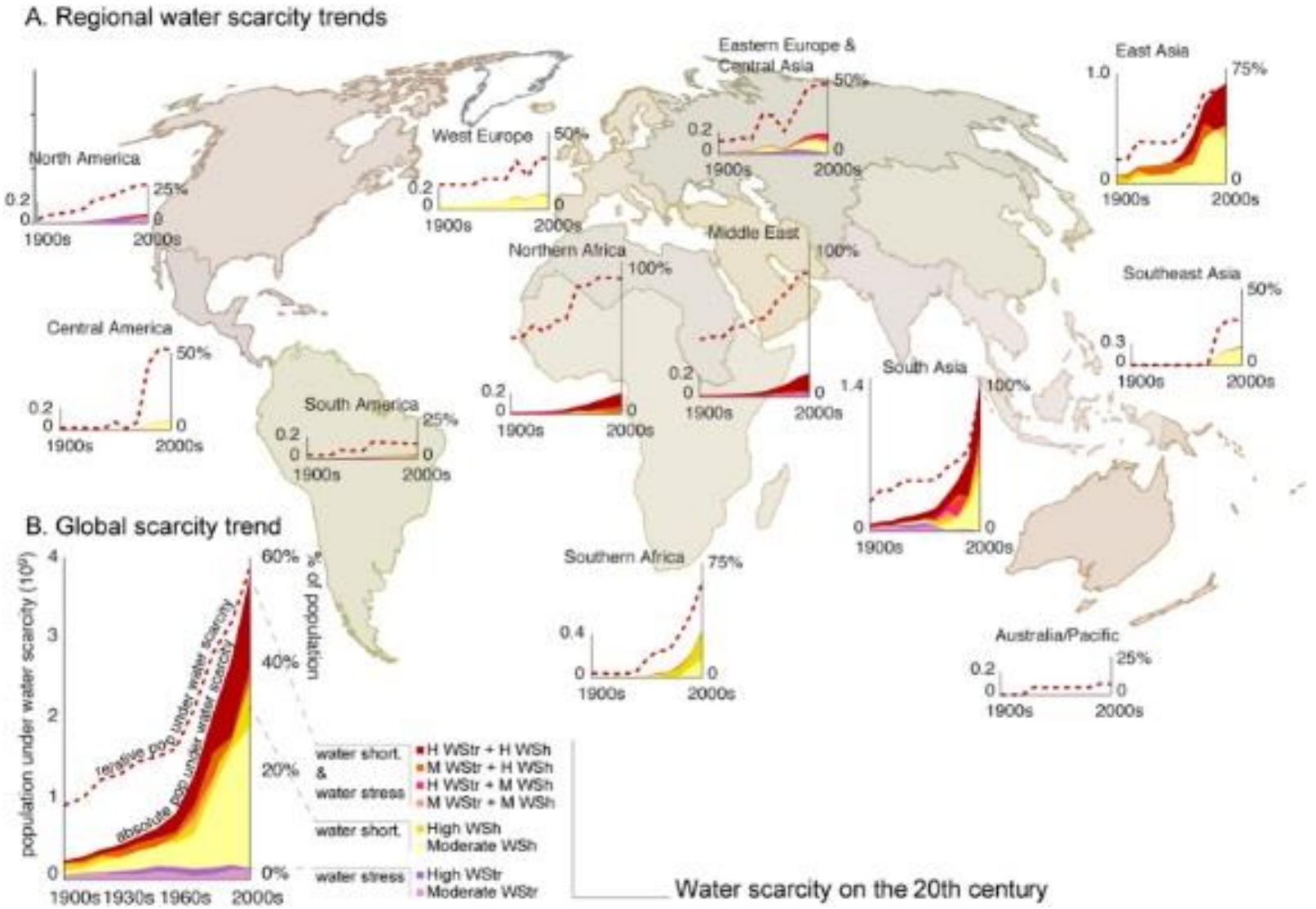
Water Resources: Vital in Agriculture and Crop Productivity

Food Crop evapotranspiration from Rain and Irrigation (km3) and Production (%)



Source: World Bank, 2012

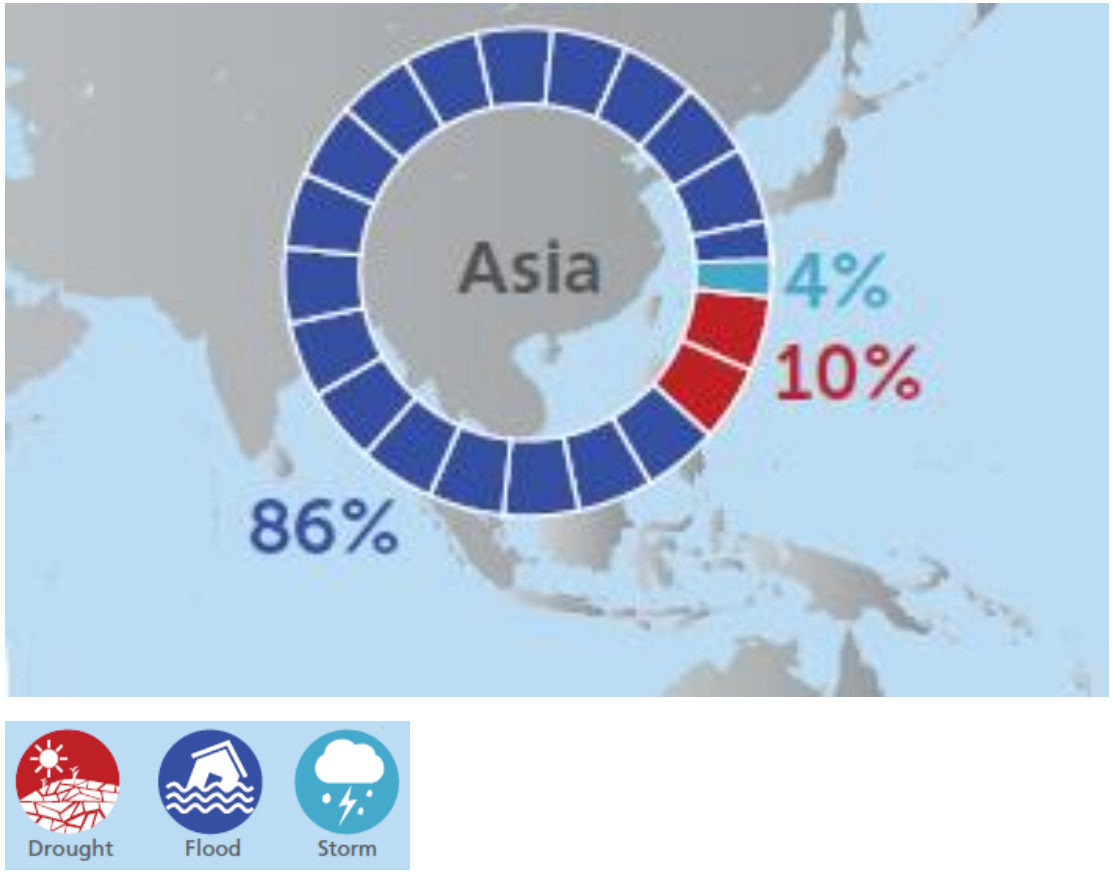
Asia: Regional Water Scarcity Trends



Source: FAO (2016), World Resources Institute (2015)

Asia: Extreme Weather Events

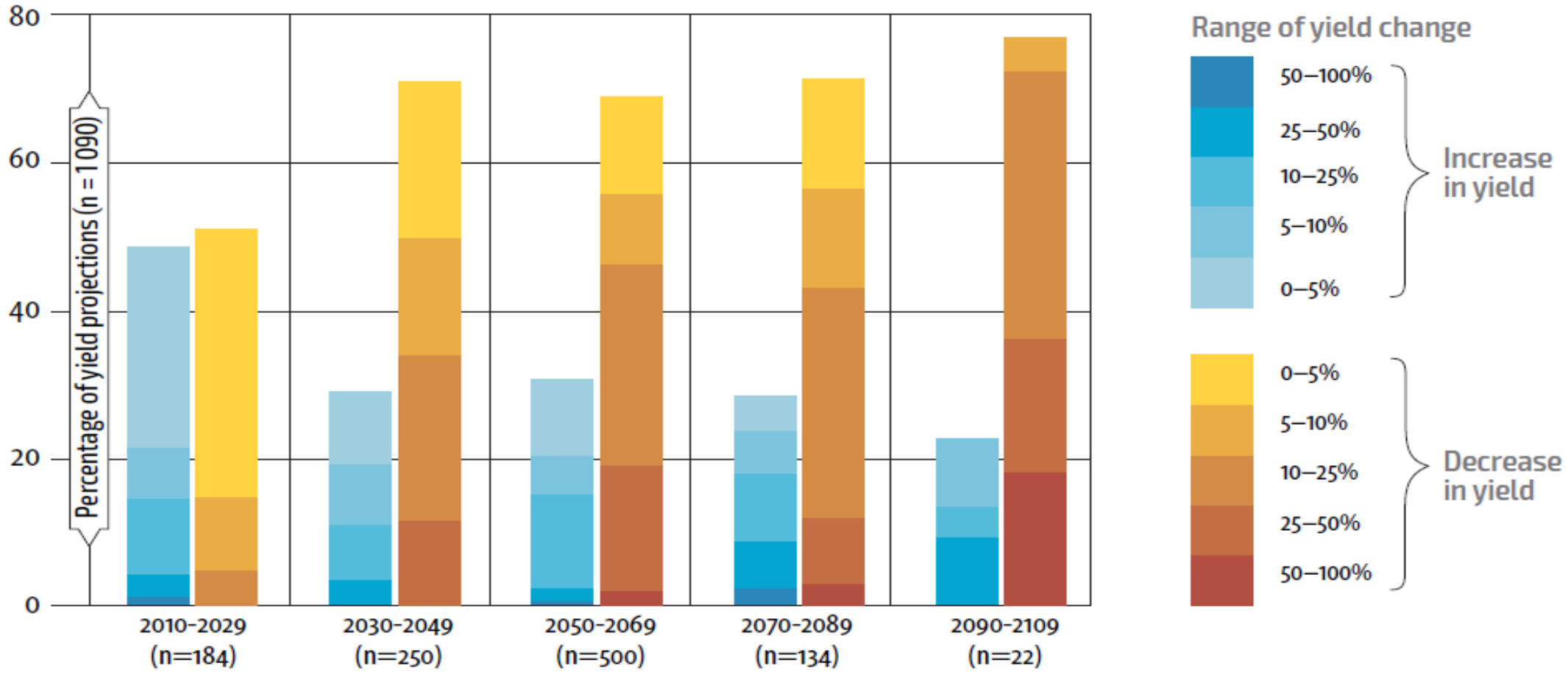
Between 2003-2013, Asia was mainly affected by floods, followed by drought.



Source: FAO (2016), World Resources Institute (2015)

Climate Change and Crop Production

Projected changes in crop yields owing to climate change

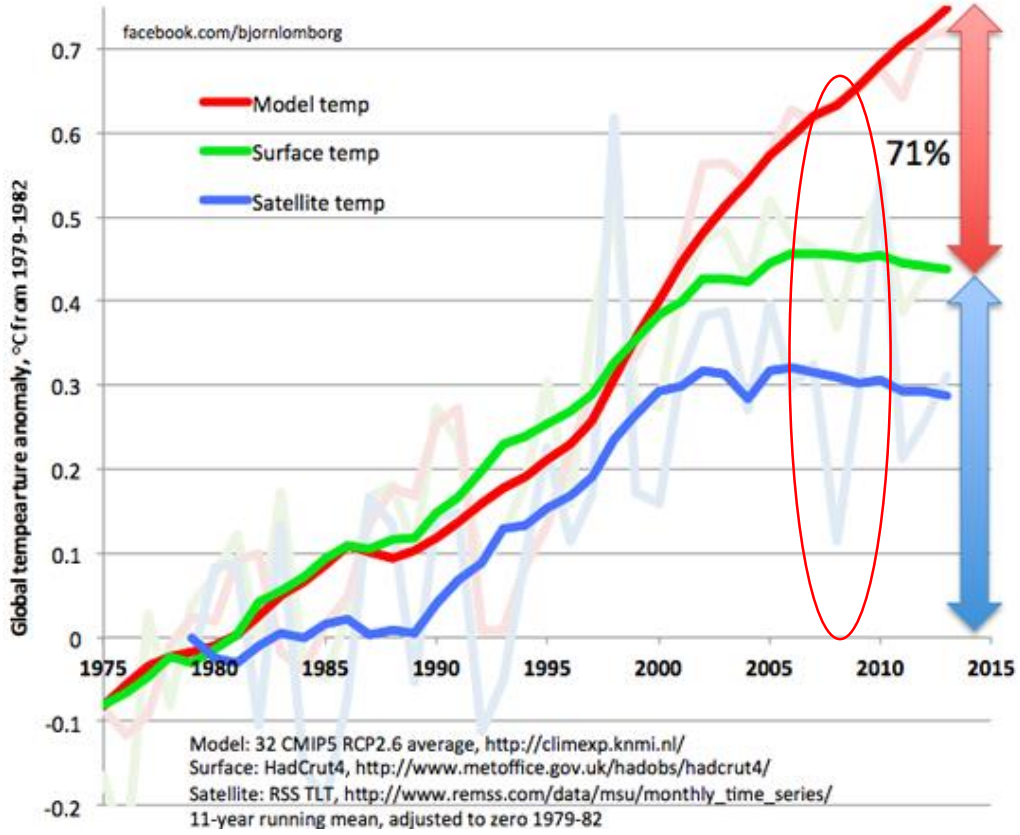


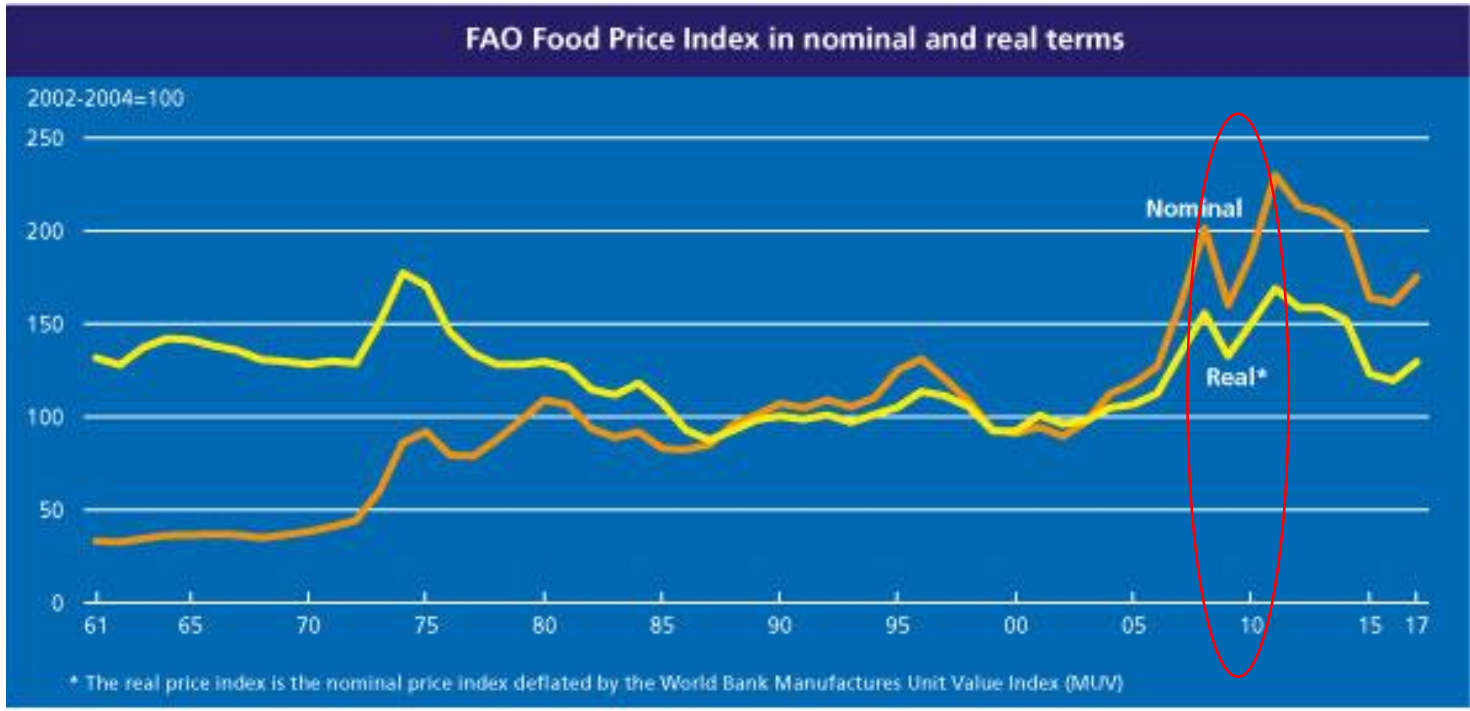
Source: Porter et al. (2014)

Climate change vs Price Fluctuations

- Shift of agro-ecological zones and established crop area
- Negative effects on farmers and their livelihoods

NASA Climate Change Graph





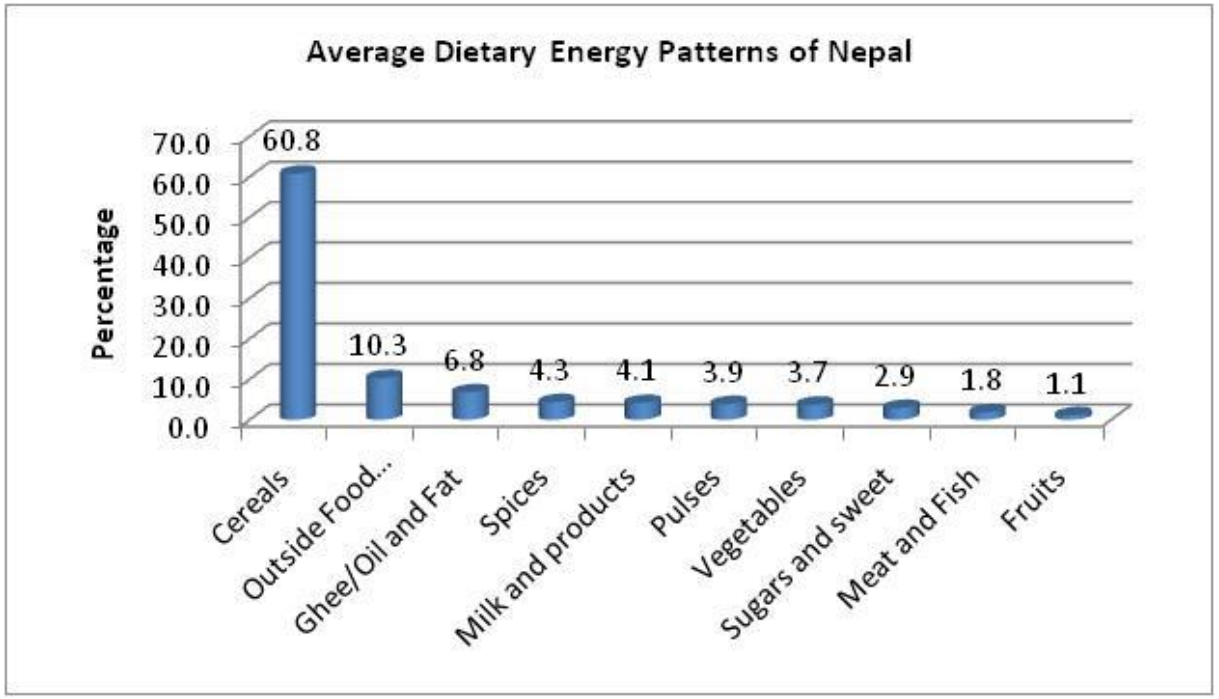
2008

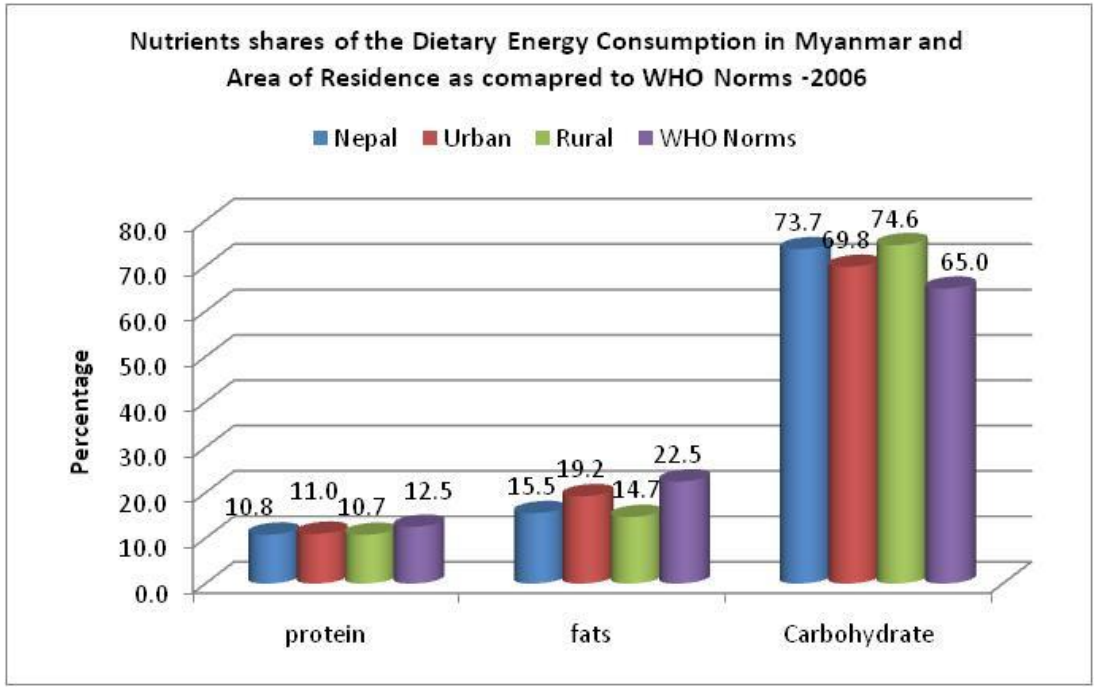
Source: FAO (2017)

I. Regional Challenges

1.3 Food System: Feature and Gaps

Dietary Energy Pattern: (1)

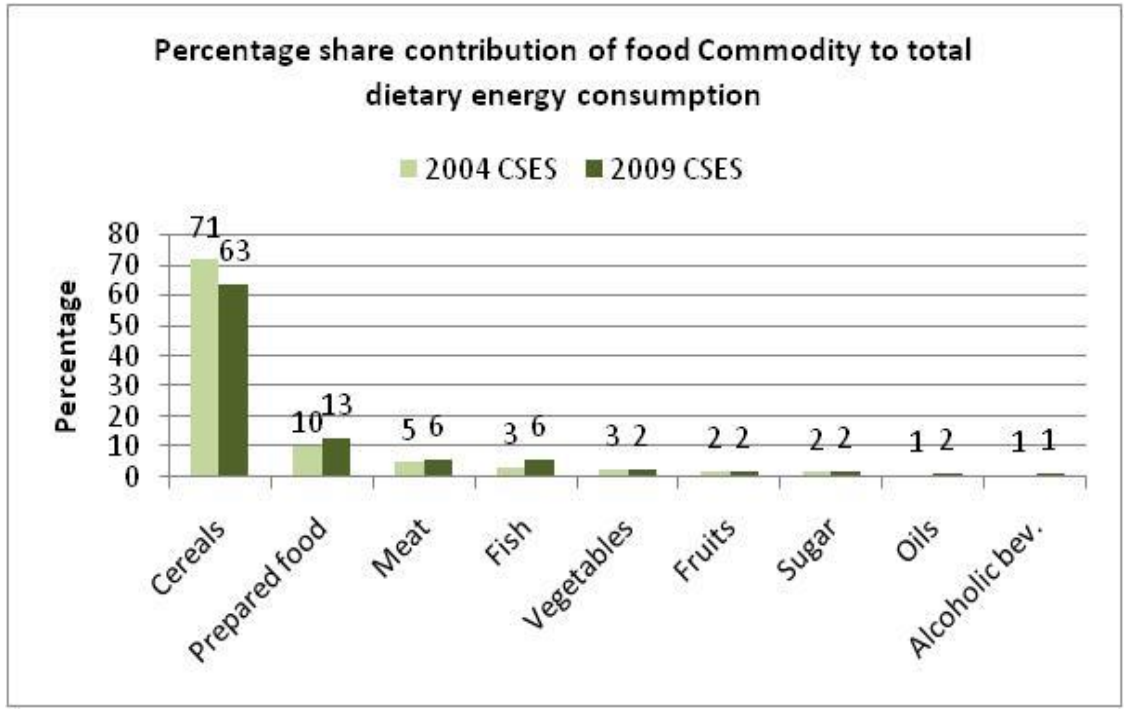




Source: Food and Nutrition Security in Nepal: A Status Report, January 2016 Kathmandu, Nepal.

Dietary Energy Pattern: (2)

Dietary Energy Pattern in Cambodia



Source: Food security Trend analysis report, Cambodia socio-economic surveys 2004 and 2009. National Institute of statistics, Ministry of Planning Cambodia

Contribution of the major food commodity groups to average dietary energy consumption: Lao PDR

Commodity groups	2002/2003		2007/2008	
	DEC (kcal/pers/day)	% contribution to total DEC	DEC (kcal/pers/day)	% contribution to total DEC
Cereals	1,508	72.2	1,831	81
Meat	231	11.1	113	5
Vegetables	71	3.4	38	1.7
Sugars	52	2.5	34	1.5
Fish	44	2.1	34	1.5
Oils and fats	17	0.8	31	1.4
Food consumed outside the home	99	4.7	116	5.1

Source: Food security in Lao PDR: A trend analysis, Lao PDR expenditure and consumption survey (2002/03 and 2007/08), Committee for planning and investment, Lao Statistics Bureau, Vientiane, March 2012

Low Dietary Diversity

Food supply in g per capita per day for a standard person of 70 kg body weight (2,000 kcal)

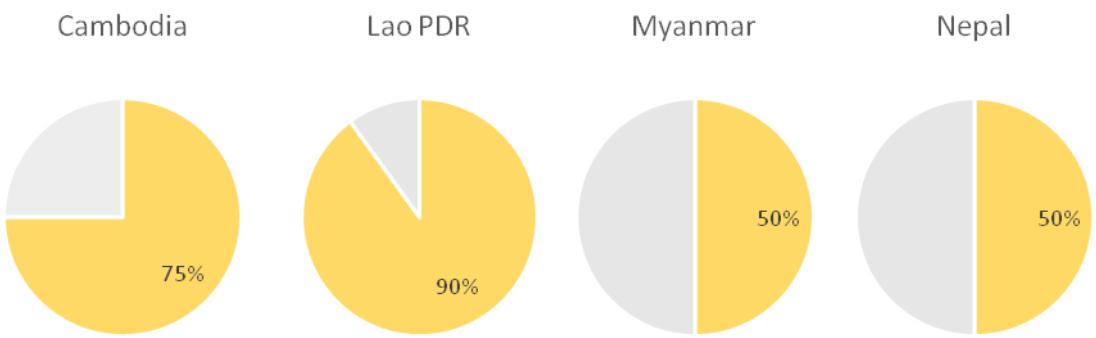
Commodities	Cambodia 2011	Lao PDR 2011	Myanmar 2013	Nepal 2013	*Recommended daily intake [g]*	
Cereals	475	489	397	529	300-500	overreliance on very few cereals (mainly rice)
Roots and tubers	88	122	59	234		
Pulses and legumes	14	8	38	35	50-150	
Animal source foods (meat, fish, eggs)	146	110	278	49		
Dairy	7	8	86	143	250-350	
Fats and oils	27	19	59	34	15-30	
Vegetables	106	367	223	313	>400	consumption of vegetables and fruits remains low
Fruits	70	187	108	168		

Source: FAOSTAT (DGE 2004; FAO 1997; USDA/USDHHS)

Low Production Diversity

- For many years, agricultural policies have been in favour of staple and cash crop production.
- Intensification of single-crop systems to achieve higher yields of staple crops such as rice, wheat and maize has long been the single focus to reduce hunger without targeting micronutrient deficiencies.
- Recent growth of cash crops, such as sugar cane and cassava, has accelerated the low crop diversity in farming systems.

Total of agricultural households growing rice [%]



Monoculture

The majority of agricultural households in Asia grow rice.

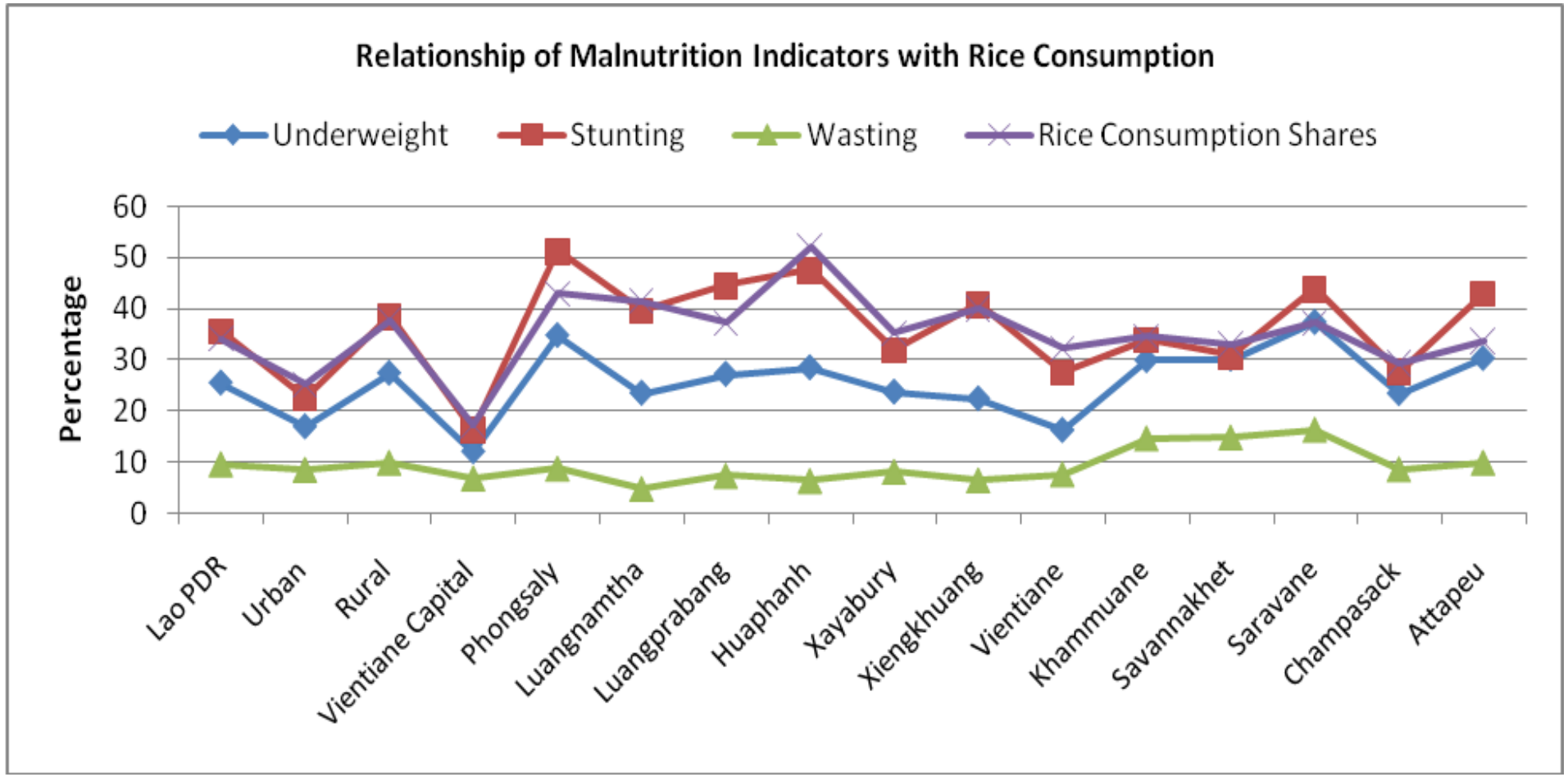
Low Production Diversity

Production of Main Commodities in Selected Countries

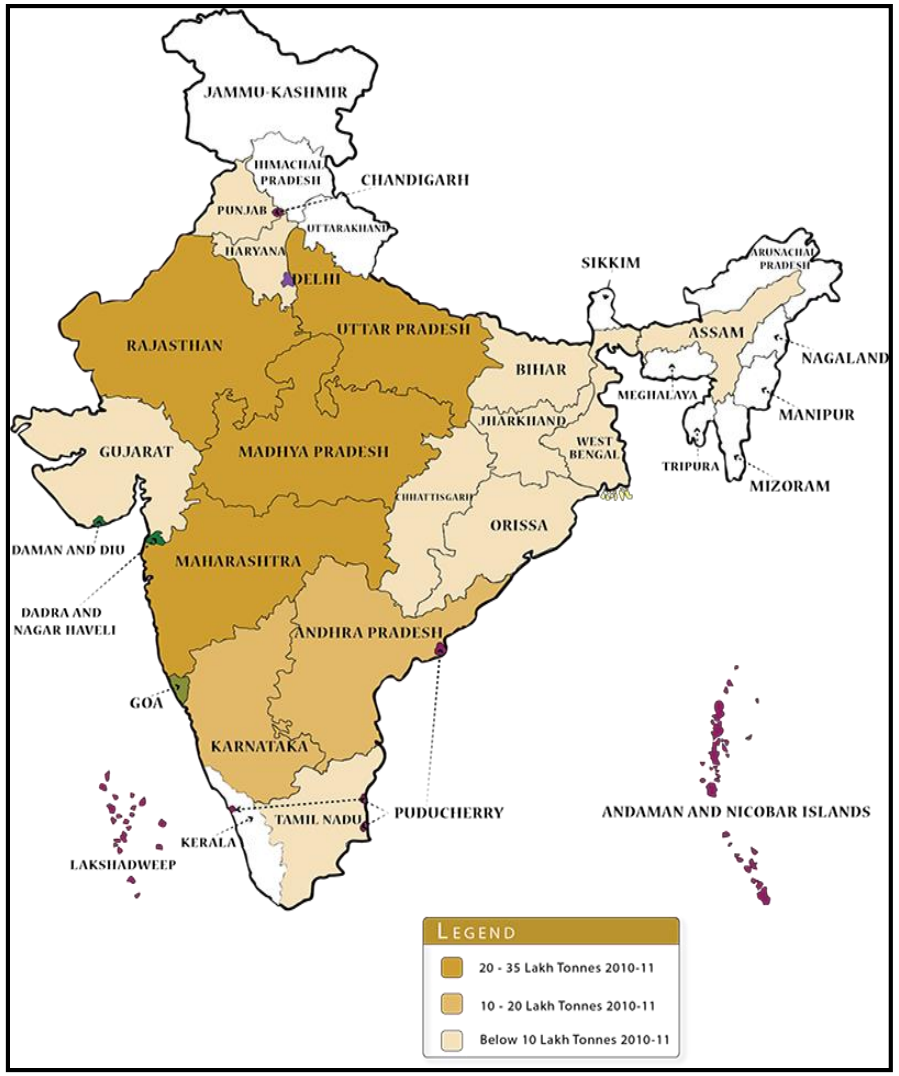
Myanmar 2012		Nepal 2012		Lao PDR 2012		Cambodia 2012	
Commodities	*Production (MT)*	*Commodities*	*Production (MT)*	*Commodities*	*Production (MT)*	*Commodities*	*Production (MT)*
Rice, paddy	28 080 000	**Rice, paddy**	5 072 248	**Rice, paddy**	3 489 210	**Rice, paddy**	9 290 940
Sugar cane	10 000 000	**Vegetables**	3 298 816	**Maize**	1 125 485	**Cassava**	7 613 697
Vegetables	4 000 000	**Sugar cane**	2 930 047	**Cassava**	1 060 880	**Maize**	950 909
Beans, dry	3 900 000	**Potatoes**	2 584 301	**Sugar cane**	1 055 675	**Vegetables**	628 000
Maize	1 500 000	**Maize**	2 179 414	**Vegetables**	910 085	**Sugar cane**	573 771

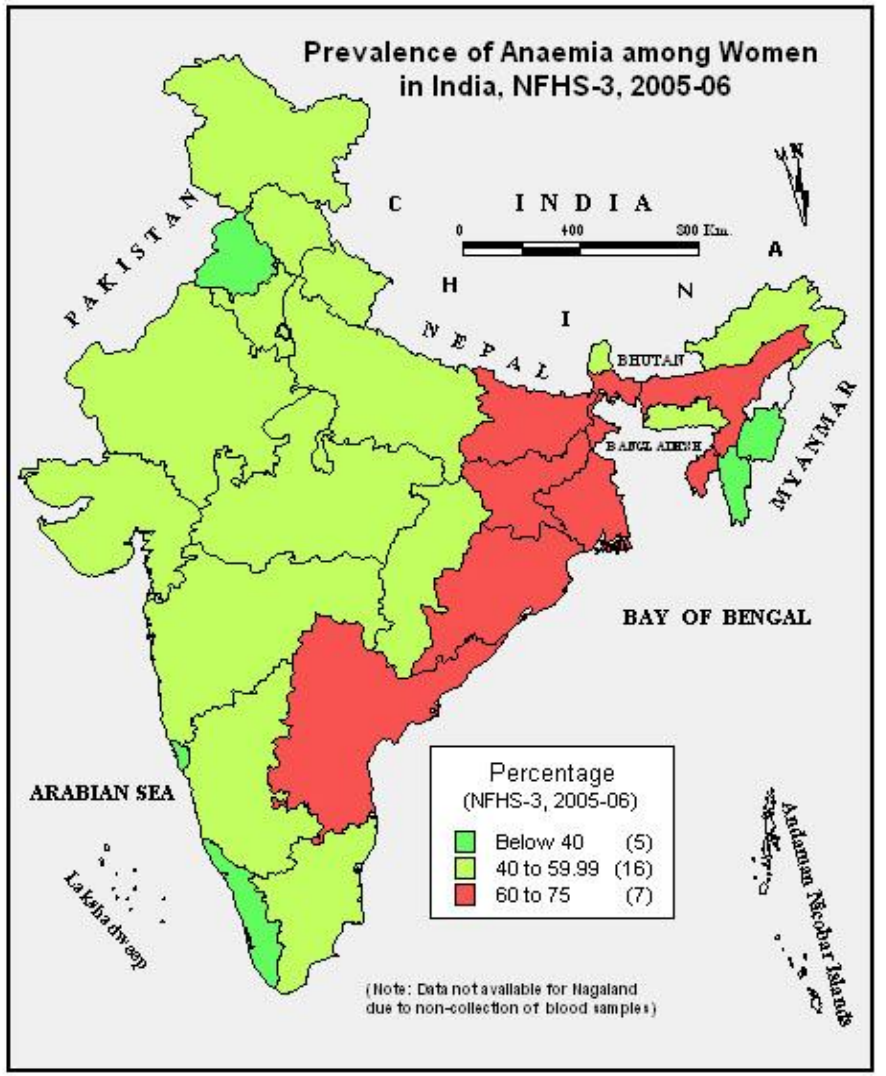
Source: FAOSTAT

Relationship: Malnutrition and Rice Consumption in Lao PDR



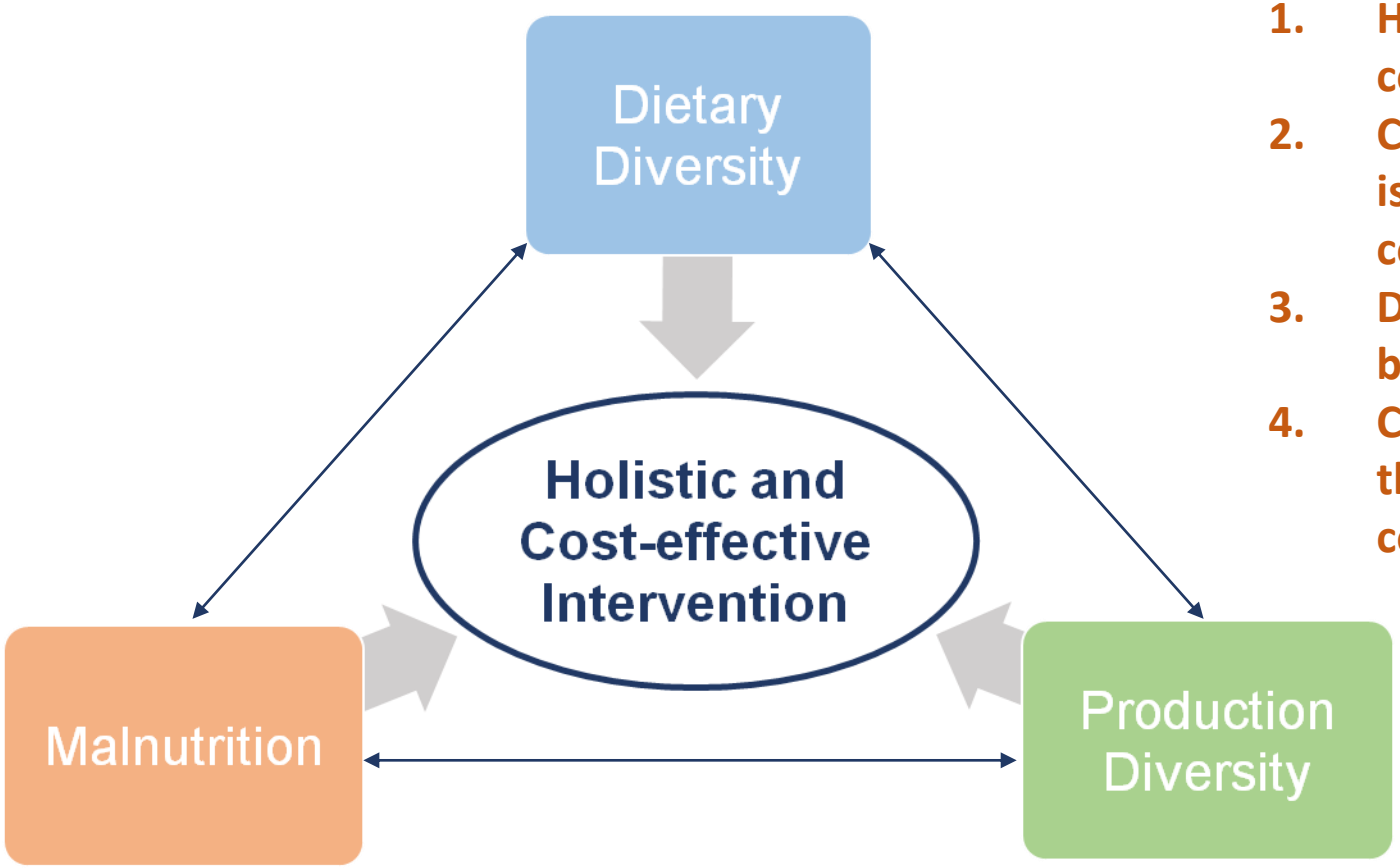
Relationship: Production & Distribution of Anemia in India





Feature of the Challenge

Gaps: Disconnection between malnutrition, dietary diversity and production diversity

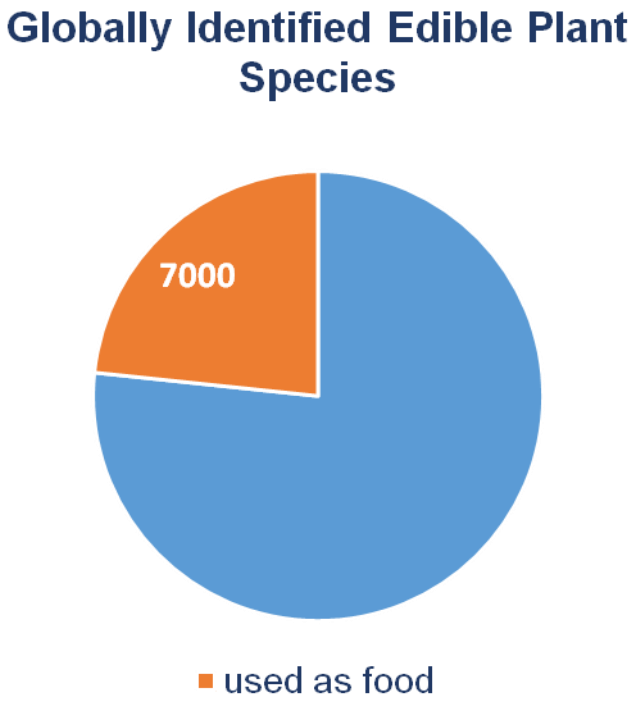


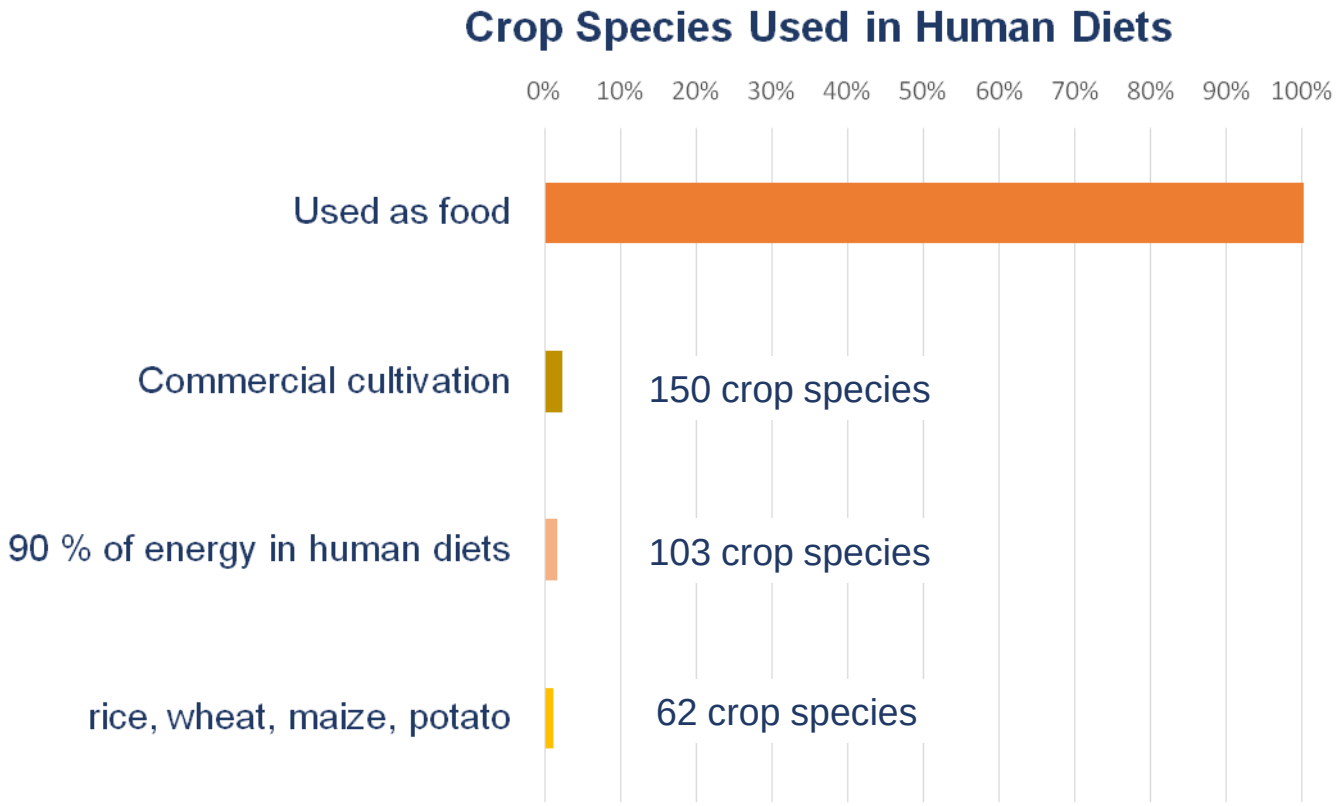
1. **Hunger is still widespread in all countries.**
2. **Child malnutrition, especially stunting is also alarming in all regions of the countries.**
3. **Dietary patterns are highly dominated by cereals.**
4. **Crop production is directly related to the dietary pattern consumption in all countries.**

II. Justification:
Future Smart Food to Address the Dual Challenge

Availability and Use of NUS

30,000 edible plant species have been identified globally, of which 7,000 crop species have been used as food.

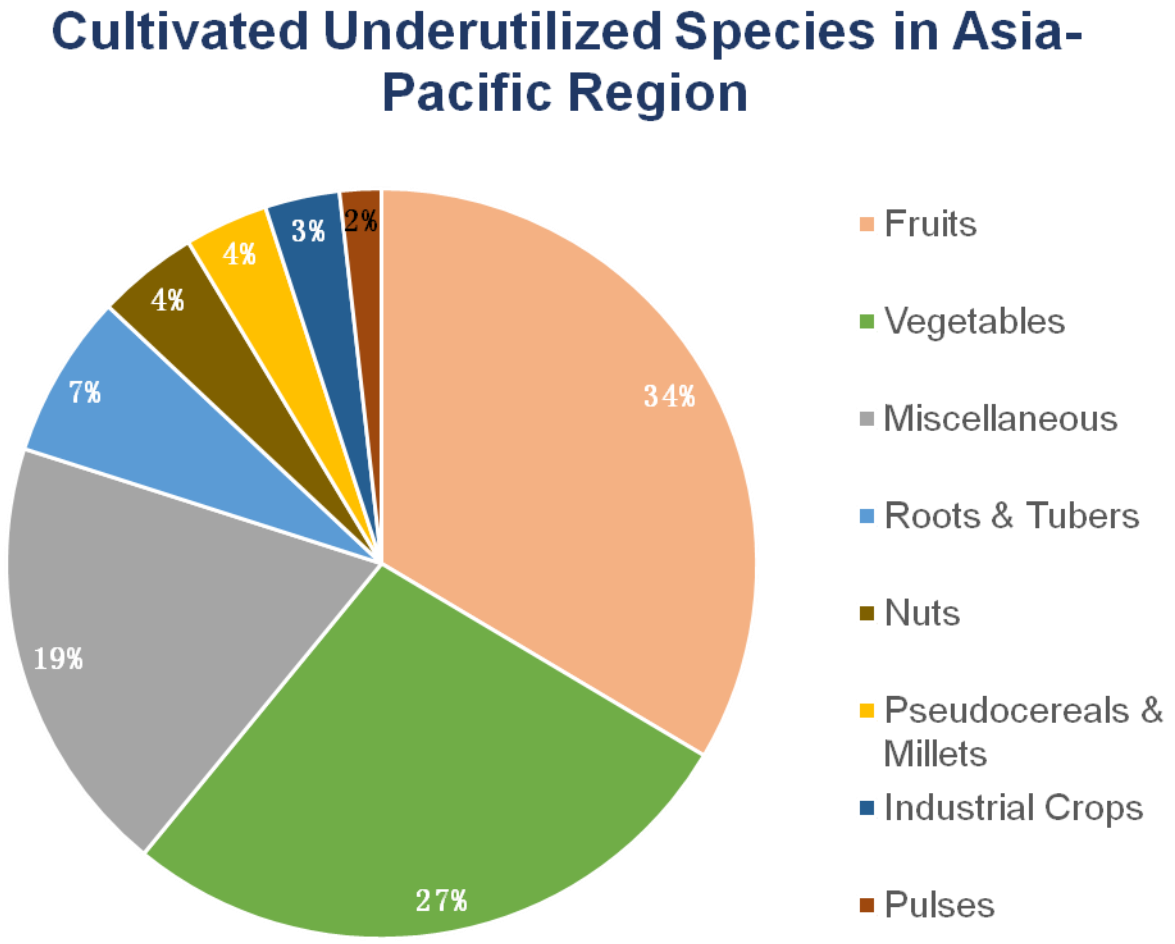




NUS Food Groups

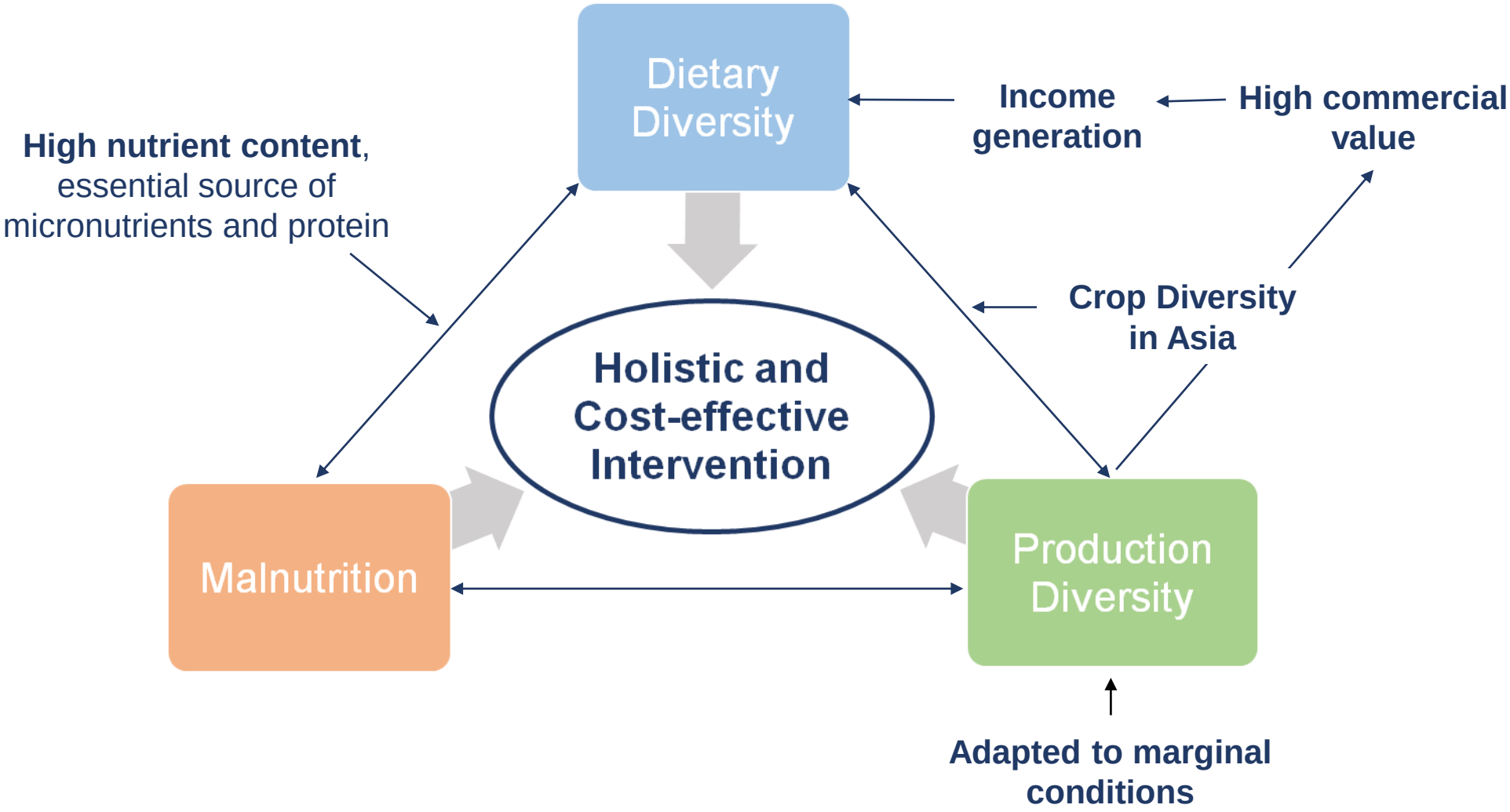
Finger millet

Breadfruit



Source: Bioversity International (2014)

A Holistic and Cost-effective Intervention



Nutritional Benefits of NUS

Values for 100 g dry product

	Energy (Kcal)	Protein (g)	Dietary Fibre (g)	Iron (mg)	Folate (DFE mcg)
Chickpeas	355	21.2	5.4	5.4	557
	x 1	x 3	X 4	x 4	x 70
Rice White, polished, raw	365	7.1	1.3	1.2	8

	Energy (Kcal)	Protein (g)	Dietary Fibre (g)	Iron (mg)	Folate (DFE mcg)
Mung beans	347	23.9	1.15	6.74	625
	x 1	x 3	X 1	x 4	x 78
Rice White, polished, raw	365	7.1	1.3	1.2	8

	Energy (Kcal)	Protein (g)	Dietary Fibre (g)	Iron (mg)	Folate (DFE mcg)
Lupin beans	371	36.7	9.74	4.36	355
	x 1	x 5	X 8	x 4	x 44
Rice White, polished, raw	365	7.1	1.3	1.2	8

Health Benefits of NUS

Example: Impact of Iron Rich Lentil Diet on Iron Deficient Anemic Children in Sri Lanka

Indicator	0 days	60 days	% improvement
Hemoglobin (g/dL)	11.1	11.8	6.3
Serum Fe (µg/dL)	51.5	89.8	74.4
Total Fe binding capacity (µg/dL)	405.3	377.6	-6.8
Trans ferritin saturation (%)	12.8	24.3	89.8
Serum ferritin (ng/mL)	29.5	41.2	39.7

after 60 days, n=33

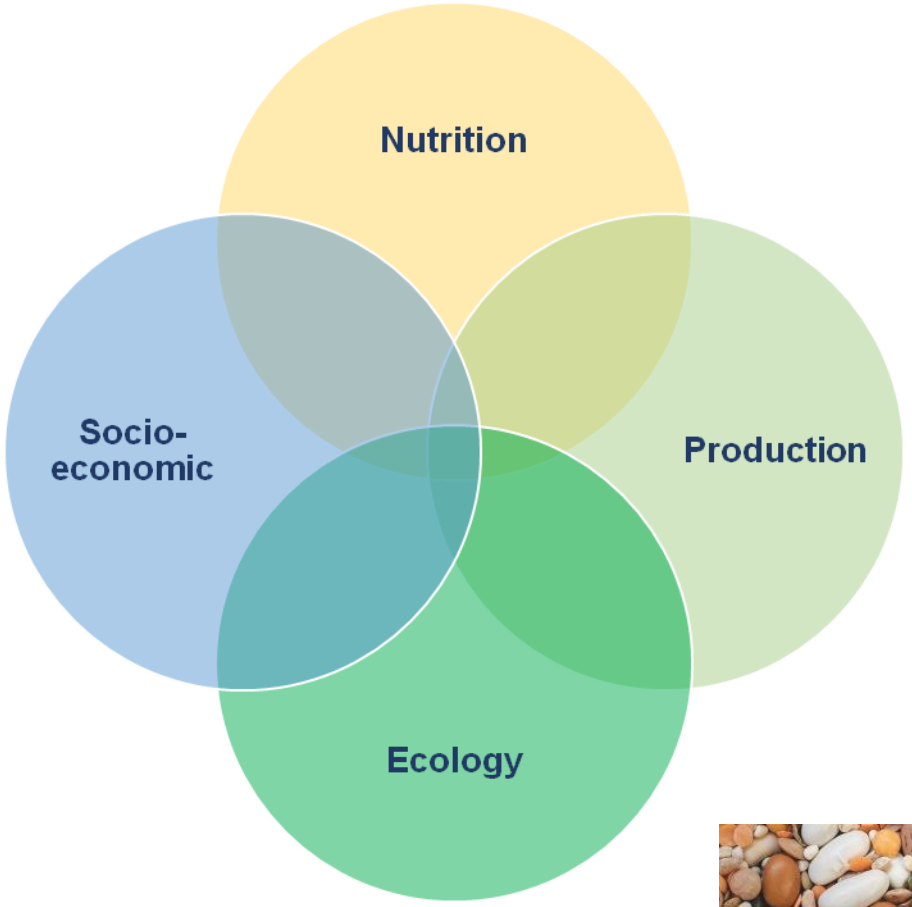
WHO's hemoglobin thresholds used to define anemia

(1 g/dL = 0.6206 mmol/L)

Age or gender group	Hb threshold (g/dl)	Hb threshold (mmol/l)
Children (0.5 - 5 years)	11.0	6.8
Children (5 - 12 years)	11.5	7.1

Multidimensional Benefits of NUS

Improve micronutrient content in global diets



Millets

Reduce the risk of over-reliance on a few major staple crops by creating diverse and resilient cropping systems in Asia

Tropical fruits

Tap commercial potential and income/empowerment opportunities for marginal groups

Pulses

Tap suitability for climate-adaption and mitigation

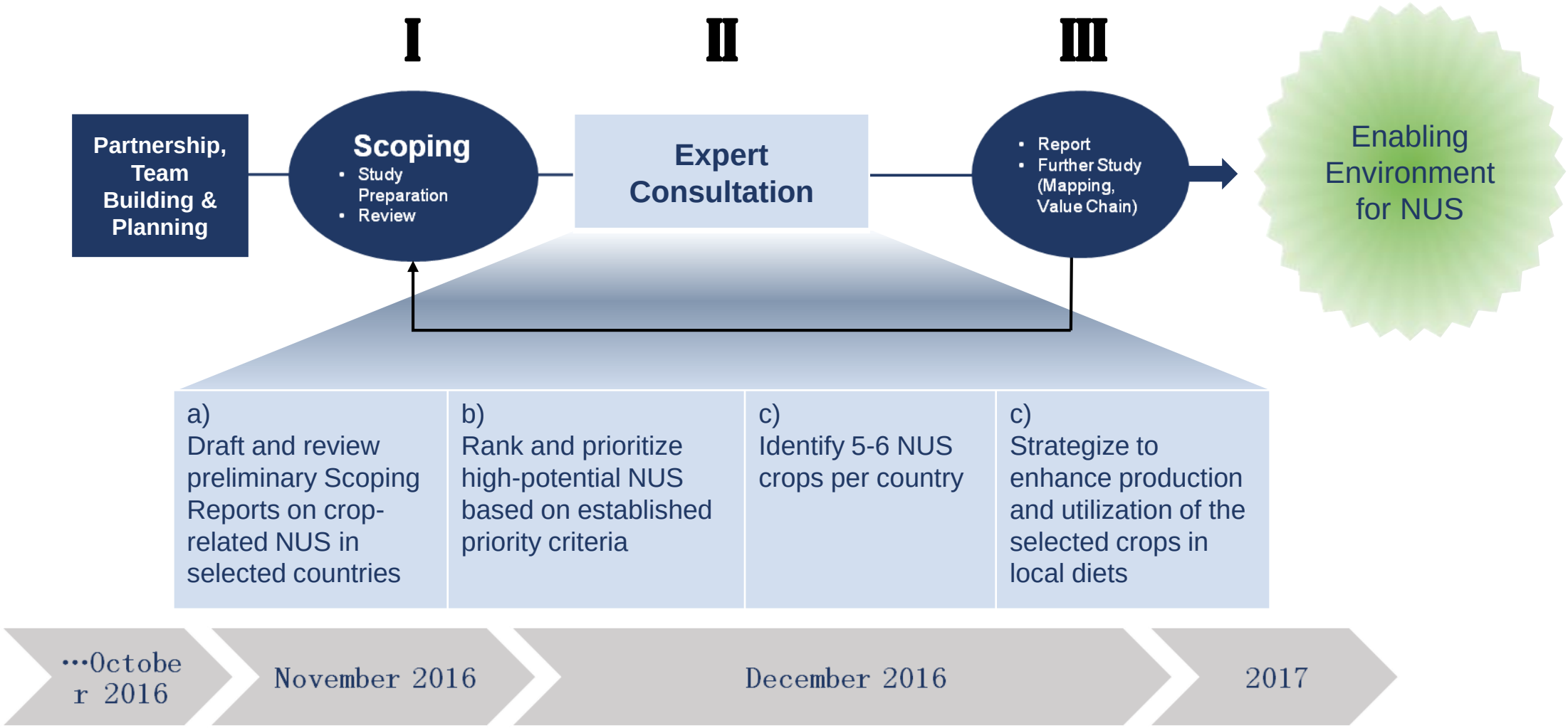
III. Roadmap for Agricultural Diversification

Agricultural Diversification: Way Forward

What has been done so far?

Activity	Time
Conceptualization	May 2016
Internal consultation and team building	June-July 2016
Methodology setting with internal/external consultation	August 2016
Partnership building	Sep 2016
Draft Country studies on scoping and prioritization of Neglected and Underutilized Crop Species (NUS)	Oct 2016
International expert review on country studies on NUS	Nov 2016
Regional Expert Consultation on Scoping, Prioritizing and Mapping of NUS under the Regional Initiative on Zero Hunger Challenge	Dec 2016
Development of Recommendations and initiation of renaming NUS as Future Smart Food (FSF)	January 2016
Country studies on disconnect of dietary diversity, production diversity and malnutrition	October to March 2017
Country studies on scoping and prioritization of Neglected and Underutilized Crop Species (NUS)	
Future Smart Food network building	Since December 2016
Approval of the project by countries	March 2017
Nomination of National Project Coordinator (NPC) in each country	

Regional Priority-setting Exercise on Scoping, Prioritizing and Mapping of NUS



Regional Expert Consultation on Scoping, Prioritizing and Mapping of NUS

Participants

- FAO
- FAO Special Ambassador on the International Year of Pulses 2016
- International research partners
- National Focal Points on Zero Hunger Challenge
- National research partners
- NGO

Outcome

- Country Scoping Studies on NUS reviewed
- Recommendations reviewed including converting NUS into Future Smart Food (FSF)

Prioritized NUS

Cereals	Roots & Tubers	Pulses	Fruits & Vegetables	Nuts, Seeds & Spices
Buckwheat	Taro	Grass pea	Drumstick	Linseed
Tartary buckwheat	Swamp taro	Faba bean	Chayote	Walnut
Foxtail millet	Purple yam	Cow pea	Fenugreek	Nepali butter tree
Proso millet	Fancy yam	Mung bean	Snake gourd	Perilla
Finger millet	Elephant's foot yam	Black gram	Pumpkin	Nepali pepper
Sorghum	Sweet potato	Rice bean	Roselle	
Amaranth		Lentil	Indian gooseberry	
Grain amaranth		Horse gram	Jack fruit	
Quinoa		Soybean	Wood apple	
Specialty rice				

39 crops from eight countries/States:

Cambodia, Lao PDR, Myanmar, Nepal, Bangladesh, Bhutan, Viet Nam, West Bengal (India)

Recommendations on Future Smart Food

1. Urgent call for decision-makers to **raise awareness of the nutrition-sensitive and climate-resilient benefits** of NUS to address hunger, malnutrition and climate change.
2. Recognize, identify and promote the **complementarities of NUS with existing staple crops** for nutrition enhancement, climate change resilience and diversification of cropping systems, and relabel NUS as “Future Smart Food (FSF)” to popularize these species.
3. Establish a National Coordinating Committee on FSF involving concerned ministries and appoint a **Strategic Coordinator at the inter-ministerial level**.
4. Create an enabling environment by strengthening **national institutional support for mainstreaming FSF into national policies and programmes**, by means of appropriate incentives, procurement of FSF for food programmes (e.g. mid-day meal/school meal scheme) to enhance national consumption, local production and facilitate marketing.
5. Establish **nationally coordinated research** for development programmes targeting FSF with high potential, and expand coverage of national agriculture statistics and national food composition data on FSF for evidence-based decision making.
6. Document and validate best-bet FSF case studies, compile indigenous knowledge related to FSF, undertake clinical and field studies to **demonstrate the health benefits and climate resilience of FSF and assemble quantitative data for public dissemination.**
7. Enhance public awareness of the importance of FSF by developing **nutrition and climate change education materials and curricula** on the importance of FSF for consumers, traders, producers, health professionals, researchers, teachers (e.g. school curricula), farmers, women and youth.
8. Identify key entry points in the value chain and encourage **value chain development** for specific NUS, including innovative and targeted interventions for promotion (e.g. ready-to-use food products) and increased funds for research, development and extension capacities on FSF production and processing technologies.
9. Strengthen **multidisciplinary and multi-sectoral collaboration** through existing coordination mechanisms and build partnerships at national and regional levels, including academia, civil society and the private sector, to enhance research and consumption and to attract the private sector to boost production, processing, value addition, product development, and marketing of FSF.
10. Establish a **regionally coordinated network on FSF** to facilitate exchanging information, policy, technologies and genetic resources as well as FSF promotion in target countries.

Thank you!

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