



Innovation Commission: Climate Change Food Security Agriculture



The world faces interlinked challenges of climate change, food security, and agriculture. Agriculture accounts for a quarter to a third of global emissions, mostly from high-income countries, while climate change exacerbates food insecurity and reduces agricultural productivity. In 2022, around 900 million people experienced severe food insecurity, an increase of over 336 million from 2014.

Multiple cost-effective innovations could help hundreds of millions of people adapt to climate change in low- and middle-income countries, yet have not transitioned to scale. For example, the benefits of procuring and delivering accurate weather forecasts for smallholder farmers could outweigh the costs by over a hundred times. However, commercial incentives to deliver climate information often fall short of social needs: since farmers can share information with each other, fewer people are willing to pay for the services.

Innovation also has the potential to reduce emissions from agriculture. For example, microbial fertilizers could reduce the need for synthetic nitrogen, reducing emissions while improving productivity. Yet, commercial incentives to invest in mitigation are inadequate under current institutions. Relative to global social needs, national research funders tend to underinvest in developing and transitioning innovations to scale when the innovation benefits multiple countries. This creates a massive opportunity for high-value investment in innovation for the public good.

Innovation is just one piece of the necessary response to climate change, but it can facilitate other policy changes. Fully addressing climate adaptation and mitigation challenges will require massive actions on multiple fronts, some of which will be economically and politically difficult. However, innovation can make regulatory and policy changes easier by reducing the cost of switching to greener technologies.

The Innovation Commission promotes innovations with the potential to address challenges of climate change, food security, and agriculture. The Commission identifies innovations with rigorous evidence of impact and cost-effectiveness, as well as early-stage innovations with high expected returns, and generates recommendations to efficiently stimulate their development and transition to scale. It also examines the role of meta-innovations: mechanisms to encourage innovation development and scaling, such as open, tiered, evidence-based social innovation funds, and Advance Market Commitments.

The Commission brings together an independent and high-level group, including former heads of state and cabinet ministers, and leaders of international organizations and civil society. The Commission is chaired by Michael Kremer, co-recipient of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2019. Professor Kremer helped establish USAID's Development Innovation Ventures, and his work on Advance Market Commitments was instrumental in the adoption of this approach as a tool for promoting private sector participation in the development of health innovations for low- and middle-income countries.