



Food and Agriculture Organization
of the United Nations



Regional Training Workshop on Nutrition Sensitive Agriculture and Food Systems for Healthy Diets

Regional Initiative- Zero Hunger Challenge

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Outline

1. About ZHC/SDG2
2. Contexts: Status, Issues and Approaches
3. About RI-ZHC: Rationales, Objectives and Programmatic Focus Area
4. Activity example under RI-ZHC: Future Smart Food

I. About ZHC/SDG2



About ZHC/SDG2

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture” by 2030



ZHC Pillars	SDGs
1. 100% access to adequate food all year around	SDG 2.1 End Hunger
2. Zero stunted children less than 2 years	SDG 2.2 End all forms of malnutrition
3. All food systems are sustainable	SDG 2.4 Ensure sustainable food systems SDG 2.5 Maintain genetic diversity
4. 100% increase in smallholder productivity and income	SDG 2.3 Double agricultural productivity and incomes of small-scale food producers
5. Zero loss or waste of food	SDG 12.3 Halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

II. Contexts: Status, Issues and Approaches

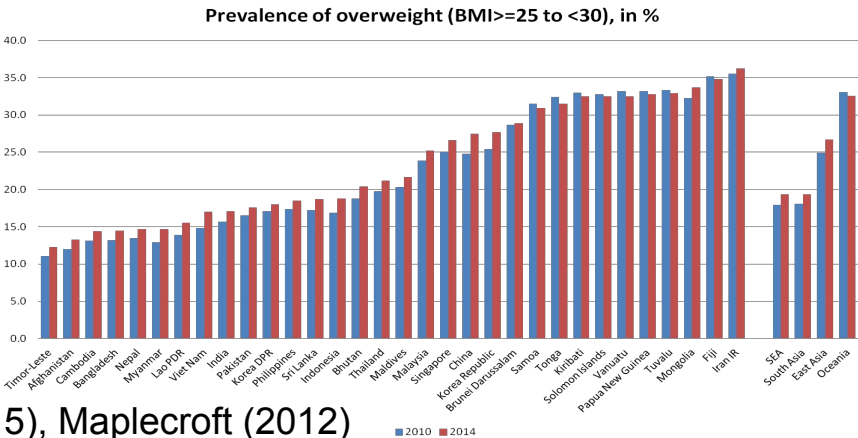


Hunger and malnutrition in Asia Pacific

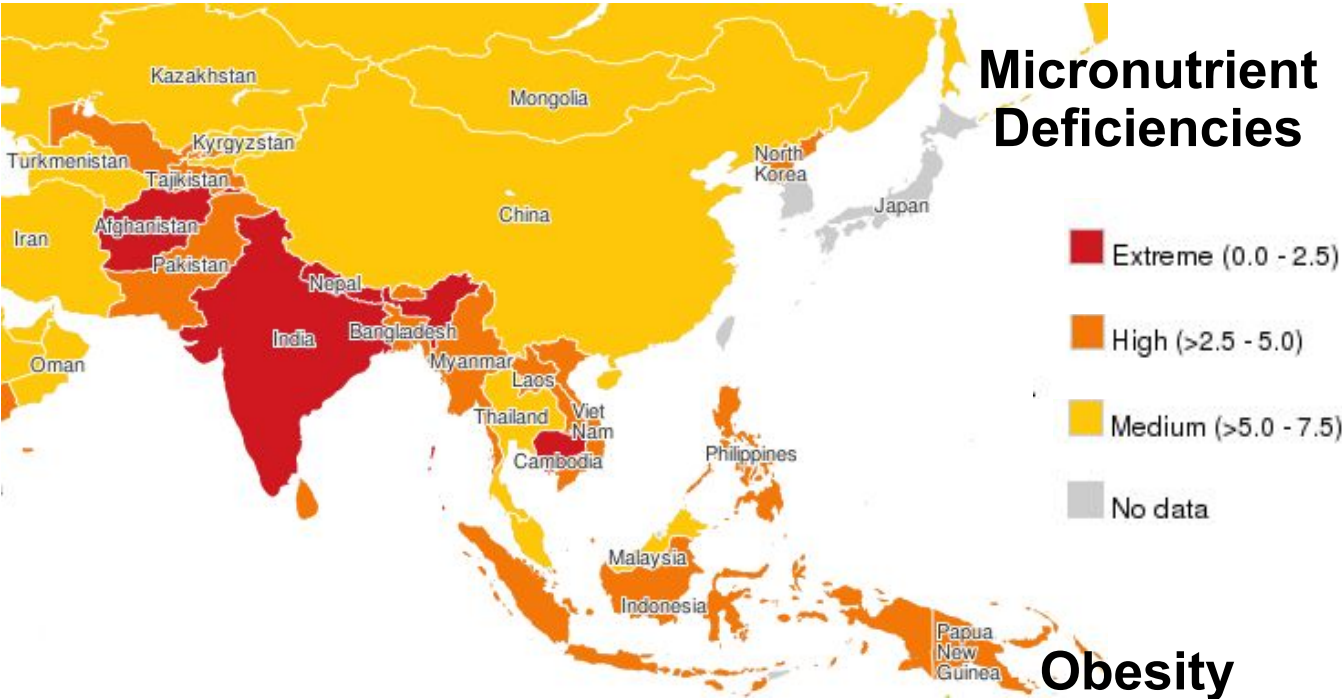
Hunger



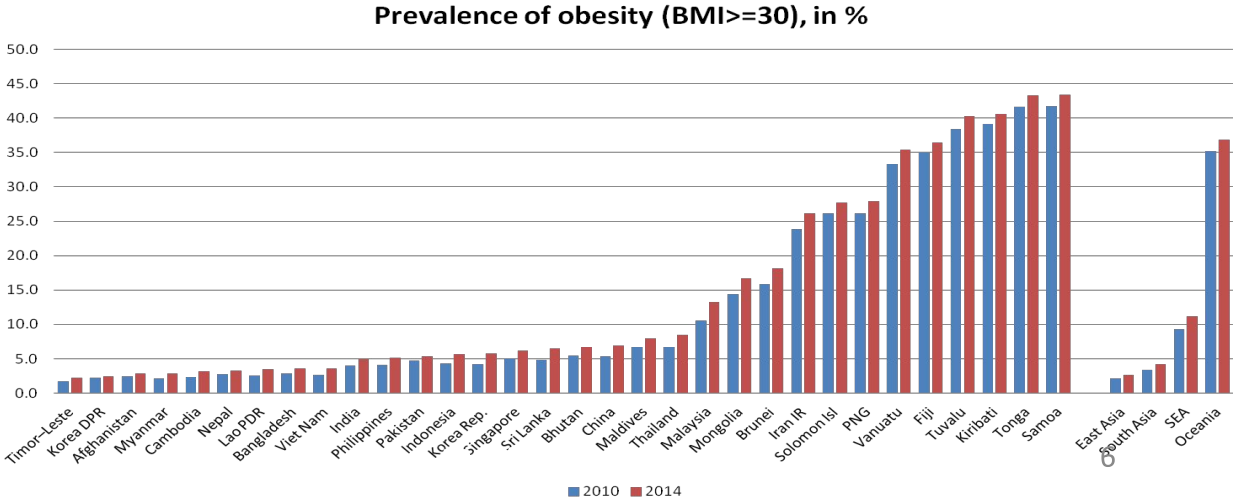
Overweight



Micronutrient Deficiencies



Obesity



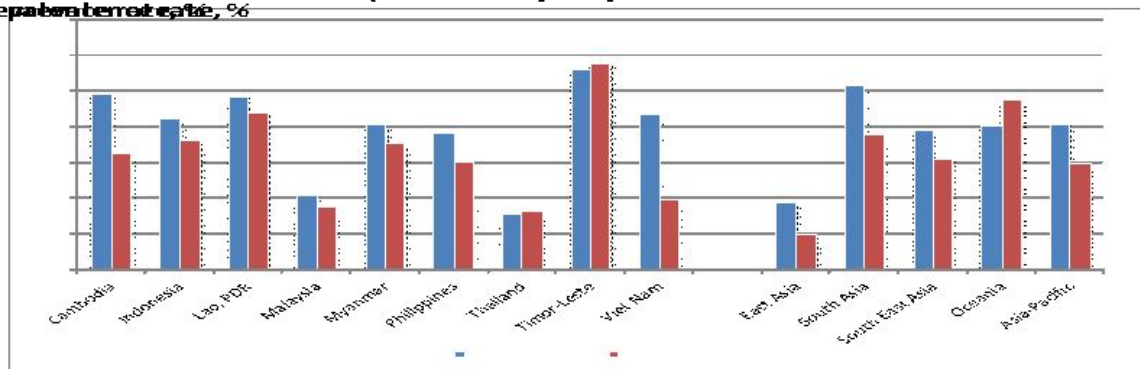
Sources: WHO (2015), Maplecroft (2012)

Prevalence of stunting, wasting and underweight in the region

Among under-5 children (in % as proportion of total under-5 children)

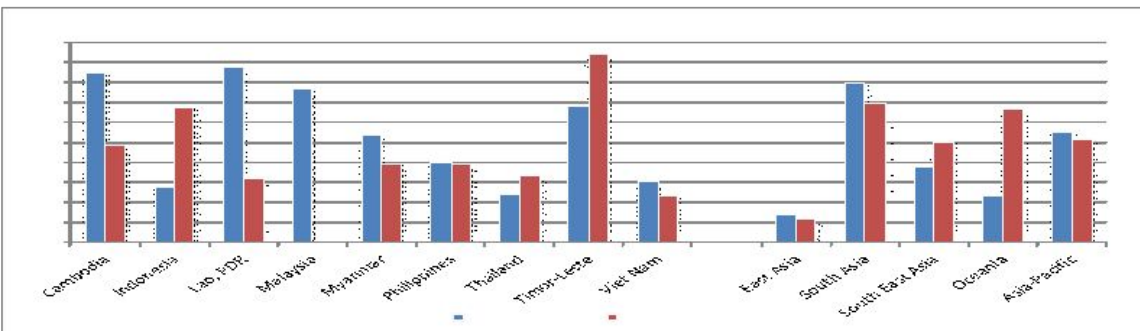
Stunting prevalence among under-5 children, %

	Around 2000	Recent year	Reduction rate % p.a.
Cambodia	49	32	3.0
Indonesia	42	36	1.2
Lao, PDR	48	44	0.9
Malaysia	21	17	2.7
Myanmar	41	35	1.7
Philippines	38	30	1.6
Thailand	16	16	-0.6
Timor-Leste	56	58	-0.5
Viet Nam	43	19	6.4
East Asia	19	10	
South Asia	52	38	
South East A	39	31	
Oceania	40	48	
Asia-Pacific	41	30	



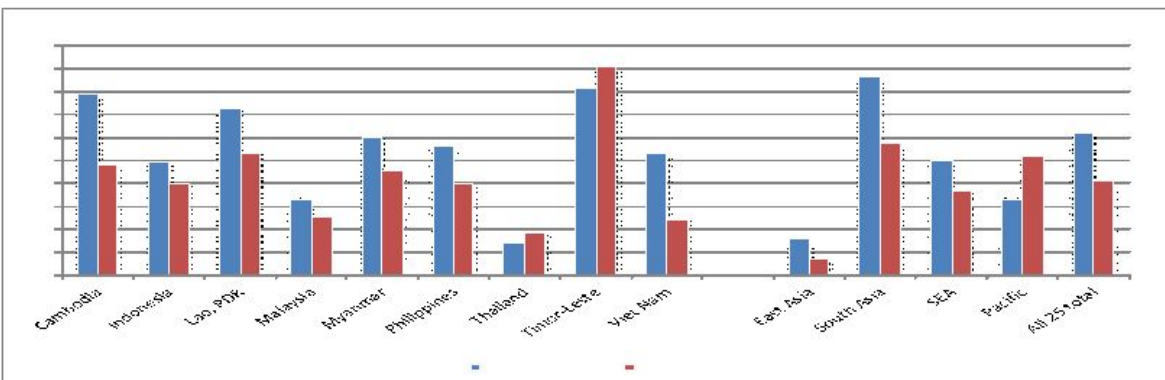
Wasting prevalence among under-5 children, %

	Around 2000	Recent year	Reduction rate % p.a.
Cambodia	16.9	9.6	4.1
Indonesia	5.5	13.5	-6.7
Lao, PDR	17.5	6.4	9.6
Malaysia	15.3		
Myanmar	10.7	7.9	3.4
Philippines	8.0	7.9	0.1
Thailand	4.7	6.7	-5.7
Timor-Leste	13.7	18.9	-4.5
Viet Nam	6.1	4.6	2.2
East Asia	2.7	2.3	
South Asia	16.0	13.9	
South East A	7.5	9.9	
Oceania	4.6	13.3	
Asia-Pacific	11.0	10.2	



Underweight prevalence among under-5 children, %

	Around 2000	Recent year	Reduction rate % p.a.
Cambodia	39.5	23.9	3.7
Indonesia	24.8	19.9	1.7
Lao, PDR	36.4	26.5	2.9
Malaysia	16.7	12.9	3.8
Myanmar	30.1	22.6	3.2
Philippines	28.3	19.9	2.4
Thailand	7.0	9.2	-4.5
Timor-Leste	40.6	45.3	-1.6
Viet Nam	26.7	12.1	6.3
East Asia	7.8	3.6	
South Asia	43.5	28.8	
SEA	25.1	18.3	
Pacific	16.8	26.2	
All 25 total	31.0	20.6	



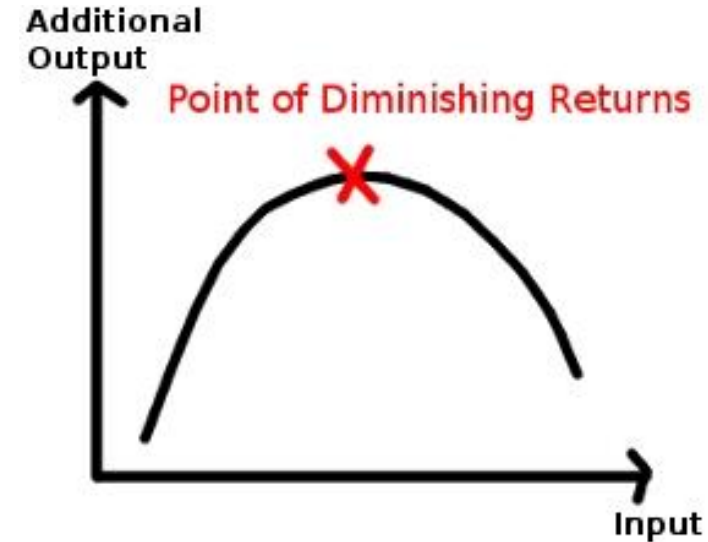
Data source: UNICEF-WHO-World Bank joint database

Input-intensive crop production

High input-intensity Crop production



Green Revolution



- Negative impact on the environment: pollution, deforestation, degradation, desertification, soil erosion and salinisation, antibiotic resistance etc
- Monoculture depletes the land of its nutrients.

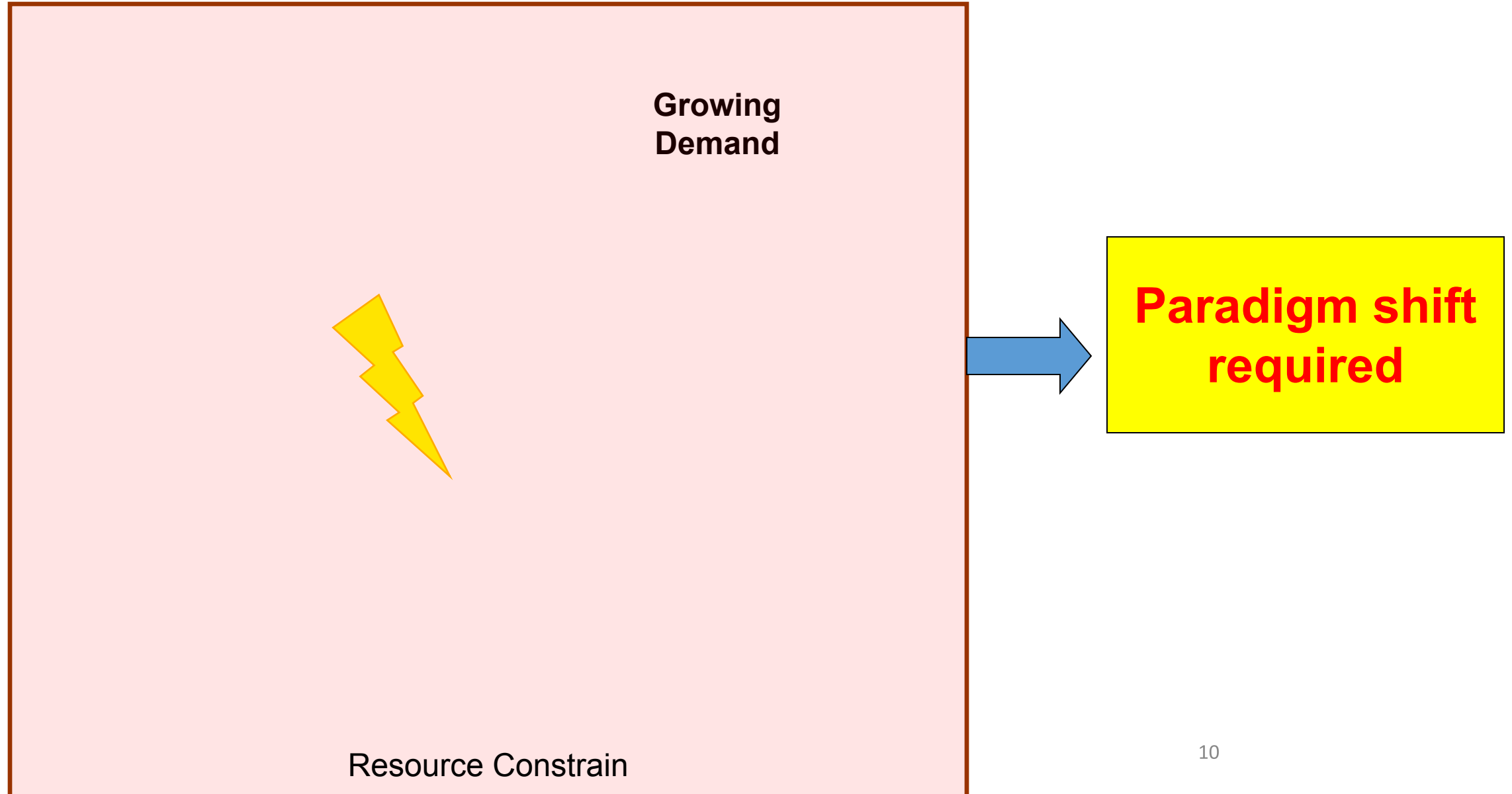
- Farm yields are approaching their economic upper limits in highly productive areas.
- In major irrigated wheat, rice, and maize systems, yields appear to be near 80% of the yield potential.

Negative impact of inputs-intensive crop production

Many systems of food production are unsustainable:

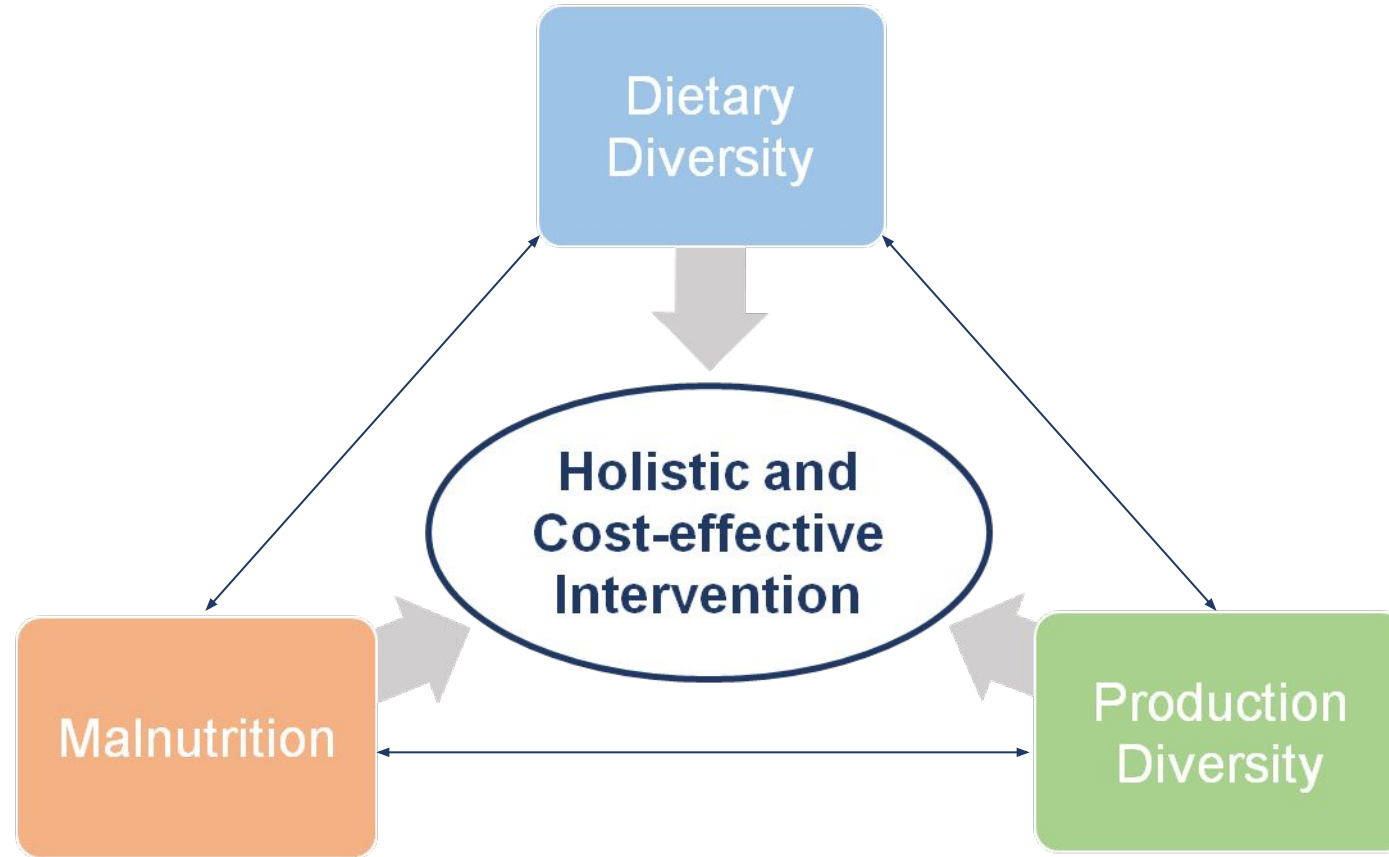
- Overuse of **chemicals and technology** inherent in the **high use of fossil fuel-derived energy** for synthesis of nitrogen fertilisers and pesticides
- Environmental pollution and human health issues
- **Excess use of fertilisers** with their run-off of nitrogen and phosphates damages water resources
- **Substantial quantities of greenhouse gases** and other pollutants contributing to climate change
- **Soil degradation** of intensive farming eroding the overall base of agriculture – history of earth abuse and soil erosion.
- Cropped areas increasingly advancing into marginal lands prone to erosion.
- Poorly designed and implemented irrigation systems that **cause water-logging, salinisation and alkalisation of soils.**
- Depleted commercial fisheries, endangered bird species and extinct insects that preyed on pests; and an **increase in insect-resistant pest species.**

Gaps in the current agrifood systems



Food system

Gaps: Disconnect between malnutrition, dietary diversity and production diversity



A leading cause of persistent malnutrition is poor dietary diversity (poor quality and variety of food in the diet).

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		

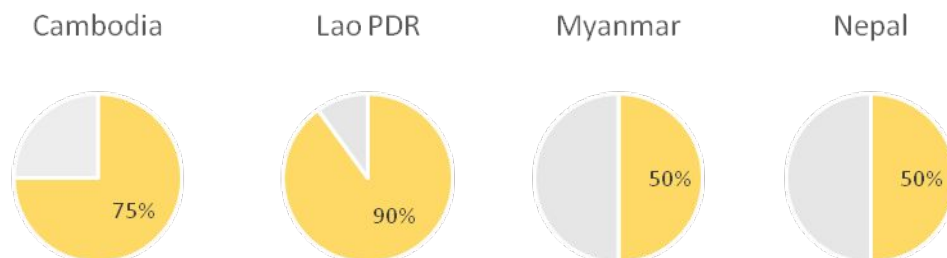
75% 81% 67% 72%

Cereals

Low production diversity

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

Total of agricultural households growing rice [%]



Monoculture

Issues

- Input-intensive production mode unsustainable
- Disconnect of malnutrition, dietary and production diversity

Approaches



Approaches to promote sustainable agrifood systems



Market



Market



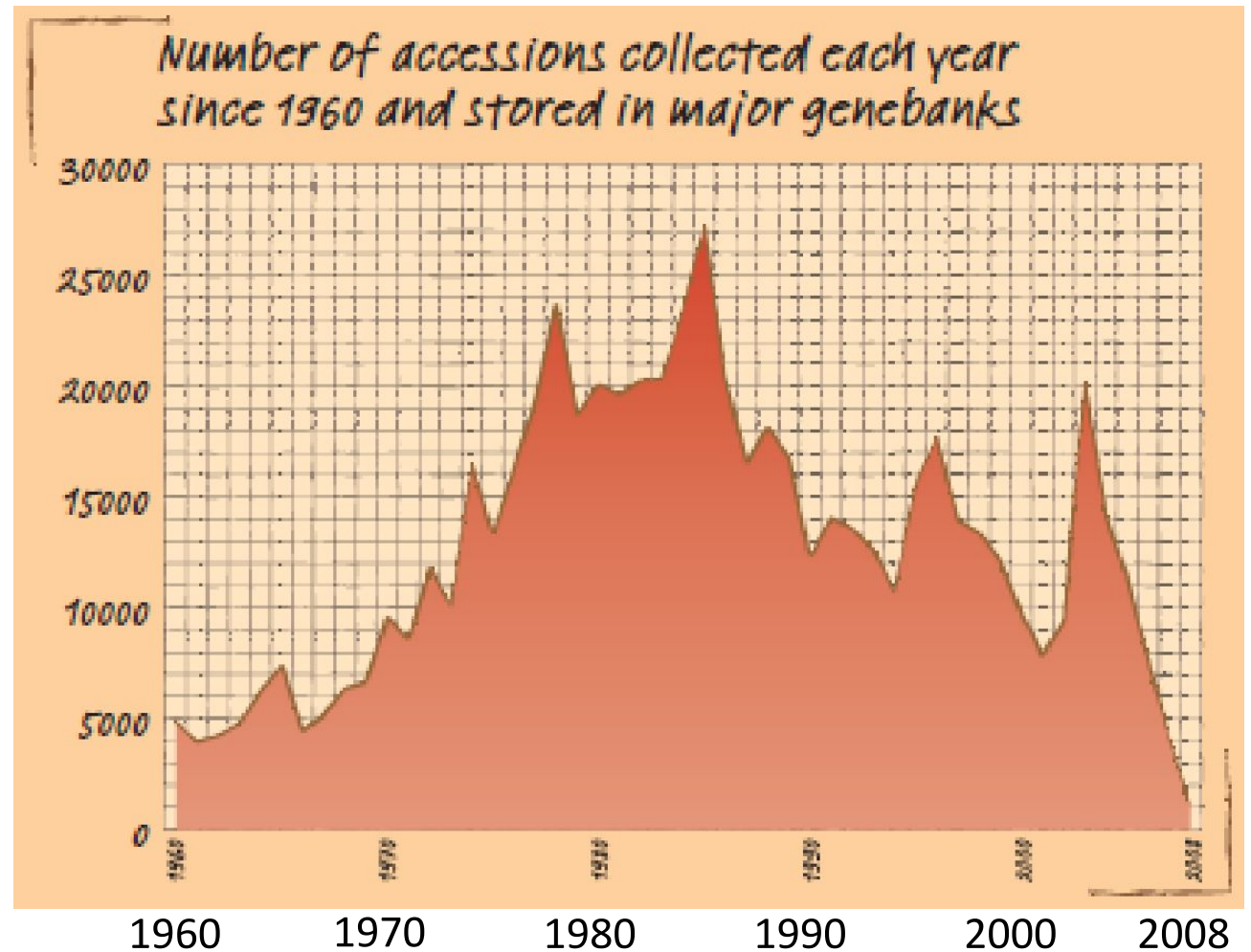
- Increase productivity through higher resource use efficiency and innovative technologies
- Diversification of existent cropping systems: Create incentives to produce additional crops next to rice
- Manage food loss

- Raise nutrition awareness
- School Feeding/School Meal Programmes
- Save Food Initiative

Technologies that Save and Grow

Improved crops and varieties

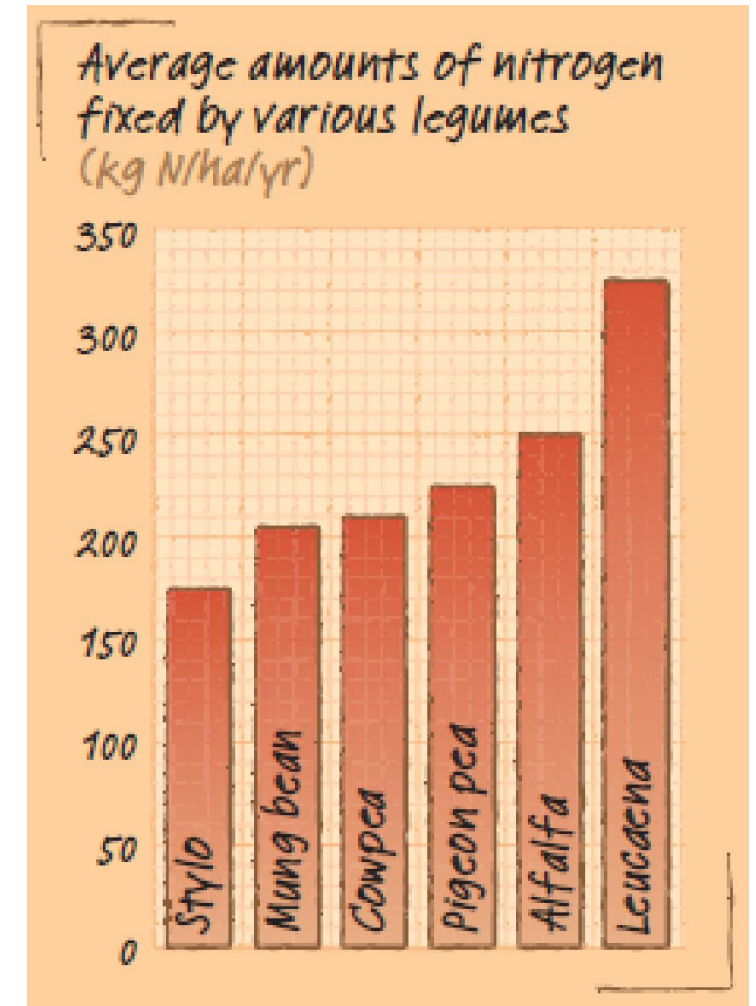
- Strengthen collection and conservation of improved plant germplasm
- Develop strong plant breeding programmes and seed delivery
- Promote policies that help to link formal and farmer-saved seed systems, and foster the emergence of local seed enterprises



Technologies that Save and Grow

Promote soil health

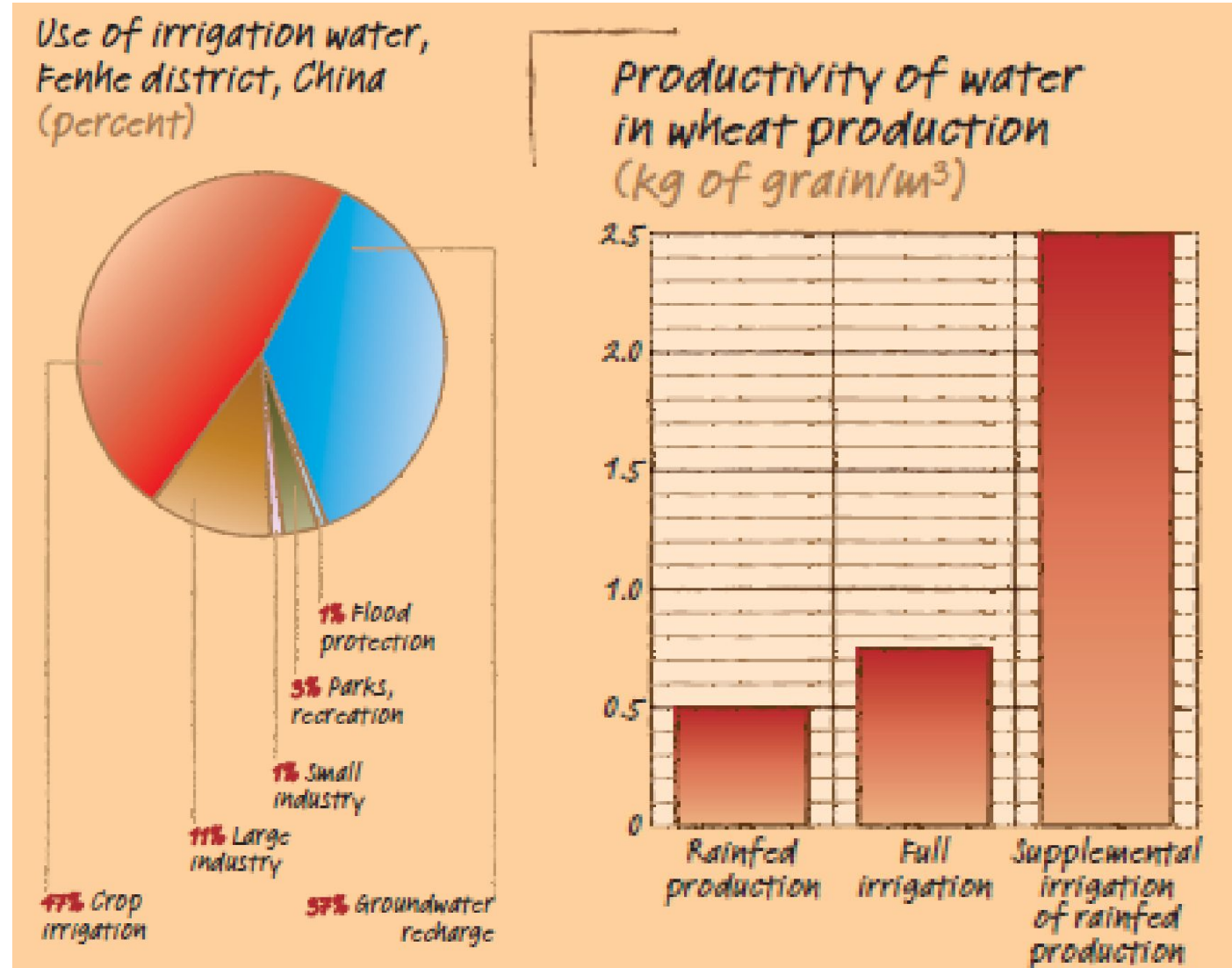
- Reduce use and cost of mineral fertilizers
- Apply a mix of both mineral fertilizers and natural sources (manure, nitrogen-fixing crops and trees)
- Promote policies that encourage agroforestry and mixed crop-livestock systems
- Remove incentives that encourage mechanical tillage and excess use of fertilizers



Technologies that Save and Grow

Improve water management

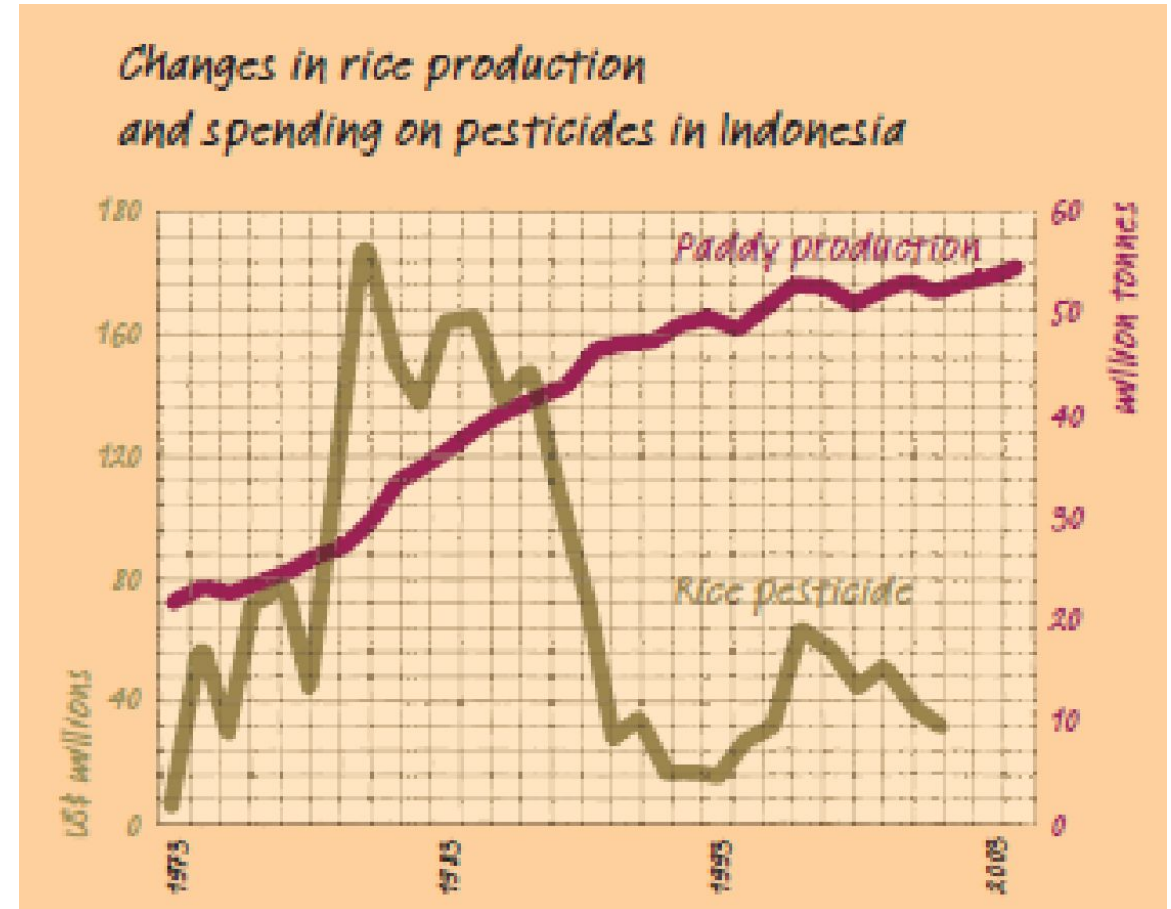
- Apply knowledge-based precision irrigation
- Promote deficit irrigation and wastewater-reuse
- Eliminate policies that encourage to waste water
- Increase rainfed agriculture productivity by introducing drought-tolerant varieties and water-saving practices



Technologies that Save and Grow

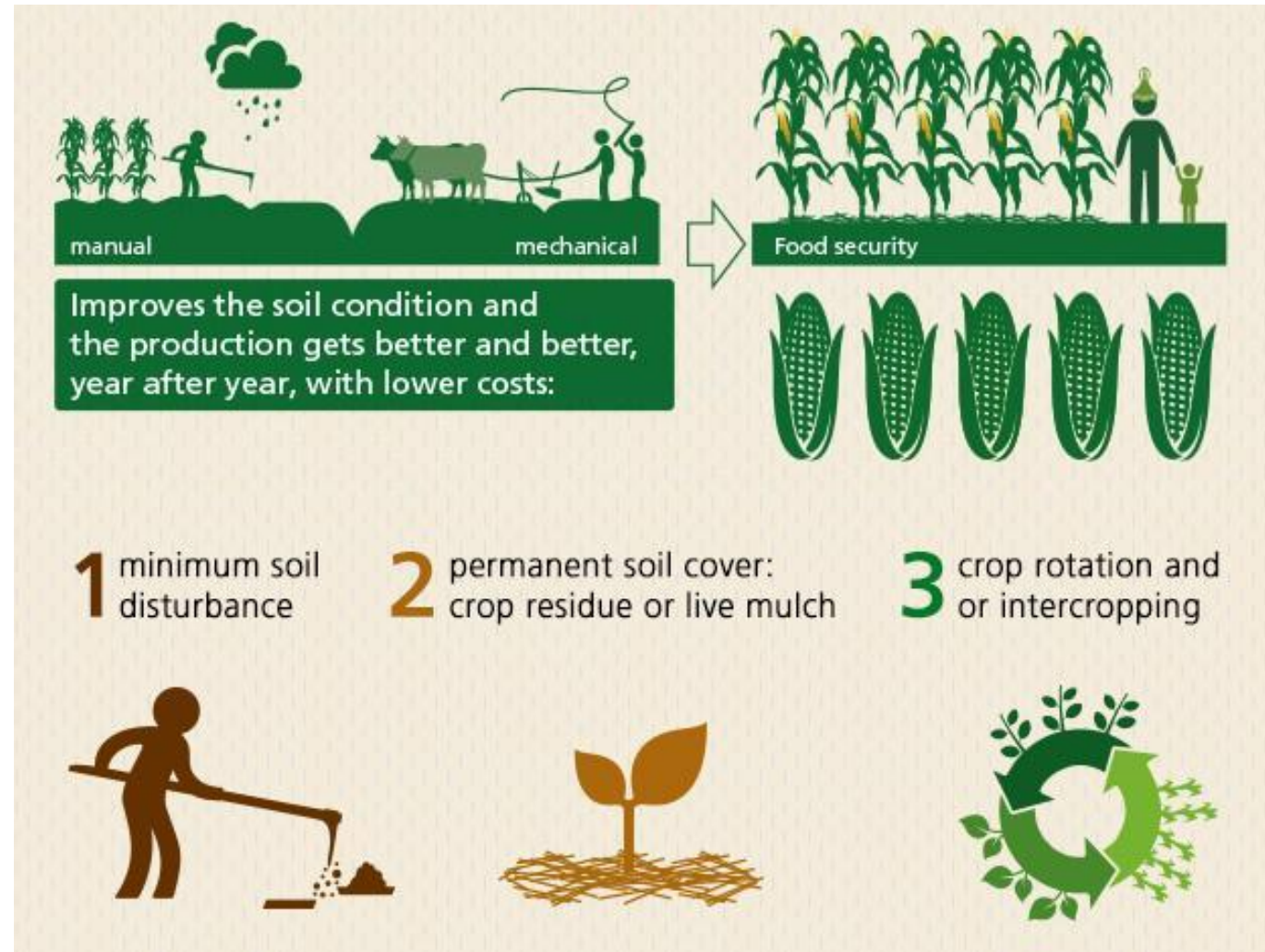
Plant protection

- Grow resistant varieties, conserve predators and manage crop nutrient levels to reduce insect reproduction
 - Use clean planting material, introduce crop rotations and eliminate infected host plants to break disease cycles
 - Apply timely manual weeding, minimized tillage and use of surface residues
 - Use lower risk synthetic pesticides for targeted control at and in the right time and quantity
-
- Introduce policies that promote integrated pest management (IPM), strict pesticide regulations, and removal of pesticide subsidies



Farming Systems that Save and Grow

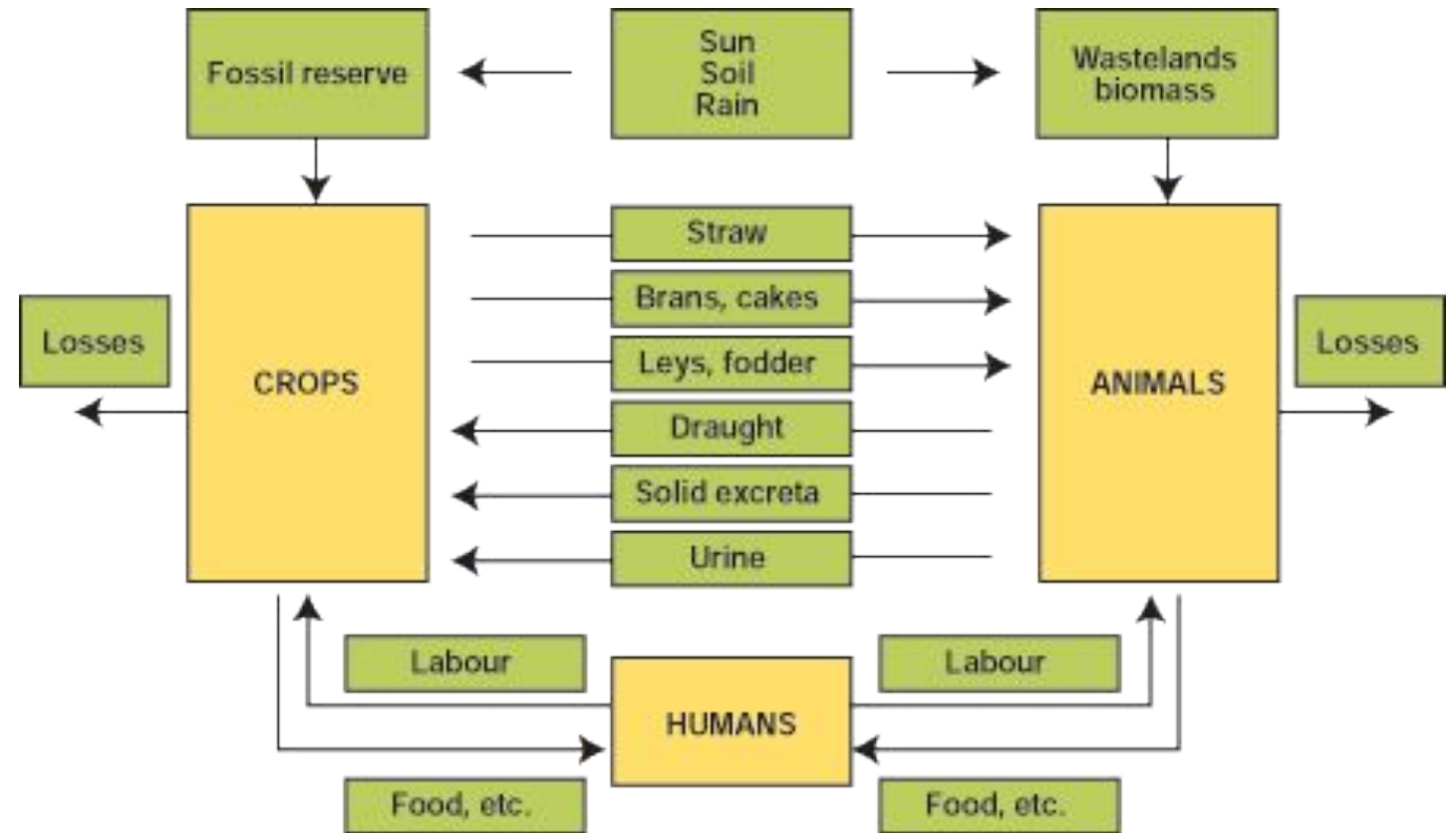
Conservation Agriculture



Farming Systems that Save and Grow

Integrated Crop-Livestock Production

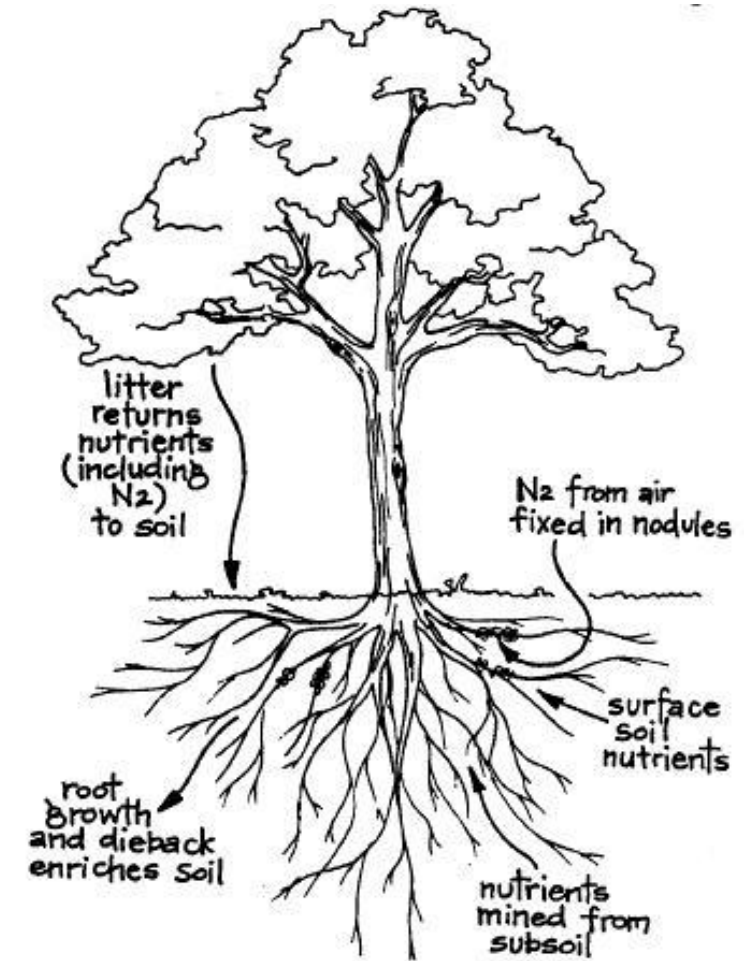
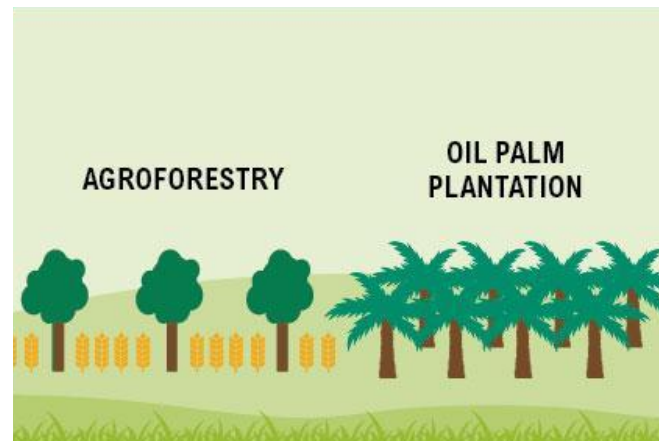
- Practised by most smallholders in developing countries
- Increased biological diversity, efficient nutrient recycling and improved soil health
- Enhance livelihood diversification and efficiency by optimizing inputs, including labour, and increase resilience to economic stress



Farming Systems that Save and Grow

Agroforestry

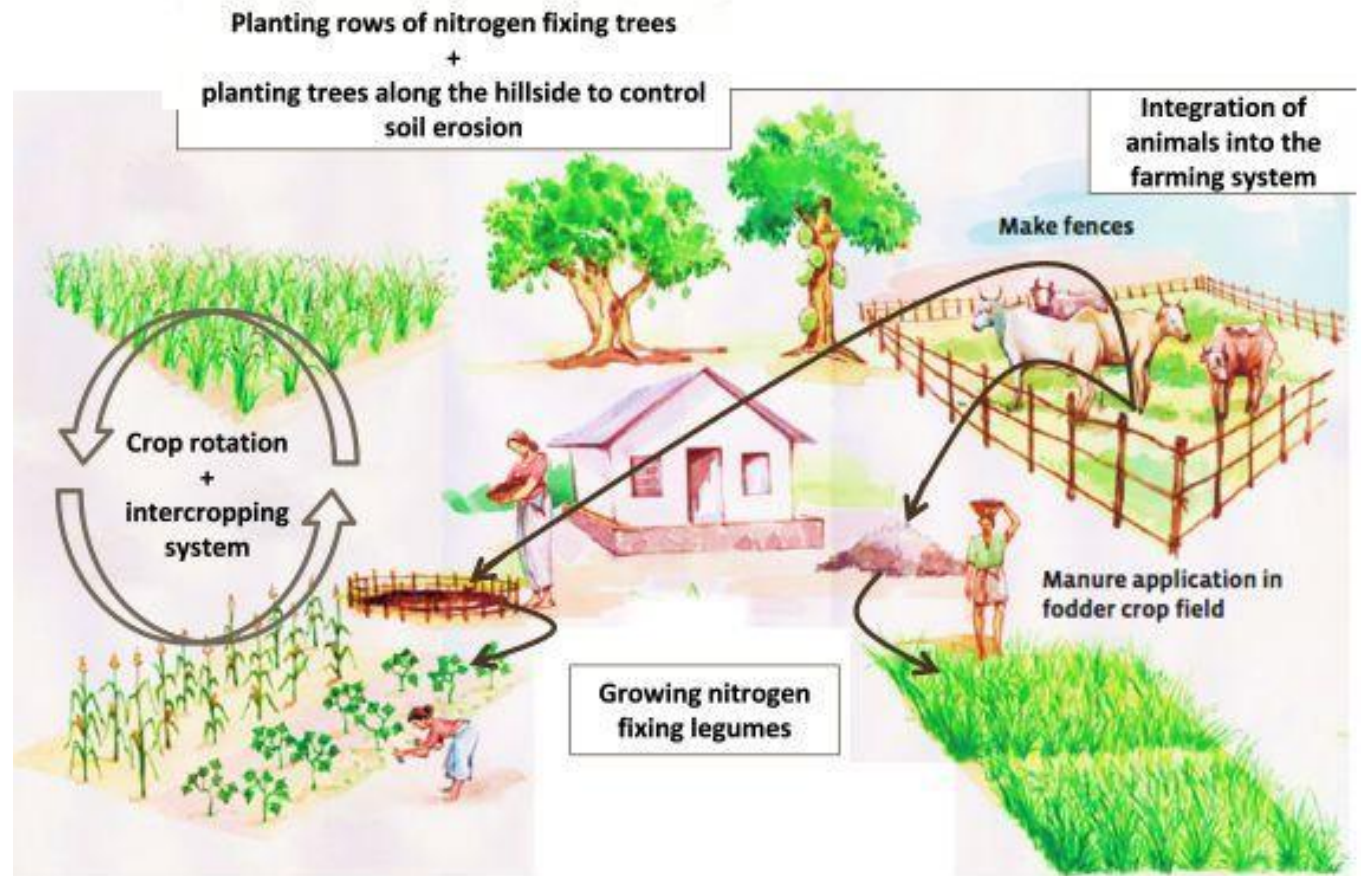
- Cultivation of woody perennials and annual crops
- Works well with conservation agriculture and tree crop systems
- Can be enhanced by improved crop associations, including legumes and “fertilizer trees”, and integration with livestock



Farming Systems that Save and Grow

Agroforestry + Organic Agriculture

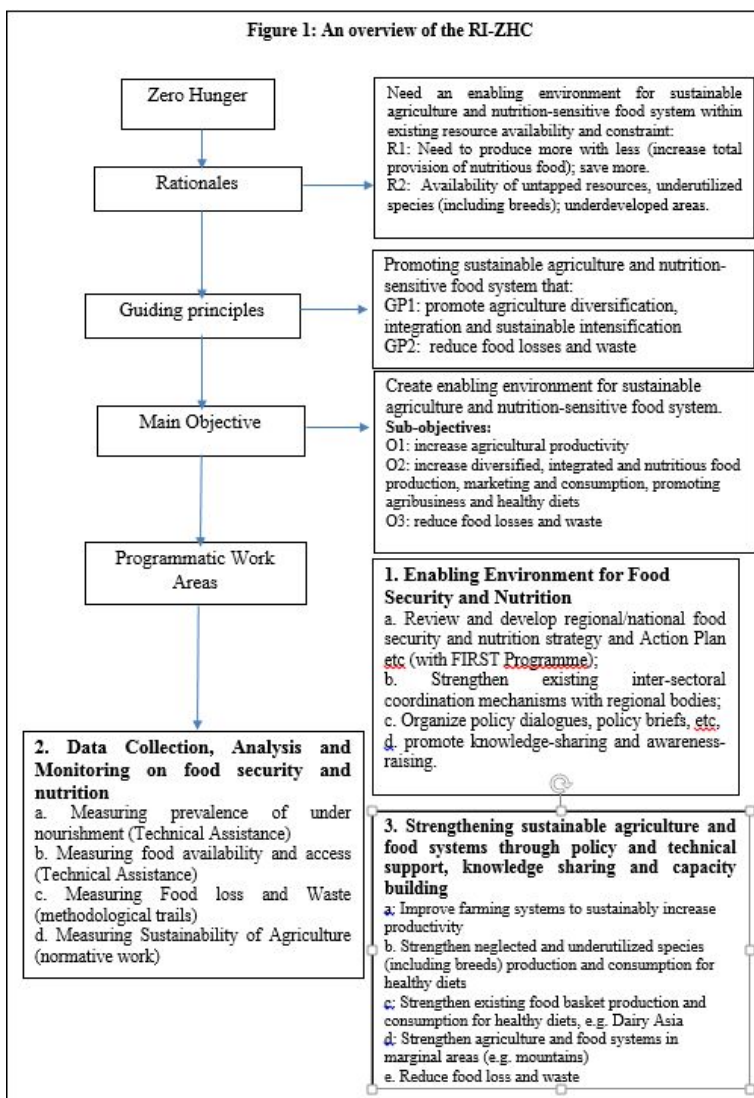
- When practiced in combination with conservation agriculture, can lead to improved soil health and productivity, increased efficiency in the use of organic matter and energy savings
- Products can be sold in niche markets and create new income opportunities



III. About Regional Initiative on Zero Hunger Challenge



Regional Initiative- Zero Hunger Challenge 2018-2019



Rationales and Objectives

- Rationales**

- Need an enabling environment for sustainable agriculture and nutrition-sensitive food system within existing resource availability and constraint

- Guiding Principles**

- Promoting sustainable agriculture and nutrition-sensitive food system that: 1) promote agriculture diversification, integration and sustainable intensification; 2) reduce food losses and waste

- Objectives**

- create enabling environment for sustainable agriculture and nutrition-sensitive food system towards eradication of hunger and malnutrition. : (a) increase agricultural productivity sustainably; (b) increase diversified, integrated and nutritious food production, marketing and consumption promoting agribusiness and healthy diets; (c) reduce food losses and waste.

Programmatic Focus Area 2018-2019

- 1.1 Review and develop regional/national food security and nutrition strategy and Action Plan etc (with FIRST Programme);
- 1.2 Strengthen existing inter-sectoral coordination mechanisms with regional bodies;
- 1.3 Organize policy dialogues, policy briefs, etc,
- 1.4 Promote knowledge-sharing and awareness-raising.

Enabling Environment on Food Security and Nutrition

Collection, Analysis and Monitoring on food security and

- 2.1 Measuring prevalence of under nourishment
- 2.2 Measuring food availability and access
- 2.3 Measuring Food loss and Waste
- 2.4 Measuring Sustainability of Agriculture

Strengthening sustainable agriculture and food systems through technical support, knowledge sharing and capacity building

- 3.1 Improve farming systems to sustainably increase productivity
- 3.2 Strengthen neglected and underutilized species (including breeds) production and consumption for healthy diets: e.g. Future Smart Food
- 3.3 Strengthen existing food basket production and consumption for healthy diets, e.g. Dairy Asia
- 3.4 Strengthen agriculture and food systems in marginal areas (e.g. mountains)
- 3.5 Reduce food waste and loss

IV. Activity example under Regional Initiative on Zero Hunger

Challenge: Future Smart Food



Example of Future Smart Food under RI-ZHC



Future Smart Food

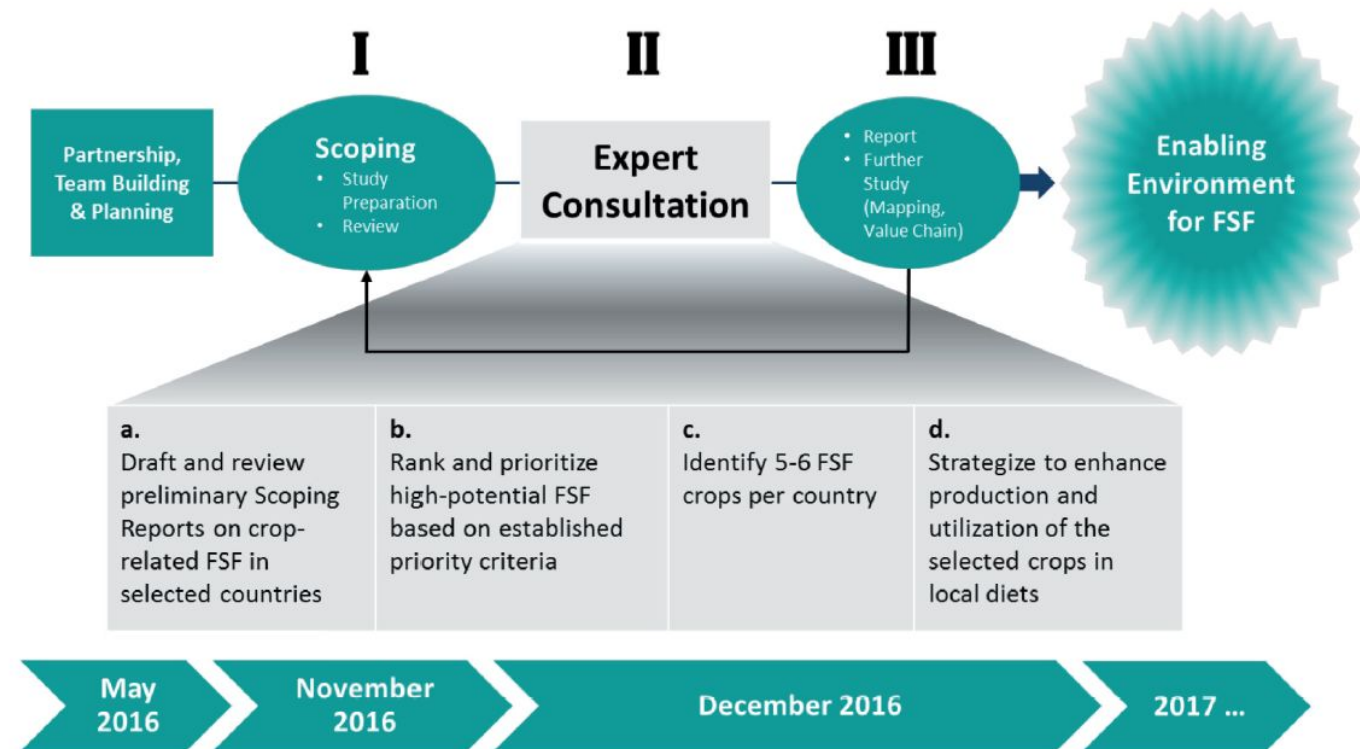
Future Smart Food

High nutrient content

Climate resilient

Economically viable

Locally assessable

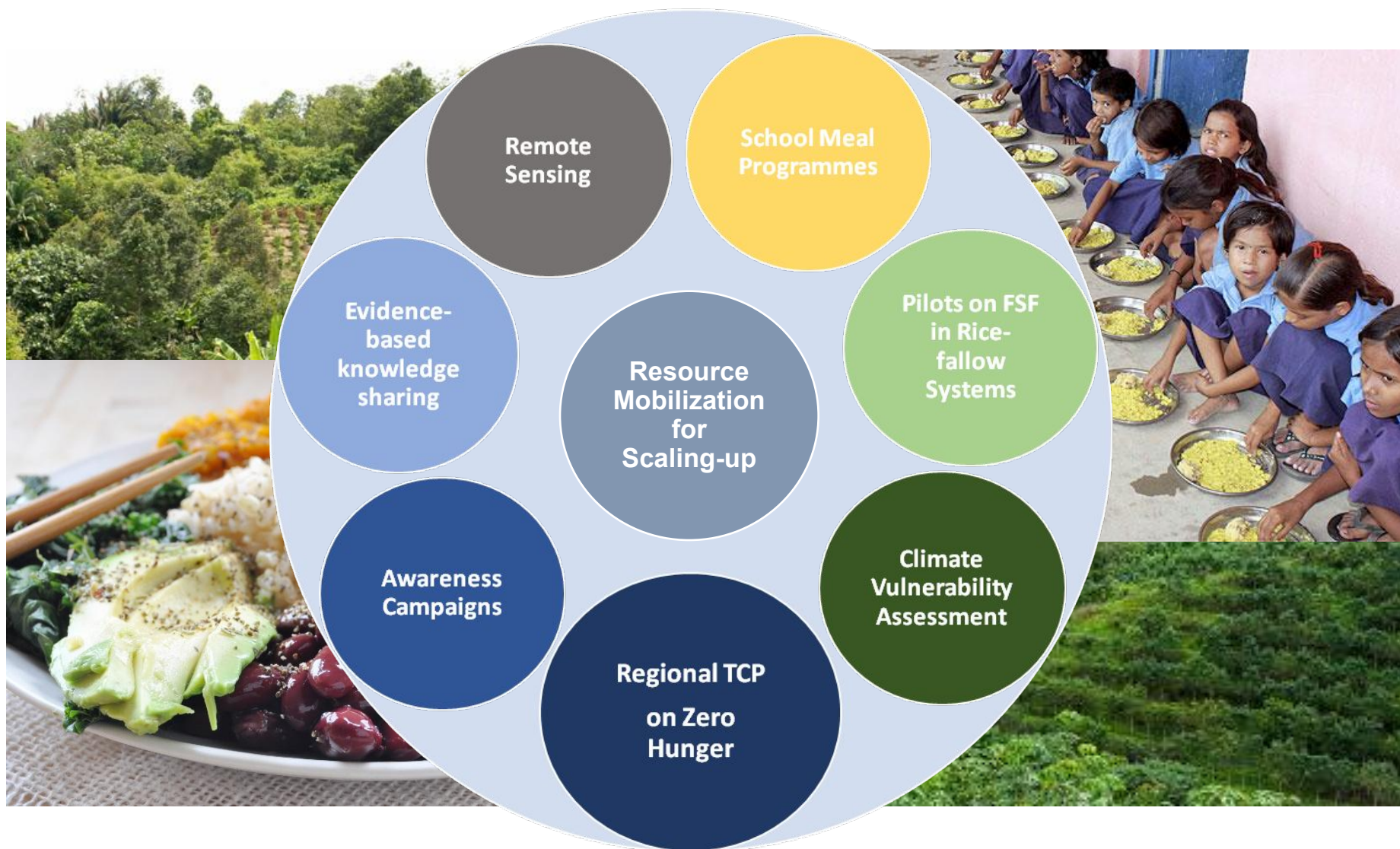


39 nutrition sensitive and climate-resilient crops have been identified as potential FSF by national experts from eight countries: Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal and Viet Nam.

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
Nomination of National Project Coordinator (NPC) in each country	March 2017
Regional Inception Workshop	

Ways Forward





Thank you!

UN Photo / Kibae Park

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