Climate change and agricultural productivity

Climate change (CC) is a serious threat to the socioeconomic development of the Asia-Pacific region. It will affect everyone, but rural people and farmers are especially vulnerable. Agriculture is highly sensitive to CC-linked weather events, such as shorter and less predictable rainy seasons and more frequent and severe droughts, floods, and storms. Crop failures and livestock deaths cause huge economic losses, and increased food prices undermine food security. While there might be some productivity gains from CC in certain regions, globally it is expected to decrease agricultural productivity. Agriculture itself has positive and negative effects on climate. Green crops serve as carbon sinks, but agricultural activities and deforestation contribute significantly to greenhouse gas emissions. Effective policy measures and farming practices to minimize negative impacts of agriculture on climate are thus required.

To assess the impacts of CC and understand key climate-induced risks to agriculture, the APO in collaboration with the Asian Development Institute and Korea Productivity Center organized a workshop on Climate Change and Its Impact on Agriculture, 13–16 December 2011, in Seoul. Thirty participants from 20 Asia-Pacific economies including 20 participants from 12 member countries, and 10 experts from the International Water Management Institute, Australia, Austria, India, the Republic of Korea, Japan, Sri Lanka, and the USA attended.

Deliberations focused on: strategic assessment of CC impacts on agriculture; assessing successful CC adaptation strategies in vulnerable areas; developing adaptation road maps; and strategies for mainstreaming CC adaptation. Participants visited the National Academy of Agricultural Science of the Rural Development Administration and a plant factory where they observed futuristic ecofriendly technologies for enhancing agricultural productivity.

Increased productivity of lettuce grown under artificial LED light without chemicals demonstrated in a fully automated vertical plant factory, Suwon, ROK.

The workshop concluded that: 1) There is a need to provide reliable scientific data to policymakers to help them predict CC and potential effects on agriculture and food security. 2) Agricultural agencies should disseminate the scientific data to help local communities and farmers make sound adaptation choices to increase their resilience. 3) Agricultural, water, environmental, and financing agencies need to act in unison to create synergies in implementing best practices. 4) Governments need to make efficient use of existing resources and establish new financing mechanisms with broader, more flexible approaches, integrating funding sources and delivery schemes involving the private sector to support producers. 5) Policymakers must make continuous adjustments in adaptation measures, while line agencies should include CC impacts and adaptation measures in their planning processes. 6) Regional cooperation is needed.