### Relations Advantage

#### The Embargo is a tool for anti-americanism—removing it spills over to broader relations

White 13

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Throughout his career, the autocratic Mr. Chávez used our embargo as a wedge with which to antagonize the United States and alienate its supporters. His fuel helped prop up the rule of Mr. Castro and his brother Raúl, Cuba’s current president. The embargo no longer serves any useful purpose (if it ever did at all); President Obama should end it, though it would mean overcoming powerful opposition from Cuban-American lawmakers in Congress.¶ An end to the Cuba embargo would send a powerful signal to all of Latin America that the United States wants a new, warmer relationship with democratic forces seeking social change throughout the Americas.

#### The Embargo is key—it’s the litmus test for other nations

Sheridan ‘9 (Mary Beth Sheridan; Washington Post Staff Writer, May 29, 2009, “U.S. Urged to Relax Cuba Policy to Boost Regional Relations,” LexisNexis Accessed 7/17/13) S.E.

The U.S. government is fighting an effort to allow Cuba to return to the Organization of American States after a 47-year suspension. But the resistance is putting it at odds with much of Latin America as the Obama administration is trying to improve relations in the hemisphere.¶ Eliminating the Cold War-era ban would be largely symbolic, because Cuba has shown no sign of wanting to return to the OAS, the main forum for political cooperation in the hemisphere. But the debate shows how central the topic has become in U.S. relations with an increasingly assertive Latin America. The wrangling over Cuba threatens to dominate a meeting of hemispheric foreign ministers, including Secretary of State Hillary Rodham Clinton, scheduled for Tuesday in Honduras.¶ "Fifty years after the U.S. . . . made Cuba its litmus test for its commercial and diplomatic ties in Latin America, Latin America is turning the tables," said Julia E. Sweig, a Cuba scholar at the Council on Foreign Relations. Now, she said, Latin countries are "making Cuba the litmus test for the quality of the Obama administration's approach to Latin America."¶ President Obama has taken steps toward improving ties with Cuba, lifting restrictions on visits and money transfers by Cuban Americans and offering to restart immigration talks suspended in 2004. But he has said he will not scrap the longtime economic embargo until Havana makes democratic reforms and cleans up its human rights record. Ending the embargo would also entail congressional action.¶ Obama is facing pressure to move faster, both from Latin American allies and from key U.S. lawmakers. Bipartisan bills are pending in Congress that would eliminate all travel restrictions and ease the embargo.¶ Cuba has sent mixed signals about its willingness to respond to the U.S. gestures.¶ Latin American leaders say that isolating Cuba is anachronistic when most countries in the region have established relations with communist nations such as China. The OAS secretary general, JosÃ© Miguel Insulza, has called the organization's 1962 suspension of Cuba "outdated" -- noting it is based on the island's alignment with a "communist bloc" that no longer exists. However, he has suggested that OAS members could postpone Cuba's full participation until it showed democratic reforms.¶ Cuban exile organizations and some U.S. lawmakers are strongly opposed to readmitting the island.¶ "If we invite Cuba back in, in spite of their violations, what message are we sending to the rest of the hemisphere -- that it's okay to move backwards away from democracy and human rights, that there will be no repercussions for such actions?" Sen. Robert Menendez (D-N.J.), a Cuban American, demanded in a speech. He threatened to cut off U.S. funding for the OAS -- about 60 percent of its budget -- if the measure passed.¶ Clinton said last week that Cuba should be readmitted only if it abided by the OAS's Democratic Charter, a set of principles adopted in 2001 that commits countries to hold elections and to respect human rights and press freedoms.¶ Most Latin American countries broke relations with Cuba after its 1959 revolution. Nearly all have restored diplomatic ties, and the United States will soon be the only holdout in the hemisphere.¶ The Cuba ban could be lifted by a two-thirds vote of the OAS foreign ministers on Tuesday. However, the organization generally works by consensus, and several countries have indicated they do not want a showdown with the United States.¶ Diplomats have been trying in recent days to hammer out a compromise. U.S. diplomats introduced a resolution that would instruct the OAS to open a dialogue with Cuba about its "eventual reintegration," consistent with the principles of "democracy and full respect for human rights and fundamental freedoms."¶ A diplomat said last night that the United States appears to be softening its opposition to lifting the ban as long as Cuba's full reinstatement is contingent on moving toward democracy. He spoke on the condition of anonymity because of the sensitivity of the talks.¶ Venezuela, an ally of Cuba, has indicated it will not support any resolution that includes such conditions. "This is 'Jurassic Park,' " fumed Venezuelan Ambassador Roy Chaderton. "We're still in the Cold War."¶ Some Latin American diplomats worry that the Cuba imbroglio could further marginalize the OAS. The organization is respected for monitoring elections, and it has tried to broker disputes in the hemisphere. But critics lambaste it as largely a debating society.¶ Venezuela has threatened to quit the organization and form an alternative regional group. It has set up a leftist trade alliance known as ALBA with several poor countries in Latin America. Cuba has derided the OAS as a U.S.-dominated tool of the United States.¶ Peter Hakim, president of the Inter-American Dialogue, a think tank in Washington, said the Cuba resolution has trapped the Obama administration between two of its priorities: democracy promotion and better relations with its neighbors. In 2001, the U.S. government supported the Democratic Charter, a milestone in a region once known for dictatorships. But Obama told hemispheric leaders in Trinidad and Tobago last month that he wanted to form closer partnerships and not have the United States dictate policy.¶ "There's really two different values at play here: multilateralism versus democracy. You can't have multilateralism and then let one country, i.e. the U.S., make the decision for a multilateral organization," Hakim said.

#### Establishing relations with cuba brings us into line with the region

McKenna and Kirk ’09 (Peter McKenna and John M. Kirk are the co-authors of the recently released book, Fighting Words: Competing Voices from Revolutionary Cuba, April 17, 2009, “U.S.-Cuba relations ripe for change; If Washington wants to revitalize its role in the Americas, it must repeal Cuban embargo” from the Toronto Star, Accessed 7/17/2013 on Lexis Nexis)

At the Summit of the Americas that begins today in Trinidad and Tobago, the elephant in the room will clearly be revolutionary Cuba. It is worth noting here that all of the countries of the Americas, with the exception of the United States, have now established full diplomatic relations with Havana.¶ While it was not officially invited to the summit proceedings, a number of Latin American and Caribbean countries have promised to make Raul Castro's Cuba a major priority. Venezuela's Hugo Chavez was unequivocal: "Cuba is Latin America. It's no longer the Cuba that was kicked out of the OAS (Organization of American States) by those governments subordinate to the Pentagon."¶ Many others, including regional heavyweights Mexico and Brazil, have called for the reintegration of Cuba into the hemispheric fold. They are adamantly opposed to the decades-long U.S. embargo and want the Obama administration to push for its repeal.¶ There is serious talk in Washington these days that Barack Obama's administration is going to announce a significant shift in the near comatose U.S.-Cuba relationship. The White House announced Monday that Cuban-Americans will now be able to visit the island as often as they like and send as much money as they want to relatives. But speculation is rampant that Obama is going to end permanently the U.S. travel ban - first imposed in 1963 - to Cuba for all Americans.¶ Although this is a step in the right direction, the Obama team would be well-advised to go much further. It might begin by acknowledging that Cuba is a major player in the Americas and punches above its weight, hemispherically speaking.¶ If the Obama administration wants to reverse the damaging neglect of the region during the Bush years, it needs to secure some form of accommodation with Havana. There is simply no way for Washington to revitalize its role in the Americas without first radically changing its sterile Cuba policy.¶ Significantly, the Obama White House should look to embrace dialogue with the Cuban government, increase commercial exchange, undertake friendly persuasion, and strive for more person-to-person contacts. And since Raul Castro has offered on several occasions to partake in a diplomatic dialogue with the United States, there is no reason why the U.S. should not extend a hand to the Cubans.¶ In emulating Canada's modus operandi toward Cuba, the United States should carefully choose its words when it does eventually sit down at the table with the Cubans. It certainly behooves official Washington to set the correct tone for diplomatic discussions by acknowledging the Cuban revolution's notable social achievements. And as Canada has learned all too well, it is exceedingly counterproductive to hector and preach to the Cubans only on human rights questions, to ignore their nationalistic pride and deep desire for independence and autonomy, or to attach significant social, political and economic reforms as a precondition to any bilateral dialogue.¶ In borrowing a page from Canada's Cuba policy of constructive engagement, officialdom in Washington could move to swiftly implement a series of confidence-building measures. Along with Obama's decisions to remove restrictions on travel and remittances for Cuban-Americans, revoke the ban on U.S. telecommunications companies and close down the Guantanamo detention centre, the president should focus on eliminating the harsh rhetoric directed at the Cuban government, issuing visas to Cuban academic and cultural representatives, and ending the restrictions on U.S. academic and educational travel.¶ On a more controversial note, but in the face of a less monolithic Cuban-American community, it should also give serious consideration to pressing for the removal of the U.S. economic embargo, terminating Radio and TV Marti, and pardoning the so-called "Cuban Five" agents now being held in a U.S. prison. Additionally, the Obama White House could move to take Cuba's name off the U.S. state department list of terrorism-supporting countries, permanently end the complicated payment system for agricultural purchases by the Cuban government, and launch low-level discussions between U.S. and Cuban officials.¶ The fact of the matter is that there will be little opportunity for any improvement in U.S.-Cuba relations as long as the blockade remains in place. Obama can strongly urge the Congress to rescind what Canadian officials have long chastised - the anti-Cuba Helms-Burton law.¶ Of course, removing the U.S. embargo will not be an easy undertaking or one that will happen in short order, but Obama can use the presidential "bully pulpit" to galvanize the American public against those members of Congress who insist on living in a Cold War time warp. Indeed, political pressure could go some way toward weakening any congressional opposition to a lifting of the outmoded blockade.¶ By undertaking these policy initiatives, Washington will put itself in a far better position than it is today to cultivate a positive relationship with those Cubans who will be shaping Cuba's future path.¶ The only thing that stands in the U.S. president's way is a nonsensical and reflexive impulse to cling to a badly outdated and discredited policy of hostility and pettiness toward Cuba. The fifth Summit of the Americas offers Obama a perfect opportunity to fundamentally alter that policy approach, and to set U.S.-Cuba relations on a course for eventual normalization.

#### Now is the key time for improved US-Latin American ties. Permanent collapse is coming.

Shifter ‘12

(Michael is an Adjunct Professor of Latin American Studies at Georgetown University's School of Foreign Service. He is a member of the Council on Foreign Relations and writes for the Council's journal Foreign Affairs. He serves as the President of Inter-American Dialogue. “Remaking the Relationship: The United States and Latin America,” April, IAD Policy Report, http://www.thedialogue.org/PublicationFiles/IAD2012PolicyReportFINAL.pdf)

If the United States and Latin America do not make the effort now, the chance may slip away. The most likely scenario then would be marked by a continued drift in their relationship, further deterioration of hemisphere-wide institutions, a reduced ability and willingness to deal with a range of common problems, and a spate of missed opportunities for more robust growth and greater social equity. The United States and Latin America would go their separate ways, manage their affairs independently of one another, and forego the opportunities that could be harvested by a more productive relationship. There are risks of simply maintaining the status quo. Urgent problems will inevitably arise that require trust and effective collaboration to resolve. And there is a chance that tensions between the United States and Latin America could become much worse, adversely affecting everyone’s interests and wellbeing. It is time to seize the moment and overhaul hemispheric relations.

#### The embargo fails but won’t be lifted

Chapman ‘13

Steve Chapman is a columnist and editorial writer for the Chicago Tribune. Reason Magazine – April 15th – “It's Time to End the U.S. Embargo of Cuba” – ¶ http://reason.com/archives/2013/04/15/its-time-to-end-the-us-embargo-of-cuba

The communist regime in Cuba was just about to come tumbling down, ending decades of dictatorship and opening the way for freedom and democracy. But before that could happen, Jay-Z and Beyonce took a trip to the island. So Cuba's despotism can expect to survive another 50 years.¶ Well, maybe I exaggerate. It's just possible that the musical couple's presence or absence was utterly irrelevant to Cuba's future. Americans have somewhat less control over the island than we like to imagine.¶ The U.S. embargo of Cuba has been in effect since 1962, with no end in sight. Fidel Castro's government has somehow managed to outlast the Soviet Union, Montgomery Ward, rotary-dial telephones and 10 American presidents.¶ The boycott adheres to the stubborn logic of governmental action. It was created to solve a problem: the existence of a communist government 90 miles off our shores. It failed to solve that problem. But its failure is taken as proof of its everlasting necessity.¶ If there is any lesson to be drawn from this dismal experience, though, it's that the economic quarantine has been either 1) grossly ineffectual or 2) positively helpful to the regime.¶ The first would not be surprising, if only because economic sanctions almost never work. Iraq under Saddam Hussein? Nope. Iran? Still waiting. North Korea? Don't make me laugh.¶ What makes this embargo even less promising is that we have so little help in trying to apply the squeeze. Nearly 200 countries allow trade with Cuba. Tourists from Canada and Europe flock there in search of beaches, nightlife and Havana cigars, bringing hard currency with them. So even if starving the country into submission could work, Cuba hasn't starved and won't anytime soon.¶ Nor is it implausible to suspect that the boycott has been the best thing that ever happened to the Castro brothers, providing them a scapegoat for the nation's many economic ills. The implacable hostility of the Yankee imperialists also serves to align Cuban nationalism with Cuban communism. Even Cubans who don't like Castro may not relish being told what to do by the superpower next door.

#### Gradualism doesn’t solve – Cuban leadership won’t end and embargo won’t fall

Sanchez ‘12

Alex is a Research Fellow at the Council on Hemispheric Affairs where he focuses on geopolitics and security issues. His analyses have appeared in numerous refereed journals like Cuban Affairs. “Cuba ends 2012 looking for oil and with Castro brothers still in power” – VOXXI – December 26th – ¶ http://www.voxxi.com/cuba-2012-oil-castro-brothers-power/#ixzz2V59ocrSu

The structure of the Cuban government is unlikely to change in 2013 as the Castro brothers appear to remain firmly in power and continue to search for oil.¶ Fidel Castro, the former president of Cuba who ruled the island for five decades, has been nominated to run for a position in the Cuban Parliament in the upcoming February 2013 elections. The move is largely a symbolic one, since Castro, despite no longer being head of state, still enjoys a great deal of influence within the Cuban government and is regularly consulted on state affairs. In other words, Castro hardly needs an official government position to be influential in Cuba’s decision-making process.¶ Regardless of this, given Castro’s frail state, it is unclear if the man will be able to actually take his seat in the National Assembly when elected (it is hard to imagine that he would not be). If he is not well enough to assume his parliamentary seat, there may be an agreement allowing him to choose someone to replace him.¶ Meanwhile, Fidel’s brother, Raul Castro, continues as president of the island nation, although that apparently has not prevented him from also being nominated as a municipal representative in the upcoming elections. The structure of the Cuban government is unlikely to change in 2013 as the Castro brothers, in spite of their advanced age (both are in their 80s), appear to remain firmly in power. It will be interesting to see what developments the New Year brings to the island. Of particular interest are economic and international affairs, particularly those regarding the U.S.¶ The nomination of the Castro brothers to the Cuban Parliament, considering that they have jointly ruled the island since the 1950s, is slightly bizarre to say the least. Nevertheless, it is clear that the island, under Raul Castro’s rule, has evolved from Fidel’s Cuba. This is particularly true when it comes to the economy. Under Raul, the island’s Communist government has taken some steps to modernize its socialist economy, particularly by allowing the appearance of privately owned businesses. The head of state has declared that “today, nearly 40 thousand Cubans have licenses to have autonomous work or small businesses.”¶ An interesting development that may further affect the Cuban economy is the plan announced by the Russian oil company Zarubezhneft to utilize a Norwegian oil platform as means of continuing to search for deep-water oil deposits in the Cuban sea. For years there have been diverse reports about exactly how much oil Cuba possesses, but so far the numerous explorations have yet to find wells that yield commercially viable quantities of the liquid gold. If Cuba were ever able to actually find and produce massive quantities of oil (it claims to have up to 20 billion barrels while other analyses give a more modest number) this would be a huge turning point for the Cuban economy. But until this happens, the island will remain at the mercy of Venezuela, which, under Hugo Chavez’s rule, has essentially given thousands of barrels of oil to the island as a gift.¶ This brings up another issue as President Chavez’ deteriorating health, exemplified by his recent trip to Cuba for a new operation to deal with his cancer, should have put the Cuban government on alert as a non-Chavez government may not be so willing to essentially give away oil. Fortunately for Havana, Chavez’s health seems to be improving, which means that Cuba will continue to enjoy more essentially-free Venezuelan oil during the immediate future, at least until it discovers some of its own.¶ Relations with the US have yet to improve¶ Even though U.S. President Barack Obama has not fully lifted the embargo on the island during his first term in office, many Cubans and Americans hope that he will do so during his second term. Such a development would go a long way in improving U.S. diplomacy, and not only with Cuba but also with the rest of Latin America. During the Summit of the Americas held in Cartagena, Colombia, several heads of states protested the fact that Cuba had not been invited to take part in the high-level meeting because Washington opposed their participation. Despite the positive benefits that the United States would garner from such a move, it is still unlikely that President Obama will fully lift the embargo due to congressional political barriers.

#### That solves nuclear material transfer

Shifter 12

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Cuba, too, poses a significant challenge for relations between the United States and Latin America. The 50-year-old US embargo against Cuba is rightly criticized throughout the hemisphere as a failed and punitive instrument. It has long been a strain on US-Latin American relations. Although the United States has recently moved in the right direction and taken steps to relax restrictions on travel to Cuba, Washington needs to do far more to dismantle its severe, outdated constraints on normalized relations with Cuba. Cuba is one of the residual issues that most obstructs more effective US-Latin American engagement. At the same time, Cuba’s authoritarian regime should be of utmost concern to all countries in the Americas. At present, it is the only country without free, multi-party elections, and its government fully controls the press. Latin American and Caribbean nations could be instrumental in supporting Cuba’s eventual transition to democratic rule. An end to the US policy of isolating Cuba, without setting aside US concern about human rights violations, would be an important first step. Many of the issues on the hemispheric agenda carry critical global dimensions. Because of this, the United States should seek greater cooperation and consultation with Brazil, Mexico, and other countries of the region in world forums addressing shared interests. Brazil has the broadest international presence and influence of any Latin American nation. In recent years it has become far more active on global issues of concern to the United States. The United States and Brazil have clashed over such issues as Iran’s nuclear program, non-proliferation, and the Middle East uprisings, but they have cooperated when their interests converged, such as in the World Trade Organization and the G-20 (Mexico, Argentina, and Canada also participate in the G-20), and in efforts to rebuild and provide security for Haiti. Washington has worked with Brazil and other Latin American countries to raise the profile of emerging economies in various international financial agencies, including the World Bank and the International Monetary Fund. In addition to economic and financial matters, Brazil and other Latin American nations are assuming enhanced roles on an array of global political, environmental, and security issues. Several for which US and Latin American cooperation could become increasingly important include: As the world’s lone nuclear-weapons-free region, Latin America has the opportunity to participate more actively in non-proliferation efforts. Although US and Latin American interests do not always converge on non-proliferation questions, they align on some related goals. For example, the main proliferation challenges today are found in developing and unstable parts of the world, as well as in the leakage—or transfer of nuclear materials—to terrorists. In that context, south-south connections are crucial. Brazil could play a pivotal role. Many countries in the region give priority to climate change challenges. This may position them as a voice in international debates on this topic. The importance of the Amazon basin to worldwide climate concerns gives Brazil and five other South American nations a special role to play Mexico already has assumed a prominent position on climate change and is active in global policy debates. Brazil organized the first-ever global environmental meeting in 1992 and, this year, will host Rio+20. Mexico hosted the second international meeting on climate change in Cancún in 2010. The United States is handicapped by its inability to devise a climate change policy. Still, it should support coordination on the presumptionof shared interests on a critical policy challenge. Latin Americans are taking more active leadership on drug policy in the hemisphere and could become increasingly influential in global discussions of drug strategies. Although the United States and Latin America are often at odds on drug policy, they have mutual interests and goals that should allow consultation and collaboration on a new, more effective approach to the problem.

#### Terrorists can easily obtain nuclear weapons—smuggling routes

NTA ‘10

(Internally quoting Graham Allison – Founder of the Kennedy School of Government @ Harvard, “National Terror Alert, April 18, 2010, <http://www.nationalterroralert.com/updates/2010/04/18/threat-of-terrorists-obtaining-nuclear-weapons-a-reality/>, “Threat of Terrorists Obtaining Nuclear Materials is a Reality,” National Terror Alert, DA: 7/14/10)

The United States again reasserted itself as the world’s police last week, leading the way to secure thousands of pounds of fissile materials that could be used to build nuclear weapons such as dirty bombs. Countries around the world have agreed to identify, secure and covert this material before it falls into the hands of criminal gangs that would gladly sell to the highest bidder. Point #1 – Do not underestimate the sophistication of a terrorist group. We’ve routinely done that as a nation, and the consequences were deadly on 9/11. Al Qaeda could certainly have the right people on the “payroll” – scientists, engineers, technical experts – infused with the radical Islamist ideology and ready to help the cause. Point #2 – Do not underestimate the finances of terrorist groups. Many are engaged narcotrafficking, where millions of dollars trade hands daily. Point #3 - Despite the best detection efforts at airports and in major cities, highly enriched uranium could easily be transported and smuggled. Expert Graham Allison (author of “Nuclear Terrorism: The Ultimate Preventable Catastrophe) says it takes only about 35 pounds (roughly the size of a grapefruit) of highly enriched uranium to make a nuclear bomb. This amount of material is easily transportable and could be smuggled along established trafficking routes by highly paid “mules”. Point #4 - On the subject of dirty bombs – the materials needed, like medical isotopes might be pretty easily obtained, and it is true they alone would not yield much radiation. The main issue with a dirty bomb would be the blast itself…unless the some relatively high-grade uranium was employed. Then a dirty bomb would not only have immediate, but long lasting radiation effects at the point of detonation.

#### Cooperation is key to check terrorist acquisition – that ensures retaliation which escalates

Ayson 10

Robert – Professor of Strategic Studies and Director of the Centre for Strategic Studies: New Zealand at the Victoria University of Wellington – “After a Terrorist Nuclear Attack: Envisaging Catalytic Effects,” Studies in Conflict & Terrorism, Volume 33, Issue 7, July, obtained via InformaWorld

A terrorist nuclear attack, and even the use of nuclear weapons in response by the country attacked in the first place, would not necessarily represent the worst of the nuclear worlds imaginable. Indeed, there are reasons to wonder whether nuclear terrorism should ever be regarded as belonging in the category of truly existential threats. A contrast can be drawn here with the global catastrophe that would come from a massive nuclear exchange between two or more of the sovereign states that possess these weapons in significant numbers. Even the worst terrorism that the twenty-first century might bring would fade into insignificance alongside considerations of what a general nuclear war would have wrought in the Cold War period. And it must be admitted that as long as the major nuclear weapons states have hundreds and even thousands of nuclear weapons at their disposal, there is always the possibility of a truly awful nuclear exchange taking place precipitated entirely by state possessors themselves. But these two nuclear worlds—a non-state actor nuclear attack and a catastrophic interstate nuclear exchange—are not necessarily separable. It is just possible that some sort of terrorist attack, and especially an act of nuclear terrorism, could precipitate a chain of events leading to a massive exchange of nuclear weapons between two or more of the states that possess them. In this context, today’s and tomorrow’s terrorist groups might assume the place allotted during the early Cold War years to new state possessors of small nuclear arsenals who were seen as raising the risks of a catalytic nuclear war between the superpowers started by third parties. These risks were considered in the late 1950s and early 1960s as concerns grew about nuclear proliferation, the so-called n+1 problem. It may require a considerable amount of imagination to depict an especially plausible situation where an act of nuclear terrorism could lead to such a massive inter-state nuclear war. For example, in the event of a terrorist nuclear attack on the United States, it might well be wondered just how Russia and/or China could plausibly be brought into the picture, not least because they seem unlikely to be fingered as the most obvious state sponsors or encouragers of terrorist groups. They would seem far too responsible to be involved in supporting that sort of terrorist behavior that could just as easily threaten them as well. Some possibilities, however remote, do suggest themselves. For example, how might the United States react if it was thought or discovered that the fissile material used in the act of nuclear terrorism had come from Russian stocks, FN 40 and if for some reason Moscow denied any responsibility for nuclear laxity? The correct attribution of that nuclear material to a particular country might not be a case of science fiction given the observation by Michael May et al. that while the debris resulting from a nuclear explosion would be “spread over a wide area in tiny fragments, its radioactivity makes it detectable, identifiable and collectable, and a wealth of information can be obtained from its analysis: the efficiency of the explosion, the materials used and, most important … some indication of where the nuclear material came from.”41 Alternatively, if the act of nuclear terrorism came as a complete surprise, and American officials refused to believe that a terrorist group was fully responsible (or responsible at all) suspicion would shift immediately to state possessors. Ruling out Western ally countries like the United Kingdom and France, and probably Israel and India as well, authorities in Washington would be left with a very short list consisting of North Korea, perhaps Iran if its program continues, and possibly Pakistan. But at what stage would Russia and China be definitely ruled out in this high stakes game of nuclear Cluedo? In particular, if the act of nuclear terrorism occurred against a backdrop of existing tension in Washington’s relations with Russia and/or China, and at a time when threats had already been traded between these major powers, would officials and political leaders not be tempted to assume the worst? Of course, the chances of this occurring would only seem to increase if the United States was already involved in some sort of limited armed conflict with Russia and/or China, or if they were confronting each other from a distance in a proxy war, as unlikely as these developments may seem at the present time. The reverse might well apply too: should a nuclear terrorist attack occur in Russia or China during a period of heightened tension or even limited conflict with the United States, could Moscow and Beijing resist the pressures that might rise domestically to consider the United States as a possible perpetrator or encourager of the attack? Washington’s early response to a terrorist nuclear attack on its own soil might also raise the possibility of an unwanted (and nuclear aided) confrontation with Russia and/or China. For example, in the noise and confusion during the immediate aftermath of the terrorist nuclear attack, the U.S. president might be expected to place the country’s armed forces, including its nuclear arsenal, on a higher stage of alert. In such a tense environment, when careful planning runs up against the friction of reality, it is just possible that Moscow and/or China might mistakenly read this as a sign of U.S. intentions to use force (and possibly nuclear force) against them. In that situation, the temptations to preempt such actions might grow, although it must be admitted that any preemption would probably still meet with a devastating response. As part of its initial response to the act of nuclear terrorism (as discussed earlier) Washington might decide to order a significant conventional (or nuclear) retaliatory or disarming attack against the leadership of the terrorist group and/or states seen to support that group. Depending on the identity and especially the location of these targets, Russia and/or China might interpret such action as being far too close for their comfort, and potentially as an infringement on their spheres of influence and even on their sovereignty. One far-fetched but perhaps not impossible scenario might stem from a judgment in Washington that some of the main aiders and abetters of the terrorist action resided somewhere such as Chechnya, perhaps in connection with what Allison claims is the “Chechen insurgents’ … long-standing interest in all things nuclear.”42 American pressure on that part of the world would almost certainly raise alarms in Moscow that might require a degree of advanced consultation from Washington that the latter found itself unable or unwilling to provide.There is also the question of how other nuclear-armed states respond to the act of nuclear terrorism on another member of that special club. It could reasonably be expected that following a nuclear terrorist attack on the United States, both Russia and China would extend immediate sympathy and support to Washington and would work alongside the United States in the Security Council. But there is just a chance, albeit a slim one, where the support of Russia and/or China is less automatic in some cases than in others. For example, what would happen if the United States wished to discuss its right to retaliate against groups based in their territory? If, for some reason, Washington found the responses of Russia and China deeply underwhelming, (neither “for us or against us”) might it also suspect that they secretly were in cahoots with the group, increasing (again perhaps ever so slightly) the chances of a major exchange. If the terrorist group had some connections to groups in Russia and China, or existed in areas of the world over which Russia and China held sway, and if Washington felt that Moscow or Beijing were placing a curiously modest level of pressure on them, what conclusions might it then draw about their culpability? If Washington decided to use, or decided to threaten the use of, nuclear weapons, the responses of Russia and China would be crucial to the chances of avoiding a more serious nuclear exchange. They might surmise, for example, that while the act of nuclear terrorism was especially heinous and demanded a strong response, the response simply had to remain below the nuclear threshold. It would be one thing for a non-state actor to have broken the nuclear use taboo, but an entirely different thing for a state actor, and indeed the leading state in the international system, to do so. If Russia and China felt sufficiently strongly about that prospect, there is then the question of what options would lie open to them to dissuade the United States from such action: and as has been seen over the last several decades, the central dissuader of the use of nuclear weapons by states has been the threat of nuclear retaliation. If some readers find this simply too fanciful, and perhaps even offensive to contemplate, it may be informative to reverse the tables. Russia, which possesses an arsenal of thousands of nuclear warheads and that has been one of the two most important trustees of the non-use taboo, is subjected to an attack of nuclear terrorism. In response, Moscow places its nuclear forces very visibly on a higher state of alert and declares that it is considering the use of nuclear retaliation against the group and any of its state supporters. How would Washington view such a possibility? Would it really be keen to support Russia’s use of nuclear weapons, including outside Russia’s traditional sphere of influence? And if not, which seems quite plausible, what options would Washington have to communicate that displeasure? If China had been the victim of the nuclear terrorism and seemed likely to retaliate in kind, would the United States and Russia be happy to sit back and let this occur? In the charged atmosphere immediately after a nuclear terrorist attack, how would the attacked country respond to pressure from other major nuclear powers not to respond in kind? The phrase “how dare they tell us what to do” immediately springs to mind. Some might even go so far as to interpret this concern as a tacit form of sympathy or support for the terrorists. This might not help the chances of nuclear restraint. FN 40. One way of reducing, but probably not eliminating, such a prospect, is further international cooperation on the control of existing fissile material holdings.

### Agriculture Advantage

#### Status quo food production is failing—a shift to urban agriculture is key to sustainable food systems and biodiversity preservation

Peters 10 – LL.M. expected 2011, University of Arkansas School of Law, Graduate Program in Agricultural and Food Law; J.D. 2010, University of Oregon School of Law. (“Creating a Sustainable Urban Agriculture Revolution”, Journal of Environmental Law and Litigation, Vol. 25, 203, http://law.uoregon.edu/org/jell/docs/251/peters.pdf)

URBAN AGRICULTURE Urban agriculture is a system that ensures food security by providing access to land and resources to support urban farming efforts.68 The United Nations Development Programme defines urban agriculture as follows: [A]n industry that produces, processes, and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock.69 In the United States, urban agriculture is perhaps better known as community gardening.70 Community gardens are areas where residents grow food on publicly held or privately held land that they do not own.71 Most often, community gardens are located within neighborhoods, on public housing premises, or on school grounds.72 In the face of an imminent food shortage, especially in light of the economic and energy crises discussed above, it is imperative that urban residents expand urban food production. Neglected and abandoned vacant lots in blighted urban areas comprise a vast amount of land that could be converted into urban gardens.73 In addition to vacant lots, other urban areas including schoolyards, hospital grounds, parks and other open spaces, utility easements, alleys, rooftops, building walls,75 and even windowsills all provide opportunities for urban agriculture.76 While the many benefits of a sustainable urban agricultural system will be discussed below, additional benefits to urban communities deserve mention here. Urban gardens beautify and green urban neighborhoods while also building a sense of community.77 Urban gardens provide educational and employment opportunities, promote self-respect, and can even reduce crime rates.78 These gardens also offer urban residents an opportunity to connect with nature and can instill environmental ethics.79 Additionally, urban gardens promote entrepreneurship, as urban farmers can sell excess produce at farmers’ markets, through Community Supported Agriculture programs,80 and directly to restaurants.81 Finally, urban gardening provides lowincome urban residents with a supply of fresh and healthy organic food that can combat problems associated with inadequate nutrition, such as illness, fatigue, depression, anxiety, and hunger.82 IV SUSTAINABILITY Sustainability is best described as a concept of making decisions for the courses of action we choose in a way that balances the three “E’s” of sustainability—environment, economy, and social equity83 — as well as the lesser known prong of sustainability, national security.84 Sustainability is a big-picture concept. Our individual actions as well as local, state, and federal policies do not exist in a vacuum; every action has an impact on the world at large and on future generations. To create a truly sustainable world, all of our decisions, from individual choices to federal policies, must consider the impact on the environment, economy, society, and national security. Media coverage, marketing of consumer products,85 and recent documentaries have all contributed to bringing the terms “green” and “sustainability” into our everyday vocabulary,86 yet no clear definitions of these terms exist. While green focuses on protection of the environment, sustainability is much broader. In 1987, the World Commission on Environment and Development, in the Brundtland Report, defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”87 At a more fundamental level, sustainability can be defined as “able to be sustained,”88 where sustain means to “strengthen or support physically or mentally . . . [to] keep (something) going over time or continuously.”89 In this broader context, sustainability requires that we look at our current lifestyles and practices and evaluate their capability of being continued indefinitely. Much of the recent attention concerning sustainability focuses on technologies designed to reduce energy consumption and foster development of renewable energy sources.90 Little discourse has been directed towards the immediate impact individuals can have merely by reducing personal levels of consumption through a simplified lifestyle, yet such a reduction would yield immediate results and require little financial investment. As individuals, we can foster sustainability while increasing our food supply simply by providing more for ourselves through a sustainable urban agricultural system. Government incentives, discussed infra Part VII, provide land and resources that would enable individuals and communities to take action to transform our agricultural system into one that is both sustainable and secure. In the following sections, this Note provides an overview of each of the four elements of sustainability—environment, economy, equity, and national security. This Note also discusses modern industrial agriculture, urban development trends, and urban agriculture in terms of the elements of sustainability. A. Environmental Sustainability In the environmental context, sustainability encourages production and development methods that preserve and protect our natural resources and reduce our impact on the environment.91 This involves “protecting existing environmental resources (both in the natural and ‘built’ world), including the preservation of historical sites and the development of environmental resources and assets for future use.”92 To accomplish this goal, we must find innovative ways to reduce our consumption of resources and replenish the resources we do consume. We must protect biodiversity and ecosystems, as well as our land, air, and water resources by reducing greenhouse gas emissions, carbon footprints, air and water pollution, and soil contamination.93 In the context of land use and food production, environmental sustainability demands that we conserve undeveloped land and employ food production methods that will have a minimal impact on the planet. 1. Environmental Sustainability and Industrial Agriculture Industrial agriculture is a system in which economies of scale and maximization of profits are the ultimate goals.94 Profits are maximized when agribusinesses produce the largest yield of single crops at the lowest possible cost, primarily through mechanization and intensive use of agricultural chemicals.95 As discussed supra Part I, the environmental effects of industrial agricultural methods include soil erosion, depletion of soil nutrients, groundwater contamination from chemical inputs, and consumption of finite fuels.96 Additionally, as crop yields decline due to environmental degradation and demand for agricultural products rises due to population growth and the increased use of plant-derived biofuels, more and more land will be consumed by industrial agriculture. This will result in an agricultural system that depletes and destroys natural resources at an increasing rate, which will negatively impact the planet’s carrying capacity.97 Along with farm subsidies and corporate control of food production in the United States, policies that allow the harms of industrial agriculture to be treated as externalities help perpetuate the current agricultural system.98 Under the current system, agribusinesses may pollute the environment, deplete clean water and soil, and promote social inequity without having to account for these harms when calculating profits. These external costs are significant; contaminated industrial farm runoff alone causes an estimated $9 billion of damage annually to U.S. surface waters.99 Further, the externalization of these costs discourages agribusinesses from conserving water, fertile land, and other natural resources. 2. Environmental Sustainability and Urban Development Trends Current urban development trends impact the environment in several significant ways. The most direct impacts are land consumption and the destruction of natural habitats.100 While interior urban areas are deteriorating and being abandoned at an increasing rate, the constant consumption of land to support new urban development is destroying greenfields, forests, and species.101 These new communities require land not only for building homes and businesses, but also for housing public services, such as schools and hospitals, and for creating an expanded transportation infrastructure.102 Increased commuting associated with urban sprawl and flight from blighted areas relies on oil, a finite resource with decreasing availability, and significantly contributes to greenhouse gas emissions,103 which pollute the air and contribute to climate change.104 Urban sprawl further contributes to the degradation of the environment by polluting water sources with runoff from newly constructed impervious surfaces such as homes and transportation infrastructures.105 During the construction phase, stormwater flows over construction sites, “pick[ing] up debris, chemicals, and sediment that flow into water bodies.”106 Water pollution continues to degrade the environment post-construction as stormwater runoff from paved surfaces, including new roads and highways, is also contaminated.107 3. Environmental Sustainability and Urban Agriculture Transitioning from an industrial agricultural system to a sustainable urban agricultural system would minimize the impacts of food production on the planet. Urban agriculture reduces the consumption of undeveloped land for farming. Food would be produced in areas that are already developed and populated, thereby conserving open space for natural habitat. Due to the proximity of urban gardens to dwellings and other buildings, urban agriculture must be performed without the use of large machinery and without the use of chemical pesticides and fertilizers.108 While lack of such inputs could be perceived as a challenge, urban gardening methods may result in increased crop yields on smaller plots of land than conventional farming practices achieve.109 Rather than maximizing crop yields through extensive use of chemicals, sustainable agriculture relies on crop rotation, composting, biofertilizers, and other organic farming techniques to improve soil fertility.110 Organic farming methods also protect water resources because organic farms do not use chemical inputs so there is no contamination of groundwater and streams.111 Furthermore, organic fertilizers reduce the amount of waste deposited in landfills because they are made from composted and recycled food waste, leaves, and lawn clippings.112 Urban gardening reduces the effects of climate change by decreasing greenhouse gas emissions. Unlike industrial farms, urban gardens are cultivated and harvested with minimal mechanization and do not use oil-based fertilizers.113 Moreover, food that is grown and sold locally eliminates the need for wasteful plastic packaging and fossil-fueled transport to market.114 Additionally, having fresh food available in every neighborhood would reduce carbon-emitting automobile trips to the grocery store.115 Urban agriculture presents an opportunity to reverse the decline of urban areas. A significant benefit of urban gardens is the beautification of urban neighborhoods and strengthening of community spirit.116 Urban gardens also can prompt the cleanup of contaminated vacant lots.117 Furthermore, increasing the amount of vegetation in urban areas would reduce surface temperatures during hot months and improve urban air quality.118 B. Economic Sustainability Sustainability requires that economic growth and development must be integrated with environmental protection and sustainable utilization of resources.119 Economic growth and development must also promote both intergenerational and intragenerational equity.120 While a steadily expanding economy is considered prosperity, a growing world population coupled with increasing overall consumption threatens to strain our planet beyond its carrying capacity.121 When economic stability is equated with increased consumption, we push the limits of the planet’s carrying capacity. Simply put, we are depleting the Earth’s resources at a rate that threatens the Earth’s future ability to support our species. The economic aspect of sustainability also addresses the fact that many of the planet’s resources are treated as externalities in the marketplace.122 For example, the costs of depleting natural resources and polluting the air, water, and ground are not reflected in the price of goods. Through regulations, mandates, and incentives, the U.S. government addresses some of these environmental costs,123 but more must be done to implement policies that will incorporate external costs into pricing structures. 1. Economic Sustainability and Industrial Agriculture Industrial agriculture is not economically sustainable. Industrial agriculture seeks to maximize profits without regard for environmental degradation or the long-term effects of heavy reliance on chemical pesticides and fertilizers. Rather than balancing economic growth with environmental protection and equity, industrial agriculture concentrates on maximizing profits at the expense of the environment and society, both in the present and the future. The United States currently has no regulations or policies in place that would impose costs upon agribusinesses for externalities;124 rather, current policies promote harmful industrial agricultural methods.125 A food production system that allows businesses to maximize profits without concern for its impact on society and the environment is not sustainable.

#### Cuban agroecology is at risk – it’s the only model for adaptation to future agricultural challenges without mass food shortages

Raj Patel, Fellow at the Institute for Food and Development Policy, 2012

(April, What Cuba Can Teach Us About Food and Climate Change, www.slate.com/articles/health\_and\_science/future\_tense/2012/04/agro\_ecology\_lessons\_from\_cuba\_on\_agriculture\_food\_and\_climate\_change\_.single.html)

The Studebakers plying up and down Havana’s boardwalk aren’t the best advertisement for dynamism and innovation. But if you want to see what tomorrow’s fossil-fuel-free, climate-change-resilient, high-tech farming looks like, there are few places on earth like the Republic of Cuba. Under the Warsaw Pact, Cuba sent rum and sugar to the red side of the Iron Curtai/n. In exchange, it received food, oil, machinery, and as many petrochemicals as it could shake a stick at. From the Missile Crisis to the twilight of the Soviet Union, Cuba was one of the largest importers of agricultural chemicals in Latin America. But when the Iron Curtain fell, the supply lines were cut, and tractors rusted in the fields. Unable to afford the fertilizers and pesticides that 20th-century agriculture had taken for granted, the country faced extreme weather events and a limit to the land and water it could use to grow food. The rest of the world will soon face many of the same problems: In the coming decade, according to the OECD, we’ll see higher fuel and fertilizer costs, more variable climate patterns, and limits to arable land that will drive cereal prices 20 percent higher and hike meat prices by 30 percent—and that’s just the beginning. Policymakers can find inspirational and salutary ideas about how to confront this crisis in Cuba, the reluctant laboratory for 21st-century agriculture. Cuban officials faced the crisis clumsily. They didn’t know how to transform an economy geared toward sweetening Eastern Europe into one that could feed folk at home. Agronomists had been schooled in the virtues of large-scale industrial collective agriculture. When the “industrial” part became impossible, they insisted on yet more collectivization. The dramatic decline in crop production between 1990 and 1994, during which the average Cuban lost 20 pounds, was known as “the Special Period.” Cubans have a line in comedy as dark as their rum. Cuban peasants proved more enterprising than the government and demanded change. First, they wanted control over land. The state had owned 79 percent of arable land, and most was run in state cooperatives. Initially the government refused to listen, but the depth of the crisis and the demands of organized farmers created some space for change. Through reform, the government decentralized farm management. The land remains in government hands, but now it is also available with “usufruct” rights to tenants, who can invest in the soil and pass the land onto their children. But that took the farmers only so far. So some of the country’s agronomists, plant breeders, soil scientists, and hydrologists (Cuba has 2 percent of Latin America’s population but 11 percent of its scientists) found themselves being put to use by Cuban peasants in the fields. Their task: figure out how to farm without the fossil-fuel products upon which the country’s agricultural systems had become dependent. With no fertilizer, pesticide, or herbicide, and no means to import substitute chemicals, many in the scientific community landed on “agro-ecology.” To understand what agro-ecology is, it helps first to understand why today’s agriculture is called “industrial.” Modern farming turns fields into factories. Inorganic fertilizer adds nitrogen, potassium, and phosphorous to the soil; pesticides kill anything that crawls; herbicides nuke anything green and unwanted—all to create an assembly line that spits out a single crop. This is modern monoculture. Agro-ecology uses nature’s far more complex systems to do the same thing more efficiently and without the chemistry set. Nitrogen-fixing beans are grown instead of inorganic fertilizer; flowers are used to attract beneficial insects to manage pests; weeds are crowded out with more intensive planting. The result is a sophisticated polyculture—that is, it produces many crops simultaneously, instead of just one. In Cuba, peasants encouraged scientists to adopt this approach. One of their most important ideas, borrowed from elsewhere in Central America, was a model of knowledge diffusion called “Campesino a Campesino”—peasant to peasant. Farmers share their results and ideas with one another and with scientists, which has helped agro-ecological systems spread. So has it worked? That’s up for debate. The Cuban vice minister of the economy and planning ministry reportedly said in February 2007 that 84 percent of the country’s food was imported—not terribly encouraging, if we are looking at Cuba to foretell our agricultural future. But a recent paper by UC-Berkeley’s Miguel A. Altieri and the University of Matanzas’ Fernando R. Funes-Monzote suggests that while the country still imports almost all its wheat (a crop that doesn’t do well in the Caribbean), it now produces the majority of its fresh fruit and vegetables—even much of its meat. In 2007, Cubans produced more food while using one-quarter of the chemicals as they did in 1988. Agro-ecology is particularly valuable in years when disaster strikes the island. After Hurricane Ike flattened Cuba in 2008, a research team found that both traditional plantain monocultures and agro-ecological farms were devastated. But there were striking differences: Monocultures lost about 75 percent of tree cover, where agro-ecological farms lost 60 percent. On agro-ecological farms, tall plantains—a staple of the Caribbean diet—were often righted by the families working the land. By contrast, on conventional farms, the seasonal labor force arrived on the scene too late to save the plants. When trees were beyond salvage in the polyculture farms, crops lower down in the canopy thrived. By contrast, in the monoculture, the only things that flourished in the gaps between trees were weeds. About four months after the storm, strongly integrated agro-ecological farms were nearly back to full production. It took conventional farms an additional two months to spring back. Yet all is not well in the Cuban food system. For many, especially government officials, choosing agro-ecology wasn’t a red-blooded Communist decision. It was a practical one. They are quite ready for an industrial-agricultural relapse if the occasion arises. Recently, they have had an unlikely enabler: Hugo Chávez. In exchange for the 31,000 Cuban doctors who are treating Venezuelans, Cuba receives 100,000 barrels of oil a day, plus a great deal of chemical fertilizer. As a result, the parts of the country untouched by agro-ecology are starting to spray and sow like it’s the 1980s again. At odds aren’t just two different farming systems, but two different social approaches. On one hand, in Cuba and around the world, is industrial agriculture. In this top-down, command-and-control model, knowledge, fertilizers, seed, and land are all fed into the black box that is the farm. Wait long enough, and food comes out the other end. On the other hand, there’s agro-ecology, in which farmers are innovators and educators, soil can be built over generations, and the natural environment can be bent with, rather than broken. Climate change has already reduced global wheat harvests by 5 percent, and food prices are predicted to double by 2030. Cuba’s example is both instructive and frustrating. Technical innovations in Cuban agriculture point to the kinds of thinking needed to address the future: moving away from monoculture and understanding the value of complex, integrated systems. The trouble is that this also means a change in the mindset of governments and scientists schooled in last century’s agriculture. If that’s a lesson the rest of the world is ready for, Cuban peasant organizing could well light the way to the future, even if their automobiles are stuck in the past.

#### Access to the US market is key to the continued viability of Cuban organics

William Kost, Economist at the US Department of Agriculture, 2004

(CUBAN AGRICULTURE: TO BE OR NOT TO BE ORGANIC?, <http://www.ascecuba.org/publications/proceedings/volume14/pdfs/kost.pdf>)

For the U.S. organic market, in addition to a lifting of the U.S. embargo, Cuba would have to be certified by a USDA-accredited certification program that assures U.S. markets that Cuban products labeled organic meet all National Organic Program standards and regulations under the U.S. Organic Foods Production Act of 1990. If the U.S. embargo on Cuba were lifted, Cuban exports, once certified, could play a significant role in the U.S. organic market. In this current U.S. niche market, production costs are high. Opening the U.S. market would enable Cuba to exploit its significant comparative advantage in this area. This market could become a quick foreign exchange earner for Cuba. The largest barrier Cuba faces in expanding into the U.S. organic market will be meeting U.S. requirements for organic certification. Tapping the U.S. market may create sufficient price incentives for Cuban producers to take the necessary steps to meet the organic standards of other importing countries. Cuba could then expand production of organic produce geared to these specialty export markets. With sufficiently high prices for organic produce, urban labor may remain active in an organic urban gardening sector. Most likely, the viability of a vibrant organic produce production and processing sector in Cuba will depend on Cuba’s gaining access to the large, nearby U.S. market. Without such access, organic-oriented production of horticultural products in Cuba will likely remain a necessity-driven way to produce food for domestic consumption in an environment where other production approaches are just not available.

#### Lifting the embargo is critical for investment in Cuban organoponics and leads to US adoption which fuels worldwide adoption

Jacob Shkolnick, JD Candidate at Drake, Fall 2012

(SIN EMBARGO: n1 THE CUBAN AGRICULTURAL REVOLUTION AND WHAT IT MEANS FOR THE UNITED STATES” 17 Drake J. Agric. L. 683, lexis)

While investment in Cuban businesses and sales or purchases of Cuban products must still move through official channels under the joint venture law or other Cuban programs, the time is ripe for organizations in the United States to begin laying groundwork for closer ties with Cuban agricultural entities. Recent regulatory changes implemented by the U.S. government provide a means for individuals and businesses to begin forming the relationships with their Cuban counterparts that will lead to future trade opportunities. As previously mentioned, recent changes in U.S. policy now allow for any individual in the United States, not simply relatives, to donate money to Cuban citizens, though not to exceed $ 500 for any three month consecutive period, with the only restriction being that the recipient is not an official in the Cuban [\*704] government or the Communist Party. n162 Specifically written into these new regulations is the idea that these remittances may be spent "to support the development of private businesses." n163 A five hundred dollar infusion of capital to support a fledging business or farm can be enormously beneficial when the average monthly salary is only 448 pesos, or approximately twenty dollars. n164 Additional capital will enable small Cuban farms to expand operations by hiring additional help or perhaps purchasing additional farm animals. While purchasing a tractor may seem like an obvious choice for a growing farm, Medardo Naranjo Valdes of the Organoponico Vivero Alamar, a UBPC just outside of Havana, indicated that farm animals such as oxen would remain the preferred choice for the foreseeable future on the small and midsized farms that make up the majority of the newer agricultural cooperatives. n165 Not only do farm animals not require gasoline or incur maintenance costs beyond perhaps an occasional veterinarian charge, their waste can be used as fertilizer. Apart from additional labor, funds provided to agricultural cooperatives could be put to use in developing innovative pest control techniques that do not require the use of expensive pesticides or other chemicals. The Vivero Alamar is currently experimenting with a variety of natural pest control techniques such as introducing plants that serve as natural repellents to insects and the introduction of other insects that feed on harmful pests without harming the crops. n166 Investment in agricultural cooperatives done in this manner will likely fail to see much return on the investment for their foreseeable future, until policies in both the United States and Cuba are changed. For a relatively small sum, American investors will get not only the benefit of a close relationship with a Cuban farm that will become a new source of both import and export business in the future, but potentially gain access to innovative agricultural techniques that could be used in the United States immediately. Because the logistical structure needed to transport goods from large rural farms into city markets remains underdeveloped, urban and suburban agriculture makes up a growing portion of the food produced and consumed in Cuba. n169 As in other countries, the population trends in Cuba have continued to shift away from rural areas to more concentrated urban and suburban areas, with about [\*705] three-fourths of Cubans living in cities. n170 With this shift in population has also come a shift in the country's agricultural system. As of 2007, about 15% of all agriculture in Cuba could be classified as urban agriculture. n171 Not only have agricultural practices changed, but eating habits have as well. Without the Soviet Union to provide a ready source of income and the machinery needed to engage in large-scale livestock production, vegetable consumption has increased dramatically. n172 Nearly every urban area has direct access to a wide variety of locally grown, organic produce. n173 Many of the urban farms in Cuba, including the Vivero Alamar, make use of organoponics, a system where crops are produced in raised beds of soil on land that would otherwise be incapable of supporting intensive agricultural production. n174 Many of these raised beds can be constructed in a concentrated area to support a wide variety of produce, with the typical organoponic garden covering anywhere from one half to several hectares in size. n175 The rise of the organoponic production method was a shift away from the earlier centralized production model employed by the state. It has been supported through intensive research and development by a variety of state agencies, such as the National Institute of Agricultural Science, and continued development has been guided through intensive training and educational programs. n176 The organoponic system is not limited in its application to Cuban urban farms, but maintains potential to be applied worldwide, including in the United States. Urban agriculture in Cuba revitalized and put to use previously abandoned and unused land. A similar approach could be applied to the United States as a means to restore blighted areas. Applying Cuban-derived organoponics in U.S. cities could potentially open up an enormous amount of land that was previously unusable. From a business perspective, investing in an organoponic agricultural program in the United States is also a sound decision since the demand for local produce reached $ 4.8 billion in 2008 and is only expected to grow further, potentially reaching $ 7 billion in 2012. n178 [\*706] In an American city beset with high unemployment such as Detroit, Michigan, for example, investing in urban agriculture could potentially generate as many as five thousand new jobs. By utilizing Cuba's system of organoponics, the need to use expensive and complex farm machinery could be significantly reduced. Already companies in the United States, such as Farmscape Gardens in southern California, recognize what Cuba's organoponic system could achieve and have integrated it into their business practices. n180 Rachel Bailin, a partner in the company, indicated that it was Cuba's organic farming practices that helped inspire them to start a company devoted to urban agriculture. n181 They have already used Cuba's organoponic farming methods to produce more than 50,000 pounds of produce since the spring of 2009. n182 The potential for future growth in this industry is huge, as Farmscape Gardens' current levels of production make it the largest urban agriculture company in the state of California. n183 Cuba not only offers attractive prospects for trading in the future, but methods of agriculture pioneered out of necessity have broad prospects if applied to agriculture in the United States. As the demand for locally grown produce continues to increase, a cost-effective and proven agricultural model like Cuba's organoponic system may be just what is needed to allow for urban agriculture to flourish.

#### Increasing investment prevents Cuban backsliding

M. Dawn King, Professor of Environmental Studies at Brown, 3/21/12

(Cuban Sustainability: The Effects of Economic Isolation on Agriculture and Energy, wpsa.research.pdx.edu/meet/2012/kingmdawn.pdf)

Cuba needed an alternative agricultural model when foreign oil imports were cut off significantly at the end of the 1980s, and the partial opening of the Cuban economy, focused on creating more autonomous agricultural cooperatives, in the 1990s helped diversify food crops and set Cuba along a path of increased food security. The Cuban model was initiated out of necessity, not because of any sort of Cuban environmental consciousness, yet better environmental conditions went hand in hand with the new development strategy. Cuba learned the limits of their agricultural model under their socialist economic system and it is in need of further transformation in both the agriculture and energy sectors. A further opening of the economy to joint ventures could help with updating the power grid and providing more sources of renewable energy – potentially expanding Cuba’s potential for a more sustainable means of energy security. Further, Cuba needs foreign investment to update agriculture facilities and take maximum advantage of cogeneration and biofuel potential with sugarcane waste. The strong state control of farming practices, used to successfully jumpstart the alternative model, has hit its limit. The Cuban government must begin loosening its grips on the domestic economy to allow for more competition in the farming sector. Despite the potential to become more sustainable with a purposive and focused opening of the economy, the recent surge in joint venture investment on expanding domestic oil extraction, petrochemical facilities, and oil refinery infrastructure reveals a trend toward decreasing environmental sustainability. Once heralded as the world’s most sustainable country by coupling environmental performance indicators with their human development scores, Cuba is slipping further away from this goal. Perhaps the most distressing part of this current trend is that it took Cuba decades to create a national identity that embraced sustainable environmental practices in both the energy and agricultural sector, and it seemingly took only a couple of years to derail these efforts. Undoubtedly, conservation efforts and sustainable education programs can only satiate citizen’s energy desires to a certain point. In order to further the quality of life in the country, electric production must increase to rural areas with little energy infrastructure and to Havana in order to spur foreign investment and domestic small business growth. Cuba’s trade agreement with Venezuela is bringing in much-needed petroleum for electricity production, but their dependence on a relatively unstable country for crude is trapping them into the same relationship that crippled their economy in 1990 – impairing their original goal of self-sufficiency. Cuba is at a turning point in their path toward environmental sustainability, and the current need for immediate foreign capital and increased energy production seem to be trumping its desire to achieve development sustainably. Cuba still has enough centralized control to leap-frog dirty electric production for cleaner renewable forms of energy and the potential to guide development strategies that emphasize investments in and research on renewable energy. It can utilize its expertise on organic farming strategies to increase sugar production in a much more ecologically friendly manner than their monoculture approach in the 1970s and 80s. Decisions made in the next five years will demonstrate whether Cuba embraces their newly created national identity as a society striving for sustainable development or rejects the goal of sustainable development to increase short-term capital and energy needs.

#### Lifting the embargo won’t cause Cuban abandonment of agroecology - they’ll be able to outcompete industrial models and promote global adoption

Christina Cornell, Research Associate at Council on Hemispheric Affairs, 4/17/09

(Cuba Elevates Urban Gardening to a Cause, http://www.thecuttingedgenews.com/index.php?article=11525)

Many worry whether Cuba’s budget and planning services will be able to maintain its commitment to urban agriculture and sustainable methods, as the country enters the global economy and faces pressures to restructure its economic and political system, especially as Washington nears a decision to lift the U.S.- Cuba trade embargo. As the economy opens, the tourism industry and multinational food corporations will compete for urban land and attempt to flood the Cuban market with cheap imported food products that could undermine the urban agricultural system. Havana must develop policies that will protect their growing agricultural sector, but also allow for international influence and trade to flourish. Although the opening of trade relations threatens local food production, Cuba’s success in the agriculture industry makes it a substantial contender in the global market. Its products are competitively priced and thus, have the ability to generate a considerable profit for the island nation. Not only will increased participation in international trade boost revenue, but it could also promote social reform in the country. Cuba’s urban centers, once underdeveloped and filthy, are now encouraging progressive goals, targeting rising living standards and sanitation concerns, while promoting national initiatives that will support future improvements in the urban landscapes. Agriculture for the Future Cuba’s successful implementation of urban agriculture should serve as a model for other developing countries, particularly in Latin America. By embracing more modern and effective methods of farming, countries theoretically have the opportunity to transform their local markets, augmenting the labor force and cultivating capital and infrastructure. Introduction to the global market would allow a country like Cuba to become an important economic actor, ultimately expanding its profits through competitive transactions and trade.

#### Food instability causes starvation and war

Julian Cribb, Professor in Science Communication at the University of Technology Sydney, 2010

(Julian, principal of JCA, fellow of the Australian Academy

of Technological Sciences and Engineering, “The Coming Famine: The

Global Food Crisis and What We Can Do to Avoid It”, pg 10

The character of human conflict has also changed: since the early 1990s, more wars have been triggered by disputes over food, land, and water than over mere political or ethnic differences. This should not surprise us: people have fought over the means of survival for most of history. But in the abbreviated reports on the nightly media, and even in the rarefied realms of government policy, the focus is almost invariably on the players—the warring national, ethnic, or religious factions—rather than on the play, the deeper subplots building the tensions that ignite conflict. Caught up in these are groups of ordinary, desperate people fearful that there is no longer sufficient food, land, and water to feed their children—and believing that they must fight "the others" to secure them. At the same time, the number of refugees in the world doubled, many of them escaping from conflicts and famines precipitated by food and re- source shortages. Governments in troubled regions tottered and fell. The coming famine is planetary because it involves both the immediate effects of hunger on directly affected populations in heavily populated regions of the world in the next forty years—and also the impacts of war, government failure, refugee crises, shortages, and food price spikes that will affect all human beings, no matter who they are or where they live. It is an emergency because unless it is solved, billions will experience great hardship, and not only in the poorer regions. Mike Murphy, one of the world's most progressive dairy farmers, with operations in Ireland, New Zealand, and North and South America, succinctly summed it all up: "Global warming gets all the publicity but the real imminent threat to the human race is starvation on a massive scale. Taking a 10-30 year view, I believe that food shortages, famine and huge social unrest are probably the greatest threat the human race has ever faced. I believe future food shortages are a far bigger world threat than global warming."

#### Continued reliance on industrial mechanized ag results in catastrophic warming and biodiversity loss

Cummins 10 – Ronnie is the International Director of the Organic Consumers Association. (“Industrial Agriculture and Human Survival: The Road Beyond 10/10/10”, Organic Consumer’s Association, October 7, 2010, <http://www.organicconsumers.org/articles/article_21747.cfm>)

Although transportation, industry, and energy producers are obviously major fossil fuel users and greenhouse gas polluters, not enough people understand that the worst U.S. and global greenhouse gas emitter is "Food Incorporated," transnational industrial food and farming, of which Monsanto and GMOs constitute a major part. Industrial farming, including 173 million acres of GE soybeans, corn, cotton, canola, and sugar beets, accounts for at least 35% of U.S. greenhouse gas emissions (EPA's ridiculously low estimates range from 7% to 12%, while some climate scientists feel the figure could be as high as 50% or more). Industrial agriculture, biofuels, and non-sustainable cattle grazing - including cutting down the last remaining tropical rainforests in Latin America and Asia for GMO and chemical-intensive animal feed and biofuels - are also the main driving forces in global deforestation and wetlands destruction, which generate an additional 20% of all climate destabilizing GHGs. In other words the direct (food, fiber, and biofuels production, food processing, food distribution) and indirect damage (deforestation and destruction of wetlands) of industrial agriculture, GMOs, and the food industry are the major cause of global warming. Unless we take down Monsanto and Food Inc. and make the Great Transition to a relocalized system of organic food and farming, we and our children are doomed to reside in Climate Hell. Overall 78% of climate destabilizing greenhouse gases come from CO2, while the remainder come from methane, nitrous oxide, and black carbon or soot. To stabilize the climate we will need to drastically reduce all of these greenhouse gas emissions, not just CO2, and sequester twice as much carbon matter in the soil (through organic farming and ranching, and forest and wetlands restoration) as we are doing presently. Currently GMO and industrial/factory farms (energy and chemical-intensive) farms emit at least 25% of the carbon dioxide (mostly from tractors, trucks, combines, transportation, cooling, freezing, and heating); 40% of the methane (mostly from massive herds of animals belching and farting, and manure ponds); and 96% of nitrous oxide (mostly from synthetic fertilizer manufacture and use, the millions of tons of animal manure from factory-farmed cattle herds, pig and poultry flocks, and millions of tons of sewage sludge spread on farms). Black carbon or soot comes primarily from older diesel engines, slash and burn agriculture, and wood cook stoves. Per ton, methane is 21 times more damaging, and nitrous oxide 310 times more damaging, as a greenhouse gas than carbon dioxide, when measured over a one hundred year period. Damage is even worse if you look at the impact on global warming over the next crucial 20-year period. Many climate scientists admit that they have previously drastically underestimated the dangers of the non-CO2 GHGs, including methane, soot, and nitrous oxide, which are responsible for at least 22% of global warming.

#### Ecosystem collapse causes extinction

**WATSON 2006** (Captain Paul, Founder and President of Sea Shepherd Conservation Society, has a show on Animal Planet, Last Mod 9-17, http://www.eco-action.org/dt/beerswil.html)

The facts are clear. More plant and animal species will go through extinction within our generation than have been lost thorough natural causes over the past two hundred million years. Our single human generation, that is, all people born between 1930 and 2010 will witness the complete obliteration of one third to one half of all the Earth's life forms, each and every one of them the product of more than two billion years of evolution. This is biological meltdown, and what this really means is the end to vertebrate evolution on planet Earth. Nature is under siege on a global scale. Biotopes, i.e., environmentally distinct regions, from tropical and temperate rainforests to coral reefs and coastal estuaries, are disintegrating in the wake of human onslaught. The destruction of forests and the proliferation of human activity will remove more than 20 percent of all terrestrial plant species over the next fifty years. Because plants form the foundation for entire biotic communities, their demise will carry with it the extinction of an exponentially greater number of animal species -- perhaps ten times as many faunal species for each type of plant eliminated. Sixty-five million years ago, a natural cataclysmic event resulted in extinction of the dinosaurs. Even with a plant foundation intact, it took more than 100,000 years for faunal biological diversity to re-establish itself. More importantly, the resurrection of biological diversity assumes an intact zone of tropical forests to provide for new speciation after extinction. Today, the tropical rain forests are disappearing more rapidly than any other bio-region, ensuring that after the age of humans, the Earth will remain a biological, if not a literal desert for eons to come. The present course of civilization points to ecocide -- the death of nature. Like a run-a-way train, civilization is speeding along tracks of our own manufacture towards the stone wall of extinction. The human passengers sitting comfortably in their seats, laughing, partying, and choosing to not look out the window. Environmentalists are those perceptive few who have their faces pressed against the glass, watching the hurling bodies of plants and animals go screaming by. Environmental activists are those even fewer people who are trying desperately to break into the fortified engine of greed that propels this destructive specicidal juggernaut. Others are desperately throwing out anchors in an attempt to slow the monster down while all the while, the authorities, blind to their own impending destruction, are clubbing, shooting and jailing those who would save us all. SHORT MEMORIES Civilized humans have for ten thousand years been marching across the face of the Earth leaving deserts in their footprints. Because we have such short memories, we forgot the wonder and splendor of a virgin nature. We revise history and make it fit into our present perceptions. For instance, are you aware that only two thousand years ago, the coast of North Africa was a mighty forest? The Phoenicians and the Carthaginians built powerful ships from the strong timbers of the region. Rome was a major exporter of timber to Europe. The temple of Jerusalem was built with titanic cedar logs, one image of which adorns the flag of Lebanon today. Jesus Christ did not live in a desert, he was a man of the forest. The Sumerians were renowned for clearing the forests of Mesopotamia for agriculture. But the destruction of the coastal swath of the North African forest stopped the rain from advancing into the interior. Without the rain, the trees died and thus was born the mighty Sahara, sired by man and continued to grow southward at a rate of ten miles per year, advancing down the length of the continent of Africa. And so will go Brazil. The precipitation off the Atlantic strikes the coastal rain forest and is absorbed and sent skyward again by the trees, falling further into the interior. Twelve times the moisture falls and twelve times it is returned to the sky -- all the way to the Andes mountains. Destroy the coastal swath and desertify Amazonia -- it is as simple as that. Create a swath anywhere between the coast and the mountains and the rains will be stopped. We did it before while relatively primitive. We learned nothing. We forgot. So too, have we forgotten that walrus once mated and bred along the coast of Nova Scotia, that sixty million bison once roamed the North American plains. One hundred years ago, the white bear once roamed the forests of New England and the Canadian Maritime provinces. Now it is called the polar bear because that is where it now makes its last stand. EXTINCTION IS DIFFICULT TO APPRECIATE Gone forever are the European elephant, lion and tiger. The Labrador duck, gint auk, Carolina parakeet will never again grace this planet of ours. Lost for all time are the Atlantic grey whales, the Biscayan right whales and the Stellar sea cow. Our children will never look upon the California condor in the wild or watch the Palos Verde blue butterfly dart from flower to flower. Extinction is a difficult concept to fully appreciate. What has been is no more and never shall be again. It would take another creation and billions of years to recreate the passenger pigeon. It is the loss of billions of years of evolutionary programming. It is the destruction of beauty, the obliteration of truth, the removal of uniqueness, the scarring of the sacred web of life To be responsible for an extinction is to commit blasphemy against the divine. It is **the greatest of all possible crimes**, more evil than murder, more appalling than genocide, more monstrous than even the apparent unlimited perversities of the human mind. To be responsible for the complete and utter destruction of a unique and sacred life form is arrogance that seethes with evil, for the very opposite of evil is live. It is no accident that these two words spell out each other in reverse. And yet, a reporter in California recently told me that "all the redwoods in California are not worth the life on one human being." What incredible arrogance. The rights a species, any species, must take precedence over the life of an individual or another species. This is a basic ecological law. It is not to be tampered with by primates who have molded themselves into divine legends in their own mind. For each and every one of the thirty million plus species that grace this beautiful planet are essential for the continued well-being of which we are all a part, the planet Earth -- the divine entity which brought us forth from the fertility of her sacred womb. As a sea-captain I like to compare the structural integrity of the biosphere to that of a ship's hull. Each species is a rivet that keeps the hull intact. If I were to go into my engine room and find my engineers busily popping rivets from the hull, I would be upset and naturally I would ask them what they were doing. If they told me that they discovered that they could make a dollar each from the rivets, I could do one of three things. I could ignore them. I could ask them to cut me in for a share of the profits, or I could kick their asses out of the engine room and off my ship. If I was a responsible captain, I would do the latter. If I did not, I would soon find the ocean pouring through the holes left by the stolen rivets and very shortly after, my ship, my crew and myself would disappear beneath the waves. And that is the state of the world today. The political leaders, i.e., the captains at the helms of their nation states, are ignoring the rivet poppers or they are cutting themselves in for the profits. There are very few asses being kicked out of the engine room of spaceship Earth. With the rivet poppers in command, it will not be long until the biospheric integrity of the Earth collapses under the weight of ecological strain and tides of death come pouring in. And that will be the price of progress -- ecological collapse, the death of nature, and with it the horrendous and mind numbing specter of massive human destruction.

#### A move towards organic ag mitigates future emissions and prevents warming

Scialabba 10 – Nadia is from the Natural Resources Management and Environment Department, Food and Agriculture Organization of the United Nations (FAO). (“Organic agriculture and climate change”, February 2, 2010, Renewable Agriculture and Food Systems 25.2, <http://www.fao.org/docs/eims/upload/275960/al185e.pdf>, Callahan)

Organic agricultural systems have an inherent potential to both reduce GHG emissions and to enhance carbon sequestration in the soil (Table 1). An important potential contribution of organically managed systems is the careful management of nutrients, and hence the reduction of N2 O emissions from soils, which are the most relevant single source of direct GHG emissions from agriculture. More research is needed to quantify and improve the effects of organic paddy rice production and to develop strategies to reduce methane emissions from enteric fermentation (e.g., by promoting double-use breeds). Indirect GHG emissions are reduced in organic systems by avoidance of mineral fertilizers. With the current organic consumers’ demand, further emission reductions are expected when organic standards include speciﬁc climate standards that consider, inter alia, reduced energy consumption in the organic food chain (e.g., limitations on greenhouse heating/cooling, processing and packaging, food miles combined with life cycle assessment). The advantage of organic systems is that they are driven by aware consumers and that they already carry a guarantee system of veriﬁcation and labeling which is consonant with climate labeling113 . The highest mitigation potential of organic agriculture lies in carbon sequestration in soils and in reduced clearing of primary ecosystems. The total amount of mitigation is difﬁcult to quantify, because it is highly dependent on local environmental conditions and management practices. Should all agricultural systems be managed organically, the omission of mineral fertilizer production and application is estimated to reduce the agricultural GHG emissions by about 20% — 10% caused by reduced N2 O emissions and about 10% by lower energy demand. These avoided emissions are supplemented by an emission compensation potential through carbon sequestration in croplands and grasslands of about 40–72% of the current annual agricultural GHG emissions76. However, further research is needed to conﬁrm these ﬁgures, as long-term scientiﬁc studies are limited and do not apply to different kinds of soils, climates and practices. To date, most of the research on the mitigation potential of agricultural practices has been carried out in developed countries; dedicated investigations are needed to assess and understand the mitigation potential in tropical and subtropical areas and under the predominant management practices of developing countries. More importantly, the adaptation aspects of organic agricultural practices must be the focus of public policies and research. One of the main effects of climate change is an increase of uncertainties, both for weather events and global food markets. Organic agriculture has a strong potential for building resilience in the face of climate variability (Table 2). The total abstention from synthetic inputs in organic agriculture has been a strong incentive to develop agricultural management practices that optimize the natural production potential of speciﬁc agro-ecosystems, based on traditional knowledge and modern research. These strategies can be used to enhance agricultural communities that have no access to purchased inputs, which is the case of the majority of the rural poor. The main organic strategies are diversiﬁcation and an increase of soil organic matter, which both could enhance resilience against extreme weather events and are recommended by the IPCC. These strategies have, in particular, a high potential to enhance the productivity of degraded soils, especially in marginal areas, while enhancing soil carbon sequestration. The adaptive approach inherent to organic agriculture offers simultaneous climate mitigation beneﬁts. Finally, certiﬁed organic products cater for higher income options for producers and hence a market-based incentive for environmental stewardship. The scaling-up of organic agriculture would promote and support climatefriendly farming practices worldwide. However, investments in research and development of organic agriculture are needed to better unlock its potential and application on a large scale.

#### Warming leads to extinction, feedbacks are positive, and now is key

**Morgan 09 –** Professor of Current Affairs @ Hankuk University of Foreign Studies, South Korea(Dennis Ray, “World on fire: two scenarios of the destruction of human civilization and possible extinction of the human race”, Futures, Volume 41, Issue 10, December 2009, Pages 683-693, ScienceDirect)

As horrifying as the scenario of human extinction by sudden, fast-burning nuclear fire may seem, the one consolation is that this future can be avoided within a relatively short period of time if responsible world leaders change Cold War thinking to move away from aggressive wars over natural resources and towards the eventual dismantlement of most if not all nuclear weapons. On the other hand, another scenario of human extinction by fire is one that may not so easily be reversed within a short period of time because it is not a fast-burning fire; rather, a slow burning fire is gradually heating up the planet as industrial civilization progresses and develops globally. This gradual process and course is long-lasting; thus it cannot easily be changed, even if responsible world leaders change their thinking about ‘‘progress’’ and industrial development based on the burning of fossil fuels. The way that global warming will impact humanity in the future has often been depicted through the analogy of the proverbial frog in a pot of water who does not realize that the temperature of the water is gradually rising. Instead of trying to escape, the frog tries to adjust to the gradual temperature change; finally, the heat of the water sneaks up on it until it is debilitated. Though it finally realizes its predicament and attempts to escape, it is too late; its feeble attempt is to no avail— and the frog dies. Whether this fable can actually be applied to frogs in heated water or not is irrelevant; it still serves as a comparable scenario of how the slow burning fire of global warming may eventually lead to a runaway condition and take humanity by surprise. Unfortunately, by the time the politicians finally all agree with the scientific consensus that global warming is indeed human caused, its development could be too advanced to arrest; the poor frog has become too weak and enfeebled to get himself out of hot water. The Intergovernmental Panel of Climate Change (IPCC) was established in 1988 by the WorldMeteorological Organization (WMO) and the United Nations Environmental Programme to ‘‘assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of humaninduced climate change, its potential impacts and options for adaptation and mitigation.’’[16]. Since then, it has given assessments and reports every six or seven years. Thus far, it has given four assessments.13 With all prior assessments came attacks fromsome parts of the scientific community, especially by industry scientists, to attempt to prove that the theory had no basis in planetary history and present-day reality; nevertheless, as more andmore research continually provided concrete and empirical evidence to confirm the global warming hypothesis, that it is indeed human-caused, mostly due to the burning of fossil fuels, the scientific consensus grew stronger that human induced global warming is verifiable. As a matter of fact, according to Bill McKibben [17], 12 years of ‘‘impressive scientific research’’ strongly confirms the 1995 report ‘‘that humans had grown so large in numbers and especially in appetite for energy that they were now damaging the most basic of the earth’s systems—the balance between incoming and outgoing solar energy’’; ‘‘. . . their findings have essentially been complementary to the 1995 report – a constant strengthening of the simple basic truth that humans were burning too much fossil fuel.’’ [17]. Indeed, 12 years later, the 2007 report not only confirms global warming, with a stronger scientific consensus that the slow burn is ‘‘very likely’’ human caused, but it also finds that the ‘‘amount of carbon in the atmosphere is now increasing at a faster rate even than before’’ and the temperature increases would be ‘‘considerably higher than they have been so far were it not for the blanket of soot and other pollution that is temporarily helping to cool the planet.’’ [17]. Furthermore, almost ‘‘everything frozen on earth is melting. Heavy rainfalls are becoming more common since the air is warmer and therefore holds more water than cold air, and ‘cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent.’’ [17]. Unless drastic action is taken soon, the average global temperature is predicted to rise about 5 degrees this century, but it could rise as much as 8 degrees. As has already been evidenced in recent years, the rise in global temperature is melting the Arctic sheets. This runaway polar melting will inflict great damage upon coastal areas, which could be much greater than what has been previously forecasted. However, what is missing in the IPCC report, as dire as it may seem, is sufficient emphasis on the less likely but still plausible worst case scenarios, which could prove to have the most devastating, catastrophic consequences for the long-term future of human civilization. In other words, the IPCC report places too much emphasis on a linear progression that does not take sufficient account of the dynamics of systems theory, which leads to a fundamentally different premise regarding the relationship between industrial civilization and nature. As a matter of fact, as early as the 1950s, Hannah Arendt [18] observed this radical shift of emphasis in the human-nature relationship, which starkly contrasts with previous times because the very distinction between nature and man as ‘‘Homo faber’’ has become blurred, as man no longer merely takes from nature what is needed for fabrication; instead, he now acts into nature to augment and transform natural processes, which are then directed into the evolution of human civilization itself such that we become a part of the very processes that we make. The more human civilization becomes an integral part of this dynamic system, the more difficult it becomes to extricate ourselves from it. As Arendt pointed out, this dynamism is dangerous because of its unpredictability. Acting into nature to transform natural processes brings about an . . . endless new change of happenings whose eventual outcome the actor is entirely incapable of knowing or controlling beforehand. The moment we started natural processes of our own - and the splitting of the atom is precisely such a man-made natural process -we not only increased our power over nature, or became more aggressive in our dealings with the given forces of the earth, but for the first time have taken nature into the human world as such and obliterated the defensive boundaries between natural elements and the human artifice by which all previous civilizations were hedged in’’ [18]. So, in as much as we act into nature, we carry our own unpredictability into our world; thus, Nature can no longer be thought of as having absolute or iron-clad laws. We no longer know what the laws of nature are because the unpredictability of Nature increases in proportion to the degree by which industrial civilization injects its own processes into it; through selfcreated, dynamic, transformative processes, we carry human unpredictability into the future with a precarious recklessness that may indeed end in human catastrophe or extinction, for elemental forces that we have yet to understand may be unleashed upon us by the very environment that we experiment with. Nature may yet have her revenge and the last word, as the Earth and its delicate ecosystems, environment, and atmosphere reach a tipping point, which could turn out to be a point of no return. This is exactly the conclusion reached by the scientist, inventor, and author, James Lovelock. The creator of the wellknown yet controversial Gaia Theory, Lovelock has recently written that it may be already too late for humanity to change course since climate centers around the world, . . . which are the equivalent of the pathology lab of a hospital, have reported the Earth’s physical condition, and the climate specialists see it as seriously ill, and soon to pass into a morbid fever that may last as long as 100,000 years. I have to tell you, as members of the Earth’s family and an intimate part of it, that you and especially civilisation are in grave danger. It was ill luck that we started polluting at a time when the sun is too hot for comfort. We have given Gaia a fever and soon her condition will worsen to a state like a coma. She has been there before and recovered, but it took more than 100,000 years. We are responsible and will suffer the consequences: as the century progresses, the temperature will rise 8 degrees centigrade in temperate regions and 5 degrees in the tropics. Much of the tropical land mass will become scrub and desert, and will no longer serve for regulation; this adds to the 40 per cent of the Earth’s surface we have depleted to feed ourselves. . . . Curiously, aerosol pollution of the northern hemisphere reduces global warming by reflecting sunlight back to space. This ‘global dimming’ is transient and could disappear in a few days like the smoke that it is, leaving us fully exposed to the heat of the global greenhouse. We are in a fool’s climate, accidentally kept cool by smoke, and before this century is over billions of us will die and the few breeding pairs of people that survive will be in the Arctic where the climate remains tolerable. [19] Moreover, Lovelock states that the task of trying to correct our course is hopelessly impossible, for we are not in charge. It is foolish and arrogant to think that we can regulate the atmosphere, oceans and land surface in order to maintain the conditions right for life. It is as impossible as trying to regulate your own temperature and the composition of your blood, for those with ‘‘failing kidneys know the never-ending daily difficulty of adjusting water, salt and protein intake. The technological fix of dialysis helps, but is no replacement for living healthy kidneys’’ [19]. Lovelock concludes his analysis on the fate of human civilization and Gaia by saying that we will do ‘‘our best to survive, but sadly I cannot see the United States or the emerging economies of China and India cutting back in time, and they are the main source of emissions. The worst will happen and survivors will have to adapt to a hell of a climate’’ [19]. Lovelock’s forecast for climate change is based on a systems dynamics analysis of the interaction between humancreated processes and natural processes. It is a multidimensional model that appropriately reflects the dynamism of industrial civilization responsible for climate change. For one thing, it takes into account positive feedback loops that lead to ‘‘runaway’’ conditions. This mode of analysis is consistent  with recent research on how ecosystems suddenly disappear. A 2001 article in Nature, based on a scientific study by an international consortium, reported that changes in ecosystems are not just gradual but are often sudden and catastrophic [20]. Thus, a scientific consensus is emerging (after repeated studies of ecological change) that ‘‘stressed ecosystems, given the right nudge, are capable of slipping rapidly from a seemingly steady state to something entirely different,’’ according to Stephen Carpenter, a limnologist at the University of Wisconsin-Madison (who is also a co-author of the report). Carpenter continues, ‘‘We realize that there is a common pattern we’re seeing in ecosystems around the world, . . . Gradual **changes in vulnerability accumulate and** eventually **you get a shock** to the system - a flood or a drought - and, boom, you’re over into another regime. It becomes a self-sustaining collapse.’’ [20]. If ecosystems are in fact mini-models of the system of the Earth, as Lovelock maintains, then we can expect the same kind of behavior. As Jonathon Foley, a UW-Madison climatologist and another co-author of the Nature report, puts it, ‘‘Nature isn’t linear. Sometimes you can push on a system and push on a system and, finally, you have the straw that breaks the camel’s back.’’ Also, once the ‘‘flip’’ occurs, as Foley maintains, then the catastrophic change is ‘‘irreversible.’’ [20]. When we expand this analysis of ecosystems to the Earth itself, it’s frightening. What could be the final push on a stressed system that could ‘‘break the camel’s back?’’ Recently, another factor has been discovered in some areas of the arctic regions, which will surely compound the problem of global ‘‘heating’’ (as Lovelock calls it) in unpredictable and perhaps catastrophic ways. This disturbing development, also reported in Nature, concerns the permafrost that has locked up who knows how many tons of the greenhouse gasses, methane and carbon dioxide. Scientists are particularly worried about permafrost because, as it thaws, it releases these gases into the atmosphere, thus, contributing and accelerating global heating. It is a vicious positive feedback loop that compounds the prognosis of global warming in ways that could very well prove to be the tipping point of no return. Seth Borenstein of the Associated Press describes this disturbing positive feedback loop of permafrost greenhouse gasses, as when warming ‘‘. already under way thaws permafrost, soil that has been continuously frozen for thousands of years. Thawed permafrost releases methane and carbon dioxide. Those gases reach the atmosphere and help trap heat on Earth in the greenhouse effect. The trapped heat thaws more permafrost and so on.’’ [21]. The significance and severity of this problem cannot be understated since scientists have discovered that ‘‘the amount of carbon trapped in this type of permafrost called ‘‘yedoma’’ is much more prevalent than originally thought and may be 100 times [my emphasis] the amount of carbon released into the air each year by the burning of fossil fuels’’ [21]. Of course, it won’t come out all at once, at least by time as we commonly reckon it, but in terms of geological time, the ‘‘several decades’’ that scientists say it will probably take to come out can just as well be considered ‘‘all at once.’’ Surely, within the next 100 years, much of the world we live in will be quite hot and may be unlivable, as Lovelock has predicted. Professor Ted Schuur, a professor of ecosystem ecology at the University of Florida and co-author of the study that appeared in Science, describes it as a ‘‘slow motion time bomb.’’ [21]. Permafrost under lakes will be released as methane while that which is under dry ground will be released as carbon dioxide. Scientists aren’t sure which is worse. Whereas methane is a much more powerful agent to trap heat, it only lasts for about 10 years before it dissipates into carbon dioxide or other chemicals. The less powerful heat-trapping agent, carbon dioxide, lasts for 100 years [21]. Both of the greenhouse gasses present in permafrost represent a global dilemma and challenge that compounds the effects of global warming and runaway climate change. The scary thing about it, as one researcher put it, is that there are ‘‘lots of mechanisms that tend to be self-perpetuating and relatively few that tend to shut it off’’ [21].14 In an accompanying AP article, Katey Walters of the University of Alaska at Fairbanks describes the effects as ‘‘huge’’ and, unless we have a ‘‘major cooling,’’ - unstoppable [22]. Also, there’s so much more that has not even been discovered yet, she writes: ‘‘It’s coming out a lot and there’s a lot more to come out.’’ [22]. 4. Is it the end of human civilization and possible extinction of humankind? What Jonathon Schell wrote concerning death by the fire of nuclear holocaust also applies to the slow burning death of global warming: Once we learn that a holocaust might lead to extinction,we have no right to gamble, because if we lose, the game will be over, and neither we nor anyone else will ever get another chance. Therefore, although, scientifically speaking, there is all the difference in the world between the mere possibility that a holocaust will bring about extinction and the certainty of it, morally they are the same, and we have no choice but to address the issue of nuclear weapons as though we knew for a certainty that their use would put an end to our species [23].15 When we consider that beyond the horror of nuclear war, another horror is set into motion to interact with the subsequent nuclear winter to produce a poisonous and super heated planet, the chances of human survival seem even smaller. Who knows, even if some small remnant does manage to survive, what the poisonous environmental conditions would have on human evolution in the future. A remnant of mutated, sub-human creatures might survive such harsh conditions, but for all purposes, human civilization has been destroyed, and the question concerning human extinction becomes moot. Thus, **we have** no other choice but **to consider the finality of it all**, as Schell does: ‘‘Death lies at the core of each person’s private existence, but part of death’s meaning is to be found in the fact that it occurs in a biological and social world that survives.’’ [23].16 But what if the world itself were to perish, Schell asks. Would not it bring about a sort of ‘‘second death’’ – the death of the species – a possibility that the vast majority of the human race is in denial about? Talbot writes in the review of Schell’s book that it is not only the ‘‘death of the species, not just of the earth’s population on doomsday, but of countless unborn generations. They would be spared literal death but would nonetheless be victims . . .’’ [23]. That is the ‘‘second death’’ of humanity – the horrifying, unthinkable prospect that there are no prospects – that there will be no future. In the second chapter of Schell’s book, he writes that since we have not made a positive decision to exterminate ourselves but instead have ‘‘chosen to live on the edge of extinction, periodically lunging toward the abyss only to draw back at the last second, our situation is one of uncertainty and nervous insecurity rather than of absolute hopelessness.’’ [23].17 In other words, the fate of the Earth and its inhabitants has not yet been determined. Yet time is not on our side. Will we relinquish the fire and our use of it to dominate the Earth and each other, or will we continue to gamble with our future at this game of Russian roulette while **time** increasingly **stacks the cards against** our chances of **survival**?

#### Warming’s real and anthropogenic—reject skeptics

Prothero 12 [Donald R. Prothero, Professor of Geology at Occidental College and Lecturer in Geobiology at the California Institute of Technology, 3-1-2012, "How We Know Global Warming is Real and Human Caused," Skeptic, 17.2, EBSCO]

How do we know that global warming is real and primarilyhuman caused? There are numerous lines of evidence that converge toward this conclusion. 1. Carbon Dioxide Increase Carbon dioxide in our atmosphere has increased at an unprecedented rate in the past 200 years. Not one data set collected over a long enough span of time shows otherwise. Mann et al. (1999)compiled the past 900 years' worth of temperature data from tree rings, ice cores, corals, and direct measurements in the past few centuries, and the sudden increase of temperature of the past century stands out like a sore thumb. This famous graph is now known as the "hockey stick" because it is long and straight through most of its length, then bends sharply upward at the end like the blade of a hockey stick. Other graphs show that climate was very stable within a narrow range of variation through the past 1000, 2000, or even 10,000 years since the end of the last Ice Age. There were minor warming events during the Climatic Optimum about 7000 years ago, the Medieval Warm Period, and the slight cooling of the Litde Ice Age in the 1700s and 1800s. But the magnitude and rapidity of the warming represented by the last 200 years is simply unmatched in all of human history. More revealing, the timingof this warming coincides with the Industrial Revolution, when humans first began massive deforestation and released carbon dioxide into the atmosphere by burning an unprecedented amount of coal, gas, and oil. 2. Melting Polar Ice Caps The polar icecaps are thinningand breaking up at an alarming rate. In 2000, my former graduate advisor Malcolm McKenna was one of the first humans to fly over the North Pole in summer time and see no ice, just open water. The Arctic ice cap has been frozen solid for at least the past 3 million years (and maybe longer),[ 4] but now the entire ice sheet is breaking up so fast that by 2030 (and possibly sooner) less than half of the Arctic will be ice covered in the summer.[ 5] As one can see from watching the news, this is an ecological disaster for everything that lives up there, from the polar bears to the seals and walruses to the animals they feed upon, to the 4 million people whose world is melting beneath their feet.The Antarctic is thawing even faster. In February-March 2002, the Larsen B ice shelf -- over 3000 square km (the size of Rhode Island) and 220 m (700 feet) thick -- broke up in just a few months, a story -typical of nearly all the ice shelves in Antarctica. The Larsen Bshelf had survived all the previous ice ages and interglacialwarming episodes over the past 3 million years, and even the warmest periods of the last 10,000 years -- yet it and nearly all theother thick ice sheets on the Arctic, Greenland, and Antarctic arevanishing at a rate never before seen in geologic history. 3. Melting Glaciers Glaciers are all retreating at the highest rates ever documented. Many of those glaciers, along with snow melt, especially in the Himalayas, Andes, Alps, and Sierras, provide most of the freshwater that the populations below the mountains depend upon -- yet this fresh water supply is vanishing. Just think about the percentage of world's population in southern Asia (especially India) that depend on Himalayan snowmelt for their fresh water. The implications are staggering. The permafrost that once remained solidly frozen even in the summer has now thawed, damaging the Inuit villages on the Arctic coast and threatening all our pipelines to the North Slope of Alaska. This is catastrophic not only for life on the permafrost, but as it thaws, the permafrost releases huge amounts of greenhouse gases which are one of the major contributors to global warming. Not only is the ice vanishing, but we have seen record heat waves over and over again, killing thousands of people, as each year joins the list of the hottest years on record. (2010 just topped that list as the hottest year, surpassing the previous record in 2009, and we shall know about 2011 soon enough). Natural animal and plant populations are being devastated all over the globe as their environments change.[ 6] Many animals respond by moving their ranges to formerly cold climates, so now places that once did not have to worry about disease-bearing mosquitoes are infested as the climate warms and allows them to breed further north. 4. Sea Level Rise All that melted ice eventually ends up in the ocean, causing sea levels to rise, as it has many times in the geologic past. At present, the sea level is rising about 3-4 mm per year, more than ten times the rate of 0.1-0.2 mm/year that has occurred over the past 3000 years. Geological data show that the sea level was virtually unchanged over the past 10,000 years since the present interglacial began. A few mm here or there doesn't impress people, until you consider that the rate is accelerating and that most scientists predict sea levels will rise 80-130 cm in just the next century. A sea level rise of 1.3 m (almost 4 feet) would drown many of the world's low-elevation cities, such as Venice and New Orleans, and low-lying countries such as the Netherlands or Bangladesh. A number of tiny island nations such as Vanuatu and the Maldives, which barely poke out above the ocean now, are already vanishing beneath the waves. Eventually their entire population will have to move someplace else.[ 7] Even a small sea level rise might not drown all these areas, but they are much more vulnerable to the large waves of a storm surge (as happened with Hurricane Katrina), which could do much more damage than sea level rise alone. If sea level rose by 6 m (20 feet), most of the world's coastal plains and low-lying areas (such as the Louisiana bayous, Florida, and most of the world's river deltas) would be drowned. Most of the world's population lives in low-elevation coastal cities such as New York, Boston, Philadelphia, Baltimore, Washington, D.C., Miami, and Shanghai. All of those cities would be partially or completely under water with such a sea level rise. If all the glacial ice caps meltedcompletely (as they have several times before during past greenhouse episodes in the geologic past), sea level would rise by 65 m (215 feet)! The entire Mississippi Valley would flood, so you could dock an ocean liner in Cairo, Illinois. Such a sea level rise would drown nearlyevery coastal region under hundreds of feet of water, and inundateNew York City, London and Paris. All that would remain would be the tall landmarks such as the Empire State Building, Big Ben, and the Eiffel Tower. You could tie your boats to these pinnacles, but the rest of these drowned cities would lie deep underwater. Climate Change Critic's Arguments and Scientists' Rebuttals Despite the overwhelming evidence there are many people who remain skeptical. One reason is that they have been fed distortions and misstatements by the global warming denialists who cloud or confuse the issue. Let's examine some of these claims in detail: \* "It's just natural climatic variability." No, it is not. As I detailed in my 2009 book, Greenhouse of the Dinosaurs, geologists and paleoclimatologists know a lot about past greenhouseworlds, and the icehouse planet that has existed for the past 33 million years. We have a good understanding of how and why the Antarctic ice sheet first appeared at that time, and how the Arctic froze over about 3.5 million years ago, beginning the 24 glacial and interglacial episodes of the "Ice Ages" that have occurred since then. We know howvariations in the earth's orbit (the Milankovitch cycles) controlsthe amount of solar radiation the earth receives, triggering the shifts between glacial and interglacial periods. Our current warm interglacial has already lasted 10,000 years, the duration of most previous interglacials, so if it were not for global warming, we would be headed into the next glacial in the next 1000 years or so. Instead, our pumping greenhouse gases into our atmosphere after they were long trapped in the earth's crust has pushed the planet into a "super-interglacial," already warmer than any previous warming period. We can see the "big picture" of climate variabilitymost clearly in ice cores from the EPICA (European Project for Ice Coring in Antarctica), which show the details of the last 650,000 years of glacial-inters glacial cycles (Fig. 2). At no time during any previous interglacial did the carbon dioxide levels exceed 300 ppm, even at their very warmest. Our atmospheric carbon dioxide levels are already close to 400 ppm today. The atmosphere is headed to 600 ppm within a few decades, even if we stopped releasing greenhouse gases immediately. This is decidedly not within the normal range of "climatic variability," but clearly unprecedented in human history. Anyone who says this is "normal variability" has never seen the huge amount of paleoclimatic data that show otherwise. \* "It's just another warming episode, like the Medieval Warm Period, or the Holocene Climatic Optimum or the end of the Little Ice Age."Untrue. There were numerous small fluctuations of warming and cooling over the last 10,000 years of the Holocene. But in the case of the Medieval Warm Period (about 950-1250 A.D.), the temperatures increased only 1°C, much less than we have seen in the current episode of global warming (Fig. 1). This episode was also only a local warming in the North Atlantic and northern Europe. Global temperatures over this interval did not warm at all, and actually cooled by more than 1°C. Likewise, the warmest period of the last 10,000 years was the Holocene Climatic Optimum ( 5,000-9,000 B.C.E.) when warmer and wetter conditions in Eurasia contributed to the rise of the first great civilizations in Egypt, Mesopotamia, the Indus Valley, and China. This was largely a Northern Hemisphere-Eurasian phenomenon, with 2-3°C warming in the Arctic and northern Europe. But there was almost no warming in the tropics, and cooling or no change in the Southern Hemisphere.[ 8] From a Eurocentric viewpoint, these warming events seemed important, but on a global scale the effect was negligible. In addition, neither of these warming episodes is related to increasing greenhouse gases. The Holocene Climatic Optimum, in fact, is predicted by the Milankovitch cycles, since at that time the axial tilt of the earth was 24°, its steepest value, meaning the Northern Hemisphere got more solar radiation than normal -- but the Southern Hemisphere less, so the two balanced. By contrast, not only is the warming observed in the last 200 years much greater than during these previous episodes, but it is also global and bipolar, so it is not a purely local effect. The warming that ended the Little Ice Age (from the mid-1700s to the late 1800s) was due to increased solar radiation prior to 1940. Since 1940, however, the amount of solar radiation has been dropping, so the only candidate remaining for the post-1940 warming is carbon dioxide.[ 9] "It's just the sun, or cosmic rays, or volcanic activity or methane." Nope, sorry. The amount of heat that the sun provides has been decreasing since 1940,[ 10] just the opposite of the critics' claims (Fig. 3). There is no evidence of an increase in cosmic ray particles during the past century.[ 11] Nor is there any clear evidence that large-scale volcanic events(such as the 1815 eruption of Tambora in Indonesia, which changed global climate for about a year) have any long-term effects that would explain 200 years of warming and carbon dioxide increase. Volcanoes erupt only 0.3 billion tonnes of carbon dioxide each year, but humans emit over 29 billion tonnes a year,[ 12] roughly 100 times as much. Clearly, we have a bigger effect. Methane is a more powerfulgreenhouse gas, but there is 200 times more carbon dioxidethan methane, so carbon dioxide is still the most important agent.[ 13]Every other alternative has been looked at and can be ruled out. The only clear-cut relationship is between human-caused carbon dioxide increase and global warming. \* "The climate records since 1995 (or 1998) show cooling." That's simply untrue. The only way to support this argument is to cherry-pick the data.[ 14] Over the short term, there was a slight cooling trend from 1998-2000, but only because 1998 was a record-breaking El Nino year, so the next few years look cooler by comparison (Fig. 4). But since 2002, the overalllong-term trend of warming is unequivocal. All of the 16 hottest years ever recorded on a global scale have occurred in the last 20 years. They are (in order of hottest first): 2010, 2009, 1998, 2005, 2003, 2002, 2004, 2006, 2007, 2001, 1997, 2008, 1995, 1999, 1990, and 2000.[ 15] In other words, every year since 2000 has been on the Top Ten hottest years list. The rest of the top 16 include 1995, 1997, 1998, 1999, and 2000. Only 1996 failed to make the list (because of the short-term cooling mentioned already). \* "We had record snows in the winter of 2009-2010, and also in 2010-2011." So what? This is nothing more than the difference between weather (short-term seasonal changes) and climate (the long-term average of weather over decades and centuries and longer). Our local weather tells us nothing about another continent, or the global average; it is only a local effect, determined by short-term atmospheric and oceano-graphic conditions.[ 16] In fact, warmer global temperatures mean more moisture in the atmosphere, which increases the intensity of normal winter snowstorms. In this particular case, the climate change critics forget that the early winter of November-December 2009 was actually very mild and warm, and then only later in January and February did it get cold and snow heavily. That warm spell in early winter helped bring more moisture into the system, so that when cold weather occurred, the snows were worse. In addition, the snows were unusually heavy only in North America; the rest of the world had different weather, and the global climate was warmer than average. Also, the summer of 2010 was the hottest on record, breaking the previous record set in 2009. \* "Carbon dioxide is good for plants, so the world will be better off." Who do they think they're kidding? The Competitive Enterprise Institute (funded by oil and coal companies and conservative foundations[ 17]) has run a series of shockingly stupid ads concluding with the tag line "Carbon dioxide: they call it pollution, we call it life." Anyone who knows the basic science of earth's atmosphere can spot the gross inaccuracies in this ad.[ 18] True, plants take in carbon dioxide that animals exhale, as they have for millions of years. But the whole point of the global warming evidence (as shown from ice cores) is that the delicate natural balance of carbon dioxide has been thrown off balance by our production of too much of it, way in excess of what plants or the oceans can handle. As a consequence, the oceans are warming[ 19, 20] and absorbing excess carbon dioxide making them more acidic. Already we are seeing a shocking decline in coral reefs ("bleaching") and extinctions in many marine ecosystems that can't handle too much of a good thing. Meanwhile, humans are busy cutting down huge areas of temperate and tropical forests, which not only means there are fewer plants to absorb the gas, but the slash and burn practices are releasing more carbon dioxide than plants can keep up with. There is much debate as to whether increased carbon dioxide might help agriculture in some parts of the world, but that has to be measured against the fact that other traditional "breadbasket" regions (such as the American Great Plains) are expected to get too hot to be as productive as they are today. The latest research[ 21] actually shows that increased carbon dioxide inhibits the absorption of nitrogen into plants, so plants (at least those that we depend upon today) are not going to flourish in a greenhouse world. It is difficult to know if those who tell the public otherwise are ignorant of basic atmospheric science and global geochemistry, or if they are being cynically disingenuous. \* "I agree that climate is changing, but I'm skeptical that humans are the main cause, so we shouldn't do anything." This is just fence sitting. A lot of reasonable skeptics deplore the right wing's rejection of the reality of climate change, but still want to be skeptical about the cause. If they want proof, they can examine the huge array of data that points directly to human caused global warming.[ 22] We can directly measure the amount of carbon dioxide humans are producing, and it tracks exactly with the amount of increase in atmospheric carbon dioxide. Throughcarbon isotope analysis, we can show that this carbon dioxide in the atmosphere is coming directly from our burning of fossil fuels, not from natural sources. We can also measure the drop in oxygen as it combines with the increased carbon levels to produce carbon dioxide. We have satellites in space that are measuring the heat released from the planet and can actually see the atmosphere getting warmer. The most crucial evidence emerged only within the past few years: climate models of the greenhouse effect predict that there should be cooling in the stratosphere(the upper layer of the atmosphere above 10 km or 6 miles in elevation), but warming in the troposphere (the bottom layer below 10 km or 6 miles), and that's exactly what our space probes havemeasured. Finally, we can rule out any other suspects (see above): solar heat is decreasing since 1940, not increasing, and there are no measurable increases in cosmic rays, methane, volcanic gases, or any other potential cause. Face it -- it's our problem. Why Do People Continue to Question the Reality of Climate Change? Thanks to all the noise and confusion over climate change, the general public has only a vague idea of what the debate is really about, and only about half of Americans think global warming is real or that we are to blame.[ 23] As in the evolution/creationism debate, the scientific community is virtually unanimous on what the data demonstrate about anthropogenic global warming. This has been true for over a decade. When science historian Naomi Oreskes[ 24] surveyed all peer-reviewed papers on climate change published between 1993 and 2003 in the world's leading scientific journal, Science, she found that there were 980 supporting the idea of human-induced global warming and none opposing it. In 2009, Doran and Kendall Zimmerman[ 25] surveyed all the climate scientists who were familiar with the data. They found that 95-99% agreed that global warming is real and human caused. In 2010, the prestigious Proceedings of the National Academy of Sciences published a study that showed that 98% of the scientists who actually do research in climate change are in agreement over anthropogenic global warming.[ 26] Every major scientific organization in the world has endorsed the conclusion of anthropogenic climate change as well. This is a rare degree of agreement within such an independent and cantankerous group as the world's top scientists. This is the same degree of scientificconsensus that scientists have achieved over most major ideas, including **gravity, evolution**, and **relativity**. These and only a few other topics in science can claim this degree of agreement among nearly all the world's leading scientists, especially among everyone who is close to the scientific data and knows the problem intimately. If it were not such a controversial topic politically, there would be almost no interest in debating it since the evidence is so clear-cut. If the climate science community speaks with one voice (as in the 2007 IPCC report, and every report since then), why is there still any debate at all? The answer has been revealed by a number of investigations by diligent reporters who got past the PR machinery denying global warming, and uncovered the money trail. Originally, there were no real "dissenters" to the idea of global warming by scientists who are actually involved with climate research. Instead, the forces with vested interests in denying global climate change (the energy companies, and the "free-market" advocates) followed the strategy of tobacco companies: create a smokescreen of confusion and prevent the American public from recognizing scientific consensus. As the famous memo[ 27] from the tobacco lobbyists said "Doubt is our product." The denialists generated an anti-science movement entirely out of thin air and PR. The evidence for this PR conspiracy has been well documented in numerous sources. For example, Oreskes and Conway revealed from memos leaked to the press that in April 1998 the right-wing Marshall Institute, SEPP (Fred Seitz's lobby that aids tobacco companies and polluters), and ExxonMobil, met in secret at the American Petroleum Institute's headquarters in Washington, D.C. There they planned a $20 millioncampaign to get "respected scientists" to cast doubt on climate change, get major PR efforts going, and lobby Congress that global warming isn't real and is not a threat. The right-wing institutes and the energy lobby beat the bushes to find scientists -- any scientists -- who might disagree with the scientific consensus. As investigative journalists and scientists have documented over and over again,[ 28] the denialist conspiracy essentially paid for the testimony of anyone who could be useful to them. The day that the 2007 IPCC report was released (Feb. 2, 2007), the British newspaper The Guardian reported that the conservative AmericanEnterprise Institute (funded largely by oil companies and conservative think tanks) had offered $10,000 plus travelexpenses to scientists who would write negatively about the IPCC report.[ 29] In February 2012, leaks of documents from the denialist Heartland Institute revealed that they were trying to influence science education, suppress the work of scientists, and had paid off many prominent climate deniers, such as Anthony Watts, all in an effort to circumvent the scientific consensus by doing an "end run" of PR and political pressure. Other leaks have shown 9 out of 10 major climate deniers are paid by ExxonMobil.[ 30] We are accustomed to hired-gun "experts" paid by lawyers to muddy up the evidence in the case they are fighting, but this is extraordinary -- buying scientists outright to act as shills for organizations trying to deny scientific reality. With this kind of money, however, you can always find a fringe scientist or crank or someone with no relevant credentials who will do what they're paid to do. Fishing around to find anyone with some science background who will agree with you and dispute a scientific consensus is a tactic employed by the creationists to sound "scientific". The NCSE created a satirical "Project Steve,"[ 31] which demonstrated that there were more scientists who accept evolution named "Steve" than the total number of "scientists who dispute evolution". It may generate lots of PR and a smokescreen to confuse the public, but it doesn't change the fact that scientists who actually do research in climate change are unanimous in their insistence that anthropogenic global warming is a real threat. Mostscientists I know and respect work very hard for little pay, yet they still cannot be paid to endorse some scientific idea they know to be false. The climate deniers have a lot of other things in common with creationists and other anti-science movements. They too like to quote someone out of context ("quote mining"), finding a short phrase in the work of legitimate scientists that seems to support their position. But when you read the full quote in context, it is obvious that they have used the quote inappropriately. The original author meant something that does not support their goals. The "Climategate scandal" is a classic case of this. It started with a few stolen emails from the Climate Research Unit of the University of East Anglia. If you read the complete text of the actual emails[ 32] and comprehend the scientific shorthand of climate scientists who are talking casually to each other, it is clear that there was no great "conspiracy" or that they were faking data. All six subsequent investigations have cleared Philip Jones and the other scientists of the University of East Anglia of any wrongdoing or conspiracy.[ 33] Even if there had been some conspiracy on the part of these few scientists, there is no reason to believe that the entire climate science community is secretly working together to generate false information and mislead the public. If there's one thing that is clear about science, it's about competition and criticism, not conspiracy and collusion. Mostlabs are competing with each other, not conspiring together. If one lab publishes a result that is not clearly defensible, other labs will quickly correct it. As James Lawrence Powell wrote: Scientists…show no evidence of being more interested in politics or ideology than the average American. Does it make sense to believe that tens of thousands of scientists would be so deeply and secretly committed to bringing down capitalism and the American way of life that they would spend years beyond their undergraduate degrees working to receive master's and Ph.D. degrees, then go to work in a government laboratory or university, plying the deep oceans, forbidding deserts, icy poles, and torrid jungles, all for far less money than they could have made in industry, all the while biding their time like a Russian sleeper agent in an old spy novel? Scientists tend to be independent and resist authority. That is why you are apt to find them in the laboratory or in the field, as far as possible from the prying eyes of a supervisor. Anyone who believes he could organize thousands of scientists into a conspiracy has never attended a single faculty meeting.[ 34] There are many more traits that the climate deniers share with the creationists and Holocaust deniers and others who distort the truth. They pick on small disagreements between different labs as if scientists can't get their story straight, when in reality there is always a fair amount of give and take between competing labs as they try to get the answer right before the other lab can do so. The key point here is that when all these competing labs around the world have reached a consensus and get the same answer, there is no longer any reason to doubt their common conclusion. The anti-scientists of climate denialism will also point to small errors by individuals in an effort to argue that the entire enterprise cannot be trusted. It is true that scientists are human, and do make mistakes, but the great power of the scientific method is that peer review weeds these out, so that when scientists speak with consensus, there is no doubt that their data are checked carefully Finally, a powerful line of evidence that this is a purely political controversy, rather than a scientific debate, is that the membership lists of the creationists and the climate deniers are highly overlapping. Both anti-scientific dogmas are fed to their overlapping audiences through right-wing media such as Fox News, Glenn Beck, and Rush Limbaugh. Just take a look at the "intelligent-design" cre-ationism website for the Discovery Institute. Most of the daily news items lately have nothing to do with creationism at all, but are focused on climate denial and other right-wing causes.[ 35] If the data about global climate change are indeed valid and robust, any qualified scientist should be able to look at them and see if the prevailing scientific interpretation holds up. Indeed, such a test took place. Starting in 2010, a group led by U.C. Berkeley physicist Richard Muller re-examined all the temperature data from the NOAA, East Anglia Hadley Climate Research Unit, and the Goddard Institute of Space Science sources. Even though Muller started out as a skeptic of the temperature data, and was funded by the Koch brothers and other oil company sources, he carefully checked and re-checkedthe research himself. When the GOP leaders called him to testify before the House Science and Technology Committee in spring 2011, they were expecting him to discredit the temperature data. Instead,Muller shocked his GOP sponsors by demonstrating his scientific integrity and telling the truth: the temperature increase is real, and the scientists who have demonstrated that the climate is changing are right (Fig. 5). In the fall of 2011, his study was published, and the conclusions were clear: global warming is real, even to a right-wing skeptical scientist. Unlike the hired-gun scientists who play political games, Muller did what a true scientist should do: if the data go against your biases and preconceptions, then do the right thing and admit it -- even if you've been paid by sponsors who want to discredit global warming. Muller is a shining example of a scientist whose integrity and honesty came first, and did not sell out to the highest bidder.[ 36] \* Science and Anti-Science The conclusion is clear: there's science, and then there's the anti-science of global warming denial. As we have seen, there is a nearly unanimous consensus among climate scientists that anthropogenic global warming is real and that we must do something about it. Yet the smokescreen, bluster and lies of the deniers has created enough doubt so that only half of the American public is convinced the problem requires action. Ironically, the U.S. is almost alone in questioning its scientific reality. International polls taken of 33,000 people in 33 nations in 2006 and 2007 show that 90% of their citizens regard climate change as a serious problem[ 37] and 80% realize that humans are the cause of it.[ 38] Just as in the case of creationism, the U.S. is out of step with much of the rest of the world in accepting scientific reality. It is not just the liberals and environmentalists who are taking climate change seriously. Historically conservative institutions (big corporations such as General Electric and many others such as insurance companies and the military) are already planning on how to deal with global warming. Many of my friends high in the oil companies tell me of the efforts by those companies to get into other forms of energy, because they know that cheap oil will be running out soon and that the effects of burning oil will make their business less popular. BP officially stands for "British Petroleum," but in one of their ad campaigns about 5 years ago, it stood for "Beyond Petroleum."[ 39] Although they still spend relatively little of their total budgets on alternative forms of energy, the oil companies still see the handwriting on the wall about the eventual exhaustion of oil -- and they are acting like any company that wants to survive by getting into a new business when the old one is dying. The Pentagon (normally not a left-wing institution) is also making contingency plans for how to fight wars in an era of global climate change, and analyzing what kinds of strategic threats might occur when climate change alters the kinds of enemies we might be fighting, and water becomes a scarce commodity. The New York Times reported[ 40] that in December 2008, the National Defense University outlined plans for military strategy in a greenhouse world. To the Pentagon, the big issue is global chaos and the potential of even nuclear conflict. The world must "prepare for the inevitable effects of abrupt climate change -- which will likely come [the only question is when] regardless of human activity." Insurance companies have no political axe to grind. If anything, they tend to be on the conservative side. They are simply in the business of assessing risk in a realistic fashion so they can accurately gauge their future insurance policies and what to charge for them. Yet they are all investing heavily in research on the disasters and risks posed by climatic change. In 2005, a study commissioned by the re-insurer Swiss Re said, "Climate change will significantly affect the health of humans and ecosystems and these impacts will have economic consequences."[ 41] Some people may still try to deny scientific reality, but big businesses like oil and insurance and conservative institutions like the military cannot afford to be blinded or deluded by ideology. They must plan for the real world that we will be seeing in the next few decades. They do not want to be caught unprepared and harmed by global climatic change when it threatens their survival. Neither can we as a society.

#### Independently, CO2 emissions cause extinction

Romm 12 (Joe Romm is a Fellow at American Progress and is the editor of Climate Progress, “Science: Ocean Acidifying So Fast It Threatens Humanity’s Ability to Feed Itself,” 3/2/2012, http://thinkprogress.org/romm/2012/03/02/436193/science-ocean-acidifying-so-fast-it-threatens-humanity-ability-to-feed-itself/?utm\_source=feedburner&utm\_medium=email&utm\_campaign=Feed%3A+climateprogre)

The world’s oceans may be turning acidic faster today from human carbon emissions than they did during four major extinctions in the last 300 million years, when natural pulses of carbon sent global temperatures soaring, says a new study in Science. The study is the first of its kind to survey the geologic record for evidence of ocean acidification over this vast time period. “What we’re doing today really stands out,” said lead author Bärbel Hönisch, a paleoceanographer at Columbia University’s Lamont-Doherty Earth Observatory. “We know that life during past ocean acidification events was not wiped out—new species evolved to replace those that died off. But if industrial carbon emissions continue at the current pace, we may lose organisms we care about—coral reefs, oysters, salmon.” Paleoceanographer James Zachos with a core of sediment from some 56 million years ago That’s the news release from a major 21-author Science paper, “The Geological Record of Ocean Acidification” (subs. req’d). We knew from a 2010 Nature Geoscience study that the oceans are now acidifying 10 times faster today than 55 million years ago when a mass extinction of marine species occurred. But this study looked back over 300 million and found that “the unprecedented rapidity of CO2 release currently taking place” has put marine life at risk in a frighteningly unique way: … the current rate of (mainly fossil fuel) CO2 release stands out as capable of driving a combination and magnitude of ocean geochemical changes potentially unparalleled in at least the last ~300 My of Earth history, raising the possibility that we are entering an unknown territory of marine ecosystem change. That is to say, it’s not just that acidifying oceans spell marine biological meltdown “by end of century” as a 2010 Geological Society study put it. We are also warming the ocean and decreasing dissolved oxygen concentration. That is a recipe for mass extinction. A 2009 Nature Geoscience study found that ocean dead zones “devoid of fish and seafood” are poised to expand and “remain for thousands of years.“ And remember, we just learned from a 2012 new Nature Climate Change study that carbon dioxide is “driving fish crazy” and threatening their survival. Here’s more on the new study: The oceans act like a sponge to draw down excess carbon dioxide from the air; the gas reacts with seawater to form carbonic acid, which over time is neutralized by fossil carbonate shells on the seafloor. But if CO2 goes into the oceans too quickly, it can deplete the carbonate ions that corals, mollusks and some plankton need for reef and shell-building.

### Plan Text

#### Plan: The United States federal government should normalize its trade relations with the Republic of Cuba.