



Future Smart Food

Unlocking hidden treasures in Asia and the Pacific



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"Agricultural diversification with sustainable intensification is indispensable to address hunger and malnutrition in a changing climate."

– Kundhavi Kadiresan

Assistant Director-General and Regional
Representative, Regional Office for Asia and the Pacific

- **The Zero Hunger goal implies leaving no one behind regarding hunger and all forms of malnutrition.**
- The Asia-Pacific region had achieved the hunger MDG by 2014-2016. However, despite this impressive achievement, the region is still home to 490 million people suffering from chronic hunger and it accounts for 62 percent of undernourished people in the world. Other forms of malnutrition remain challenging.
- If we are to achieve the SDG2 (Zero Hunger), the agriculture and food system must be **more efficient**. Doubling yields in 2050 will require annual yield growth rates of more than 1.7 percent – something we have not achieved in recent decades. Thus, how to bridge **production gap** remains a huge challenge.
- If we are to achieve SDG2, the agriculture and food system must be **re-oriented** – we have to make food and agriculture more nutrition-sensitive. **There is a clear disconnect between malnutrition, dietary diversity and production diversity in the region.** Over-reliance on one staple crop (e.g. rice) is one leading cause of persistent malnutrition coupled with low dietary diversity: rice accounts for 67 percent of the total daily food consumption in Myanmar, 72 percent in Nepal, more than 75 percent in Cambodia and in Lao PDR 81 percent. The dependency mainly on rice leads to insufficient intake of nutrient-rich foods, which in turn leads to a significant **nutrition gap**.
- If we are to achieve SDG2, the agriculture and food system must be **more sustainable** – we have to ensure climate-smart agriculture and prioritize a paradigm shift: *save and grow*. Unsustainable high input-intensive crop production and monocultures have led to environmental degradation. Policy-makers need to recognize that policy support provided for monocropping or cash crops has directed to the shift.

Diversification – a tool to achieve zero hunger

- **Dietary diversity** is a cost-effective, affordable and sustainable means to eradicate hunger and malnutrition. Globally, out of 30 000 edible plant species approximately, only 103 crops provide up to 90 percent of the calories in the human diet.
- Governments need to **promote agricultural diversification: dietary diversity and production diversity. Neglected and underutilized species (NUS)** are abundant in the region.
- It has been recommended that NUS should be relabelled **Future Smart Food (FSF)** to popularize these species. Increasing the share of FSF in diets is an important way towards achieving zero hunger. **FSF are NUS that are nutrition-dense, climate-resilient, economic viable and locally available or adaptable.**
- FSF are often neglected and receive few incentives for production in the region (mostly geared towards rice production). Governments need to get away from their focus on staple food and cash crops only and tap the huge potential of FSF. It is time to **rediscover the hidden treasure**.

The Zero Hunger Challenge

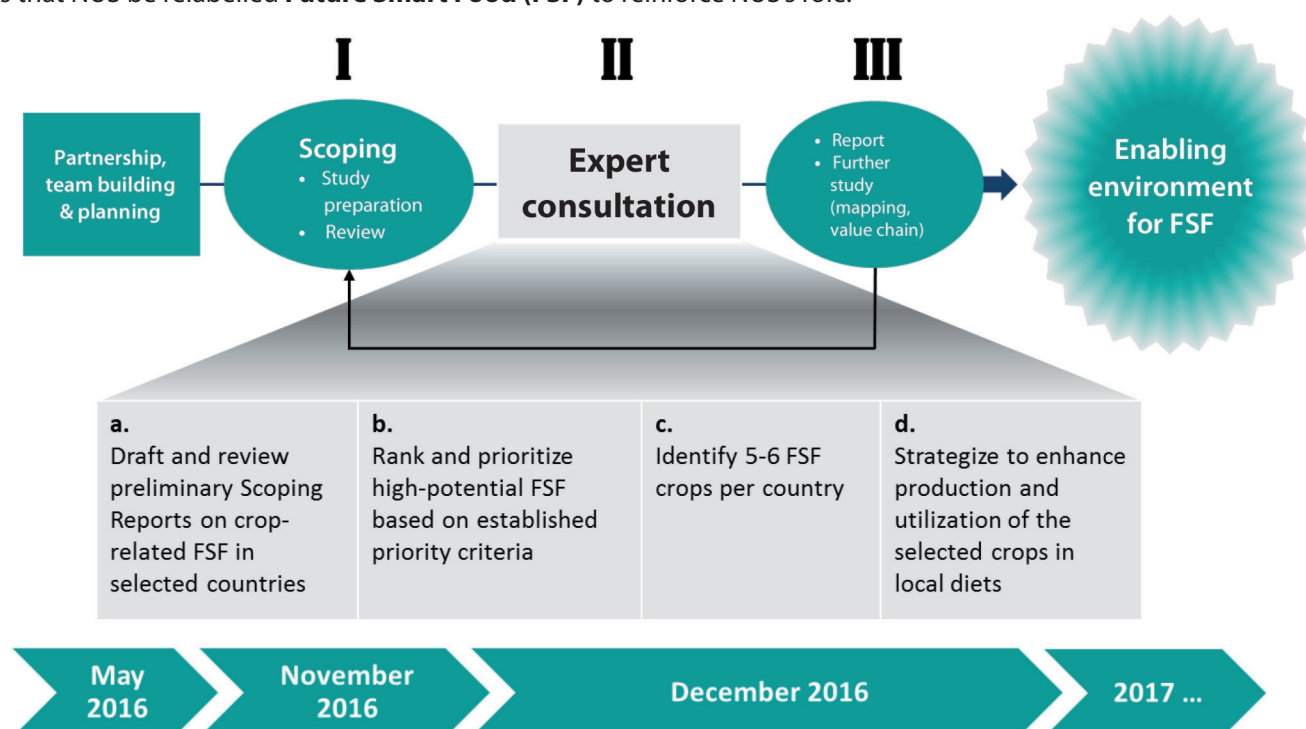
- The Zero Hunger Challenge was launched by the UN Secretary-General in 2012.
- The FAO Regional Initiative on Support to the Zero Hunger Challenge in Asia and the Pacific was launched in 2013.
- The governments of Bangladesh, Cambodia, Fiji, Lao PDR, Myanmar, Nepal, Pakistan, Thailand, Timor-Leste and Viet Nam have either launched or implemented national Zero Hunger Challenge activities.
- In 2016, Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand accepted the role as UN FAO Special Ambassador for Zero Hunger in the Asia-Pacific region.

SDG2 (Zero Hunger): End hunger, achieve food security and improved nutrition, and promote sustainable agriculture by 2030.

- SDG 2.1: End hunger
- SDG 2.2: End all forms of malnutrition
- SDG 2.3: Double agricultural productivity and incomes of small-scale food producers
- SDG 2.4: Ensure sustainable food systems
- SDG 2.5: Maintain genetic diversity

Future Smart Food: Regional priority-setting on scoping, prioritizing and mapping of neglected and underutilized species (NUS)

A regional priority-setting exercise on scoping, prioritizing and mapping of NUS was conducted by FAO in coordination with international and national partners in 2016, with a Regional Expert Consultation in Bangkok. It was recommended by leading experts that NUS be relabelled **Future Smart Food (FSF)** to reinforce NUS's role.



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 (Table 1).

Table 1: Potential **FSF** in eight countries in South and Southeast Asia.

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



Photos (from left to right): Foxtail millet (*kaon*), lentil, snake gourd, wood apple (*Bael*).

Recommendations: How to promote Future Smart Food (FSF)

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 interministerial 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 agricultural 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 FSF, 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 multisectoral collaboration** through existing coordination mechanisms and build partnerships at national and regional levels, including academia, civil society organizations 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.

International and National Partners to FSF

International partners:

- FAO Special Ambassador for International Year of Pulses 2016
- Australian Centre for International Agricultural Research (ACIAR)
- Bioversity International
- Chinese Academy of Tropical Agricultural Sciences – Tropical Crops Genetic Resources Institute (CATAS-TCGRI)
- Crops for the Future (CFF)
- International Centre for Agricultural Research in the Dry Areas (ICARDA)
- International Centre for Integrated Mountain Development (ICIMOD)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Tropical Fruits Network (TFNet)
- Mahidol University, Thailand
- M S Swaminathan Research Foundation – Leveraging Agriculture for Nutrition in South Asia (MSSRF-LANSA)

- The University of Western Australia (UWA)
- The Akshaya Patra Foundation, India

National partners:

- Bangladesh Agriculture Research Institute (BARI)
- Cambodian Agricultural Research and Development Institute (CARDI)
- Department of Agriculture, Ministry of Agriculture and Forests, Bhutan
- Department of Agricultural Research (DAR), Myanmar
- National Agriculture and Forestry Research Institute (NAFRI), Lao PDR
- Nepal Agriculture Research Council (NARC)
- Plant Resources Centre (PRC), Viet Nam
- Uttar Banga Krishi Viswavidyalaya (UBKV), West Bengal, India

Future Smart Food (FSF): Way forward

- Addressing hunger and malnutrition in a changing climate has been set as a top priority by several countries under an important regional project on Zero Hunger.
- Within an agricultural diversification and sustainable intensification strategy, FSF have been identified as a holistic and cost-effective intervention to address the dual challenge of malnutrition and climate change.
- During the launch of the regional project in Cambodia, Lao PDR, Myanmar and Nepal, agreement was reached on a set of nutrition-sensitive and climate-smart interventions to provide concerted support towards the common vision on FSF. The key components are shown in Figure 1.
- Establishing an enabling environment promoting agricultural diversification with sustainable intensification for production and consumption of nutritious, safe and climate-smart food through multidisciplinary and multisectoral collaboration is essential to ensure sustainable food systems. (Figure 2).

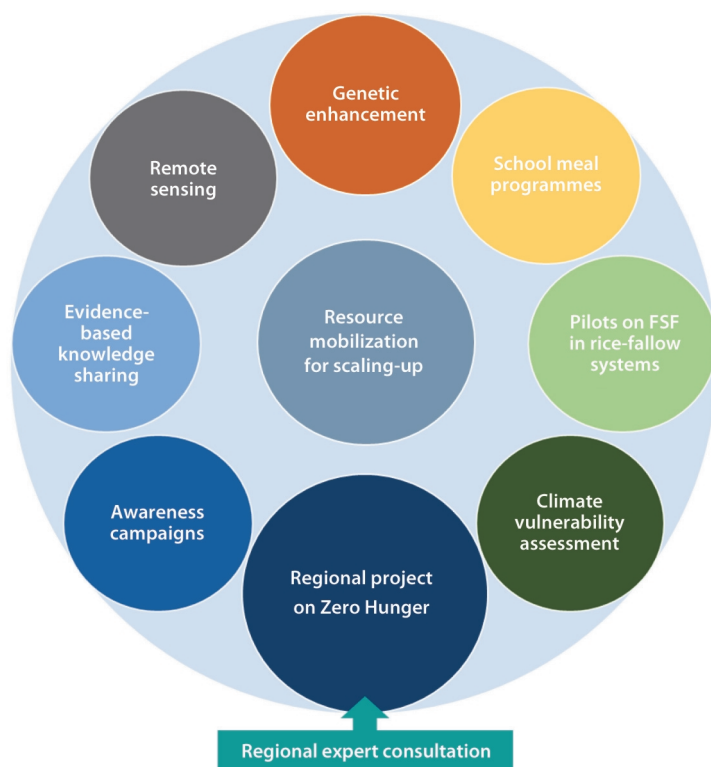


Figure 1: Way forward on FSF under FAO's regional initiative on Zero Hunger in FAO-RAP

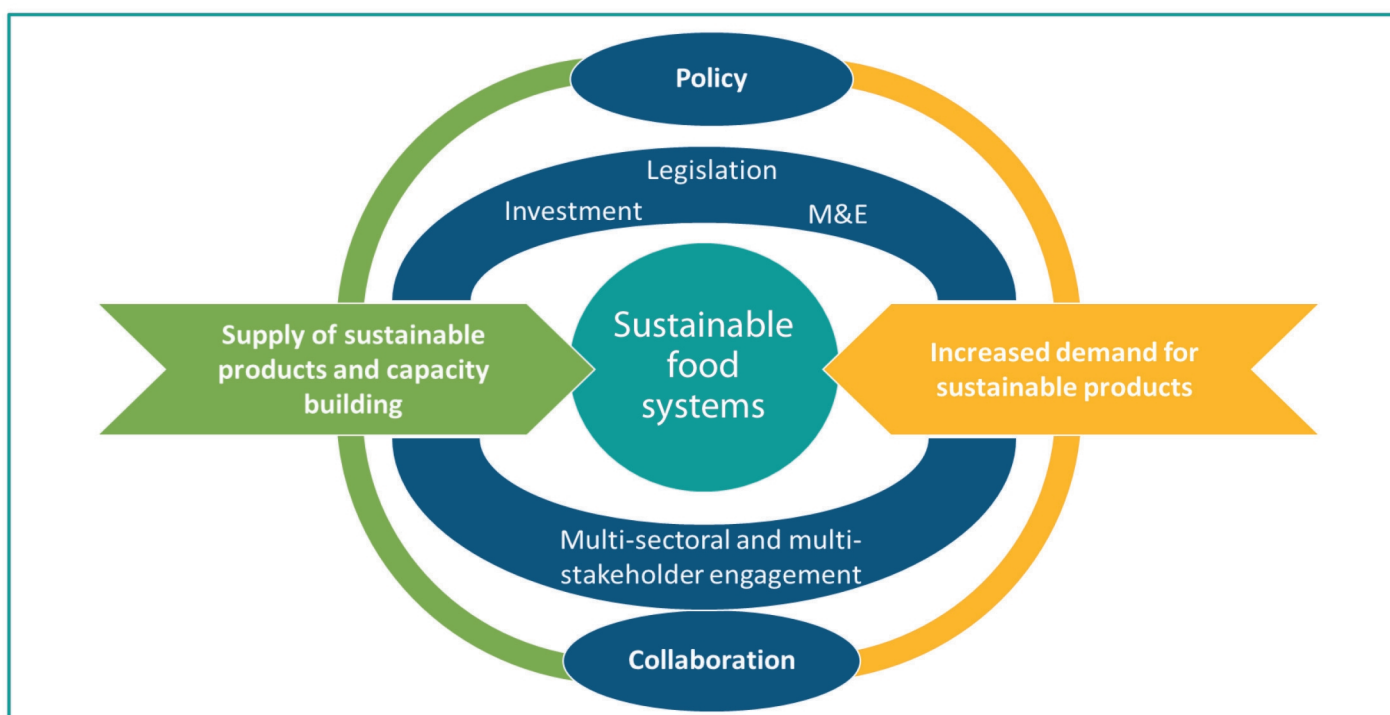


Figure 2: A theory of change towards an enabling environment for sustainable food systems. (FAO)

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