

## **Faced with food insecurity and climate change: Agriculture must adopt a new paradigm**

*In a forum on the topic, well-known researcher and diplomat Cassio Luiselli, from Mexico, called for immediate action to make agriculture sustainable.*

**San Jose, Costa Rica, September 2010 (IICA).** According to Cassio Luiselli, a renowned Mexican economist who currently holds the post of Mexican Ambassador to Uruguay, “Agriculture must be based on a new paradigm. It must emit less carbon dioxide to the atmosphere, use other kinds of fertilizers and agrochemicals and, of necessity, use less water.”

After analyzing the effects of climate change on agriculture and food security, Luiselli stated that modern agriculture needs policies for adapting to climate change that are based on the characteristics of each region, and issued a call for urgent action.

Speaking at the forum “Climate Change, Agriculture and Food Security in Latin America,” held on September 22 at the Headquarters of the Inter-American Institute for Cooperation on Agriculture (IICA), he said “We have to get to work and must do many things we are not now doing before we reach the point of no return. The risk is extreme and we must act despite uncertainty.”

It is no secret, he said, that agriculture is one of the sectors most responsible for the emission of greenhouse gases (GG), accounting, as a sector, for 14% of all emissions. To this it is necessary to add changes in soil use, with the sector accounting for 17%, and other variables such as transportation and industry and heavy consumption of water and energy.

In other words, agriculture is a cause but also a consequence, since the effects of climate change hit the agricultural sector especially hard, which impacts, in addition, food security in the countries.

According to Luiselli, former Deputy Director of ECLAC and Deputy Director General of IICA, the paradigm of sustainability in agriculture, the need to make production sustainable, took hold in the late 1990s. Before that, the Green Revolution had led to a major expansion of the sector that had negative environmental consequences.

One of the most alarming effects of climate change is a possible increase of three degrees in global surface temperatures. “The impact of an increase of two or three degrees, which would appear to be insignificant, may have very grave consequences. For example, in the last ice age, surface temperatures were five degrees cooler. Only five degrees. What is going to happen if temperatures rise three degrees on average? They have already risen by 0.8,” he said.

### **Blame and differentiated consequences**

The effects of climate change are not the same in all cases. While countries such as the United States and China emit more GG than any other, the consequences are more severe in developing countries, “whose share of responsibility is less.”

For Luiselli, the effects are most dramatic and Sub-Saharan Africa, Southern Asia and in places closest to the equator and the Tropics. “In Latin America, the countries of the South will fare better; the situation will be more complicated in the Andes because of the glaciers; and Mesoamerica is going to face two problems: one related to yields, and the other to vulnerability to climatic events.”

Commenting on Luiselli’s presentation, IICA Policy, Trade and Agribusiness Specialist Manuel Jimenez said that Central America “emits only 3% of GG worldwide, but is seriously impacted by the effects of climate change.” He also stated that the governments of the region are already working on responses such as the Regional Environmental and Health Strategy and the Central American Strategy for Territorial Rural Development, which address both climate change and climate vulnerability.

In general, as a result of climate change, fewer crops and livestock will be produced, biological diversity will be lost, the sea level will rise, coastal areas will erode and higher temperatures will be the norm. This would impact, for example, the production of rice (-17%), rainfed corn (-16%) and irrigated wheat (-42%).

To this it is necessary to add the problem of low inventories, stagnation in the growth of yields and a shortage of new fertile land, which would make it impossible to open up new agricultural frontiers as was done in the 20<sup>th</sup> century.

Another, and perhaps the most serious, problem is water. There is less water per capita than there was 20 years ago, and demand is greater. Luiselli stated “Today’s agriculture consumes too much water because the government has always paid for it. While the idea of putting a price on water may sound obscene, the growing scarcity of same makes it necessary to put a value on it so that it will be used more efficiently, taking measures to ensure that it does not become a source of social conflict.

### **Energy and biofuels**

Oil is becoming more and more expensive as it becomes scarcer. “Climate change may sound the death knell for oil”, he said.

Thanks to the energy crisis, biofuels are seen as an option for lowering dependence on oil. Nonetheless, products such as corn or sugar cane are becoming more expensive, which threatens food security.

For Luiselli, it is important to continue the debate on the viability of biofuels, placing emphasis on the need to produce them with crops with little nutritional value.

Biofuels, he said, are part of the new agricultural paradigm, which must focus on reducing carbon dioxide emissions, using transgenic organisms to meet human needs and restricting subsidies, and calls for greater investment in agricultural research.