



By Bruce Rich

Cuba's Sustainable Agricultural Model

Twenty years after the Earth Summit the world is farther away from a sustainable economy than ever. According to the 2010 World Wildlife Fund *Living Planet* report, the overshoot of humanity's ecological footprint — the area used to fuel the economy and absorb wastes — is already over 50 percent greater than the long-term biological capacity of the planet. By 2030, it will take the equivalent of two Earths to sustain humanity.

In 2006 Cuba was the only country in the world that scored high on the United Nations Development Program Human Development Index and had an ecological footprint that was sustainable (in 2010 it just missed achieving this status). A sustainable footprint is defined by WWF as the 1.8 hectare average area available for each of the planet's inhabitants. Rich countries with high development, in terms of health, life expectancy, literacy, education, income, etc., all have ecological footprints there are multiples of what is globally sustainable. (Many of the poorest countries have footprints under one hectare per person, but also tragically low human development.) Cuba's authoritarian system, of course, urgently needs political and economic reform. Nonetheless, the country's sustainability successes have implications for both developing and industrialized nations.

Cuba's achievement came in the wake of economic collapse in the early

1990s prompted by the fall of the Soviet empire. The COMECON trading block had provided Cuba with below market petroleum supplies, large purchases of sugar at prices greatly above world market levels, and inexpensive imports of grain and other food. All of this sustained an increasingly resource intensive and inefficient economy.

Cuba's large-scale Soviet-style industrial agriculture was particularly wasteful: cattle were raised on subsidized grain from the Soviet Union, crop production was heavily dependent on fertilizers and pesticides, and more tractors were operating per hectare than in California. After the Soviet collapse the availability of fertilizers and pesticides fell more than 80 percent, oil and grain imports collapsed, and the price Cuba could obtain on world markets for its principle export, sugar, dropped 75 percent. There appeared to be a real prospect of widespread malnutrition and even starvation.

Cuba was forced to rapidly reorganize its entire agricultural economy into what author Bill McKibben characterized as "the world's largest working model of semi-sustainable agriculture," one that is scientifically sophisticated but that relies much less than other countries "on oil, chemicals, on shipping vast quantities of food back and forth."

The new Cuban agriculture rapidly became, out of necessity, low input, demechanized, and decentralized. Two thirds of state agricultural lands were redistributed to cooperatives and individual farmers, who were allowed to keep the profits of production above state quotas. Food production focused on small organic farms and gardens, many of which were within, or near, the urban areas that were their new markets. These small farms employed integrated pest management, bio-pesticides, bio-fertilizers, crop rotation, composting, use of oxen teams rather than tractors, all to replace the petroleum-based inputs that were no longer available.

The result was that domestic food production tripled between 1995 and 1998, but the use of imported pesticides decreased 21-fold. By 2004, Havana and its immediate environs produced 300,000 tons of organic vegetables, enough to feed the whole city. Today, 70 to 80 percent of the country's vegetables are produced through local organic farms. Cuba is a world research leader in certain organic agricultural approaches. The Grupo de Agricultura Orgánica, which did much to propagate and develop the agriculture model in Cuba, was awarded the Swedish Right Livelihood Award (sometimes called the alternative Nobel Peace Prize) in 1999.

The Cuban agricultural model is knowledge and labor intensive, rather than relying on the heavy capital and chemical inputs that are the hallmarks of modern agriculture. It is the product of a unique historical situation, linked to the U.S. trade embargo, Cuba's economic semi-isolation, and an authoritarian regime. When Cuba

transitions to a more open and democratic system, much in the model, despite its origins, is worth building on. There is the risk that cheap imports of conventionally grown

corn, grain, vegetables, and beef from North America, Europe, and Brazil will swamp local production.

But the current global model of cheap agricultural production is in reality almost as heavily subsidized as the old Soviet approach, both through conventional domestic subsidies in the United States and European Union and through a growing, uncosted ecological deficit. When the full debt of this model comes due, and when large scale financial support of agriculture no longer is economically viable, the lessons of Cuba may become relevant.

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*Reinventing farming,
with implications for
both developing and
industrialized nations*