



Food and Agriculture Organization
of the United Nations

Ministerial meeting on long-term commodity price trends and sustainable agricultural development

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Roundtable II: Economic growth and climate change: long-term implications for commodity prices and trade

Why the subject is important

- Many effects of climate change on our ecosystems are already widespread. In time, these effects will be exacerbated and their impacts unevenly distributed across regions and countries.
- Climate change will affect all aspects of food security: availability, access, stability and utilization (nutrition), and will challenge our efforts to ensure enough safe, nutritious, and affordable food for all, a key goal for humankind.
- Agriculture is both a victim of climate change, but also an important contributor to greenhouse gas emissions through changes in land use, land degradation, and the livestock sector. This puts agriculture at the center of adaptation and mitigation efforts.

Background

Many countries are already witnessing small but progressive changes in their seasonal rainfall patterns and temperatures. These changes are expected to become more pronounced, together with increasingly frequent and unpredictable extreme weather events.

Climate change influences food production through changes in agro-ecological conditions. Higher temperatures, changing rainfall patterns, loss of arable land to rising sea levels, and more frequent drought and flooding will impact yields. Pests and infestations are also projected to worsen.

As productivity is affected so are farm incomes and rural development. With climate change harming some countries and benefiting others, its effects on food production will be uneven across regions. Studies show that the negative impact on yields is so far more common than the positive impact, and risks to food security are generally greater in low-latitude areas, where the negative effects of climate change will be felt sooner. Countries facing multiple stresses and with low adaptive capacity will suffer more.

Decreasing yields and the related impact on food price levels and volatility will significantly harm the ability of the poor to meet their food needs. Small family farmers, whose productivity is already low, will incur major income loss.

Current Outlook

Projections of the possible effects of climate change on global weather and agricultural output suggest that global yields of rice, maize and wheat could decrease by between 3 and 10 percent per degree of warming above historical temperature levels. In the tropics, these yield reductions will be felt sooner and will be more pronounced. Temperate yields will be less clearly affected at these temperatures.

Against this background, global population is expected to reach the mark of 9.7 billion people by 2050. Food production will have to increase by 60 percent in response. As most of this population growth will take place in the urban areas of developing countries, rising incomes and predominantly urban lifestyles will also prompt a shift in the types of foods consumed. Consumer demand for meat and dairy products and processed foods is expected to increase faster than that for cereals. Livestock and dairy production requires more natural resources, most notably water, and is also associated with emission of greenhouse gases, adding pressure to fragile ecosystems and worsening the effects of climate change.

The combined pressure of these two trends – of climate change and changing demand patterns – will add significant pressure to our natural resources and ecosystems, posing a daunting challenge to global food security and nutrition.

Given the diminishing area of unused land with good agricultural potential, most of the increase in production must come from intensification on existing farmland or extension to marginal and environmentally sensitive areas. Farming must become both more efficient and sustainable.

Climate smart agriculture (CSA) is a response to the need for farming systems to become at the same time more efficient and resilient. CSA practices, such as no-till farming, agroforestry, and restoration of degraded lands, are designed to sustainably increase agricultural productivity and incomes and adapt and build agricultural resilience to climate change.

Agriculture is the only sector that has the capacity to remove greenhouse gases safely and cost-effectively from the atmosphere without reducing productivity. CSA practices can all reduce emissions and enhance carbon storage by soils. Farmers need support to identify the climate risks exposure that affect their landscapes and the accompanying tailored CSA responses that are effective in addressing these risks.

Countries for which the negative effects of climate change will be more severe may have to increasingly resort to global markets as means of ensuring sufficient food for their people. Trade will be an essential tool to maintain global food security. Facilitating food trade and the functioning of markets will contribute to price stability, and ensure that regions that may face shortages due to adverse effects of climate change can purchase sufficient food. It is important that trade policies also facilitate market access to small farmers and their produce.

Measures taken to protect the environment and combat climate change should not weaken international trade. Certain forms of trade restrictions, for instance, can amplify price volatility and the negative effects that sudden food price spikes have on the poor, undermining their access to food, discouraging investment and rendering global food markets unreliable. An open, non-discriminatory, multilateral trading system and public policies that protect the environment and promote sustainable development can and must be mutually supportive.

Guiding questions for policy makers

- What is the importance of and the prospects for trade and trade policies to improve food security in countries, where the climate change effects are expected to be severe?
- How can trade policies anticipate and adapt to the new environment of rapid urbanization, an expanding middle class, and changes in consumer preferences?
- How can public policies ensure food access to the poorest rural households, who are at the forefront of climate change and have their food security threatened?