NORTHERN ILLINOIS UNIVERSITY

Global Warming & the Human Effect

A Thesis Submitted to the
University Honors Program
In Partial Fulfillment of the
Requirements of the Baccalaureate Degree

With University Honors

Department of
Anthropology

By:

Crystal Kirsch

DeKalb, Illinois

December 16, 2007
Capstone Approval

Capstone Title:

Global Warming & the Human Effect

Student Name:

Crystal Lynn Kirsch

Faculty Supervisor:

Dr. Kendall Thu

Faculty Approval Signature:

[Signature]

Department of:

Anthropology

Date of Approval:

12-18-07
Global warming is a priority environmental issue as well as a significant anthropological issue for all of humankind. Due to the continued and severe increase of warming of the world's atmosphere, it is important to examine the key issues that have and are affecting the warming trend and to take action against them. By studying the human involvement in global warming, the world can more easily identify where the issues lie in people's lifestyles and begin affecting changes in small-scale community levels and advancing to large-scale national levels.
Global Warming & the Human Effect
Table of Contents

Abstract........................................................................................................................................2
Research in Environmental Anthropology & Political Ecology ..............................................2
Introduction to Global Warming ............................................................................................... 3
History of the Earth’s Temperature .........................................................................................4
What are Greenhouse Gases? ................................................................................................ 6
The Industrial Revolution & Their Effects on the Earth .......................................................7
Changes in the World’s Temperature & the Reaction of the Nations .................................8
Effects on the World’s Ozone Layer .....................................................................................10
Illinois’ Changes to Stop Global Warming.............................................................................11
Thirteen Key Policy Strategies for a Greener Illinois............................................................13
Conclusion................................................................................................................................ 19
Bibliography..............................................................................................................................21
Abstract

Global warming is a priority environmental issue as well as a significant anthropological issue for all of humankind. Due to the continued and severe increase of warming of the world’s atmosphere, it is important to examine the key issues that have and are affecting the warming trend and to take action against them. By studying the human involvement in global warming, the world can more easily identify where the issues lie in people’s lifestyles and begin affecting changes in small-scale community levels and advancing to large-scale national levels.

Research in Environmental Anthropology & Political Ecology

Dr. Carothers at the University of Washington defined environmental anthropology as the study “of human-environment interactions over time and across cultures” and Dr. Smith at Oregon State University defined political ecology as “a theoretical focus that attempts to understand distributional factors in human interaction with the environment” (2007). Global warming is not only a result of the interaction between man and environment but is also something that affects all cultures around the world as it gradually worsens over time. This research was based on defining global warming, how humans have contributed to it, describing how the ozone layer was being affected by it, what the state of Illinois has done to affect changes, and how American citizens could change their everyday practices in order to reduce polluting emissions. This process was taken with the purpose of informing the reader what global warming was and how to accurately define how humans are believed to have affected this climate shift.

Using Steward’s definition of Culture Core, we see that the “concept of environment adaptation underlies all cultural ecology” (Thu 2007):
- *Primary* – interrelationship of exploitative or productive technology and environment
- *Secondary* – behavior patterns involved in using exploitative technology
- *Tertiary* – other aspects of culture – religions, myth, music, literature, etc.

Basically, countries will use their environment in ways that will advance their culture, but there is little to no consideration of the environment itself when they take away those resources, at least not in the larger scale. Resources are used everyday, but it isn’t always taken into account that those resources may eventually disappear.

**Introduction to Global Warming**

Despite the vast amount of attention given to the topic over the last several decades, global warming is actually not a new occurrence within the Earth. The world naturally stabilizes itself by initiating ice ages in between the warming peaks – or interglacial periods – at regular intervals of about 100,000 years and sometimes with smaller ice ages occurring in between (Hieb 2007). Some of the events that take place to advance these warming peaks are “variations in solar output, major volcanic eruptions, and natural, sometimes cyclic, interactions between the atmosphere and oceans,” and are known as naturally occurring factors that contribute to the warming of the world (ACIA 2004). The foundation of global warming’s definition describes the process as the “increase in the earth’s atmospheric and oceanic temperatures,” and barring the past few centuries, this has been a naturally occurring and timed event the world naturally adheres to (Merriam 2007).

The phenomenon of the global warming and ice age balancing act keeps the world’s temperature evened out. The Earth is currently in a period between the two events that makes the world livable for its current human, animal and plant inhabitants; however, this time could be referred to as a vacation period since the temperatures will have to come to a point of becoming too warm, evening out and restarting the process again. While this process is normal for the
Earth to undergo, scientists have studied the rapid increase of the world's temperature and now believe that more than just the natural factors have added to the process of warming. The problem at hand is no longer with the world itself but the world's residents. Understanding the human interaction with global warming the original definition expands to include that the temperature change is "widely predicted to occur due to an increase in the greenhouse effect resulting especially from pollution" (Merriam 2007).

The first examination of this event will be to observe how the world naturally fell into the balancing act of warming and cooling the planet before human involvement and before the advent of the Industrial Revolution. Secondly, the period between the mid 19th century until today's current environmental state and how inventions, technology and greenhouse gas emissions have changed the world and simultaneously the world's temperature. Thirdly, the affects of CO₂ emissions and other greenhouse gases are of significant importance to how the world's ozone layer has been rapidly depleted. After examining what the problems are that the world and its multiple environments are facing, many environmental organizations and agencies in Illinois have stepped up to the call of changing the wasteful ways of the country. Finally, learn how the average American citizen can help the rest of the world by altering their wasteful habits in small ways to become more environmentally friendly and therefore shifting the future of the world.

History of the Earth's Temperature

Since there are no official records of temperature changes before the age of the Industrial Revolution (and prior to the major increase of unnatural manmade carbon dioxide emissions) conclusive data is rare to come by in identifying how far off the world temperature currently is from where it should be had there been no human interaction. The information that can be
tracked is mostly found in ice core studies retrieved from Polar Regions that can reveal “an annual record of temperature, precipitation, atmospheric composition, volcanic activity, and wind patterns” as well as the build up of carbon dioxide (Riebeek 2005). These ice cores can work as a timeline that reveals how past temperature and climate records were made without the assistance of human documentation. Scientists are able to identify the environmental conditions of the world as many as 750,000 years ago by studying specific features available in the ice as described below (Riebeek 2005):

As the snow settles on the ice, air fills the space between the ice crystals. When the snow gets packed down by subsequent layers, the space between the crystals is eventually sealed off, trapping a small sample of the atmosphere in newly formed ice. These bubbles tell scientists what gases were in the atmosphere, and based on the bubble’s location in the ice core, what the climate was at the time it was sealed.

These ice cores open up a window to the past that is virtually absent of the human error that could occur by those who simply wrote down the information in the past.

Ice cores are essentially the only way for scientists to retrieve accurate information on greenhouse gases and their influence on past climates. Figure one illustrates “atmospheric carbon dioxide concentration and temperature change observed during the past 160 thousand years” from ice cores collected from Antarctica (WJU 2004). By using these ice cores, scientists are able to obtain information from cores -- such as these -- that recorded hundreds of thousands of year’s worth of climatic history. Although no concrete evidence has been found to identify why the carbon dioxide levels fluctuated, most scientists

---

Figure 1: Atmospheric Carbon Dioxide Concentrations & Temperature Change
agree that the change in the CO₂ levels is attributed to the climate changes found in the cores. The study showed that the cores identified a “cause-and-effect relationship between carbon dioxide and climate change” and the “ice cores also revealed that carbon dioxide levels are much higher today than at any time recorded in the past 750,000 years” (Riebeek 2005-2). Data shows that on average, carbon dioxide levels of the past remained around 170 ppm (parts per million) and had advanced to about 290 ppm by the time of the Industrial Revolution (Abelard 2007 & Weart 2007). Today’s carbon dioxide levels are much higher than the latter estimates taken over 150 years ago as will be discussed in the coming sections.

What are Greenhouse Gases?

Before getting into the technology of the Industrial revolution, an understanding of what greenhouse gases entail is the most important factor in understanding how they affect the world. Greenhouse gases are defined as “gases in the atmosphere that trap the sun's energy and thereby contribute to rising surface temperatures” and include both natural and manmade gases (EcoDensity 2007). It is hard to draw the line between what is natural and what is manmade since the Earth produces water vapor, carbon dioxide, methane, and nitrous oxide on its own. However, humans have also contributed to the making of these materials and have been known to emit carbon dioxide, methane and nitrous oxide as well as producing hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), chlorofluorocarbons (CFCs) and sulphur hexafluoride (SF6) (NOAA 2005). Although some of these manmade materials came later into development, the Industrial Revolution was a way to initiate the use of the mostly unexploited natural resources of the world to benefit and advance their way of life. Their uses will be highlighted in the following section.
The Industrial Revolution & Their Effects on the Earth

As the people of the world began to progress in their understanding of the world, they set out to find easier ways to keep themselves comfortable and get things done more quickly; thus the advancement of human technological culture took full-speed. One of the first ways they found to increase their use of natural resources was to initiate the change in the manufacturing of metal from using organic fuels like wood to using fossil fuels such as coal. The high demands for coal then lead to the industry of coal mining. The mining of coal was not only beneficial but proved to be very profitable as the excess water from the mines was able to be used for steam engines. While steam engines had already been invented for over a century, the advancement of coal mining and the use of the water increased their numbers to over a hundred engines built before the Industrial Revolution ever went into full swing.

The steam engines went through many processes of perfecting and eventually lead one man to use the same innovations to introduce gas lighting to the world. “The process consisted of the large scale gasification of coal in furnaces, the purification of the gas (removal of sulphur, ammonium, and heavy hydrocarbons), and its storage and distribution.” The use of gas lighting was a widespread success as it was a cheaper and more efficient way to keep large areas of building and streets lit without the use of oil.

Agriculture also flourished due to the invention of the steam engine when an inventor used the technology to advance the work of plowing and eliminating the excessive need for horse-drawn plows. This technology drastically reduced the cost for farmers using the traditional horse-drawn plows and “made possible the cultivation of previously unusable swampy land.” The use of the steam engine also made life more inexpensive for the majority of other people of

---

1 All information in this section was provided by Wikipedia 2007 (reworded or directly quoted) unless otherwise labeled.
the time as well. “Raw materials and finished products could be moved more quickly and cheaply than before [and] improved transportation also allowed new ideas to spread quickly.” The steam engine also lead to the invention of the steam locomotive which connected large cities and small towns together and increased the populations of the larger cities due to the increased availability of factory work.

Changes in the World’s Temperature & the Reaction of the Nations

These are just a few examples of how the world was advancing its technological culture while simultaneously beginning to destroy its atmospheric future. While the advances in technology were a great way to connect the world and live more comfortably, the increase of “coal, railroads, and land clearing [sped] up greenhouse gas emission, while better agriculture and sanitation [sped] up population growth” leading to a world with too many inhabitants and gas emissions but not enough resources for everyone (Weart 2007). In 1859, John Tyndall discovered infrared radiation can be blocked by gases that could bring about a change in climate, and in 1863, he published work on how water vapor is a greenhouse gas (Weart 2007 & Kasper 2004).

By the mid-1890s Swedish scientist Svante Arrhenius – and lesser known American, P.C. Chamberlain – discovered that the increase burning of fossil fuels and their emissions of CO2 would likely lead to a condition of global warming (Kasper 2004). Over the next few decades, more chemicals and electricity were invented leading to an accelerated population growth and a simultaneous 0.25 °C global temperature increase that lead some scientists to believe “the American Dust Bowl [was] a sign of the greenhouse effect at work” (Weart 2007 & Kasper 2004).

Between the 1940s and 1970s a strange event of global cooling occurs nearly annihilating the 0.25 °C global temperature increase of the previous decades. In 1957, “David Keeling set up [the] first continuous monitoring of CO₂ levels in the atmosphere” and begins to see a regular yearly rise in global temperatures (Kasper 2004). The 1970s welcomed new environmental awareness by ushering in Earth Day and discovered that CFCs and methane make a severe impact on greenhouse gases and the world’s ozone (Weart 2007). By the end of the decade the first conference was held on the world’s climate and that called on governments on how to "foresee and prevent potential man-made changes in climate" (Kasper 2004).

In 1985, global warming was predicted to “cause sea levels to rise by up to a metre,” while also reporting that “gases other than CO₂, such as methane, ozone, CFCs and nitrous oxide, will also contribute to warming” (Kasper 2004). The 80s produced extreme heat waves that generated news headlines around the world and elevated the fear of global warming. The Montreal Protocol was introduced in 1987 in order to reduce chlorofluorocarbons – CFCs – and was signed in 1989 (EIA 2007). In this same year, the U.N. introduced the Intergovernmental Panel on Climate Change – IPCC – to monitor scientific findings on global warming (Kasper 2004).

In 1992, the “United Nations Conference on Environment and Development commenced. It ended with more than 150 nations signing a declaration committing them to reducing carbon dioxide emissions in their countries” – the U.S. was not a part of this convention (Heritage 2007). By 1997, the Kyoto Protocol called for increased cuts in greenhouse gas emissions which President Bill Clinton signed but despite the fact that 125 nations signed to comply “the US Senate refused to ratify it, citing potential damage to the US economy required by compliance” (White 2007).
In 2001, President George W. Bush renounced the protocol and the “Senate also balked at the agreement because it excluded certain developing countries, including India and China, from having to comply with new emissions standards” (White 2007). In 2005, the U.S. witnessed some initial effects of the global warming trend as New Orleans, LA, and other cities are swept away by the winds and water of Hurricane Katrina. 2007 brought the IPCC’s fourth report on climate change and stated the CO$_2$ levels had reached as high as 382 ppm and that the “cost of reducing emissions would be far less than the damage they will cause” (Weart 2007). Finally, in February of this year, “the Intergovernmental Panel on Climate Change (IPCC) reported they’re 90 percent certain that human activity caused most of the observed increase in global average temperatures since the mid-20th century” (Environment Illinois 2007).

Effects on the World’s Ozone Layer

Throughout the Industrial Revolution and the recent past, the people in it were slow to realize and accept the destructive nature they had forced upon it. The world around them was tearing at its seams, and since the culprits of the damage were breaking down so far from the Earth’s surface, no one knew the harm that was being done. The atmosphere that inhabits all living creatures and plants is called the troposphere, and it extends to about 10km high from the Earth’s surface and contains little to no ozone. However, the atmosphere right above it – the stratosphere – extends from the end of the troposphere to about 50km from the Earth’s surface and contains almost all of the Earth’s ozone between 15-30km high (Berkley 2001).

The most important reason to take care of the world’s ozone layer is because it blocks UVB rays that are known to cause “various types of skin cancer, cataracts, and harm to some crops, certain materials, and some forms of marine life” (Berkley 2001). Records of the ozone’s depletion and regeneration have been recorded by scientists and have included times of higher
depletion but in recent times the records have been showing abnormal reductions in ozone that are not believed to be part of natural processes.

As greenhouse gasses are increasingly emitted, the Earth’s ozone breaks down gradually in particular regions all around the world resulting in “holes” in the ozone. If increased amounts of CO$_2$ and other associated items are pushed into the stratosphere “its increasing concentrations may affect many components of the physical climate system, such as wind, precipitation and the exchange of heat and energy between the air and the oceans.” (EPA 2007-2). Although movements like the Montreal Protocol have begun to rid the ozone of CFCs, there is still much to be concerned about as the United Nations Environment Programme (UNEP) reported that “large ozone holes continue to develop in Antarctica... [and] are driven by changes in atmospheric circulation rather than being solely attributable to reductions in ozone-depleting substances, which may indicate a linkage to climate change” (2006).

The UNEP also stated that since climate change and the ozone are often coupled that the world should expect significant changes:

According to recent assessments of climate change, the average rate of surface temperature change over the 21st century is likely to be about 5 times that in the past century. Consequently, unless strong mitigation measures are undertaken with respect to climate change, profound effects on the ecosystem and on the solar UV radiation received at the Earth’s surface could be anticipated.

Simply put, the UNEP, IPCC and other environmental organizations are insistent that more dramatic actions should be taken in order to keep this planet inhabitable.

**Illinois’ Changes to Stop Global Warming**

To apply political ecology to a situation such as the stance on global warming is to view the situation from all positions of those involved or those that should be involved. This is why
political ecology is referred to as the “intersection of global, national, regional and local systems” (Thu 2007-2). In this case, it seems to be easier to make a difference at the state level rather than at the federal level when it comes to environmental issues, so it is important to look at what Illinois is doing to make a change for the good of the environment. However, Illinois hasn’t been helping the environment as much as it should according to a January 2007 report by Environment Illinois’ Research and Education Center. In January of this year, the EIREC stated, “Between 1990 and 2002, carbon dioxide emissions in Illinois increased by...about 17 percent – slightly faster than the rate of increase as the U.S. as a whole,” and it is likely to increase its levels of CO₂ by 12% by 2025. Most of the emission growth in CO₂ levels will come from the transportation and electricity generation portions (as indicated in Figure 2 – EIREC 2007) since they are accountable for the majority of the emissions.

Recently, the Senate passed an “energy bill that included CAFE [Corporate Average Fuel Economy] provisions that mandate that we achieve 35 mpg fleetwide by 2020” (Schreiber 2007). The state of Illinois, alone, would save over 314.3 million gallons in oil annually and over one-billion dollars in savings for the entire state by 2020; this would result in a total emissions reduction of 536,995, making Illinois one of the top 10 states with the largest consumer savings (Schreiber 2007). If Illinois were also to take on the Renewable Energy Policy Project, the state could make almost 50,000 new jobs available to the state through new solar and wind manufacturing power plants (BGA 2007).

This year, Illinois was honored with a Rising Star award by Environment America when it “adopted a renewable electricity standard that calls for the state to receive 25 percent of its electricity from renewable resources by 2025, with 75 percent of that power coming from wind”
Illinois also “joined 13 other states in suing U.S. EPA to compel the agency to act on the states’ petition to implement their own, more protective standards for automobile pollution” on November 8 of this year (Environment Illinois 2007-2). Since Bush has not yet given his approval for the state of California to officially enact the Clean Cars Program, the states “will not be able to take this important step toward cutting global warming pollution from tailpipes” (Environment Illinois 2007-2).

**Thirteen Key Policy Strategies for a Greener Illinois**

Environment Illinois’ Research and Education Center (2007) has recommended 13 ways that the state government could update policies that would help the environment by reducing harmful emissions:

1. **Adopt the Clean Cars Program**

   Originally developed and initiated in California, the Clean Cars Discount program would give consumers “rebates of up to $2,500 on the purchase of clean cars, trucks, and SUVs” (UCS 2007). The amount of money a consumer would save is based on the amount of pollution that is not put off by the vehicle – the less pollution that is put into the air, the higher the rebate will be for the consumer purchasing the vehicle. In California, the reduction of global warming pollutants would be the equivalent of “taking almost 20 million vehicles off the road” (UCS 2007).

2. **Require Energy-Saving Tires**

   Michelin has been telling its customers, “choosing the right tire can have a significant impact on the environment” (ARD 2007). Currently, tire manufacturers are not required to make these energy-saving tires available to the public in retail stores; they are only put on the cars when they are initially sold and not available for purchase in Illinois (EIREC2007). Michelin states, “In 15 years, compared to conventional tires on the road, the 570 million Michelin green energy saving
tires sold worldwide have reduced fuel consumption by an estimated 2.38 billion gallons, resulting in a reduction of CO2 emissions of 25 million tons, the equivalent of the amount absorbed by 880 million trees in one year” (ARD 2007). If Illinois implemented a standard program to be sure that manufacturers made energy-saving tires available for sale as replacement tires, additional millions of tons of CO2 could be saved from hurting the environment.

3 Implement Pay-As-You-Drive Auto Insurance

Currently, a flat annual rate is the most popular type of insurance policy available to drivers; there are a few plans that offer small discounts for those who drive less than 7,500 miles in a year, but for most drivers, it would simply not be feasible to drive that little. A Pay-As-You-Drive (PAYD) insurance policy would encourage drivers to travel fewer miles in a year in order to save more money on their insurance rates, since the rates would be determined by the amount of miles they drive. PAYD insurance systems are currently being tested in Texas and several other types of PAYD programs are being piloted in other states (EIREC 2007).

4 Reduce the No. of Auto Commutes & 5 Reduce Growth in Vehicle Travel Through Smart Growth & Expanded Transportation Choices

“Nationally, about 27 percent of all vehicle miles are traveled on the way to or from work,” and if employers offered alternatives to driving alone to work, emissions from transportation could be significantly cut (EIREC 2007). By providing shuttle services, links between employees that could carpool, parking incentives, or reimbursement programs for those who use public transportation, employers can offer incentives to their employees that save the employee money while simultaneously saving the company money and saving the environment (EIREC 2007). The state should also be encouraged to find ways to reduce transit fares to make rails significantly less expensive and, therefore, more appealing to drivers to cut down their driving and emissions. In this same arena, they should also be encouraged to expand their transit reaches
to suburban areas in order to keep traffic lower on the commutes from their homes to work or
their homes to the nearest rail station (EIREC 2007).

6 Adopt a Renewable Fuels Standard

Products such as ethanol and biodiesel are currently the top alternatives to the nation’s
dependence on fossil fuels that damage the ozone. “Governor Blagojevich recently proposed that
Illinois invest $225 million to help build 20 new ethanol and five new biodiesel facilities,” which
puts Illinois on its way to achieving this goal within the next decade (EIREC 2007).

7 Adopt Strong Residential and Commercial Building Energy Codes

When building codes were initially put into place, they were meant to protect people in terms of
safety of the building, however, new codes such as the International Energy Conservation Code
(IECC) have been used to “reduce the amount of energy wasted in heating, cooling, lighting and
the use of electrical equipment” in commercial and residential buildings (EIREC 2007). While
more than 60 cities and towns in the state have adopted the 2000 or 2003 versions of the code,
Illinois has yet to mandate a state-wide adoption (EIREC 2007).

8 Adopt Strong Appliance Efficiency Standards & 9 Expand Energy Efficiency Programs

If Illinois updated its energy efficiency standards for appliances it could “reduce electricity
demand by 570 gigawatt-hours in 2030, reduce natural gas demand by 30,400 million cubic feet,
and save Illinois more than $3.4 billion over time” (EIREC 2007). An increase in the state’s
general energy efficiency programs would bring significant energy use changes to many larger
buildings in Illinois. Governor Blagojevich’s 2005 Sustainable Energy Plan would provide “up
to 25 percent of projected increases in electricity demand with efficiency by 2015,” but the
EIREC would like to see even higher efficiency practices implemented (2007).

10 Expand Use of Combined Heat and Power

The idea behind expanding the use of combined heat and power (CHP) would be to use energy
that would normally be wasted and unexploited to be used in other areas. Companies that would
normally be giving off this energy with no benefit would have the option to have their business assessed for unused energy and then receive rebates or loans with lower interest for the chance for another area to benefit from the energy that used to be wasted. Since most CHP systems run on fossil fuels, this would also be a way to reduce their global warming pollutants (EIREC 2007).

**Adopt a Renewable Energy Standard**

At present, Illinois has no renewable energy standard (RES) for electricity. An RES requires that “a certain portion of the power delivered by the utilities be from renewable energy sources” (EIREC 2007). Environment Illinois proposes that Illinois should enact a standard of 1.5% renewable energy over the next 12 years in order to raise the renewable energy standard another 1% each additional year. This program would allow Illinois to “increase renewable energy generation to 25 percent by 2025” (EIREC 2007). To date, 15 states have enacted RES programs including states such as Wisconsin.

**Cap Emissions from Power Generation in Illinois**

A highly recognized and most-often used state control system for companies to control their emissions is to implement a cap-and-trade system. The Union of Concerned Scientists described the system as a way to assign a cost to pollution (2005):

First, an environmental regulator establishes a “cap” that limits emissions from a designated group of polluters, such as power plants, to a level lower than their current emissions. The emissions allowed under the new cap are then divided up into individual permits—usually equal to one ton of pollution—that represent the right to emit that amount. ... So, those that are able to reduce emissions at a low cost can sell their extra permits to companies facing high costs...

A system such as cap-and-trade would allow companies to stay within their polluting boundaries, and a high trade cost would discourage companies from purchasing substantial quantities of permits.

**Government “Lead By Example”**
Finally, if the government leads with a wasteful energy example, private companies are more likely to take a “monkey see, monkey do” attitude and attempt to get away with the same wastefulness. “Reducing energy use in the government sector not only has a direct impact on global warming pollution and state budgets; it also sets an example for the private sector as to what can be achieved” (EIREC 2007). If state facilities take action to reduce their emissions, private organizations and companies will be less likely to keep theirs high if they can't use the government as a scapegoat. If the government continues to take stands, such as the U.S.’s take on the Kyoto Protocol, the rest of the country will be even less likely to raise their standards to reduce their emissions.

If Illinois followed these 13 steps to become a greener state, the EIREC estimated that there would be a 31% drop in carbon dioxide emissions by the year 2018 — from the current approximated projections (2007).


Now that Illinois has started fighting the war against global warming, it’s time for the American citizen to do the same. As Figure 3 indicates, the average American spends a great deal of money on running their home and also puts out a large amount of CO₂ each year. In order to make a change in the way the average American lives, they need to learn how to not rely on the government to give them the requirements they need to fulfill these emission

<table>
<thead>
<tr>
<th>CO₂ Emissions - Average Single-Family Home</th>
<th>Cost $/yr</th>
<th>Energy 10⁶ Btu/yr</th>
<th>CO₂ lbs/yr</th>
<th>CO₂ percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Space heating</strong></td>
<td>$476</td>
<td>68.1</td>
<td>8,829</td>
<td>33.9%</td>
</tr>
<tr>
<td><strong>Air conditioning</strong></td>
<td>$105</td>
<td>13.6</td>
<td>1,882</td>
<td>7.2%</td>
</tr>
<tr>
<td><strong>Water heating</strong></td>
<td>$202</td>
<td>27.8</td>
<td>3,558</td>
<td>13.7%</td>
</tr>
<tr>
<td><strong>Refrigerator, freezer</strong></td>
<td>$146</td>
<td>18.9</td>
<td>2,607</td>
<td>10.0%</td>
</tr>
<tr>
<td><strong>Cooking</strong></td>
<td>$46</td>
<td>6.5</td>
<td>825</td>
<td>3.2%</td>
</tr>
<tr>
<td><strong>Other appliances</strong></td>
<td>$346</td>
<td>44.7</td>
<td>6,182</td>
<td>23.8%</td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td>$120</td>
<td>15.5</td>
<td>2,145</td>
<td>8.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,441</td>
<td>195.1</td>
<td>26,028</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

changes. They need take action into their own hands and make a change in their life according to their own power. This section will highlight the best resources people have to make a change that can really make a difference in the future of this country. People of all backgrounds and income groups have resources available to them to help make the difference that is needed.

According to the U.S. EPA, by just changing just 5 light bulbs in any home from conventional filament bulbs to new ENERGY STAR energy efficient light bulbs, the consumer will save energy while making an impact on their wallet since the light bulbs last years longer. The website claims, “If every household in the U.S. took this one simple action we would prevent greenhouse gases equivalent to the emissions from nearly 10 million cars” (EPA 2007). They also state that there are even simple ways to heat and cool more smartly by having air filters cleaned regularly and that by “having your heating and cooling equipment tuned annually by a licensed contractor can save energy and increase comfort at home” (EPA 2007). As almost everyone learned in elementary school, all anyone really needs to do to make a huge impact is reduce, reuse, and recycle; it’s an easy way to conserve energy and trim down pollution.

The Natural Resources Defense Council (NRDC) also has helpful ways to change simple habits around the house and in your car that save the environment while saving the consumer money. Unplugged appliances that are rarely used can save significant amounts of money each month; consumers who unplug their appliances instead of just turning their machines off when not in use can save as much as $10 every month on their utility bills (NRDC 2007). Setting computers on sleep mode or hibernate “saves energy and is more time-efficient than shutting down and restarting your computer from scratch” (NRDC 2007). As mentioned earlier, ENERGY STAR bulbs are more efficient but they are even more efficient when they are turned off after leaving a room; whether at the office or home, lighting in the home is one of the highest
uses of energy, and turning off the lights more often will lead to even larger savings on consumer energy bills (NRDC 2007). Finally, when in the car, be sure the engine is checked regularly and tires are always inflated appropriately. “A tune-up could boost your miles per gallon anywhere from 4 to 40 percent; a new air filter could get you 10 percent more miles per gallon” (NRDC 2007).

Tips such as these can make consumers happier with their electric bills, home and car gas bills and more satisfied with their role in helping the environment. If everyone in the country took to these small changes in their everyday lives, the U.S. could be a lot more energy efficient before the government even needed to step in and change big-business. As the research indicates, most of these tasks aren’t hard to accomplish but can make a huge difference.

Conclusion

The main goal for most anthropologists who study political ecology is to find a way to use their results so that people can mobilize and organize all of those who are affected by the problem that was studied in order to fight against it. The fight against global warming is no different. Everyone who lives on this Earth is affected by this problem, and the goal of this research was to find a way to inform the people of this country to start making a difference so that the rest of the world may follow suit. Instead of claiming that the U.S. economy will be damaged by movements like the Kyoto Protocol and developing countries that have not reached the same emission levels as the U.S. should be held to the same emission controlling standards, the U.S. should be a leader in this fight to save Earth as it strives to be with all other leadership roles.

As the world begins to understand the warming and cooling the planet and the human involvement, how inventions, technology and greenhouse gas emissions have changed the world
and the world’s temperature, how the affects of CO₂ emissions and other greenhouse gases affect the world’s ozone layer, and what many environmental organizations and agencies in Illinois have done or are doing to change the wasteful ways of the country, the average American citizen will learn how to help the rest of the world by altering their wasteful habits in small ways that can mend the future of the world. The world can be lead by example to change their ways by merely one person at a time. In the famous words of Dr. Margaret Mead, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has” (Wafin 2007).
Bibliography

Abelard

Arctic Climate Impact Assessment, ACIA

Auto Racing Daily, ARD

Berkley Law

Blue Green Alliance, BGA

Carothers, Courtney

EcoDensity

Energy Information Administration, EIA

Environment America

Environment Illinois
accessed November 21.

Environment Illinois

Environment Illinois Research and Education Center, EIREC

Environmental Protection Agency, EPA

Environmental Protection Agency, EPA

Heritage Microfilm, Inc.

Hieb, Monte, and Harrison Hieb

Kasper, Loretta F.

Merriam-Webster

National Oceanic and Atmospheric Administration, NOAA

Natural Resources Defense Council, NRDC
Riebeek, Holli

Riebeek, Holli

Schreiber, Benjamin

Smith, Court

Thu, Kendall

Thu, Kendall

Union of Concerned Scientists, UCS

Union of Concerned Scientists, UCS

United Nations Environment Programme, UNEP

Wafin: Moroccan Connections in America
Weart, Spencer

Wheeling Jesuit University, WJU

White, Deborah

Wikipedia