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## Off

**Lifting the travel ban destroys Cuba’s health care industry – brain drain and medical tourism**

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**Cuba** is a Third World country that aspires to First World medicine and health. Its **health-care system is not only a national public good but also a vital export commodity**. Under the Castro brothers' rule, Cubans' average life expectancy has increased from 58 years (in 1950) to 77 years (in 2009), giving Cuba the world's 55th-highest life expectancy ranking, only six places behind the United States. According to the World Health Organization (WHO), Cuba has the second-lowest child mortality rate in the Americas (the United States places third) and the lowest per capita HIV/AIDS prevalence. **Fifty years ago, the major causes of disease and death in Cuba were tropical and mosquito-borne microbes. Today, Cuba's major health challenges mirror those of the United States: cancer, cardiovascular disease, obesity, diabetes, and other chronic ailments related to aging, tobacco use, and excessive fat consumption**. By any measure, **these achievements are laudable. But they have come at tremendous financial and social cost**. The Cuban government's 2008 budget of $46.2 billion allotted $7.2 billion (about 16 percent) to direct health-care spending. Only Cuba's expenditures for education exceeded those for health, and **Cuba's health costs are soaring as its aging population requires increasingly expensive chronic care. Cuba's economic situation has been dire since 1989**, when the country lost its Soviet benefactors and its economy experienced a 35 percent contraction. Today, Cuba's major industries -- tourism, nickel mining, tobacco and rum production, and health care -- are fragile. Cubans blame the long-standing U.S. trade embargo for some of these strains and are wildly optimistic about the transformations that will come once the embargo is lifted. Overlooked in these dreamy discussions of lifestyle improvements, however, is that **Cuba's health-care industry will likely be radically affected by any serious easing in trade and travel restrictions between the United States and Cuba**. If policymakers on both sides of the Florida Straits do not take great care, the tiny Caribbean nation could swiftly be robbed of its greatest triumph. **First, its public health network could be devastated by an exodus of thousands of well-trained Cuban physicians and nurses. Second, for-profit U.S. companies could transform the remaining health-care system into a prime destination for medical tourism from abroad**. The very strategies that the Cuban government has employed to develop its system into a major success story have rendered it ripe for the plucking by the U.S. medical industry and by foreigners eager for affordable, elective surgeries in a sunny climate. In short, **although the U.S. embargo strains Cuba's health-care system and its overall economy, it may be the better of two bad options**. MEDICAL HELP WANTED After half a century of socialist rule, there remain clearly distinct social classes in Cuba. The most obvious difference is between those households that regularly receive money from relatives in the United States and those that have no outside source of hard currency. A mere $20 a month from a cousin in Miami can lift a family out of poverty and provide it with a tolerable lifestyle. Elegant living is found in Havana's Miramar area, where architectural masterpieces of the nineteenth and early twentieth centuries have been restored and painted in pastels and are inhabited by diplomats or Cubans of mysteriously ample means. When they take ill (or need liposuction), the more privileged residents of Miramar go to Havana's Clínica Central Cira García, a well-appointed clinic that is run by the government-owned tourism conglomerate the Cubanacán Group and that primarily serves foreigners. (The doctors, technicians, and nurses who staff the Cubanacán Group's health facilities all work for the Cuban Ministry of Public Health. Cubanacán's medical operations include a retinal surgery center, a dermatology clinic that specializes in skin treatments with human placental preparations, and abortion services.) Aside from the posters of Che Guevara and Fidel Castro, Cira García feels like a top European or North American clinic, as the thousands of patients who arrive every year from more than 70 nations could attest. Private suites and a variety of elective procedures are provided at modest prices. Sixty full-time physicians, 40 specialist adjuncts from neighboring public health hospitals, and many nurses work at Cira García. All of the clinic's equipment appears to work, the pharmaceutical supplies are plentiful, the daily patient loads are small, and the doctors feel as though they have the tools and the time to do what they have long trained to do. On average, the physicians at Cira García have 20 years of experience, including at least two years in another developing country. The clinic's Canadian clients favor family package deals that allow children to play on local beaches while their parents get a new knee ($6,850) or a titanium implant to correct a herniated vertebral disk ($4,863). Spaniards and Italians tend to visit Cira García for thigh liposuctions ($1,090) and face lifts ($2,540). Some Latin Americans from countries with strict antiabortion laws travel to Cira García for the procedure ($600). The clinic is so popular that its administrators are assessing how to find space in the crowded neighborhood to build a new wing with 50 more beds. But **a lot may change if the United States alters its policies toward Cuba. In 2009, a group of 30 physicians from Florida toured Cira García and concluded that once the U.S. embargo is lifted, the facility will be overwhelmed by its foreign patients.** It takes little imagination to envision chains of private clinics, located near five-star hotels and beach resorts, catering to the elective needs of North Americans and Europeans. Such a trend might bode well for Canadians seeking to avoid queues in Ottawa for hip replacements or for U.S. health insurance companies looking to cut costs on cataract surgery and pacemakers. But **providing health care to wealthy foreigners would drain physicians, technicians, and nurses from Cuba's public system. And any such brain drain within Cuba might be dwarfed by a brain drain out into the rest of the world, as Cuban doctors and nurses leave the country to seek incomes that cannot be matched at home. Countries facing gross deficits in skilled medical talent are already scrambling to lure doctors, nurses, lab technicians, dentists, pharmacists, and health administrators from other nations.** In 2006, the WHO estimated that the global deficit of medical professionals was roughly 4.3 million, and the figure can only have grown since then. **As the world's population ages and average life expectancies rise from the United States to China, millions more patients will need complex, labor-intensive medical attention. And in countries with falling life expectancies and high rates of HIV/AIDS, donor resources aimed at combating the disease often have the unintended consequence of further straining meager supplies of human medical resources by drawing talent away from less well-funded areas of medicine**, such as basic children's health care. According to the American College of Physicians, the United States currently has approximately one doctor for every 2,500 patients and a critical shortage of nearly 17,000 doctors. The American Medical Association estimates that there is an especially grave deficit of primary-care physicians, with only 304,000 licensed -- about 30,000 fewer than needed. And the recently enacted federal health-care reform law will put more than 30 million more Americans on insurance or public rolls, thereby dramatically increasing the need for physicians. Primary-care physicians are the worst-paid doctors in the United States. Their average salaries have grown by less than four percent per year since 2000, compared with roughly ten percent per year for the salaries of surgeons and specialists, according to the American College of Physicians. Last year, primary-care doctors in the United States earned about $173,000 on average, compared with $344,000 for anesthesiologists and $481,000 for orthopedic surgeons. With most U.S. doctors incurring debts of $200,000 to complete their schooling, **there is little hope that the acute primary-care deficit can be filled anytime soon by talent trained in the United States. Already, U.S. and Canadian medical institutions are trying to fill their human-resource gaps through recruitment from Africa, Asia, Eastern Europe, and Latin America.**

**The Cuban model is key to check disease spread worldwide**

**Cooper et al 06** – Richard S. Cooper is in the Department of Preventive Medicine and Epidemiology at Loyola University – Stritch School of Medicine, Maywood, IL, USA. (“Health in Cuba”, International Journal of Epidemiology, May 4, 2006, [http://ije.oxfordjournals.org/content/35/4/817.full.pdf+html](http://ije.oxfordjournals.org/content/35/4/817.full.pdf%2Bhtml), Callahan)

Infectious diseases **The combination of high levels of community participation, access to primary care and an aggressive public health approach has made the Cuban campaign against epidemic infectious diseases particularly successful**.58–60 A number of **common illnesses have been eliminated altogether**, often for the first time in any country [poliomyelitis (1962), neonatal tetanus (1972), diphtheria (1979), measles (1993), pertussis (1994), rubella and mumps (1995)]. In 1962, against the advice of external health officials, ‘**vaccination days’ were established with the goal of reaching the entire population.** When this method quickly proved to be effective in eliminating polio it was subsequently adopted elsewhere as the primary strategy.58 After dengue was introduced in 1981 Cuba adopted a campaign of community mobilization, focusing on elimination of mosquito breeding sites, which lead to prompt control.20,58,59 International attention for infectious disease control in Cuba has focused primarily on HIV/AIDS.10,20,61–63 Among 300 000 military personnel returning from Africa in the 1980s 84 were found to be infected with the virus [Ref. (20), p. 85]. A nation-wide screening programme which began in 1987 reached 80% of the sexually active population (~3.5 million people) and identified 268 HIV-positive individuals.20 In the initial phases, the Cuban HIV/AIDS strategy provoked controversy, some of which was negative.20,64 While assessing the public health impact of this unknown epidemic, persons infected with HIV were quarantined in health facilities where they received supplemental nutrition and available medical care.20,61,62 Treatment is now provided in the outpatient setting; domestically produced triple therapy has been provided free to all paediatric patients since 1998 and to adults with HIV or AIDS since 2000.62 With the rapid increase in foreign tourists, and the development of a local sex trade, the HIV incidence has risen in the past 5 years, although it remains the lowest in the Americas.23 **Increased integration into the global economy may continue to pose challenges which Cuban public health has not previously had to address**. Cuba’s role in global health assistance Given its limited economic resources, **Cuba can only rarely afford direct aid**.20 Instead **it has adopted a strategy that relies on human resources.** First targeted to Africa, **the programme has now placed physicians, nurses, dentists, and other professionals in 52 countries**.20,65,66 **The most prominent episodes involved sending doctors to post-apartheid South Africa, providing long-term care for Chernobyl victims, and giving disaster aid to Central America after hurricane Mitch**. Cuban personnel also staffed a new hospital in Gonaives, Haiti, which had been constructed with the Japanese aid; this facility was subsequently destroyed during the anti-Aristide strife in 2004 although the Cuban physicians have remained.67 To move from emergency assistance to a sustainable programme, **a multicountry collaborative plan has recently been developed to improve health services in poor Latin American countries**.66 A medical school was established in Havana in 1999 and more than 6000 students, primarily from Africa and Latin America, are currently being given a medical education at no expense.7,68,69 In the past 3 years more than 14 000 physicians and dentists have been placed in slums and rural communities in Venezuela as part of the new the partnership between Cuba and the Chavez government, and this number is set to rise to 20 000.68 **Cuba has also agreed to educate 40 000 new physicians for Venezuela over the next several years.69 Cuba’s medical assistance campaign has a number of dimensions**. Like all foreign aid programmes, **it assumes that some political benefits will be forthcoming in return**. However, most of the countries that have been assisted, for example, Ethiopia, The Gambia, and Haiti, have nothing to offer in return. Unlike many donor programmes, **placing physicians where none have practiced before has been overwhelmingly well received by the local communities**.69 Thus, **while the arrangement with Venezuela has direct economic benefit to Cuba, it has also transformed the health system by giving large segments of the Venezuelan population access to modern medical care**.69 The special character of health sector development in Cuba can perhaps be best appreciated by considering the challenge any other society would face if it tried to send tens of thousands of physicians to live in slum communities in a foreign country for 2 years. While a range of incentives and motivating factors unique to the Cuban social context are operating, these assignments are accepted as a professional obligation by the vast majority of the Cuban practitioners and they perform effectively in the host communities. Much like the experience of military personnel on long tours of duty, **the Cuban programme of assistance does nonetheless require extraordinary sacrifice and the hardship is not always borne lightly**. Furthermore, the mobilization for assistance to Venezuela has meant that many Cuban neighbourhoods must share facilities. These sacrifices must, of course, be balanced against the conditions of desperate need in the communities on the receiving end. **Many of these countries, particularly in Africa, have watched helplessly as the majority of their health professionals emigrate to the US and Europe**.70 Offhand dismissal by observers in industrialized countries of the Cuban medical aid programme, which has such a powerful impact on these marginalized communities, is a clear indication of how perilously divided the discourse over global development has become. Does Cuba’s experience have broader significance? The history of science is replete with stories of the delayed acceptance of unpopular or unfashionable ideas. **The approach to improving global health taken by the donor community and academic medicine in rich countries is no exception**. While criticisms of the basic approach are voiced—as in the recent assertion that the external measures of development have no meaning for the general population71,72—these critical voices have little influence on the practice of large international agencies. It is not the intent of this article, however, to summarize and make a judgment on economic assistance and progress in global public health. Instead, based on the weight of the evidence presented on the Cuban experience, we pose the following question: ‘**Why has the debate on solving the most urgent challenges in public health in poor countries ignored the experience of success**?’ Traditionally, whether the experience is derived from randomized trials, high survival rates in clinical series, or favourable trends in vital statistics, biomedicine embraces the winner and seeks to imitate it. Precisely the opposite has happened in this instance. There is, of course, no shortage of historical and ideological reasons why a debate on the ‘Cuban question’ has never reached maturity. Blind optimism is thought to have discredited the sympathetic scholarship about the Soviet Union, and to a lesser extent China, in an earlier era.73–75 Some observers are too concerned about putative restraints on civil liberties and the independent character of its foreign policy to develop any enthusiasm for the objectively more successful aspects of Cuban society. None of these concerns, however, undermine the force of the question, why have we ignored what works? Before recommending components of the Cuban model for use in other settings, a thorough and balanced assessment of the strengths and weaknesses of those components would be required. That assessment would require a very different study of the health system’s organization, capacity, and services. Our intent here is to demonstrate that sufficient cause exists to undertake that assessment. For an objective evaluation of the Cuban experience to succeed, an acceptance of certain ground rules would be required. First, this evaluation cannot be undertaken with the goal of winning a political argument. Although the trajectory of social development in Cuba over the past 50 years is both complex and controversial, as in all other countries, the public health experience should be subjected to judgment on the basis of the usual rules of science. Second, this judgment cannot be permanently postponed by skepticism about the validity of the data or concern over unrelated broader social questions. Ongoing, careful scrutiny of Cuban public health data is justified and to be welcomed; however, sufficient data now exist in several key areas to demonstrate that skepticism can no longer be the basis for a refusal to engage the question. Likewise, many societies embrace domestic and foreign policies that are questioned and even condemned by broad segments of the world community, yet the attempt to evaluate progress in improving the health of their populations is not thereby condemned as illegitimate or unnecessary. Third, the apparent successes recorded by Cuba should be seen as consequences of a well-defined strategy; the value of these underlying principles, not the accumulation of better numbers, is what holds implications for other poor countries, and not a few well-resourced societies. **Two aspects of the Cuban experience serve as reasonable demonstrations of the value of that strategic approach. In the area of infectious disease**, for example, **the operative principles are particularly straightforward: once a safe and effective vaccine becomes available the entire at-risk population is immunized; if a vaccine is not available, the susceptible population is screened and treated; where an arthropod vector can be identified, the transmission pathway is disrupted by mobilizing the local community which in turn requires effective neighbourhood organization and universal primary health care. The joint effect of these strategic activities will result in the elimination or control of virtually all serious epidemic infectious conditions**. In terms of child survival, a ‘continuum of care’ that provides for the pre-conceptional health of women, prenatal care, skilled birth attendants, and a comprehensive well-baby programme can quickly reduce infant mortality to levels approaching the biological minimum. **Many observers will regard these propositions as reasonable, yet hopelessly too ambitious for the poorer nations of the world.** It must be recognized, however, that **these principles have been successfully implemented in Cuba at a cost well within the reach of most middle-income countries**. Although other aspects of society, such as education and housing obviously make independent contributions to the success of public health campaigns, **the Cuban strategy outlined here serves as a model that should be thoroughly evaluated**. Needless to say, its implementation would face many challenges specific to the geography and politics of a region. Other models that dictate public health strategies face the same gamut of uncertainties and challenges, however, and none can be said to have met with similar success.76 The World Health Organization, for example, promulgated a set of principles in the Alma Ata ‘Health for All’ Declaration of 1978, many of which were incorporated into the Cuban approach.77 In recent years, however, **international agencies have favoured privatization and reduction in state support for health systems.**78 **The record of achievement with privatized systems in poor countries has often been very limited.**79 A debate which can use as a point of departure extensive empirical evidence of progress would provide a healthy reorientation in a discipline distracted by controversy and divided over political aims. The health professions have little opportunity to intervene directly on historical events. However, in the conduct of our science we have both choice and responsibility. Challenging the acquiescence of the scientific community to ostracism of some of its members in an earlier era, Einstein remarked, ‘Political considerations, advanced with much solemnity, prevent... the purely objective ways of thinking without which our great aims must necessarily be frustrated’ [Ref. (80) p. 80]. **If the accomplishments of Cuba could be reproduced across a broad range of poor and middle-income countries the health of the world’s population would be transformed**. This fact creates an obligation for health scientists. We should debate the merits of the principles embedded in the Cuban attempts to improve the health of populations.

**Global pandemics are coming and direct US intervention fails**

**Weber 06** – Steven Weber is a Professor of Political Science at UC-Berkeley and Director of the Institute of International Studies. (“How Globalization Went Bad”, Foreign Policy, December 27, 2006, http://www.foreignpolicy.com/articles/2006/12/27/how\_globalization\_went\_bad?page=0,2)

The same is true for global public health. **Globalization is turning the world into an enormous petri dish for the incubation of infectious disease**. Humans cannot outsmart disease, because it just evolves too quickly. **Bacteria can reproduce a new generation in less than 30 minutes, while it takes us decades to come up with a new generation of antibiotics**. Solutions are only possible when and where we get the upper hand. **Poor countries where humans live in close proximity to farm animals are the best place to breed extremely dangerous zoonotic disease. These are often the same countries**, perhaps not entirely coincidentally, **that feel threatened by American power.** **Establishing an early warning system for these diseases** -- exactly what we lacked in the case of SARS a few years ago and exactly what we lack for avian flu today -- **will require a significant level of intervention into the very places that don't want it. That will be true as long as international intervention means American interference**. **The most likely sources of the next ebola or HIV-like pandemic are the countries that simply won't let U.S. or other Western agencies in, including the World Health Organization**. Yet the threat is too arcane and not immediate enough for the West to force the issue. What's needed is another great power to take over a piece of the work, a power that has more immediate interests in the countries where diseases incubate and one that is seen as less of a threat. As long as the United States remains the world's lone superpower, we're not likely to get any help. Even after HIV, SARS, and several years of mounting hysteria about avian flu, **the world is still not ready for a viral pandemic in Southeast Asia or sub-Saharan Africa. America can't change that alone.**

**Disease causes extinction**

**Greger 08 –** M.D., is Director of Public Health and Animal Agriculture at The Humane Society of the United States (Michael Greger, , Bird Flu: A Virus of Our Own Hatching, <http://birdflubook.com/a.php?id=111>)

Senate Majority Leader Frist describes the recent slew of emerging diseases in almost biblical terms: “All of these [new **diseases] were advance patrols of a** great **army that is preparing** way **out of sight**.”3146 Scientists like Joshua Lederberg don’t think this is mere rhetoric. He should know. **Lederberg won** the **Nobel Prize** in medicine at age 33 **for** his **discoveries in bacterial evolution**. Lederberg went on to become president of Rockefeller University. “Some people think I am being hysterical,” he said, referring to pandemic influenza, “but **there are catastrophes ahead. We live in** evolutionary **competition with microbes**—bacteria and viruses. **There is no guarantee that we will be the survivors**.”3147 There is a concept in host-parasite evolutionary dynamics called the Red Queen hypothesis, which attempts to describe the unremitting struggle between immune systems and the pathogens against which they fight, each constantly evolving to try to outsmart the other.3148 The name is taken from Lewis Carroll’s Through the Looking Glass in which the Red Queen instructs Alice, “Now, here, you see, it takes all the running you can do to keep in the same place.”3149 Because the **pathogens keep evolving**, our immune systems have to keep adapting as well just to keep up. According to the theory, animals who “stop running” go extinct. **So far our immune systems have** largely **retained the upper hand, but** the fear is that **given the** current **rate of disease emergence**, the **human race is losing the race**.3150 In a Scientific American article titled, “Will We Survive?,” one of the world’s leading immunologists writes: Has the immune system, then, reached its apogee after the few hundred million years it had taken to develop? Can it respond in time to the new evolutionary challenges? These perfectly proper questions lack sure answers because we are in an utterly unprecedented situation [given the number of newly emerging infections].3151 The research team who wrote Beasts of the Earth conclude, “Considering that bacteria, **viruses**, and protozoa **had a** more than **two-billion-year head start** in this war, **a victory by** recently arrived **Homo sapiens would be remarkable**.”3152 Lederberg ardently believes that **emerging viruses may imperil human society itself**. Says NIH medical epidemiologist David Morens, When you look at the relationship between bugs and humans, the more important thing to look at is the bug. When an enterovirus like polio goes through the human gastrointestinal tract in three days, its genome mutates about two percent. That level of mutation—two percent of the genome—has taken the human species eight million years to accomplish. So who’s going to adapt to whom? Pitted against that kind of competition, Lederberg concludes that the human evolutionary capacity to keep up “may be dismissed as almost totally inconsequential.”3153 To help prevent the evolution of viruses as threatening as H5N1, the least we can do is take away a few billion feathered test tubes in which viruses can experiment, a few billion fewer spins at pandemic roulette. The human **species has existed** in something like our present form **for** approximately **200,000 years.** “Such a long run should itself give us confidence that our species will continue to survive, at least insofar as the microbial world is concerned. **Yet such optimism**,” wrote the Ehrlich prize-winning former chair of zoology at the University College of London, “**might** easily **transmute into a tune whistled whilst passing a graveyard**.”3154

## Off

**Oil prices high now – assumes their warrants**

**Whipple, 9/5**

Tom Whipple is one of the most highly respected analysts of peak oil issues in the United States. A retired 30-year CIA analyst who has been following the peak oil story since 1999, Tom is the editor of the daily Peak Oil News and the weekly Peak Oil Review, both published by the Association for the Study of Peak Oil-USA. He is also a weekly columnist on peak oil issues for the Falls Church News Press. Tom has degrees from Rice University and the London School of Economics. “Peak Oil Crisis – Middle East Context,” 9/5/13, <http://www.resilience.org/stories/2013-09-05/the-peak-oil-crisis-middle-east-context> //BGHS-IZZY

Few of the Middle East’s manifold problems are so dramatic that they warrant much media attention, but taken together they are slowly taking a toll on the world’s oil supply. Last week the US’s Energy Information Administration reported that unplanned production and export outages, mostly in the Middle East, are now up to 2.8 million b/d and this was before the recent **Libyan crisis** took another 500,000 b/d off the market. Despite all the hype about America’s shale oil production, it still amounts to well less than half the unplanned drop in **M**iddle **E**astern production. The International Energy Agency reported that production shortfalls this summer resulted in the world consuming about 2.2 million b/d more than it produced with the remainder coming from inventories. These are now thought to be down about 95 million barrels from recent levels. World oil prices are now about **$115 a barrel**. Some of this is due to concerns about what will happen if we start bombing Syria, but the rest is due to slowly tightening supply/demand situation around the world. The Chinese are still growing their demand at prodigious rates and the world is still adding about 70 million new “oil consumers” to its population each year. Anyone who thinks that a short-lived burst of shale oil fracking in North Dakota and Texas is enough to counter the tides of history flowing across the Middle East simply **does not understand the situation**.

**Lifting the embargo will remove two major stumbling blocks to deep-water drilling in Cuba – lack of technology and limited refining capacity.**

**Claver-Carone, 08**

Mauricio **Claver-Carone**, director of the US-Cuba Democracy PAC, argues in the International Herald Tribuine in **2008**. Mauricio Claver-Carone formerly served as an attorney with the U.S. Treasury. “How the Cuban embargo protects the environment.” International Herald Tribune, 7/25/2008. <http://www.iht.com/articles/2008/07/25/opinion/edcarone.php> accessed 11-15-08. //WC

Clearly, foreign oil companies anticipate political changes in Cuba and are trying to position themselves accordingly. It is equally clear they are encountering legal and logistical obstacles preventing oil and gas exploration and development. Among the impediments are well-founded reservations as to how any new discovery can be turned into product. Cuba has very limited refining capacity, and the U.S. embargo prevents sending Cuban crude oil to American refineries. Neither is it financially or logistically viable for partners of the current Cuban regime to undertake deep-water exploration without access to U.S. technology, which the embargo prohibits transferring to Cuba. The prohibitions exist for good reason. Fidel Castro expropriated U.S. oil company assets after taking control of Cuba and has never provided compensation.

**An increase in Cuban oil production would lower prices—2007 proves**

**Garcia, 7** (Hugo Garcia, journalist for Juventud Rebelde, Juventud Rebeldge, 12/27/07, "Cuba Pumping Over 28 Million Barrels of Oil Annually", www.juventudrebelde.co.cu/cuba/2007-12-27/cuba-pumping-over-28-million-barrels-of-oil-annually/)

Cárdenas.— Cuba’s volume of oil and natural gas production will reach four million tons —28.8 million barrels— this year for just the third time in its history. “This has been a good year for the Cuban oil industry,” said Carlos Lage Dávila, secretary of the Executive Committee of the Council of Ministers, at a ceremony marking the one millionth ton of oil produced by the Matanzas Central Oil Drilling and Extraction Company (EPEP-C). Lage noted that the last time production reached this mark was in 2003, and stated that in order to maintain and increase production, the drilling of a large number of new wells is needed —as well as a little bit of luck— given the natural depletion of existing wells. Accompanied by Basic Industry Minister Yadira García, and Pedro Betancourt, the first secretary of the provincial party organization, Lage said, “the country has already fulfilled its hydrocarbon production plan, with gas production plan having been exceeded and the crude oil production expected to be met by December 30. However, as the gas production projections were surpassed by 11 percent, the annual plan has already been met.” The national official explained that depletion of wells leads to higher oil prices and said that given the current world market —with oil prices above $90 a barrel— the decision was made to secure new drilling rigs and give priority to this sector of economy to **stem declining production rates**. “We have already started to see the fruits of this policy and decision made by comrade Fidel Castro, which are now more clear and evident than ever,” he said. Among the year’s highlights is an increase in crude production along with the utilization of 97 percent of the associated gas produced, which virtually eliminates environmental contamination from associated gas released into the air.

**Dropping below 100 kills the Russian economy and Putin credibility**

**Whitmore 13** (Brian, Senior Russia Correspondent – Radio Free Europe, “After The Storm: Trends To Watch In Russia In 2013”, Radio Free Europe, 1-2, The Power Vertical)

It began with a roar and it ended with a whimper. As 2012 wound down in Russia, the soaring expectations for change that accompanied the civic awakening and mass protests at the year’s dawn had clearly faded. But the social, economic, and political forces that spawned them will continue to shape the landscape well into the new year. A fledgling middle class remains hungry for political change, splits still plague the ruling elite over the way forward, and a fractious opposition movement continues to struggle to find its voice. With the Kremlin unable to decisively squelch the mounting dissent and the opposition unable to topple President Vladimir Putin, Russia has entered an uneasy **holding pattern** that has the feel of an interlude between two epochs. "I don't think we are at the end of the Putin era, but we are at the beginning of the end," says longtime Russia-watcher Edward Lucas, international editor of the British weekly "The Economist" and author of the recently published book "Deception." With economic headwinds on the horizon, generational conflict brewing, and new political forces developing, Russian society is changing -- and changing rapidly. But the political system remains ossified. So what can we expect in 2013? Below are several trends and issues to keep an eye on in the coming year. The Oil Curse: Energy Prices And The Creaking Welfare State If 2012 was all about politics, 2013 will also be about **economics**. The Russian economy, the cliche goes, **rests on** two pillars -- oil and gas. And both will come under increasing pressure as the year unfolds. World oil prices, currently hovering between $90 and **$100 per barrel**, are expected to be volatile for the foreseeable future. And any sharp drop could prove **catastrophic** for the Russian economy. Energy experts and economists say Russia's budget will **only** stay balanced if oil prices remain **between $100 and $110** per barrel. Five years ago, the figure needed for a balanced budget was $50 to $55.

**Nuclear war**

**David 99** (Steven R David, professor of international relations at John Hopkins, PhD from Harvard, January/February 1999, “Saving America from the Coming Civil Wars,” Foreign Affairs)

AT NO TIME since the civil war of 1918 -- 20 has Russia been closer to bloody conflict than it is today. The fledgling government confronts a vast array of problems without the power to take effective action. For 70 years, the Soviet Union operated a strong state apparatus, anchored by the KGB and the Communist Party. Now its disintegration has created a power vacuum that has yet to be filled. Unable to rely on popular ideology or coercion to establish control, the government must prove itself to the people and establish its authority on the basis of its performance. But the Yeltsin administration has abjectly failed to do so, and it cannot meet the most basic needs of the Russian people. Russians know they can no longer look to the state for personal security, law enforcement, education, sanitation, health care, or even electrical power. In the place of government authority, criminal groups -- the Russian Mafia -- increasingly hold sway. Expectations raised by the collapse of communism have been bitterly disappointed, and Moscow's inability to govern coherently raises the specter of civil unrest. If internal war does strike Russia, economic deterioration will be a prime cause. From 1989 to the present, the GDP has fallen by 50 percent. In a society where, ten years ago, unemployment scarcely existed, it reached 9.5 percent in 1997 with many economists declaring the true figure to be much higher. Twenty-two percent of Russians live below the official poverty line (earning less than $ 70 a month). Modern Russia can neither collect taxes (it gathers only half the revenue it is due) nor significantly cut spending. Reformers tout privatization as the country's cure-all, but in a land without well-defined property rights or contract law and where subsidies remain a way of life, the prospects for transition to an American-style capitalist economy look remote at best. As the massive devaluation of the ruble and the current political crisis show, Russia's condition is even worse than most analysts feared. If conditions get worse, even the stoic Russian people will soon run out of patience. A future conflict would quickly draw in Russia's military. In the Soviet days civilian rule kept the powerful armed forces in check. But with the Communist Party out of office, what little civilian control remains relies on an exceedingly fragile foundation -- personal friendships between government leaders and military commanders. Meanwhile, the morale of Russian soldiers has fallen to a dangerous low. Drastic cuts in spending mean inadequate pay, housing, and medical care. A new emphasis on domestic missions has created an ideological split between the old and new guard in the military leadership, increasing the risk that disgruntled generals may enter the political fray and feeding the resentment of soldiers who dislike being used as a national police force. Newly enhanced ties between military units and local authorities pose another danger. Soldiers grow ever more dependent on local governments for housing, food, and wages. Draftees serve closer to home, and new laws have increased local control over the armed forces. Were a conflict to emerge between a regional power and Moscow, it is not at all clear which side the military would support. Divining the military's allegiance is crucial, however, since the structure of the Russian Federation makes it virtually certain that regional conflicts will continue to erupt. Russia's 89 republics, krais, and oblasts grow ever more independent in a system that does little to keep them together. As the central government finds itself unable to force its will beyond Moscow (if even that far), power devolves to the periphery. With the economy collapsing, republics feel less and less incentive to pay taxes to Moscow when they receive so little in return. Three-quarters of them already have their own constitutions, nearly all of which make some claim to sovereignty. Strong ethnic bonds promoted by shortsighted Soviet policies may motivate non-Russians to secede from the Federation. Chechnya's successful revolt against Russian control inspired similar movements for autonomy and independence throughout the country. If these rebellions spread and Moscow responds with force, civil war is likely. Should Russia succumb to internal war, the consequences for the United States and Europe will be severe. A major power like Russia -- even though in decline -- does not suffer civil war quietly or alone. An embattled Russian Federation might provoke opportunistic attacks from enemies such as China. Massive flows of refugees would pour into central and western Europe. Armed struggles in Russia could easily spill into its neighbors. Damage from the fighting, particularly attacks on nuclear plants, would poison the environment of much of Europe and Asia. Within Russia, the consequences would be even worse. Just as the sheer brutality of the last Russian civil war laid the basis for the privations of Soviet communism, a second civil war might produce another horrific regime. Most alarming is the real possibility that the violent disintegration of Russia could lead to loss of control over its nuclear arsenal. No nuclear state has ever fallen victim to civil war, but even without a clear precedent the grim consequences can be foreseen. Russia retains some 20,000 nuclear weapons and the raw material for tens of thousands more, in scores of sites scattered throughout the country. So far, the government has managed to prevent the loss of any weapons or much material. If war erupts, however, Moscow's already weak grip on nuclear sites will slacken, making weapons and supplies available to a wide range of anti-American groups and states. Such dispersal of nuclear weapons represents the greatest physical threat America now faces. And it is hard to think of anything that would increase this threat more than the chaos that would follow a Russian civil war.

## Off

**Ending the embargo kills Cuba’s unique worm industry**

**Ewing 08**

Ed Ewing, reporter for The Guardian; “Cuba's organic revolution,” 4/3/2008, http://www.theguardian.com/environment/2008/apr/04/organics.food

But when the USSR collapsed in 1990/91, Cuba's ability to feed itself collapsed with it. "Within a year the country had lost 80% of its trade," explains the Cuba Organic Support Group (COSG). Over 1.3m tonnes of chemical fertilisers a year were lost. Fuel for transporting produce from the fields to the towns dried up. People started to go hungry. The UN Food and Agriculture Organisation (UNFAO) estimated that calorie intake plunged from 2,600 a head in the late 1980s to between 1,000 and 1,500 by 1993. Radical action was needed, and quickly. "Cuba had to produce twice as much food, with less than half the chemical inputs," according to the COSG. Land was switched from export crops to food production, and tractors were switched for oxen. People were encouraged to move from the city to the land and organic farming methods were introduced. "Integrated pest management, crop rotation, composting and soil conservation were implemented," says the COSG. The country had to become expert in techniques like worm composting and biopesticides. "Worms and worm farm technology is now a **Cuban export**," says Dr Stephen Wilkinson, assistant director of the International Institute for the Study of Cuba. Thus, the unique system of organoponicos, or urban organic farming, was started. "Organoponicos are really gardens," explains Wilkinson, "they use organic methods and meet local needs." "Almost overnight," says the COSG, the ministry of agriculture established an urban gardening culture. By 1995 Havana had 25,000 huertos – allotments, farmed by families or small groups – and dozens of larger-scale organoponicos, or market gardens. The immediate crisis of hunger was over. Now, gardens for food take up 3.4% of urban land countrywide, and 8% of land in Havana. Cuba produced 3.2m tonnes of organic food in urban farms in 2002 and, UNFAO says, food intake is back at 2,600 calories a day. Organoponico plaza A visit to Havana's largest organoponico, the three-hectare Organoponico Plaza, which lies a stone's throw from the city's Plaza de la Revolución and the desk of Raul Castro, confirms that the scheme is doing well. Rows of strikingly neat irrigated raised beds are home to seasonal crops of lettuces, spring onions, chives, garlic and parsley. Guava and noni fruit trees provide shade around the perimeter, while on the far side compost piles sit next to plastic tunnels used to raise seedlings. Outside in the shop, signs extol the virtues of eating your greens. The shop is open only on Mondays. Produce is sold by the people who work the garden (they keep 50% of sales, so are motivated to produce a lot) to the people who live nearby. In this case, the organoponico serves an estate that wouldn't look out of place in Tower Hamlets or Easterhouse. Yet inside, butterflies flit and the head gardener, Toni, turns sod like he is digging at Prince Charles's Highgrove estate. A success then? "In terms of improving the diet of the population it has had a beneficial effect," says Wilkinson. "And it has been a success in terms of meeting some of the food security needs," he says, "but it has not resolved the problem since the island still imports a great deal of food." And change is on the horizon, which might be good for living standards, but not be so good for Cuba's commitment to pesticide-free food. The US **trade embargo** is losing its "symbolic meaning", says Julie M Bunck, assistant professor of political science at the University of Louisville and author of Fidel Castro and the Quest for a Revolutionary Culture in Cuba, and as that happens, "Cuba will evolve, embrace the market in some way, begin to produce and buy and sell normally." General farming will "most likely" move away from organic methods says Wilkinson. Farming on a large scale after all, he says, has seen a reduction in pesticide and fertiliser use mainly due to "**financial constraints, not choice**".

**Worms are key to planetary survival. No, seriously.**

**Blakemore 10** - Studied ‘VermEcology’ for 30 years and holds qualifications in ecology, computing and permaculture. [Dr. Rob Blakemore, “Wonder Worm to the rescue,” Our World 2.0, July 2, 2010, pg. http://ourworld.unu.edu/en/wonder-worm-to-the-rescue/

Can worms help **save the planet**? I think so and, before arguing my case, please let me state my position from the start: I am an ecologist. Not just the type of trendy person who faithfully recycles — although I am fashionably green and a semi-vegetarian who tries to recycle as many beer bottles as possible. No, I am also the other, scientific kind. The science of ecology is generally defined as a study of organisms and their environment, i.e., everything! However, I would be somewhat more categorical and say that it is “The study of organisms, their products whether alive or dead, and their environment” — i.e., even more of everything, including fossil fuels and human endeavour! An ecologist then, is someone who considers holistic workings of a natural ecosystem in all its complexity and diversity throughout its time-cycle while breaking it down into its component parts and honing in on its few key, controlling entities. Simultaneously practicing as a generalist and as a multi-faceted specialist. Deeds of the dirt The experience of growing up in rural England alongside my grandfather, the village farrier who was also a bee keeper and gardener, as well as my weekend work with farmers and gamekeepers, immersed me in general natural history. This education was formalized by academic degrees in terrestrial and aquatic biology and, for me the key to life, soil ecology. The main movers and shakers in the soil are the living organisms, paramount amongst which is the humble, hidden earthworm. Here I must air my strong objections to marine biologists such as Sylvia Earle who pointed out after winning the TED 2009 Prize that the oceans make up 70% of the surface of the Earth and the rest is just “dirt”. Approximately 99.4% of our food and fibre is produced on land and only 0.6% comes from oceans and other aquatic ecosystems combined, [according to FAO](http://www.fao.org/ag/AGL/agll/soilbiod/consetxt.stm). The calorific value obtained from ocean catches, freshwater fishing and aquaculture adds up to just about 10-16% of the current human total. (These figures are slightly skewed for maritime countries like Japan and Iceland but still, more than 80% of our nutrition is terrestrial in origin). Furthermore, I am sure Dr. Earle accepts that the oceanic ecosystem is wholly dependent upon dissolved nutrients washed down or blown from the soil and is similarly affected by pollution mainly from activity on the land. Her survival depends as much as anyone’s on the “just dirt” part. Thus it is abysmal that scientific knowledge of the oceans is infinitely deeper than for terrestrial ecosystems. Moreover, Leonardo da Vinci’s observed 500 years ago that “We know more about the movement of celestial bodies than about the soil underfoot” and this still rings true today. The journal Science, realizing that our knowledge is so scant, produced a special 2004 issue entitled [Soils — The Final Frontier](http://www.sciencemag.org/content/vol304/issue5677/#special-issue). Why waste precious funds and brain resources on the vain discovery of useless planets overhead or new deep-sea species that will still be there tomorrow, while vital unrecognized organisms literally beneath our feet disappear at an increasingly alarming rate and to our peril? Why are we not concentrating our efforts and valuable resources on protecting and preserving the tangible deeds of our earthly home patch for current and future generations of Earthlings? Where on earth is our Soil Ecology Institute? Global worming We talk of greenhouse gasses and global warming yet it is the [lithosphere](http://en.wikipedia.org/wiki/Lithosphere), not the oceans nor trees, that acts as the major **global carbon sink**. This is especially so following the discovery just over a decade ago of [glomalin](http://www.ars.usda.gov/is/ar/archive/sep02/soil0902.htm), a tightly bound organic molecule accounting for an extra 30% of stored soil carbon. (The energy crisis too can be cured by simply tapping freely into subterranean geothermal energy, as recounted in an Our World 2.0 article on this ‘ [red hot power](http://ourworld.unu.edu/en/geothermal-energy/%22%20%5Ct%20%22_self)’.) Proper management of our arable, pastoral and forest soils is the most practically feasible mechanism to sequester atmospheric carbon without any adverse effects. Atmospheric carbon is entirely recycled via the soil from plants in around 12-20 years — all of this being processed **through the intestines of worms**. **Vermicomposting** of organics and encouraging soil biodiversity by rebuilding humus provides a natural closed-system remedy with neither waste nor loss of productivity. Down-to-Earth soil species All manner of dirt and disease always ends up in the sod and consequentially its ecology is naturally robust. Yet, the soil suffers the most profound and significant effects from over-exploitation and faces the greatest threat from erosion, destruction and pollution with artificial chemicals and/or transgenes. Despite its importance, soil biodiversity is so poorly known that even obvious organisms like the relatively large worms are mostly unclassified. On each field trip I find new species and, of the 10,000 that have been given scientific names thus far (perhaps less than a third of the total), we know something of the ecology about a dozen species. But what we do know doesn’t look good. Unprecedented loss of species abundance and diversity combined with high extinction rates are bringing Earth into new and uncharted territory. We urgently need triage. Laboratories crammed with scores of ecologists could study just worms for their whole careers and still we would only progress slightly from our current poor state of knowledge, but our gain would be justifiable and have tangible effects on resolving pressing environmental issues. But this is not the current situation. Fundamentally we can justify study of soil ecology because it affects all our lives and is a **crucially important** issue for **immediate survival of humans and all other terrestrial organisms**. Whereas earthworm specialists are an endangered and rapidly declining breed, some scientists attempt to defend their studies that look at a single crop or pest. In contrast, I would argue that without earthworms there would be no healthy soil in which any healthy crop could develop in the first place. If we ask “Which group of organisms would cause the most **disruption to life support systems** on the Earth if lost?” My answer would be that — rather than fish, birds and bees, or humans — it is the earthworms. They are **key links** in food chains (not just for fish and fowl), they act as hosts and vectors for diverse symbionts and parasites, and they are the major detritus feeders responsible for soil mineralization and recycling of organic matter. Can other scientists, outside of medicine, claim such importance for their study subject? Looking forward to the past One of the main predictions, highly optimistic, in the revolutionary move into our post-industrial era (see [Alvin Toffler’s The Third Wave](http://en.wikipedia.org/wiki/The_Third_Wave_%28book%29) for details) was that genetic engineering would provide new production methods and have profound effects on future development. In many ways this has been borne out in medical use and microbial ‘manufacture’ with genetically modified organisms (GMOs) that provide some potential benefit and serve some purpose, albeit at huge cost. But there are equally large risks. Rather obviously, the main characteristic of life is to reproduce and disperse. The architects of the modified corn, cotton, soy, wheat, rice and spuds are often of exactly the same companies (or at least profit-driven mind-sets) that produced the toxic chemicals that they are now telling us their new GMO technology will replace — just as chemical engineers promised solutions to all our problems previously. In 1962 Rachel Carson’s Silent Spring first alerted us to risks of agricultural chemical pollution, exacerbated by bioaccumulation in body tissue (especially of invertebrates such as earthworms) and bioconcentration further up the food-chain. But whatever the problem, these chemicals will eventually disperse and decline once production halts. With biology the reverse is true. Design a plant to be herbicide or insect resistant and it will increase and spread by its own means, by cross-pollination or genetic drift. Case in point is the [illegitimate escape in Japan](http://www.ncbi.nlm.nih.gov/pubmed/16827549) of feral oilseed rape ( Brassica napus) genetically modified to resist herbicide that, as with any similar calamity, will continue in an uncontrollable fashion. Rather than addressing immediate environmental issues per se, much of scientific resources are diverted into molecular studies, mostly for industrial agricultural production, that are inordinately expensive, or into agronomic trials of effective toxic biocide applications. Mostly this is not requested by informed consumers nor by farmers who must rely on the advice of often industry-funded ‘experts’ and extension officers (hopefully not advertisers). Surprisingly and shamefully, almost **zero funding is available for** research on organic production ‘alternatives’ that are dismissed as impractical fads. Yet it is their implementation, since the start of the agricultural revolution 10,000 years ago, that has brought us this far. Let’s not let topsoil slip through our fingers Topsoil is the most valuable resource upon which civilizations depend. Its rapid loss combined with soil fertility and soil health decline are of greatest immediate concern. How important is loss of topsoil? Basically **without fertile topsoil there is no plant growth and no life on land**. How big an issue is loss of topsoil? The 1991 UN funded [Global Survey of Human-Induced Soil Degradation Report](http://www.isric.org/UK/About%2BISRIC/Projects/Track%2BRecord/GLASOD.htm) showed significant problems in virtually all parts of the world. Just 11% of the Earth’s terrestrial surface is cultivated and of the total available, approximately 40% of agricultural land is seriously degraded, according to the UN’S 2005 [Millennium Ecosystem Assessment](http://www.millenniumassessment.org/documents/document.300.aspx.pdf) (MEA). Loss of topsoil has been due to the combined effects of desertification, salinization, erosion, pollution and urban/road or other development activities. In the United States alone it is estimated to cost about $125 billion per year. The MEA, which despite its scope did not consider ‘Soil Systems’ separately, nevertheless ranked land degradation among the world’s greatest environmental challenges, claiming it risked **destabilizing societies**, **endangering food security** and increasing **poverty**. Among the worst affected regions are Central America, where 75% of land is infertile, Africa, where a fifth of soil is degraded, and Asia, where 11% is now unsuitable for farming. In addition to those pollutants commonly recognized as originating from biocides and fertilizers, there are many other sources — such as antibiotics associated with intensive animal production, plus a ‘cocktail’ of human-processed pollutants like drugs, solvents and synthetic hormones from birth control pills — that all make their way into the environment in an infinite variety of unforeseeable combinations. Suggested remediation to soil decline and agricultural production are to use GMO crops and other high-tech applications, because there is an assumption that topsoil formation is a centuries-old process that is essentially non-renewable and thus is gone forever. This view is false and there are several examples of methods that can be applied to restore fertile topsoils to farms, and in a time frame as short as a matter of a few years. Feed the worm “When the question is asked, ‘Can I build top-soil?’ the answer is ‘Yes’, and when the first question is followed by a second question, ‘How?’ the answer is ‘Feed earthworms’,” so wrote Eve Balfour in the introduction to Thomas J. Barrett’s book, Harnessing the Earthworm. Indeed there are many instances of organic farms around the world preserving or restoring healthy soils. Organic farming has many approaches, with Rudolph Steiner’s biodynamics being one manifestation. All these solutions comfortably find a home under the wide umbrella of permaculture, as defined by Bill Mollison. This philosophy and approach to designing our natural environment for efficient and effective production and for comfortable living under prevailing conditions is well known and widely adopted by national and local communities and individuals worldwide. William Blake urged us “[t]o see a world in a grain of sand and a heaven in a wildflower”. Soil survey of the abundance and diversity of earthworms in a soil will provide a good measure of natural fertility, as these are the monitors and mediators of soil health. That some of our honourable predecessors appreciated the worm’s role is manifest by one translation of the Chinese characters for ‘earthworms’ being ‘angels of the earth’. Seeing a worm turned up by the plough and eaten by a bird started Prince Siddhartha (Gautama Buddah) on his contemplative path to understanding the Cycle-of-Life. In the Classical world, the ‘father of biology’, Aristotle, called earthworms the “soil’s entrails” and it is reported that Cleopatra decreed them sacred. Charles ***Darwin***, British naturalist and father of evolution, also had an interest in earthworms. In 1881, the year before he died, his 40 year study culminated in publication The Formation of Vegetable Mould through the Action of Worms. As a founder of soil ecology, he was one of the first scientists to give credence to conventional wisdom from earlier civilizations about the beneficial effects of earthworms on soils and plant growth, and thus on **human survival**. Believing his worm work one of his most crucial contributions, Darwin stated: “It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organized creatures… “The vegetable mould [humus] which covers, as with a mantle, the surface of the land, has all passed many times through their bodies.” Hopefully it will continue thus. In 1981, as a centennial tribute to Darwin’s seminal work, I completed a survey on Lady Eve Balfour’s [Haughley experimental farm](http://en.wikipedia.org/wiki/Haughley_Experiment) that showed organic methods encourage healthy soil and an earthworm abundance. Significantly higher maintenance of temperature, moisture and organic matter in the soil equated with double the carbon content. In this way we could readily fix runaway CO2 in the atmosphere. Moreover, crop production was equable between organic and non-organic management regimes, even without factoring in the cost savings in chemicals and environmental degradation. (Details are [presented here](http://bio-eco.eis.ynu.ac.jp/eng/database/earthworm/Haughley%5CHaughley.pdf).) Look up to the worm My thesis is that each of the three major interlinked influences on our world – mass extinction of species due mainly to human activity, global warming from excessive anthropogenic generated carbon, and risk of social and political dysfunction from impending resource and food shortages caused by population pressure — can all be redressed by educating people (and politicians!) about restoring soil health and fertility. One way to start is to re-process organic ‘wastes’ via worms, for a natural compost fertilizer.

## Oncase

**Plan kills Cuba’s agriculture model**

**Gonzalez, 4** - Associate Professor, Seattle University School of Law (Carmen, “WHITHER GOES CUBA? PROSPECTS FOR ECONOMIC & SOCIAL DEVELOPMENT PART II OF II: Trade Liberalization, Food Security, and the Environment: The Neoliberal Threat to Sustainable Rural Development” 14 Transnat'l L. & Contemp. Probs. 419, lexis)

The greatest challenge to Cuba's unique agricultural experiment is the eventual renewal of trade relations with the United States and the re-integration of Cuba into the global trading system. At the behest of the United States, Cuba was excluded from major trade and financial institutions, including the IMF, the World Bank, and regional trade organizations. n357 Paradoxically, while Cuba's economic isolation produced enormous hardship, it also gave Cuba free rein to respond to the crisis of the Special Period in ways that diverged radically from the prevailing neoliberal model.

One of the most significant decisions that Cuba will face after the lifting of the U.S. economic embargo is whether to join the World Bank, the [\*483] IMF, and the Inter-American Development Bank. n358 With an external debt of approximately $ 12 billion as well as an additional $ 15 billion to $ 20 billion debt to Russia, n359 Cuba might be tempted to avail itself of concessional loans and debt restructuring assistance from the IMF and the World Bank in order to normalize relations with external creditors and to obtain badly needed infusions of capital. Debt relief, however, will come at a very high price. Cuba, like other developing countries, will be compelled to implement neoliberal reforms pursuant to structural adjustment programs overseen by the World Bank and the IMF. These programs will require Cuba to maximize the revenues available for debt service by slashing social spending and vigorously promoting exports. In light of Cuba's "comparative advantage" in agricultural production, it is likely that structural adjustment will result in renewed emphasis on sugar production or on the cultivation of non-traditional agricultural exports (such as flowers, fruits, and vegetables). Cuba will be required to prioritize agricultural exports over domestic food production, to drastically reduce subsidies and social safety nets (including agricultural subsidies and food aid), to privatize state lands and government-owned enterprises, and to open its markets to foreign competition. These reforms would be enacted in conjunction with pre-existing commitments under the WTO Agreement on Agriculture to eliminate non-tariff barriers and reduce tariffs, to phase out domestic subsidies, and to eliminate export subsidies. Cuba would also be obligated under the SPS Agreement to permit the cultivation of genetically modified crops unless Cuba could present strict scientific proof that such cultivation will harm human health or the environment. Since such proof is unlikely given scientific uncertainty regarding the effects of genetically modified organisms, it is likely that Cuba, like Argentina, would become a major cultivator of genetically modified crops. Based on the track record of the neoliberal model in the developing world, it appears that Cuba's adoption of the standard package of neoliberal reforms would jeopardize food security at the national level. First, the neoliberal reforms would undercut domestic food production by diverting prime agricultural land to export production and by requiring Cuba to open its markets to cheap, subsidized food from the United States. This would reduce Cuba's food self-sufficiency and would reinstate Cuba's dangerous dependence on food imports to satisfy basic nutritional needs. Second, renewed emphasis on agricultural exports to generate foreign exchange would make Cuba's trade-based entitlements highly vulnerable to fluctuations in world market agricultural prices and to the declining terms of [\*484] trade for agricultural products. In the terminology of entitlements, Cuba's production-based entitlements would be eroded in favor of highly precarious trade-based entitlements. n360 In addition, a significant percentage of Cuba's export earnings would be earmarked for debt service and thus unavailable for investment or for the importation of food and other vital items. Finally, the cultivation of genetically modified crops would reinstate Cuba's trade dependence on the United States (and subordinate Cuba's food security to U.S. political and economic interests) by shutting Cuba out of lucrative EU markets. The neoliberal model would also jeopardize food security at the household level by fueling rural poverty and inequality. The promotion of export production is likely to provoke a land grab by elite Cubans and transnational corporations at the expense of Cuban smallholders. Export production tends to favor wealthy farmers with ready access to capital who can benefit from economies of scale in both production and marketing and can withstand the dramatic price fluctuations that plague many export commodities. n361 Furthermore, the opening of Cuba's markets to cheap food imports from the United States, in conjunction with the slashing of agricultural subsidies and social safety nets, will threaten the livelihoods of the majority of Cuban farmers and produce economic polarization in rural areas. Finally, the cultivation of genetically modified crops is likely to accelerate the dispossession of small farmers by disrupting the traditional practice of saving, sharing, and breeding seeds. As farmers become increasingly dependent on seeds and other inputs produced by transnational corporations, they may suffer severe economic dislocation if input prices increase or if farm revenues drop. Dispossessed farmers are likely to migrate en masse to towns and cities, thereby straining limited urban amenities. In the terminology of [\*485] entitlements, Cuban smallholders are likely to be deprived of production-based entitlements (land with which to grow food), trade-based entitlements (the ability to buy food on the market with the income generated by agricultural production), labor-based entitlements (due to the loss of jobs to mechanization on the large farms), and transfer-based entitlements (state subsidies and food aid). Neoliberal economic reforms may also jeopardize Cuba's experiment in sustainable agriculture. Export production tends to reinforce ecologically unsustainable monocultures that require extensive application of agrochemicals. These monocultures displace traditional food crops that contribute to soil fertility, pest control, and fodder production. The cultivation of genetically modified crops may exacerbate the problems associated with industrial agriculture by reinforcing monocultural production, eroding biodiversity, and increasing the use of herbicides and insecticides (by accelerating resistance to these products). Even if Cuba is able to capture an export niche in the lucrative market for certified organic products, the introduction of genetically modified organisms may undermine Cuba's efforts by producing genetic contamination. Moreover, the cultivation of Bt crops may injure organic farmers by accelerating resistance to one of the most widely used natural pesticides. Finally, if the cultivation of genetically modified crops results in increased use of herbicides and insecticides, this may harm organic agriculture by killing non-target organisms (including the natural enemies of the target pest and other beneficial insects) and by producing ecosystem-wide disturbances. In short, Cuba's adoption of neoliberal economic reforms threatens to recreate colonial and post-colonial patterns of land tenure and production, whereby the ruling elite and transnational corporations grow export crops on large industrial farms while small-scale producers are relegated to marginal subsistence plots or forced to abandon agriculture altogether. Furthermore, the cultivation of genetically modified crops may re-introduce trade dependency on the United States by foreclosing access to the lucrative European market. The prospects for food security and ecological sustainability under neoliberalism are grim. D. Summary and Conclusion: The Symbolic Significance of Cuba The saga of Cuban agriculture illustrates the ways in which developing countries are structurally disadvantaged in the global trading system by the colonial and post-colonial division of labor that relegates them to the production of primary agricultural commodities. Cuba's integration into the world economy as an exporter of sugar and an importer of manufactured goods and food products so deeply constrained its development options that not even a socialist revolution could alter these pre-existing trade and production patterns. It was not until the collapse of the socialist trading bloc and the tightening of the U.S. economic embargo that Cuba was forced by external circumstances to diversify its exports, diversify its trading partners, [\*486] decentralize agricultural production, prioritize domestic food production, and promote organic and semi-organic farming techniques. Cuba is symbolically important because it demonstrates that there is an alternative to the dominant export-oriented industrial agricultural model and that this alternative can boost agricultural productivity, enhance food security, and protect the environment. n362 However, the transformation of Cuban agriculture was a response to the crisis of the Special Period and was made possible by Cuba's relative economic isolation. Once the U.S. embargo is lifted and Cuba is reintegrated into the global trading system, Cuba, like every other developing country, will face intense pressure to restructure its economy along neoliberal lines. The results could be devastating. It is therefore important to recognize the neoliberal threat, to consider whether neoliberalism can ever be made compatible with food security and ecological sustainability, and to explore alternative strategies for sustainable rural development.

**Empirics prove**

**McKibben, 5 –** author, environmentalist, and activist. In 1988, he wrote The End of Nature, the first book for a common audience about global warming. He is the co-founder and Chairman of the Board at 350.org, an international climate campaign that works in 188 countries around the world (Bill, “The Cuba Diet”, Harper’s Magazine, April, reprinted here - http://billtotten.blogspot.com/2005/04/cuba-diet.html

One question is: **How resilient is the new Cuban agriculture?** Despite ever tougher restrictions on US travel and remittances from relatives, the country has managed to patch together a pretty robust tourist industry in recent years: Havana's private restaurants fill nightly with Canadians and Germans. The government's investment in the pharmaceutical industry appears to be paying off, too, and now people who are fed by ox teams are producing genetically engineered medicines at some of the world's more advanced labs. Foreign exchange is beginning to flow once more; already many of the bicycles in the streets have been replaced by buses and motorbikes and Renaults. Cuba is still the most unconsumer place I've ever been - there's even less to buy than in the old Soviet Union - but sooner or later Castro will die. What then? Most of the farmers and agronomists I interviewed professed conviction that the agricultural changes ran so deep they would never be eroded. Perez, however, did allow that there were a lot of younger oxen drivers who yearned to return to the cockpits of big tractors, and according to news reports some of the country's genetic engineers are trying to clone White Udder herself from leftover tissue. If Cuba simply opens to the world economy - **if** Castro gets his professed wish and **the US embargo simply disappears, replaced by a free-trade regime - it's very hard to see how the sustainable farming would survive for lon**g. **We use pesticides and fertilizers because they make for incredibly cheap food.** None of that dipping the seedling roots in some bacillus solution, or creeping along the tomato rows looking for aphids, or taking the oxen off to be shoed. **Our industrial agriculture** - at least as heavily subsidized by Washington as Cuba's farming once was subsidized by Moscow - **simply overwhelms its neighbors**. For instance, **consider Mexico and corn.** Not long ago the journalist Michael Pollan told the story of what happened when **NAFTA opened that country's markets to a flood of cheap, heavily subsidized US maize: the price fell by half, and 1.3 million small farmers were put out of business**, **forced to sell their land to larger, more corporate farms that could hope to compete by mechanizing** (and lobbying for subsidies of their own). A study by the Carnegie Endowment for International Peace enumerated the environmental costs: fertilizer runoff suffocating the Sea of Cortez, water shortages getting worse as large-scale irrigation booms. Genetically modified corn varieties from the United States are contaminating the original strains of the crop, which began in southern Mexico.

**Unconditionally lifting the embargo helps the regime not the people**

Jorge A. **Sanguinetty**, April **2013**. Former economic planner in Cuba with first-hand knowledge of centrally planned economies and how they can transition to more open, market-based systems. Born in Cuba in 1937, Sanguinetty worked as an economist in the tourist and sugar industries before emigrating to the United States in 1967 and obtaining a Ph.D. in economics at the City University of New York. One of the founding members of the Association for the Study of the Cuban Economy (ASCE), Sanguinetty is the author of Cuba: Realidad y Destino. “Who benefits and loses if the US-Cuba embargo is lifted?” http://devresearchcenter.org/2013/04/08/who-benefits-and-loses-if-the-us-cuba-embargo-is-lifted-by-jorge-a-sanguinetty/.

The answer depends on the conditions under which the embargo is lifted. **I focus on the expected distribution of benefits (and costs) between the government and the Cuban population. A unilateral move by the US Government, without any quid pro quo by the Cuban government can be expected to yield significant benefits to the official establishment with benefits of an unknown magnitude to the population at large**. I posit that the magnitude of the latter depends on the degree of internal liberalization of the Cuban economy. Until Raul Castro took over, the centralized command of the Cuban economy was subject to a set or constraints arguably more restrictive than the US embargo. **What I have called the internal embargo consisted in the Cuban government outright prohibition for Cubans to own enterprises, freely employ workers or trade domestically and internationally**. To many Cubans, probably a majority, such constraints were the main cause of the country ´s secular economic crisis. **Lifting the US embargo under such circumstances was reasonably expected to yield most of the economic and political benefits to the Cuban government and limited economic and no political benefits to the population**. With the recent partial economic (not political) liberalization policies implemented by Raul Castro, we can expect that the distribution of economic benefits would be more favorable to the Cuban people. Such new economic freedoms carry a dose of informal political freedoms as Cubans are able to develop relationships among themselves that were tightly constrained until recently, like freedom of assembly, to communicate, and to make transactions and agreements without the tutelage of the government. To wit, as the private sector develops because the government is forced to reduce the inflated payrolls of its enterprises, the authorities lose control on those newly liberated workers. Nonetheless, **the system might have reached a point of equilibrium under which an unconditional lifting of the US embargo might still accrue enough economic benefit to the Cuban government that it leads to a roll back of some recent reforms in order to cut loses in the political, albeit informal, arena. This will be a strong reason to oppose an unconditional lifting on the embargo for those who care about the wishes for freedom and welfare of the Cuban people. Many international observers oppose the US embargo on the basis of several debatable assumptions. One is the belief that the embargo has served the Castro government as an excuse for its economic failures, and once lifted the excuse will disappear. Another assumption is that Cubans don´t know that the embargo might have constrained their economy, but not as much as the restrictions of virtually all economic activity by the Cuban government. There are also many Cubans that believe that the US embargo is the only leverage left to pressure the Cuban government to lift internal restrictions in both the economic and the political fronts. It is doubtful that, under the current conditions, a non-negotiated lifting of the US embargo is likely to bring about democracy in Cuba.**

**Extinction outweighs**

**Bostrom 12** - Professor of Philosophy at Oxford

(Nick, directs Oxford's Future of Humanity Institute, Interview with Ross Andersen, correspondent at The Atlantic, 3/6, “We're Underestimating the Risk of Human Extinction”, http://www.theatlantic.com/technology/archive/2012/03/were-underestimating-the-risk-of-human-extinction/253821/)//BB

Bostrom, who directs Oxford's Future of Humanity Institute, has argued over the course of several papers that human **extinction risks are** poorly understood and, worse still, **severely underestimated** by society. Some of these existential risks are fairly well known, especially the natural ones. But others are obscure or even exotic. Most worrying to Bostrom is the subset of existential risks that arise from human technology, a subset that he expects to grow in number and potency over the next century.¶ Despite his concerns about the risks posed to humans by technological progress, Bostrom is no luddite. In fact, he is a longtime advocate of transhumanism---the effort to improve the human condition, and even human nature itself, through technological means. In the long run he sees technology as a bridge, a bridge we humans must cross with great care, in order to reach new and better modes of being. In his work, Bostrom uses the tools of philosophy and mathematics, in particular probability theory, to try and determine how we as a species might achieve this safe passage. What follows is my conversation with Bostrom about some of the most interesting and worrying existential risks that humanity might encounter in the decades and centuries to come, and about what we can do to make sure we outlast them.¶ Some have argued that we ought to be directing our resources toward humanity's existing problems, rather than future existential risks, because many of the latter are highly improbable. You have responded by suggesting that **existential risk mitigation may** in fact **be a dominant moral priority over** the **alleviation of present suffering**. Can you explain why? ¶ Bostrom: Well suppose you have a moral view that counts future people as being worth as much as present people. You might say that fundamentally it doesn't matter whether someone exists at the current time or at some future time, just as many people think that from a fundamental moral point of view, it doesn't matter where somebody is spatially---somebody isn't automatically worth less because you move them to the moon or to Africa or something. **A human life is a human life**. If you have that moral point of view that **future generations matter** in proportion to their population numbers, then you get this very stark implication that **existential risk mitigation has a much higher utility than** pretty much **anything else** that you could do. **There are so many people that could come into existence in the future if humanity survives** this critical period of time---we might live for billions of years, our descendants might colonize billions of solar systems, and there could be billions and billions times more people than exist currently. Therefore, **even a very small reduction in the probability of realizing this enormous good will tend to outweigh** even immense benefits like **eliminating poverty or curing malaria**, which would be tremendous under ordinary standards.

**Consequences first – it’s inevitable and ethical – our ev cites best studies**

**Greene ‘10**

[Josh. Assc Prof Social Science (Psychology) at Harvard. “The Secret Joke of Kant’s Soul” published in Moral Psychology: Historical and Contemporary Readings, 2010]

**What turn-of-the-millennium science** **is telling us is that human moral judgment is not a pristine rational enterprise**, that our **moral judgments are driven by a hodgepodge of emotional dispositions, which themselves were shaped by a hodgepodge of evolutionary forces, both biological and cuItural**. **Because of this, it is exceedingly unlikely that there is any rationally coherent normative moral theory that can accommodate our moral intuitions**. Moreover, **anyone who claims to have such a theory**, or even part of one, **almost certainly doesn't**. Instead, what that person probably has is a moral rationalization. It seems then, that we have somehow crossed the infamous "is"-"ought" divide. How did this happen? Didn't Hume (Hume, 1978) and Moore (Moore, 1966) warn us against trying to derive an "ought" from and "is?" How did we go from descriptive scientific theories concerning moral psychology to skepticism about a whole class of normative moral theories? The answer is that we did not, as Hume and Moore anticipated, attempt to derive an "ought" from and "is." That is, our method has been inductive rather than deductive. We have inferred on the basis of the available evidence that the phenomenon of rationalist deontological philosophy is best explained as a rationalization of evolved emotional intuition (Harman, 1977). Missing the Deontological Point I suspect that **rationalist deontologists will remain unmoved by the arguments presented here**. Instead, I suspect, **they** **will insist that I have simply misunderstood what** Kant and like-minded **deontologists are all about**. **Deontology, they will say, isn't about this intuition or that intuition**. It's not defined by its normative differences with consequentialism. **Rather, deontology is about taking humanity seriously**. Above all else, it's about respect for persons. It's about treating others as fellow rational creatures rather than as mere objects, about acting for reasons rational beings can share. And so on (Korsgaard, 1996a; Korsgaard, 1996b). **This is, no doubt, how many deontologists see deontology. But this insider's view**, as I've suggested, **may be misleading**. **The problem**, more specifically, **is that it defines deontology in terms of values that are not distinctively deontological**, though they may appear to be from the inside. **Consider the following analogy with religion. When one asks a religious person to explain the essence of his religion, one often gets an answer like this: "It's about love**, really. It's about looking out for other people, looking beyond oneself. It's about community, being part of something larger than oneself." **This sort of answer accurately captures the phenomenology of many people's religion, but it's nevertheless inadequate for distinguishing religion from other things**. This is because many, if not most, non-religious people aspire to love deeply, look out for other people, avoid self-absorption, have a sense of a community, and be connected to things larger than themselves. In other words, secular humanists and atheists can assent to most of what many religious people think religion is all about. From a secular humanist's point of view, in contrast, what's distinctive about religion is its commitment to the existence of supernatural entities as well as formal religious institutions and doctrines. And they're right. These things really do distinguish religious from non-religious practices, though they may appear to be secondary to many people operating from within a religious point of view. In the same way, I believe that most of **the standard deontological/Kantian self-characterizatons fail to distinguish deontology from other approaches to ethics**. (See also Kagan (Kagan, 1997, pp. 70-78.) on the difficuIty of defining deontology.) It seems to me that **consequentialists**, as much as anyone else, **have respect for persons**, **are against treating people as mere objects,** **wish to act for reasons that rational creatures can share, etc**. **A consequentialist respects other persons, and refrains from treating them as mere objects, by counting every person's well-being in the decision-making process**. **Likewise, a consequentialist attempts to act according to reasons that rational creatures can share by acting according to principles that give equal weight to everyone's interests, i.e. that are impartial**. This is not to say that consequentialists and deontologists don't differ. They do. It's just that the real differences may not be what deontologists often take them to be. What, then, distinguishes deontology from other kinds of moral thought? A good strategy for answering this question is to start with concrete disagreements between deontologists and others (such as consequentialists) and then work backward in search of deeper principles. This is what I've attempted to do with the trolley and footbridge cases, and other instances in which deontologists and consequentialists disagree. **If you ask a deontologically-minded person why it's wrong to push someone in front of speeding trolley in order to save five others, you will get** characteristically deontological **answers**. Some **will be tautological**: **"Because it's murder!"** **Others will be more sophisticated: "The ends don't justify the means**." "You have to respect people's rights." **But**, as we know, **these answers don't really explain anything**, because **if you give the same people** (on different occasions) **the trolley case** or the loop case (See above), **they'll make the opposite judgment**, even though their initial explanation concerning the footbridge case applies equally well to one or both of these cases. **Talk about rights, respect for persons, and reasons we can share are natural attempts to explain, in "cognitive" terms, what we feel when we find ourselves having emotionally driven intuitions that are odds with the cold calculus of consequentialism**. AIthough these explanations are inevitably incomplete, **there seems to be "something deeply right" about them because they give voice to powerful moral emotions**. **But, as with many religious people's accounts of what's essential to religion, they don't really explain what's distinctive about the philosophy in question**.

**Consequences matter – extinction comes first**

**Bok, 88** (Sissela, Professor of Philosophy at Brandeis, Applied Ethics and Ethical Theory, Rosenthal and Shehadi, Ed.)

The same argument can be made for Kant’s other formulations of the Categorical Imperative: “So act as to use humanity, both in your own person and in the person of every other, always at the same time as an end, never simply as a means”; and “So act as if you were always through your actions a law-making member in a universal Kingdom of Ends.” No one with a concern for humanity could consistently will to risk eliminating humanity in the person of himself and every other or to risk the death of all members in a universal Kingdom of Ends for the sake of justice. To risk their collective death for the sake of following one’s conscience would be, as Rawls said, “irrational, crazy.” And to say that one did not intend such a catastrophe, but that one merely failed to stop other persons from bringing it about would be beside the point when the end of the world was at stake. For although it is true that we cannot be held responsible for most of the wrongs that others commit, the Latin maxim presents a case where we would have to take such responsibility seriously – perhaps to the point of deceiving, bribing, even killing an innocent person, in order that the world not perish. To avoid self-contradiction, the Categorical Imperative would, therefore, have to rule against the Latin maxim on account of its cavalier attitude toward the survival of mankind. But the ruling would then produce a rift in the application of the Categorical Imperative. Most often the Imperative would ask us to disregard all unintended but foreseeable consequences, such as the death of innocent persons, whenever concern for such consequences conflicts with concern for acting according to duty. But, in the extreme case, we might have to go against even the strictest moral duty precisely because of the consequences. Acknowledging such a rift would post a strong challenge to the unity and simplicity of Kant’s moral theory.

**Maximizing life is the only way to affirm equal and unconditional human dignity**

**Cummiskey, 96** (David, Associate Philosophy Professor at Bates College, Kantian Consequentialism, p. 145-146)

We must not obscure the issue by characterizing this type of case as the sacrifice of individuals for some abstract “social entity.” It is not a question of some persons having to bear the cost for some elusive “overall social good.” Instead, the question is whether some persons must bear the inescapable cost for the sake of other persons. Robert Nozick, for example, argues that “to use a person in this way does not sufficiently respect and take account of the fact that he is a separate person, that his is the only life he has.” But why is this not equally true of all those whom we do not save through our failure to act? By emphasizing solely the one who must bear the cost if we act, we fail to sufficiently respect and take account of the many other separate persons, each with only one life, who will bear the cost of our inaction. In such a situation, what would a conscientious Kantian agent, an agent motivated by the unconditional value of rational beings, choose? A morally good agent recognizes that the basis of all particular duties is the principle that “rational nature exists as an end in itself” (GMM 429). Rational nature as such is the supreme objective end of all conduct. If one truly believes that all rational beings have an equal value, then the rational solution to such a dilemma involves maximally promoting the lives and liberties of as many rational beings as possible (chapter 5). In order to avoid this conclusion, the non-consequentialist Kantian needs to justify agent-centered constraints. As we saw in chapter 1, however, even most Kantian deontologists recognize that agent-centered constraints require a non- value-based rationale. But we have seen that Kant’s normative theory is based on an unconditionally valuable end. How can a concern for the value of rational beings lead to a refusal to sacrifice rational beings even when this would prevent other more extensive losses of rational beings? If the moral law is based on the value of rational beings and their ends, then what is the rationale for prohibiting a moral agent from maximally promoting these two tiers of value? If I sacrifice some for the sake of others, I do not use them arbitrarily, and I do not deny the unconditional value of rational beings. Persons may have “dignity, that is, an unconditional and incomparable worth” that transcends any market value (GMM 436), but persons also have a fundamental equality that dictates that some must sometimes give way for the sake of others (chapters 5 and 7). The concept of the end-in-itself does not support the view that we may never force another to bear some cost in order to benefit others. If one focuses on the equal value of all rational beings, then equal consideration suggests that one may have to sacrifice some to save many.

# 1NR Worms DA

**Cuba is the model for vermicomposting and their transition is driven by the embargo**

**Project Censored 10** [“Cuba Leads the World in Organic Farming,” Apr 30, 2010, pg. http://www.projectcensored.org/top-stories/articles/12-cuba-leads-the-world-in-organic-farming/

Cuba has developed one of the most efficient organic agriculture systems in the world, and organic **farmers from other countries are visiting the island to learn the methods**.

Due to the **U.S. embargo**, and the collapse of the Soviet Union, Cuba was unable to import chemicals or modern farming machines to uphold a high-tech corporate farming culture. Cuba needed to find another way to feed its people. The lost buying power for agricultural imports led to a general diversification within farming on the island. Organic agriculture has become key to feeding the nation’s growing urban populations.

Cuba’s new revolution is founded upon the development of an organic agricultural system. Peter Rosset of the Institute for Food and Development Policy states that this is “the largest conversion from conventional agriculture to organic or semi-organic farming that the world has ever known.” Not only has organic farming been prosperous, but the migration of small farms and gardens into densely populated urban areas has also played a crucial role in feeding citizens. State food rations were not enough for Cuban families, so farms began to spring up all over the country. Havana, home to nearly 20 percent of Cuba’s population, is now also home to more than 8,000 officially recognized gardens, which are in turn cultivated by more than 30,000 people and cover nearly 30 percent of the available land. The growing number of gardens might seem to bring up the problem of space and price of land. However, “the local governments allocate land, which is handed over at no cost as long as it is used for cultivation,” says S. Chaplowe in the Newsletter of the World Sustainable Agriculture Association.

The **removal of the “chemical crutch**” has been the most important factor to come out of the Soviet collapse, **trade embargo**, and subsequent organic revolution. Though Cuba is organic by default because it has no means of acquiring pesticides and herbicides, the quality and quantity of crop yields have increased. This increase is occurring at a lower cost and with fewer health and environmental side effects than ever. There are 173 established ‘***vermicompost****’* centers across Cuba, which produce 93,000 tons of natural compost a year. The agricultural abundance that Cuba is beginning to experience is disproving the myth that organic farming on a grand scale is inefficient or impractical.

So far Cuba has been successful with its “transformation from conventional, high input, mono-crop intensive agriculture” to a more diverse and localized farming system that continues to grow. The country is **rapidly moving away from a monoculture** of tobacco and sugar. It now needs much more diversity of food crops as well as regular crop rotation and soil conservation efforts to continue to properly nourish millions of Cuban citizens.

In June 2000, a group of Iowa farmers, professors, and students traveled to Cuba to view that country’s approach to sustainable agriculture. Rather than relying on chemical fertilizers, Cuba relies on organic farming, using ***compost and worms to fertilize soil***. There are many differences between farming in the United States and Cuba, but “in many ways they’re ahead of us,” say Richard Wrage, of Boone County Iowa Extension Office. Lorna Michael Butler, Chair of Iowa State University’s sustainable agriculture department said, “more students should study Cuba’s growing system.” (AP 6/5/00)

**Cuba is taking the lead in vermicomposting**

[**Barrows**](http://contributor.yahoo.com/user/1071547/preston_barrows.html) **11** [[Preston Barrows](http://contributor.yahoo.com/user/1071547/preston_barrows.html), “Earthworm Compost Boosts Agricultural Production Around the World,” [Yahoo! Contributor Network](https://contributor.yahoo.com/), Aug 11, 2011, pg. http://voices.yahoo.com/earthworm-compost-boosts-agricultural-production-around-8907097.html?cat=32

Earthworms play an integral component in agriculture. Where when earthworms built up the soil naturally, the use of modern farming practices has greatly decreased their numbers. Some will say that via chemical means, like fertilizers and pesticides, we have elevated crop production. This is true, but every year our soil is becoming much more and much more barren. It takes much more and more chemicals to grow the same crops. The soil microorganisms that aid produce humus and give soils their growing capacity are dwindling. Points have to alter, and an example of forced change may be the modest country of Cuba.
In 1986, the Cuban government began a vermicomposting program to style secure and efficient soil management tactics. Cuba was caught in a vise of economic sanctions, political pressures, and lowered crop production. Cuba was faced with no choice but to locate alternatives to its past dependency on imported fossil fuels, fertilizers, pesticides, and animal feed. Cuban scientists developed a full technological package for the [production of humus from earthworms](http://www.associatedcontent.com/article/8194717/how_the_body_of_an_earthworm_processes.html?cat=32), a process recognized as vermicomposting or vermiculture. They found the ideal application rate was 4 tons per hectare of earthworm humus for most crops. Because the implementation of this program, imported agricultural products have been cut by as much as 80 percent.
Cuba's vermicomposting program began with two smaller boxes of redworms, Eisenia fetida and Lumbricus rubellus. Today you will discover 172 vermicompost centers throughout the country. In 1992, these centers produced 93,000 tons of worm vermicompost. A number of different institutions and companies are involved in vermiculture operations, but most of the study is conducted by the Institute of Soils and Fertilizers and by the National Institute of Agricultural Sciences..

**Vermicomposting will preserve the ecological balance**

**Rajendran et al. 08** – Professor of Zoology @Vivekananda College [P. Rajendran, E. Jayakumar, Sripathi Kandula & P. Gunasekaran “Vermiculture and Vermicomposting Biotechnology for Organic Farming and Rural Economic Development,” Eco Web, February 2008, pg. http://www.eco-web.com/edi/080211.html

Sujatha *et al.* (2003) reported earthworm castings in the home garden often contains 5 to 11 times more Nitrogen, Phosphorous and Potassium than the surrounding soil. Castings of earthworm also contain abundant sources vitamins, antibiotics and enzymes such as proteases, amylases, lipases, cellulases and chitinases. Vermicompost technology can provide employment to millions of youth, can eliminate dependence on chemicals; can convert wastes into fertilizer; can bring waste land under cultivation, can feed hungry citizen and can make a country green and prosperous in a span of just a few years (Shewta *et al.,* 2004). This technique also helps to conserve the biodiversity, which is the need of the hour. Apart from providing self-employment opportunities for the weaker section and profitable agricultural waste utilization it will also help in maintaining the environmental/ecological balance.

**Environmental collapse risks extinction**

* humanity’s survival is threatened by enviro problems
* humanity depends on other species
* scarce resources, overexploited ag, etc. interact

**Ehrlich & Ehrlich 13 –** Professor of Biology & Senior Research Scientist in Biology @ Stanford University (Paul R. Ehrlich (President of the Center for Conservation Biology @ Stanford University) & Anne H. Ehrlich, “Can a collapse of global civilization be avoided?,” Proceedings of the Royal Society Biological Sciences, Proc. R. Soc. B 2013 280, published online 9 January 2013)//HA

Virtually every past civilization has eventually undergone collapse, a loss of socio-political-economic complexity usually accompanied by a dramatic decline in population size [1]. Some, such as those of Egypt and China, have recovered from collapses at various stages; others, such as that of Easter Island or the Classic Maya, were apparently permanent [1,2]. All those previous collapses were local or regional; elsewhere, other societies and civilizations persisted unaffected. Sometimes, as in the Tigris and Euphrates valleys, new civilizations rose in succession. In many, if not most, cases, overexploitation of the environment was one proximate or an ultimate cause [3].

But today, **for the first time, humanity’s global civilization**—the worldwide, increasingly interconnected, highly technological society in which we all are to one degree or another, embedded—**is threatened with collapse by an array of environmental problems.** Humankind finds itself engaged in what Prince Charles described as ‘an act of suicide on a grand scale’ [4], facing what the UK’s Chief Scientific Advisor John Beddington called a ‘perfect storm’ of environmental problems [5]. The most serious of these problems show signs of rapidly escalating severity, especially climate disruption. But other elements could potentially also contribute to a collapse: an accelerating extinction of animal and plant populations and species, which could lead to a loss of ecosystem services essential for human survival; land degradation and land-use change; a pole-to-pole spread of toxic compounds; ocean acidification and eutrophication (dead zones); worsening of some aspects of the epidemiological environment (factors that make human populations susceptible to infectious diseases); depletion of increasingly scarce resources [6,7], including especially groundwater, which is being overexploited in many key agricultural areas [8]; and resource wars [9]. These are not separate problems; rather they interact in two gigantic complex adaptive systems: the biosphere system and the human socio-economic system. The negative manifestations of these interactions are often referred to as ‘the human predicament’ [10], and determining how to prevent it from generating a global collapse is perhaps the foremost challenge confronting humanity.

The human predicament is driven by overpopulation, overconsumption of natural resources and the use of unnecessarily environmentally damaging technologies and socio-economic-political arrangements to service Homo sapiens’ aggregate consumption [11–17]. How far the human population size now is above the planet’s long-term carrying capacity is suggested (conservatively) by ecological footprint analysis [18–20]. It shows that to support today’s population of seven billion sustainably (i.e. with business as usual, including current technologies and standards of living) would require roughly half an additional planet; to do so, if all citizens of Earth consumed resources at the US level would take four to five more Earths. Adding the projected 2.5 billion more people by 2050 would make the human assault on civilization’s life-support systems disproportionately worse, because almost everywhere people face systems with nonlinear responses [11,21–23], in which environmental damage increases at a rate that becomes faster with each additional person. Of course, the claim is often made that humanity will expand Earth’s carrying capacity dramatically with technological innovation [24], but it is widely recognized that technologies can both add and subtract from carrying capacity. The plough evidently first expanded it and now appears to be reducing it [3]. Overall, careful analysis of the prospects does not provide much confidence that technology will save us [25] or that gross domestic product can be disengaged from resource use [26]

2. Do current trends portend a collapse?

What is the likelihood of this set of interconnected predicaments [27] leading to a global collapse in this century? There have been many definitions and much discussion of past ‘collapses’ [1,3,28–31], but a future global collapse does not require a careful definition. It could be triggered by anything from a ‘small’ nuclear war, whose ecological effects could quickly end civilization [32], to a more gradual breakdown because famines, epidemics and resource shortages cause a disintegration of central control within nations, in concert with disruptions of trade and conflicts over increasingly scarce necessities. In either case, regardless of survivors or replacement societies, the world familiar to anyone reading this study and the well-being of the vast majority of people would disappear. pg. 1-2

**Concessions on the embargo places Cuban organics at risk**

**Barclay 03** [Eliza Barclay, “Cuba's security in fresh produce,” Food First, September 12th, 2003, pg. http://www.foodfirst.org/node/1208

Faced with the possibility of widespread starvation, the Cuban government foresaw that a full-scale mobilization of domestic resources, both human and natural, would be required in order to increase production to meet the demands of a hungry populace. And with few options to import food given the stringency of the U.S. embargo, Cuba turned over a new leaf by converting almost entirely to an organic production system within 10 years.

Cuba's nationwide commitment to food self-sufficiency without reliance on chemical or mechanical technologies has borne some startlingly successful results, not only in terms of food production but also in the development of a more personalized food culture, woven deeply into patterns of food consumption, nutrition, and community.

These trends, which many sustainable agriculture experts enthusiastically champion, also appear to be on the brink of a major confrontation with the powerful forces of the global market, from which Cuba was virtually exempt until 2001, when U.S. policy toward agricultural exports to Cuba began to shift slightly. The strength of Cuba’s food security, with all its growing bureaucratic and market support, will inevitably be put to the test as small but increasing concessions are made to expand trade between Cuba and its closest potential trading partner, the United States.