Agriculture is vital to livelihoods in West Africa. It is the main source of employment for the 290 million people who live in the region, employing 60 percent of the workforce, and accounts for 35 percent of the region’s gross domestic product (GDP). This crucial economic activity is endangered by climate change.
How to foster agricultural development and food security in West Africa despite the effects of climate change and other challenges is the subject of the study *West African Agriculture and Climate Change: A Comprehensive Analysis*. The authors develop several weather-based scenarios for how climate change might affect countries in the region between now and 2050. National contributors from Benin, Burkina Faso, Côte d’Ivoire, Ghana, Guinea, Liberia, Niger, Nigeria, Senegal, Sierra Leone, and Togo review the scenario results for their countries and propose a variety of policies to counter the effects of climate change on agriculture and food security. These policies include cultivation of crops that require less water, expanded irrigation, and improved infrastructure.
staples such as sorghum, which is the leading cereal crop in Burkina Faso and Nigeria and the second-most important crop in Niger, and groundnuts—leading to decreased productivity. High temperatures will adversely affect animal production, including livestock and fisheries. In areas where rainfall increases, escalation in humidity and flooding might promote greater problems from insect pests that carry a range of infectious diseases.

**POLICY RECOMMENDATIONS FOR WEST AFRICA**

Ensuring improved productivity under adverse climatic conditions will demand actions on many fronts. Policymakers should consider the following prospective initiatives:

- Develop and make available crop varieties that are more resilient to adverse weather effects, as well as being suitable for changing but uncertain climate conditions.
- Make inputs such as fertilizer available to farmers, since higher yields often require higher levels of inputs.
- Encourage crop diversification and crop-livestock integration to minimize the risk of crop failure and livestock deaths resulting from crop failure.
- Provide farmers with reliable climate information to guide the management of scarce resources. The organization, the Regional Centre for Agriculture, Hydrology, and Meteorology, responsible for weather monitoring in the Sahelian countries should be supported in extending its activities to the remaining countries in the West African region. Improved support to national meteorological services is also needed.
- Make greater use of the irrigation and electricity potential of the region’s many rivers (such as the Niger, Senegal, and Volta) that run through several countries. Dam construction should be coordinated to ensure maximum benefit from the dams and avoid conflict in their use.
- Conserve natural resources, particularly forests.

**FIGURE 1** Change in mean annual precipitation in West Africa, 2000–2050, A1B scenario (millimeters)

*Source:* Authors’ calculations based on Jones, Thornton, and Heinke (2009).

*Notes:* A1B = greenhouse gas emissions scenario that assumes fast economic growth, a population that peaks midcentury, and the development of new and efficient technologies, along with a balanced use of energy sources; CSIRO = climate model developed at the Australia Commonwealth Scientific and Industrial Research Organisation; MIROC = Model for Interdisciplinary Research on Climate, developed at the University of Tokyo Center for Climate System Research.
Improve the region’s road network and international markets to facilitate the movement of people and goods.

Work collaboratively with other countries to adapt to climate change and improve livelihoods. The Economic Community of West African States (ECOWAS) should pursue economic integration, including harmonization of the trade policies of member states, to encourage trade within the region. Effective implementation of the principles in the ECOWAS Agricultural Policy framework would be an important step.

Pursue research on climate change that contributes to agricultural adaptation. The promotion and implementation of the strategic framework for climate change research of the West and Central African Council for Agricultural Research and Development (CORAF/WECARD) offers an opportunity for collaboration between national agricultural research systems in West Africa and advanced institutions in industrialized nations.

Some initiatives aimed at addressing climate issues are already underway in West Africa. Almost all the countries surveyed in this study have ratified the United Nations Framework Convention on Climate Change (UNFCC) and submitted National Adaptation Programmes of Action (NAPAs), which identify climate change adaptation activities each country can pursue, to the UNFCC. Some West African institutions are also currently doing research on climate change adaptation. The region’s scientific community is working, with support from the German government, to establish a center in the Volta River Basin that will collect data on topics including climate, land use, and economic development. In addition, a German and regional research consortium will study how adapted land use can foster resilience to climate change and ensure sustainable development.

CONCLUSION

As policymakers and others in West African nations anticipate their countries’ economic prospects, they must consider climate change and how to adapt agriculture to its challenges. A range of positive responses, from providing farmers with fertilizer and other inputs to pursuing climate change research to participating in international climate change adaptation efforts, is possible. Those concerned with growth and food security in West Africa should identify and pursue responses best adapted to each region and country.