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Editorial: Resilient, inclusive, sustainable and economic (RISE) food systems

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Editorial on the Research Topic

Resilient, inclusive, sustainable and economic (RISE) food systems

The United Nations Sustainable Development Goals (SDGs) have set forth an ambitious agenda to achieve zero hunger, food security, and improved nutrition by 2030. These goals emphasize the urgent need for major transformations in our food systems in the face of rapid population growth, urbanization, and growing inequality. In order to contribute to the global knowledge agenda and collective efforts to tackle these challenges, this Research Topic explores the environmental and social impacts, as well as climate risks, associated with our current food systems to ensure sufficient food and nutrition for human societies. The imperative for sustainable food systems stems from the recognition that we must consider the needs of future generations. There is a growing realization that food systems need to be economically and environmentally sustainable, socially inclusive, and resilient in the face of climate change. Achieving this transition requires a holistic and coordinated approach at local, national, and global levels.

One crucial aspect of adapting agricultural models to address climate change challenges is the need to develop resilient practices that can withstand more frequent drought incidents, such as those experienced in the Mekong region of China. The impacts of climate change on food production are evident, and it is essential to enhance agricultural practices that can withstand these challenges. Additionally, unsustainable consumption and production practices, e.g., high intakes of red and processed meat from intensive livestock industries, have detrimental effects on human health and contribute to environmental degradation. Therefore, promoting sustainable and healthy diets that reduce the environmental footprint of food production is imperative.

Providing healthy diets, however, requires healthy ecosystems that are functioning in providing a range of critical ecosystem services. One study conducted by [Zhou et al.](#) investigated the dietary selenium (Se) intake of the Tibetan adult population living along the Yalung Zangbo River in China. They utilized intact highland barley plants, cultivated topsoil samples, and quantitative dietary data from a cross-sectional survey and found that the insufficient dietary Se intake was primarily caused by the low Se content in highland barley grain, resulting from the low Se content in cultivated soil. Their study emphasizes the significance of addressing soil degradation accelerated by global warming, as it poses a threat to over 40% of land surfaces and affects food security. Maintaining healthy and productive

soils can play a pivotal role in both food security and climate mitigation by sequestering greenhouse gases.

However, restoring healthy ecosystems, such as soils, is not an easy task, which can be demonstrated by the slow progress made after the launch of the “4 per 1,000” Initiative during the Paris COP21 in 2015 that aims to achieve an annual growth rate of 4% in soil organic carbon sequestration, which could help limit the increase in global temperatures to 1.5–2°C. [Li et al.](#) conducted a comprehensive policy review for the “4 per 1,000” Initiative and developed the concept of global soil governance, highlighting the aspect of New Common But Differentiated Responsibility. Their study revealed varying efforts among countries, with some nations showing more commitment compared to others. It also identified a new divide termed “soil carbon rich” and “soil carbon poor”, calling for a more practical and integrated framework within the global soil governance structure. This study underscores the importance of international collaboration and coordinated efforts in addressing soil degradation and climate change.

Collective actions are needed to address the challenges of 21st-century food systems balancing competing demands on sustainable agricultural production, nutrition, climate protection, wildlife conservation, soil and water quality, and equity. [Jordan et al.](#) and a consortium of university faculty present an action-research process for developing Collective Agency from 2019 to 2022 and report their progress in this Research Topic. This approach highlights the need for interdisciplinary education and capacity building to empower individuals and communities to drive sustainable food system transformations.

Some countries choose to implement protectionist food policies in order for food sufficiency. Using Nigeria as a case study, [Gao et al.](#) examine the dynamic interaction of narratives and trade policies in Nigeria’s pursuit of rice self-sufficiency since the 1970s. They find that trade policy changes, whether protectionist or liberalizing, do not directly lead to increased rice production, highlighting the complexity of developing agricultural trade policies that balance imported food supplies and domestic agricultural development.

The Research Topic on Resilient, Inclusive, Sustainable, and Economic (RISE) Food Systems provides valuable insights into the urgent need for transformative change in our food systems. By analyzing the economic, social, and environmental dimensions of current food systems, with a particular focus on diets, this Research Topic offers potential solutions that transcend disciplinary

boundaries. From addressing soil degradation and climate risks to promoting collective agency and exploring agricultural trade policies, this Research Topic contributes to the ongoing discourse on achieving sustainable and inclusive food systems that can meet the needs of present and future generations. The diverse research presented here highlights the interconnectedness of environmental, social, and economic dimensions in shaping our food systems. It is our belief that by embracing a multidisciplinary approach and fostering collaboration at all levels, we can strive toward achieving the SDGs and ensuring a future where everyone has access to safe, nutritious, and sustainable food.

Author contributions

XL and LC wrote the draft. LC and BL reviewed and edited the article. All authors contributed to the article and approved the submitted version.

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Conflict of interest

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