
Vision of Building Sustainable Food Production Systems while Ensuring Development of Rural Economies

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Introduction

The Global population expected to reach 8.6 billion by 2030. A finite, and reducing, supply of natural resources to be safeguarded. And the livelihoods of billions who work along the agricultural value chain at stake.

Making our food systems more sustainable will depend on innovative tools and approaches being developed and deployed around the world. To be economically sustainable, these innovations must provide income and create jobs. To be socially sustainable, they must include poor and vulnerable communities and reduce levels of hunger and malnutrition and also provide opportunities for growth to be environmentally sustainable, they must help us safeguard water, soil and air quality while minimizing greenhouse gas emissions.

The sustainability of a food system is well designed by its success in meeting core objectives related to the three pillars of sustainability: economic, social, and environmental. These objectives include providing safe and nutritious food for all; providing decent incomes and wages for farmers and those working across the system; and conserving natural resources for the benefit of current and future populations.

As the rural economy mainly depends on farming, 65% workforces:

- Basic education to understand scientific approach in farming ie., To

make farming economically viable need to use tech tools like Farm machination, scientific approach in cultivation, value addition, storage and marketing.

- Local crop advisory, market infrastructure network to be created.
- Establish own system of marketing through models like Cooperative, Self-help group (SHG) and Farmer Produce Organization (FPO's) with proper funding by government at initial levels which should be linked to local market and other market channels.
- Make use of low cost sustainable models that intern reduce cost of production e.g., use farm waste into organic nutrients and proper livestock.

The sustainability of a food system begins well before a crop is grown or an animal is raised. This pre-production stage includes how genetic resources are conserved and used to improve the quality and productivity of domesticated crops and livestock for the future. It also includes innovations in agricultural inputs, such as inputs or crop protection products. These can help to boost yields and incomes while preventing further land from being converted for cultivation. And it also includes advances in agricultural

practices themselves to ensure that farmers can continue to thrive in the face of climate change and other increasingly unpredictable conditions.

The case studies below offer a range of pre-production solutions, from the development and maintenance of gene banks to safeguard genetic diversity and support breeding efforts, to developing best practices around fertilizer and water stewardship, integrating alternative or improved food sources like fruit trees into mixed crop farming systems, and developing hardier, more productive seeds through biotechnology, to be used for the benefit of all.

In the production stage, farmers must contend with the myriad challenges involved in growing and harvesting, including pests and disease, severe and unpredictable weather, food loss management and fluctuating market conditions. Under current projections, 60 per cent more food will be needed by 2050, yet current production efforts are falling short of this target and global hunger levels are on the rise again after decades of progress. This is in addition to the two billion people already suffering from malnutrition globally today.

Explore the case studies below for a range of production solutions. These include how to reduce dangerous aflatoxin levels in groundnuts and maize and how to use fertilizer to fend off the impacts of fall armyworm. It also includes text-based early warning systems for farmers, rice cultivation in lowland areas, and the creation of 'climate-smart villages' to tap into technologies and practices for adaptation and mitigation.

The second part of the transformation involves the promotion of inclusive, sustainable, and nutrition-sensitive agricultural production, processing, distribution, and marketing. It should consider the multiple functions of, and demands made on, agriculture and food. Sustainable agriculture can create decent jobs, support inclusive growth, improve livelihoods, and adapt

to climate change. It must be implemented in ways that are tailored to each context.

None of these changes are attainable in the absence of healthy ecosystems and their associated services. The challenge is to increase agricultural production on existing agricultural lands in ways that ensure biodiversity, maintain the integrity of ecosystems, and sustain ecosystem services: it is one of the world's core sustainability challenges. Patterns of agricultural production and the measures of agriculture's performance and effects must be reconsidered in ways that take account of the multiple functions expected from agriculture, including adaptation to and mitigation of climate change, biodiversity management, the provision of ecosystem-based services, people's incomes, and just societies.

Pioneer farmers are pursuing ecologically sound agricultural practices and are well able to contribute to this part of the transformation. Numerous technical advances have been developed and subjected to scientific analysis—including agroecology (Wezel *et al.* 2009; IPES-Food 2016) and organic agriculture (Halberg and Müller 2013). Agroecology—in its many incarnations—is now considered by many global leaders as an approach that can promote the transformation, as stated during a symposium organized by the FAO in April 2018.

A renaissance of rural territories

The sustainable food system transformation reflects the extraordinary potential for territory-based institutions to stimulate people's well-being through providing a range of social, economic and environmental functions and services that are essential to the whole of society (OECD/FAO/UNCDF 2016). Effective action at territorial level contributes to the food and nutrition security of rural and urban populations, to steady and shared economic growth, to decent jobs for young people, and to reducing root causes of

frustration and conflict, which can lead to unrest, violence, and forced migration (Mercandalli and Losch 2017). In practice, this requires the establishment of trusted means to encourage—among others—greater equality of opportunity including gender equity, the sustainable management of natural resources, resilience in the face of climate change, as well as access to clean air, to water and sanitation and the most important to

conserve existing flora and fauna.

Conclusion

The food production ensuring development of rural economy, without affecting biodiversity as well as the natural resources is a biggest challenge of this era, to address this issue one should follow a comprehensive approach from government, policies and people's who are engaged in the system.

