



Climate Change, Agriculture and Food Crisis and correlations

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Georgia is a country with an ancient tradition of land cultivation where Agriculture has made a tremendous contribution to the quality of Georgians life. It is not just an industry; it is the foundation of our civilization. Agriculture provides the basic essentials for living: the food what we eat, the beverages what we drink and etc. By 2050 the World will need to feed 3 billion more people and cope with the changing dietary demands of a richer population (richer people eat more meat, a resource-intensive way to obtain proteins). This must be done in a harsher climate with more storms, droughts, and floods. Moreover, it has to incorporate agriculture in the mitigation agenda—because agriculture drives about half the deforestation every year and directly contributes 14 percent to overall emissions. In addition, ecosystems, already weakened by pollution, population pressure, and overuse, are threatened by climate change. Producing more and protecting better in a harsher climate while reducing greenhouse gas emissions is a tall order. It will require managing the competing demands for land and water from agriculture, forests and other ecosystems, cities, and energy. Therefore, agriculture will have to become more productive, getting more crops per drop and per hectare—but without the increase in environmental costs currently associated with intensive agriculture. In addition, societies will have to put much more effort into protecting ecosystems. To avoid pulling more land into cultivation and spreading into “unmanaged” land and forests, agricultural productivity will have to increase, perhaps by as much as 1.8 percent a year compared to 1 percent a year without climate change. Most of that increase will have to occur in developing countries because agriculture in high-income countries is already close to maximum feasible yields. Fortunately, new technologies and practices are emerging some improve productivity and resilience as they sequester carbon in the soil and reduce the nutrient runoff that damages aquatic ecosystems. However, more research is needed to understand how to scale them up. Local Farmers in Georgia must cope with changes in demand for the foods they produce, the impact of foot and mouth disease and other bio-attacks, changes in the system of subsidies and even the threat of global climate change. The development and application of new science and technology will be essential for the survival of well being of humankind and our planet

Increased efforts to conserve species and ecosystems will need to be reconciled with food production (whether agriculture or fisheries). Protected areas—already 12 percent of the earth’s land but only a tiny portion of the ocean and fresh water system—cannot be the only solution to maintaining biodiversity, because species ranges are likely to shift outside the boundaries of such areas. Instead, eco-agricultural landscapes, where farmers create mosaics of cultivated and natural habitats, could facilitate the migration of species. While benefiting biodiversity, eco-agriculture practices also increase agriculture’s resilience to climate change along with farm productivity and incomes. Different levels of understanding of biological mechanisms and an insufficient diffusion of knowledge on the current state of research in safety assessment of genetically modified products might be responsible for the present situation in communication of biotechnology issues in Georgia. Food acquisition, production, modification, and processing technologies form a continuum of allied biotechnologies, which trace back to the beginnings of agriculture. These technologies have made use of naturally occurring genetic variation in an effort to create variety and expand the reach of food sources. Better management of water is essential for agriculture to adapt to climate change. River basins will be losing natural water storage in ice and snow and in reduced aquifer recharge, just as warmer temperatures increase evaporation. Water can be used more efficiently through a combination of new and existing technologies, better information, and more sensible in use.