Cuba’s Agricultural Revolution: Vanguard for Global Food System

02/12/2016

The agricultural revolution in Cuba can offer important lessons as a vanguard of the food system transformation needed in the age of climate change.

The Cuban Revolution was forced to take on new challenges in the early 1990s after the collapse of the Soviet Union, a turning point that sparked a radical overhaul of the island’s agricultural model that now stands as an example of the kind of food system transformation that is urgently needed around the world to slash fossil fuel dependency and mitigate the impacts of climate change.

The Soviet bloc had been a fundamental trading partner to Cuba in the early decades of the revolution following the 1959 fall of the U.S.-backed military dictatorship of Fulgencio Batista. Caught in the crosshairs of Cold War tensions and strapped by the United States’ 1962 economic blockade against the island, Cuba turned to the other side of the Iron Curtain for key imports, including over 90 percent of its oil and nearly two-thirds of its food. Cuba’s agricultural sector was largely focused on sugarcane production — with the help of Soviet chemical fertilizers and machinery imports — to trade at a premium with the USSR.

While the fall of the Soviet Union sparked a grave economic crisis in Fidel Castro's Cuba, it also kickstarted a new revolution, this time in agriculture, led by campesino movements determined to transform the island's food system to make it work in the face of a stark new reality. It meant a near-total shift to organic or semi-organic agriculture, decentralization of farmland management into the hands of cooperatives, and new urban gardening initiatives that together amounted to a radical ecological transformation — a transformation that desperately needs to scale up, and beyond Cuba, to slash the global food system's carbon footprint and make it more sustainable and resilient as climate change increasingly threatens resources.

After the revolution, Cuban agriculture was organized on the Soviet model of collective, large-scale, industrial production and followed the so-called "Green Revolution" that relies on oil-guzzling farm machinery and a host of petrochemical inputs including fertilizers and pesticides — products that suddenly disappeared after being abundant under the Soviet-era Comecon economic bloc. So as tractors became idle without fuel, the agricultural revolution turned the Cuba's countryside away from vast monocultures of chemical-intensive sugarcane and toward a sustainable model based on agroecology.

Put simply, while modern industrial agriculture tries to fight and control nature, agroecology recognizes nature as a complex system and applies ecological principles to it, in order to fulfill its farming needs. Cultivating together a variety of plants that are mutually beneficial eliminates the need for chemical inputs and can also boost production. For example, different kinds of flowers can attract beneficial insects or repel pests, beans can fix nitrogen in the soil, and intercropping taller vegetables with groundcover crops can squeeze out weeds from the garden. Not only are agroecological farming practices more sustainable and resilient, they also produce a greater variety of agricultural products compared to an industrial farming system focused on export production. For Cuba, facing a blockade and the loss of its main source of food imports, figuring out how to meet the basic food needs of the population was the key question.

Fidel Castro's government implemented wartime-like measures aimed at boosting production and creating jobs to kickstart the process of the transition. But campesino movements also rose to the challenge, urging the government to give them greater control over farmland and push ahead with the necessary agricultural transformation. Agrarian reform, which had nationalized the country's farming resources, turned decentralized land into the hands of farmers organized in cooperatives. Between 1993, the peak of the crisis known as the "Special Period" in Cuba, and 2008, state ownership of farmland fell from 56.5 percent to 23.2 percent. But, importantly for the development of food sovereignty, land didn't shift into private hands. Instead, agricultural cooperatives ballooned to manage

more than three-quarters of the island’s arable land.

The reorganization of land management through food-producing cooperatives was also increasingly accompanied by a grassroots farmer-to-farmer movement that helped spread knowledge about ecological farming techniques to help each other learn from collective experiences and ease the transition. The same movement has played an important part in the spread of agroecological practices across Central America. In Cuba, scientists working on questions of how to substitute imported agricultural inputs for local products were also part of the network of figuring out new ways of doing agriculture — which sometimes meant going back to old ways — and sharing that knowledge as widely as possible.

Another central pillar of the agricultural revolution was the expansion of urban farming to dedicate as much land as possible to food production to meet domestic needs, becoming a world leader in urban agriculture. In Havana alone, more than 87,000 acres have been dedicated to urban agriculture, including food production, animal husbandry and forestry. In 2005, the city’s urban gardens produced 272 metric tons of vegetables. The Cuban innovation of organoponics, an organic urban agriculture system, has fueled the transition to becoming a world-class example of urban farming. Facing fears of a total blockade, Fidel Castro’s government had already been exploring the development of organoponics a few years prior to the Soviet Union dissolving. But it wasn’t until the fall of the Iron Curtain that organoponics popped up in the streets.

According to the food policy and development institute Food First, the agricultural changes in Cuba were “rapid and broad-reaching.” Along with breaking away from the dependence on agro-chemicals, the agricultural revolution also resulted in “increasing domestic production (and) tackling hunger” that spiked at the beginning of the so-called Special Period. The extent of success in slashing overall food import dependency remains unclear, but University of California-Berkeley researcher Miguel A. Altieri has argued that the bottom line is that “Cuba has been generally able to adequately feed its people.” And there’s no question that Cuba has increased its food harvests — including a more than 350 percent increase in the production of beans, a staple crop, and 145 percent increase in vegetables between 1988 and 2007 — while cutting the use of agro-chemicals for up to 85 percent for some crops.

Researchers of agroecology and food security have argued that Cuba’s agricultural revolution can offer an example to follow for other countries, especially in the Global South, aiming to boost their food sovereignty and self-dependency.

But Cuba’s agricultural revolution, though an anti-imperialist exercise in national sovereignty, goes far beyond political lines as climate change increasingly threatens agricultural production on a global scale.

Cuba has already weathered extreme climatic effects like tropical storms that are expected to increase in frequency and intensity with climate change, a reality the movement to sustainable agriculture was forced to contend with. The country was also all but cut off from petroproducts for more than a decade — it’s since had easy access to oil again over the past decade thanks to good relations with Venezuela’s socialist government, a fact that could chip away at the organic revolution — offering a rare glimpse at what a transition away from fossil fuels can look like.

And it’s a transition that’s urgently needed to keep global warming below a catastrophic increase of 2 degrees Celsius compared to pre-industrial levels and ensure the viability and sustainability of the food system for future generations.