Transforming Food Systems Under a Changing Climate

Adaptation and development pathways for different types of farmers: key messages

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Transformation is inevitable, but there are no silver bullets

1. “Business as usual” agriculture in 2040 is not an option for meeting basic human needs on a planet with intensifying climate change impacts and 2 billion more people than in 2018.

2. There are many different types of farmers, therefore development pathways to reach SDGs and the Paris Agreement need to reflect this: no single transformation pathway will be appropriate in all situations, and it is difficult to generalize from one farmer to another.

3. Global trends, such as population growth, climate change, rapid urbanization, dietary changes, competing land uses and the emergence of new technologies will shape development pathways, and these impacts will vary between types of farmer pathways.

4. Pathways further need to ensure that environmental, economic and social-cultural benefits are not compromised, now or into the future. We need pathways that will protect biodiversity, decarbonize the economy and keep humanity within a safe operating space.

EXAMPLES OF TRANSFORMATIONAL PATHWAYS FOR DIFFERENT KINDS OF FARMERS

FARMERS IN 2019

- Conventional large-scale commercial
- Conventional smallholder subsistence
- Conventional smallholder market
- Traditional extensive
- Artisanal

INTERVENTIONS

- Novel technology
- Coherent regulatory framework, platforms, and enforcement
- Removal of perverse subsidies
- Consumer awareness and education
- Increased access to technology and infrastructure
- Tenure reform and land rental markets
- Improved credit access
- Certification
- Payments for ecosystem services
- New market opportunities, e.g. ecotourism
- Infrastructure investment
- Collective action
- Urban horticulture
- Chef-farmer alliances
- New business models enabling equitable consumer access
- Exiting agriculture and pursuing alternative livelihoods

CHANGES REALIZED BY 2040

- Greater focus on environmental externalities
- Land consolidation and increased market access due to urbanization
- Increased supply chain security
- Increased diversification of income streams
- Increased market share
Small farms may no longer be viable in many contexts

5. The most viable pathway for some farmers may be to exit agriculture: Of about 570 million farms in the world [1], 85% are less than 2 ha and occupy only around 12% of global agricultural land. Even with best-practice farming, such small farms are financially unviable [2]. Farmers with less than 2 ha of land are unlikely to prosper, no matter how productive they become [2], and meaningful poverty reduction will not come from increasing crop and livestock output alone [3]. Rare exceptions are capital-heavy practices like glasshouses producing high-value crops and intensive livestock production.

6. Different pathways for sustaining food production while minimizing climate change impacts may mean smallholder and traditional farmers become more like artisanal farmers with a greater market share by 2040. This shift would be coupled with much closer producer-consumer connections through shorter supply chains and larger areas under more environmentally friendly production. Changes can be supported by rental markets and consolidation, possibly through cooperatives, aided by collective action and co-evolving technology for the different farmer types.

Disruptive actions are key to accelerate progress

7. Disruptions such as vertical farming, universal basic income, alternative protein sources or what has been called the fourth agricultural revolution can accelerate some transformation pathways.

8. Policies for transformation must go beyond developing secondary and tertiary industries in rural areas to also providing crucial support for people exiting rural agriculture and moving into urban livelihoods. Ensuring food production does not decline requires parallel investments in agricultural niches and re-skilling of the workforce for activities like vertical agriculture, urban agroforestry and small-scale processing. These investments should be aligned with dietary shifts and the implementation of sustainable food security strategies.

9. Subsidies for monocultures and other perverse incentives that undermine environmental quality, should be replaced with incentives that substantially reward pro-sustainability behaviours. Incentives are needed alongside more stringent implementation of polluter-pays principles and carbon taxes within the food system.


References


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About the Transforming Food Systems Under a Changing Climate Initiative

This briefing is part of Transforming Food Systems Under a Changing Climate, an initiative led by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) that aims to realize a transformation in food systems by mobilizing knowledge and catalyzing action. The initiative brings together leaders in science, business, farming, policy and grassroots organizations to identify pathways for transformation. To find additional publications in this series and for more information, please visit [http://bit.ly/TransformingFood](http://bit.ly/TransformingFood).

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