

## Human Population Growth: When is Enough, Enough?

*Michelle Hilbeck*

### Introduction

A couple of months ago, I was driving through Middletown, Delaware, looking at possible prospects of a future neighborhood to live in. Builders advertise these up-and-coming neighborhoods with large houses and plenty of space for families; you get ‘more house for your money’ once you cross over the canal and into the lower end of New Castle County and the beginning of Kent County, Delaware. The neighborhood I was interested in looking at is called *Bayberry*. The builders advertise their neighborhoods as a way of getting back to old, American values—lots of yard for families to play, playgrounds and walking paths, and close knit communities. Along with new, custom built homes they are looking into building shops, grocery stores and other amenities that keep the families in this close knit community well connected which will help reincarnate that small town feel.

And I have to say, the drive was very appealing going down the main drive! Lots of grass and a single row of freshly planted trees line the drive. You make a turn around the bend and the appeal dwindles. You see these nice, large houses with paved sidewalks and driveways. Each home is unique and built to the homeowner’s specifications. However, these nice houses come at a price: big house = no yard space or smaller lots. There is approximately three feet of space from one house to its next door neighbor. From the back of the house, you can see into your neighbor’s house from the bedroom window. It’s probably best to wave a friendly “good morning” since you share your backyards and your houses are highly visible through the windows. There’s not one tree in sight in the back yards. It seems the new tactic of builders is they want to fit as many buyers/homeowners they can into a small space. This left me feeling like a sardine driving around the streets with the houses so cramped together to accommodate growing families. As I left the neighborhood, I could see across the street a “sold” sign on what used to be sixty-five acres of farmland, ready for the builder to construct large homes on small tracts to accommodate the growing population in this neighborhood and Middletown, Delaware.

After this experience I started thinking about what we are talking about in Human Population Growth seminar. We read an interview conducted with Dr. Garret Hardin—a microbiologist and ecologist—where he discusses his studies of the consequences of an unrestrained reproductive growth. He encourages people to be aware of the consequences to our natural resources and ability to live if we continue to have unrestrained population

growth. In *The Case for Fewer People: The NPG Forum Papers* Lindsey Grant wrote an article entitled “China as an “Emerging” Nation: What it Means for the Rest of Us” where she discusses China and the consequences their high population is having on their arable land. As of 1996, China had a population of 1.22 billion people with 12 million people being born each year. Due to the high quantities of people being born, more living space had to be acquired. From 1970 to 1991, 6% of arable (farmable) land was lost to urbanization; in 1992 alone China lost another 5% of arable land to accommodate the high number of people living in the country. China is continuing to lose their most productive and farmable land due to the need for living space.<sup>1</sup> As a result, scientifically altered fertilizer using nitrogen and other hazardous chemicals had to be made to make the non-arable land farmable. However, this can contaminate the food, costing China any chance it has to grow organic fruit and vegetables. After my drive down to Middletown, I saw firsthand how Delaware’s growing population calls for urbanizing more land, similar to what has been happening in China. In turn, we sacrifice the good, farmable soil needed to grow food to sustain our growing population. It makes me wonder: is the United States following China down this slippery slope?

## **Rationale**

With each passing school year, I find my sixth grade students are good at keeping up with current, popular trends. They know who the biggest trending musical artist is, they know what the next ‘cinnamon challenge’ or dare that goes viral on the Internet or YouTube is, they know how to incorporate ‘selfies’ or photos of themselves into any matter they are discussing, and they are up on what the biggest break-up drama is on Facebook. As I was asking them about the latest stories trending on social media, none of my students knew about the air raids in Syria and Pakistan dealing with the ISIS terrorist situation nor how citizens of China are rioting due to the lack of healthy air and living conditions. Of course, they know who Taylor Swift is currently dating and whether or not Justin Bieber was going to a rehab facility for driving under the influence. Students of today are good at incorporating technology into their everyday lives to keep up with these social media trends and calculate how many followers they can get on Instagram or play video games; however, they cannot translate this knowledge of technology into an ability to research factual evidence or keep up with the news that will affect them in the years to come.

Another item I noticed with my sixth grade students, especially with teaching English Language Learners (ELLs), is that they rely on their background knowledge and often use themselves as examples to compare and explain their thinking on any situation and/or problem. However, I find that my students struggle when it comes to deep analysis and being able to research beyond their personal connections to find outside sources to develop their thinking. For example, in our classroom text *Collections* we read one of Margaret Peterson Haddix’s short stories called “Fine”. The doctors think that the main character has a stroke. Students were able to mention “Oh! I think my grandfather had a

stroke!” or mention that another friend’s parents/grandparents may have had one. I asked if they can define what a stroke is or identify the symptoms; none of them could. I then assigned the students to go home or stay after school one day with me to search online to look up symptoms of a stroke and a migraine headache for one of the texts. Many of the students had no idea how to open up a search portal let alone how to get on the Internet and look for informational reading on the symptoms. They struggle in finding and citing the appropriate sources needed to support their thinking.

For this curriculum unit, I want to teach my students the value of technology and how it can be used for research and analysis rather than just something to do to pass the time. In reading Margaret Peterson Haddix’s novel *Among the Hidden*, students will have to research different points of view of the population debate. To begin, we will first research the opposing viewpoints of human population and the need for restraint. Next, students will analyze and start questioning whether the United States is indeed following suit with China and determine if our growing population is hurting rather than benefitting our way of life. We will first examine why China decided to incorporate the ‘one child family’ policy and how they enforced this policy and compare this to the novel *Among the Hidden*. Students then will begin to inquire, using the format of a Socratic Seminar, whether the United States should employ a population policy, or not. They will do this with a partner, choose a side of the debate, and then argue as to whether or not the United States should have a population policy for future generations. They will need to incorporate technology to find informational text and find multiple sources from the Internet and texts that support and justify their viewpoint. In the Socratic seminar, they will need to present their research to their peers and justify their claim and create counterclaims against the opposing side.

## **Demographics**

Conrad Schools of Science (CSS) is a unique school in the Red Clay School District in Wilmington, Delaware. Conrad houses grades 6 through 12 and the school is considered a magnet school with a primary focus on mathematics, science and technology. The high school courses offered are meant to lead into various pathways: Allied Health, Sports Physical Therapy, Engineering and Biotechnology. All students now have to apply and interview in order to be accepted into the school. I am currently teaching 6th grade English/Language Arts and Special Education. In the past couple of years at CSS the Special Education component was served using the inclusion model. Since I am dual-certified in teaching Special Education and middle school English, I teach a group of regular education students with the special-education population in the same class. Going into the 2014-2015 school year, I will continue to teach 6<sup>th</sup> grade English/Language Arts in an inclusion setting. Now, with the move in the district to include all students, I have a small population of English Language Learners in my classes. With this, differentiation of lessons is a must since I now have students ranging from a high 9<sup>th</sup>/10<sup>th</sup> grade reading

level to students struggling with the language barrier and reading English at a kindergarten and 1<sup>st</sup> grade reading level.

For this curriculum unit, I will focus on my 6<sup>th</sup> grade English/Language Arts class. All of my classes follow the inclusion model where classes are mixed with students considered general education students, students who are classified special education and receive services based on their IEP, and students who are classified as English Language Learners (ELL).

### **Essential Questions**

- What comparisons can we make between the novel *Among the Hidden* and the real life events and laws/policies in place in China?
- Using China as an example, what effects does a growing population have on our food supply?
- Would a population law or policy be beneficial to our future? Explain your views citing evidence from appropriate sources.

### **Objectives**

- Cite specific textual evidence to support analysis of science and technical texts
- Determine central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions
- Compare two different scenarios to find similarities and differences within the environment
- Write arguments to support claims with clear reasons and relevant evidence

### **The Population Debate**

As of October 25, 2014, the world had 7,265,778,260 people and continues to grow each day. The top three countries that have the highest population are China with 1,396,613,298 people, India places second with 1,272,518,082 people, and rounding third is the United States with 323,458,581 people; these numbers continue to grow by the second.<sup>2</sup> These population numbers are the highest the world has seen and we are still continuing to grow at astronomical speed. So, in asking the question “When is there enough people?” what factors do we consider in determining if there is in fact a number that can be reached and act as a cap? In ecological terms, this is known as the carrying capacity. Is it morally reasonable to ask if there is such a number, or to even ask the question?

The debate for population restraint has been an on-going argument throughout the decades. Since ancient times, communities have constantly argued over what the size of their population should be. No one can seem to agree on what the 'right' number is when dealing with human population. For my research, I'll first examine the most recent example of a country employing a population policy—China—and explain how China enforced the law and whether or not it was beneficial to the environment. Next, I'll discuss the opposing points of view on the population debate and use this to discuss whether or not the United States should enforce a population policy.

### Real Life Example: China's Population Policy

In the late 1970s and early 1980s, China's central government created the one-child policy. The purpose of this program was to limit the great majority of family units in the country to one child each. The government's rationale for implementing the policy was to help reduce China's enormous population and the growth rate since it was becoming difficult to sustain such a large population. Since 1949, China has encouraged the use of birth control/contraceptives and family planning to help keep the growing population from escalating out of control. However, efforts to actually monitor the growing population and birth rate was sporadic and voluntary and not strictly enforced until the death of Mao Zedong in 1976. This meant that people still had more than one child per household and the population continued to grow at an increasingly rapid rate; provisions to care for these people such as clean water and food are deteriorating. With China's population rapidly growing towards the one billion mark, the new leader, Deng Xiaoping, was beginning to realize the need to slow down birth rates and seriously considering curbing the rapid growth by enforcing a population policy. Dr. Garrett Hardin gives China credit in realizing that they have a population problem. China proposed a massive population program following the slogan "the one child family"; through social means, the programs pressures mothers to only have one child. Though, the policy did produce consequences that are irreversible.

Based on cultural traditions, male babies are preferable over females, especially as the first born. Sons will inherit the family name and take care of their parents when they are elderly. Since families were now restricted to having only one child in certain parts of China, having a girl was very undesirable. Due to the new policy and the desire to have male babies, the number of female fetus abortion skyrocketed, an increased number of female babies put up for adoption or who were abandoned or practiced infanticide also increased. In the end, according to the group All Girls Allowed, over 37 million female babies were lost due to the strict restrictions of the population policy. This left a widened gap in gender and fewer females available for marriage.

Enforcing the policy also became dangerous and imbalanced. Many women attempted to hide their second pregnancy by not reporting to the government they had a second

child. These children would grow up and face many hardships in obtaining an education and employment. Since they were hidden from the authorities when they were born, they do not have documents that prove their existence. This made it nearly impossible to enroll in school or get a job. If the woman was discovered pregnant with a second child, she was abducted by authorities and immediately taken to a clinic to have a forced miscarriage if they did not have the money to bribe authorities. Often, these women were past the allotted time for abortion and the procedures would cause serious health issues for the women since it would cause them to go through the stages of childbirth (without given pain medication) through the injections of toxins into the fetus brain. If the husband was to intervene with the procedure, he would be beaten and thrown in prison. These extreme measures were often avoided if you were able to bribe and pay the policy authorities a certain amount of money to keep them quiet. This would allow for families to break the policy and thus continue to add to China's growing population.

The population policy in China was lifted in 2009; the policy will change from a one-child to a two-child limit. Citizens will still need to apply for a permit to be allowed to have a second child, but the government insists that they will be granted permission without hesitation. In the end, 336 million abortions and 222 million sterilizations have been carried out since 1971. Nothing can make up for the horror faced by the rural Chinese woman as a result of the policy being in place.<sup>3</sup> However, we are coming to find that with China's escalating population and booming economy, the environment in which they need in order to sustain their population is worsening.

### *Current Environmental Status of China*

China is beginning to come to terms with air and water befouled by three decades of industrialization and are beginning to wonder if industrial progress has come at a high cost to the environment and loss of natural resources to sustain their population. China's economy is continuing to boom, creating more coal-burning power plants, chemical plants, oil refineries, waste incinerators, etc. This is aiding in giving thousands of its citizens a job and being able to provide for their families. However, a national survey states that the people of China are extremely anxious about their living conditions as a result of these new establishments. I was reported in January of 2013 that Beijing reported seeing these living conditions:

“Beijing was enveloped by thick soupy concoction so dirty, so polluted, that day in China's capitol turned to night. The quality of air over Beijing, as reported by the World Health Organization, was 40 times higher than the level deemed safe to breathe.”

Since then, incidents of similar air pollution have been reported in Shanghai, Tianjin, Hangzhou, and other cities around the country. In order to safely travel outside, people

need to wear medical masks to cover their air passageways so that they do not consume the toxic air.

Not only is the air proving to be a health hazard, the amount of fresh drinking water is dropping and China is on its way to a water crisis. Due to the growing industry, it is scouring the world for oil, natural gas, and minerals to keep its economy afloat. The success of these industries depends on underground water. China depletes four feet of its underground water annually but does not replenish the water it uses. As a result, China is on the fast track for water shortages and thus is not able to sustain its growing population. In certain regions, water is becoming extremely dangerous to consume. The Huangpu River, a major source of drinking water for Shanghai, has seen a growing number of animal carcasses. Due to disease and suffocation, increasing numbers of livestock have been killed and farmers have been disposing of them by throwing them into the river. This causes the water to be unfit to drink and the city has to develop more coal-powered filtration systems. Thus, we have created a catch-22 in creating more hazardous air for people and animals to breathe, it dumps more waste into the rivers for the people and animals to drink, and creates more wide-spread disease and escalated cancer rates to erupt in the animal and human populations.<sup>4</sup>

China's economy is emphasizing growth: growth in business, growth in power, growth in population. However, with this push for growth, the country is ignoring the growing issues in health hazards and environmental issues. The environmental issues are quickly spiraling out of control and the country is quickly headed to the ultimate destruction of its people. So the question I ask is: is growth the answer? When is China going to realize that the growing population and industry are causing the depletion of natural resources required to sustain life? Is another population policy the answer to stop what could result in permanent damage of their environment? There are many arguments in place of having a policy; though, there are those that recommend we not take away the right to have a family.

### Opposing Points of View on Human Population Growth

The formal scientific study of human populations, also known as demography, can be credited back to eighteenth century clergyman Thomas Malthus.

“In his 1798 treatise, *An Essay on the Principle of Population*, he first expounded the basic idea that rapid rates of human population growth might be a serious problem. According to Malthus, humans' natural ability to reproduce exceeds their ability to feed themselves and population inevitability leads to famine and wars for food and other resources.”<sup>5</sup>

Throughout the years Malthus' claims have been refined or ignored entirely or discredited by new research. However, he still argued that population tends to grow faster

than the food supply and "...many demographers still subscribe to his basic premise—that rapid population growth is inherently destructive."<sup>6</sup>

Today, those who believe that rapid population growth is inherently harmful to human survival are called *Malthusians*. Those who still believe that science, technology and social justice can provide for any size population are called *Utopians*. Both of these worldviews are continually being developed and debated and each side offers their own ideas about how population growth affects economic growth, the environment and other quality-of-life concerns due to population issues. In order for my students to be able to argue their points of view of population growth, I had to gain a cohesive understanding of both sides of the arguments.

### *Malthusians: For Restraints on Human Population*

Leon Bouvier writes in his essay "It's Time to Stop at Two" in favor of the case for fewer people:

"Consider the benefits of our resources such as air and water; currently these are being increasingly polluted through the use of more automobiles and growing numbers of people using up dwindling water supply. As a result, our aquifers, so important to plant life, are suffocating. Consider the benefits our infrastructure such as schools and highways and national parks. Our schools are deteriorating. Our highways are being increasingly crammed with vehicles as the number of cars rises along with population growth. It is next to impossible to visit our National Parks without making reservations years ahead and then waiting in long lines to simply enter. Our once beautiful beaches are now overcrowded and becoming more and more polluted—all because of population growth."<sup>7</sup>

Many nations, including the United States, are growing in population size but the resources to maintain these numbers are continuing to drastically be reduced. Many people argue that we need to be smaller and ultimately halt the U.S. population (for a sustained period of time) in order to reverse the destruction the human race has had on the environment as well as any hopes of creating a sustaining economy. "We try to address our steadily worsening environmental problems with purely technological solutions, while refusing to come to grips with their root cause—overpopulation."<sup>8</sup> Below are several arguments on why nations should actively attempt to control their populations. My students will study these arguments to determine whether they are valid reason for employing a population policy within the United States when reading novel *Among the Hidden*.

#### 1. A Need for Low Fertility Rate to Sustain Life



Dr. Garrett Hardin was one of those scientists who closely followed the work of Thomas Malthus and his studies of how population will one day be the world's undoing. "So early in my training...I was influenced by an unpopular theory. Alone with a small group of biologists, I was concerned about future population," exclaims Dr. Garrett Hardin, a microbiologist and human ecologist who was a professor at the University of California in Santa Barbara. Dr. Hardin is famous for his essay published in 1968 called "Tragedy of the Commons" in which he discusses in-depth the follies and downfall of overpopulation in this world. He mentions in his interview that people are working to stop child mortality rate in third world countries otherwise known as the child-survival hypothesis. Hardin states that if we decrease child mortality rate that makes it possible for more children to reach the age of 20 or adulthood and the next "generations of breeders" will take hold and thus create more people.<sup>9</sup>

Leon Bouvier mentions in his paper "It's Time to Stop at Two" that the fertility rate is on the rise in the United States and is only getting worse. Currently, mothers in the U.S. are having 2.0 to 2.1 births; this means the birthrate has raised from the 1.7 births between 1975 and 1985. Now we are around four million births annually for the first time since the baby boom ended in 1964<sup>10</sup> Bouvier demands that the nation recognize how a dramatic of a change in number this means for our future. Let's say of the nation was to continue this upward climb in births, by 2050 the U.S would have 63 million extra people on top of its already 350 million. Bouvier argues that there has to be ways of reducing fertility in the United States and the common factor is education. It seems that women going to get a higher education put off childbearing until they are financially ready. The highest fertility rates are among those women that are least educated and poor. Thus, Bouvier mentions that one way to reduce fertility is to raise the educational levels for all and improve the economic status of women.

## 2. Need for Better Family Planning

Margaret Sanger was another person advocating the need for population control in the sense of family planning. She led the birth control movement in the early 1900s encouraging nations to consider women being allowed to take contraceptives as a form of birth control. Sanger believed in reproductive freedom where the woman should be free to have that conversation with her partner and plan out if and when they would like to have children. Women should be allowed to use contraceptives to help plan for their future and foresee if children are in fact a part of it. Pushing for birth control and reproductive freedom was the forerunner for the movement for family planning and population control. By using contraceptives and birth control, families can properly plan for their future children. They can plan for going to college and getting an education; once finished, they can pursue a profession that will allow them to be financially stable to support a family. Today, family planning movements have expanded around the world and have flourished.

Dr. Garrett Hardin gave this movement credit in his interview and wishes nations would follow this objective to teach people to family plan. Hardin mentions that if nations provided incentives for people to delay having children it will allow people to have less children and encourage them to seek other endeavors such as school and travel. He mentions the point that economist Kenneth Boulding suggests is that at birth, every female gets a certain number of green stamps giving her the right to have a certain number children by the time she reaches the proper age. The underlying point is that the value of the stamps can change depending on the numbers of overall population. This can act as a motivator for the woman to go to school, get a profession that allows her to buy more stamps if she wants to increase the number of children she wants. But ultimately, it proves that the woman is making enough money to take care of her family (which acts as a solution to the issue with high fertility rates in poorly educated women Leon Bouvier mentioned above).

### 3. The Need to Use Farm land and Food Sources Wisely

Joseph Townsend argues that in many nations, including his home of England, the government or state should discourage population growth.

“Speculation apart, it is a fact, that in England, we have more than we can feed, and many more that we can profitably employ under the present system of our laws.”<sup>11</sup>

For a nation’s survival, it depends on the land and its ability to produce food. For example, China has the landscape where it’s able to feed its millions with the rice it’s able to cultivate. But England and Scotland’s terrain don’t allow them to grow grains such as rice or wheat, so they have to rely on cows to produce milk to help create oatmeal- their main food source. What happens if the cows contract a disease and they perish? England and Scotland learned through various famines over the years to use trade and imports to help their countries thrive with a growing population. Throughout the years, many nations have come to rely on their systems of imports and exports where they are getting the food they need to sustain their nation from other countries around the world. For example, here in the United States we have bananas coming in from Central America to help feed our growing population. But what happens when our outside food sources get depleted due to having to feed a never ending growing population? Are nations able to rely on themselves to make enough food for their citizens to survive?

We see major issues beginning to arise around the world dealing with countries lacking food sources and arable land. For instance, the people living in Central Africa are suffering greatly with the effects of overpopulation. The land there has been stripped of vegetation, causing erosion and flooding which leaves little hope for new crops to be successful and no hopes of civilization thriving there. China, too, is losing valuable arable (farmable) land due to its rapidly growing population. China needs places for its

2.7 billion people to live and the only useful places for building homes are on land that once acted as farmland. Now stuck with finding a solution to the need for more land to produce crops, they take rocky soil and add nitrogen to the soil to make it more feasible for crops to grow. But, this in turn, makes food contaminated and unhealthy for people to eat. So now what happens? This is a question I want my students to research and develop arguments about in discussing whether we need to restrict population growth in the United States.

#### 4. The Need to Supply Everyone Depletes Resources

Joseph Townsend brings up another valid point that when our population numbers are growing and we notice another nation's population is diminishing due to starvation, we automatically try to help by giving them food. For example, the United States consistently sends aid to countries that are engaged in war; today we see issues happening in Syria and Africa where there are civil disputes happening amongst its citizens. With warfare happening, people are in need of extra resources, especially food and fresh water. With food shortages on the rise due to overpopulation, Townsend finds that nations need to realize that giving away resources encourages the problem of overpopulation even more. "Welfare destroys the motivation to succeed and lead to excess population and misery."<sup>12</sup> He argues that as long as there is food, there is no need for a growing population because there is no reasonable fear of depopulation. But we assume that these people stuck with poverty or who live in a third world country automatically need outside help. Where do we draw the line between giving aid and being too benevolent with our own resources that we need to sustain ourselves?

Dr. Hardin agrees with Townsend's point. Hardin states in his article that giving any sorts of money or food is a mistake. "If they don't have to pay for it themselves, they won't use it wisely."<sup>13</sup> Dr. Hardin brings up the example of sending food to Ethiopia as an example of a 'poor' country (one as seen as the need to be on welfare type system). He states that sending food to Ethiopia will cause more harm than good:

"Each year the production obtained from Ethiopian land declines. The lands are used beyond their carrying capacities because there are far more people the renewable resources. Overproduction occurs. Eventually the soil loses its nutritional value and forests are stripped bare, causing soil erosion and severe floods. The more we encourage population growth by sending more and more food, the more damage is done to the production system."

Every time we send food to save lives or give our resources away for free, we are ultimately destroying lives in the future since we are trying to accommodate a rapidly growing population.

## 5. Overuse of Natural Resources

In seminar on September 22, 2014, Professor Bartley had us watch a National Geographic documentary discussing the status of five different natural water sources in the early 1990s. The video discussed how our growing population is causing these natural water sources to disappear due to overuse by the human population in the United States. I had to take notes of the status of the Ogallala Aquifer that spreads across the Great Plains. They use the aquifer to provide water to one-fifth of the wheat, corn, cattle and cotton that is grown in the United States by way of irrigation farming. This is where farmers will use natural gas fueled pumps to pump the fresh water from the aquifer directly to the plants to help them grow. “Aquifers have taken on an increasing importance in the last few years as the U.S. food production has expanded and drought has become a nagging issue. In regions like Kansas, where farmers haven’t been getting enough rain for their crops, they’ve depended on irrigation, pulling up water from the Ogallala.”<sup>14</sup> Over the last couple decades, irrigation water has proved to be very successful in growing more crops and keeping them well-nourished with plenty of water from the underground aquifer.

The issue that is now arising is that farmers are pumping so much water that at current rates of use farming in that area is likely to peak by 2040 or so due to water depletion. The water table of the aquifer is dropping as much as two feet per year.<sup>15</sup> This is due to the farmers using huge amounts of water for their expanded crops and cattle production to feed the nation. There is not enough precipitation and groundwater soaking into the aquifer to replenish the water that is being used by the farmers. Thus, we are quickly losing fresh water that we need to sustain life and longevity as a nation.

Other areas of the world are facing similar issues with fresh water. In September 2007, the primary water source for Shijiazhuang, China—with a population of at least 2 million—is running dry due to overuse. The underground water table is sinking four feet a year and municipal wells have already drained two-thirds of the water. Also, the Communist Party has been leery of depending on imports to feed the country and has long insisted on grain self-sufficiency. “But growing so much grain consumes huge amounts of underground water in the North China Plain, which produces half of the country’s wheat.” Water usage in China has quintupled since 1949 and leaders will increasingly face tough political choices as cities, industry, and farming compete for a finite and unbalanced water supply.”<sup>16</sup>

### *Utopians: People against Restraints on Human Population*

In his online article for the *Green Left Weekly*, Simon Butler discusses several reasons why inhibiting population growth and creating a population policy is not the answer. He claims that climate change is the greatest challenge humanity has ever faced. The scientific evidence of the scale of the threat is overwhelming, compelling and frightening.

“We live in a time of consequences. So it’s crucial that the climate justice movement – made up of those determined to take a stand now to win a safe climate future – campaigns for the changes that can actually make a difference.”<sup>17</sup>

In Australia, a discussion has surfaced about whether population control measures should be a key plank in the climate action movement’s campaign arsenal. Below are various reasons why such a decision would hinder, rather than help, the necessary task of building a movement that can win.

### 1. People Are Not to Blame for Pollution

One of the reasons Butler comes up with is that advocates of population control say that one of the most effective measures we can take to combat climate change is to sharply reduce the number of humans on the planet. Butler argues that people are not the cause of the pollution. What is driving the climate changes are the over-use of fossil fuels. Butler states that a country’s economy first looks to fossil fuels to sustain society. China is a prime example of this; their economy continues to prosper but at the expense of burning fossil fuels, natural gases and wasting valuable ground water.

“The real cause of climate change is an economy locked into burning fossil fuels for energy and unsustainable agriculture. Unless we transform the economy and our society along sustainable lines as rapidly as possible, we have no hope of securing an inhabitable planet, regardless of population levels. Population-based arguments fail to admit that population levels will impact on the environment in a very different way in a zero-emissions economy. Making the shift to renewable energy – not reduction in human population – is really the most urgent task we face.”<sup>18</sup>

### 2. Population Control Leads to Extreme Outcomes

Margaret Sanger makes valid points that the United States as a nation today needs to use our reproductive freedom to family plan for the future. Unfortunately, many of Sanger’s ideas and her famous mantra “more children for the fit and less from the unfit” opened the flood gates for racist groups to use her ideas as a way to advertise their messages and actions for controlling population. Many of these racist eugenicists believed they need to improve the white race and that it is their duty to control human mating and ultimately the population that stems from that control element. “The Holocaust and other instances of human genocide throughout the world gave a perverse meaning to the term “population control,” and the modern population establishment is always careful to explain that their goal is to enable the people to make informed decisions about whether or not to have children.”<sup>19</sup> Utopians understand Margaret Sanger’s position in the need

for family planning; however certain nations who use contraceptives as a way to control population growth tend to go to extremes on their policies.

People with a utopian mindset consider China as a modern extreme of population control since its policy doesn't monitor keeping a balance in gender but favors male babies. The loss of female babies is seen as the most modern example of an extreme population policy. "Until 2002 Chinese women were denied any choice of contraceptive method – 37% of married women have been forcibly sterilized. Female infanticide has reached epidemic proportions. The global ratio for male to female births is 106:100. In China today, male "births" outnumber females by 120:100."<sup>20</sup>

Infanticide is also another population control practice that many people have a hard time dealing with and understanding the motives supporting its practice. The societies that practice infanticide, killing the newborn baby or abandoning it, use these tactics as a means to control their growing population because it's reaching an undesirable level. Even though the child is killed within minutes of being born, many people consider this cruel and unjust since they are willingly taking a life to better the greater good of their current population.

### 3. Social justice and women's equality is the best contraception

Larger population growth rates in the Third World are a consequence of dire poverty and restrictions on women's ability to control their own fertility. According to the latest UN population report released on March 12, 2014, research predicts population will exceed 9 billion people by mid-century. Almost all of this growth will occur in the 49 poorest countries in the world (considered Third World countries). In the richest countries, however, population will decline from 1.23 billion to 1.15 billion if projected net migration is not included. It will increase to only 1.28 billion including net migration.<sup>21</sup>

Butler recommends that to curve heavy population growth in these third world countries, there has to be precedent for "raising living standards globally, eradicating hunger and poverty, improving health care, providing access to education and achieving greater equality for women are all necessary if we are to win a safe climate with global justice. They will also result in lower birth rates."<sup>22</sup>

### 4. Population control is an old argument tacked onto a new issue

Left unchecked, climate change threatens life on the planet. Recognition of this fact is the major impetus for the movement demanding governments take serious action on climate change without delay. Population theorists have argued that the only way to stop global warming is to downsize the world's population. However, these theories try to turn this

fact on its head. Climate change will lead to a world so harsh, uncertain and polluted, the argument goes, that it's more "humane" to prevent future generations from being born at all.

This "humane" population reduction argument is couched in terms of containing, or mitigating, the apparently inevitable effects of environmental destruction. Instead, the struggle for an alternative model of development, based on meeting the needs of people and planet, should be our main concern. For centuries, simplistic population theories have been advanced to explain the existence of poverty, hunger, famine, disease, war, racism and unemployment. In each case, the real social and economic causes of these social ills have been glossed over and twisted to show that escalating population has, in turn, destroyed the environment. However, population is not the root of the problem; there are many roots (listed above) that contribute to the damage we are causing. Population is not solely to blame.

#### 5. Arguing for tighter migration restrictions is a dangerous policy

Many theories advocate that we should eliminate immigration into the United States. Dr. Garrett Hardin advocates this in his interview and states that population can be better controlled when we monitor who comes in/out and restrict anyone from moving into the country that hasn't been born here in the last year. Simon Butler mentions a similar argument made in Australia and in dealing with the growing population and environmental changes:

"Reducing immigration intake into Australia is the current policy on the anti-environmental Rudd government. As the climate crisis deepens, we can expect the government and the big polluters will want to divert attention from their own inaction. Migrants could be a convenient scapegoat. Migrants are already being falsely blamed for adding to unemployment. We can't allow them to be blamed for corporate Australia's addiction to fossil fuels."<sup>23</sup>

Butler insists that supporting cuts in migration to Australia avoids the real burning issue – Australia is the highest emitter of greenhouse gases per capita in the world. Migrants are not responsible for the policies of past governments or the greed of the big polluters.

#### 8. Population control has a disturbing history

In practice, there has never been a population control scheme that has met with acceptable environmental or humanitarian outcomes. China's one child policy is a prime example of an environmental measure taken by the government that had extremely brutal consequences. Until 2002 Chinese women were denied any choice in the use of contraceptives – 37% of married women have been forcibly sterilized.[11] Female

infanticide has reached epidemic proportions. The global ratio for male to female births is 106:100. In China today, male “births” outnumber females by 120:100. China’s population control has hardly solved that country’s growing environmental problems. In this regard, it has been a failure.

#### 9. People in the global South are part of the solution, not the problem

At its worst, population control schemes put the blame for climate change on the poorest people in the Southern Hemisphere – those least responsible for the problem in the first place. It’s a major mistake to view these people as passive victims of climate change. In truth, they are the pivotal agent in the campaign to avert global warming. “We need a strategy of building stronger links and collaboration with movements for climate justice in the global South – not draw up plans to reduce their numbers.”<sup>24</sup>

There is one part of the world’s population that poses a genuine threat: the small group of powerful, vested interests who profit most from polluting the biosphere and are desperately resisting change.

“The real “population change” we need to focus on is not artificially reducing human numbers. Rather, it is about winning real democratic change, i.e. dramatically increasing the numbers of ordinary people who can participate in making decisions about investment in green industries, agriculture, global trade and military spending. Population control narrowly looks only at the quantity of human beings to find a solution to climate change. Ultimately, its narrow vision makes it a divisive policy. The climate action movement, however, is really concerned with improving the quality of human life. On that basis we can build a movement of hope and solidarity strong enough to penetrate national borders and restore a safe climate for future generations.”<sup>25</sup>

#### The United States: should we have a Population Policy?

In my sixth grade class, I have my classes read a novel called *Among the Hidden* written by Margaret Peterson Haddix. The novel takes place in the future in the United States where there is a population law in effect to control the growing population. Families are not allowed to have more than two children; they are expected to abort any other child once they have reached the allotted quota of children. However, the main character and narrator of the book is Luke—a third child—and he learns the truth and deception behind the law through a new found friend Jen (also a third child). The law is in effect due to food shortages; families had to limit the number of mouths they had to feed per household by limiting the number of children and having no pets. However, if you were of a wealthy family, restrictions were often ignored since you could afford to harbor a



third in secret. This population policy that Haddix creates in her novel is very similar to the one that was in place in China.

We are like China in other aspects as well. We are ranked third for the highest population in the world and that number rises every day. Not only do we have a rapidly growing population, environmental issues are escalating and natural resources are depleting as a result of sustaining continued growth. More mouths need to be fed and this requires more farmable land; however, instead of farming we use this resource to build more commerce areas and homes for people to live. Underground aquifers are dwindling with fresh water levels being lowered by 3 feet annually, and there is not enough rain to replenish this escalating use. We are also seeing more rivers and lands being polluted with the waste we are creating since we are running out of room in the landfills we have created to hold our waste. Looking at the growing number of people, pollution, and the reduction of water and arable land, I want my students to examine the arguments laid out in the research and determine whether or not it is beneficial for the United States to have a population policy.

## **Strategies**

### Collaborative Groups

Working together with peers is a life skill that students need to practice and accomplish. Collaborative learning allows students to learn to work together towards a common goal. Students need to learn how to work respectfully with others and learn how to consider each other's points of views and opinions. Collaboration also benefits students in that by listening to their peers they can develop a better understanding of the task or content; it also extends their thinking by hearing other perspectives that they may not have considered. Individual and group evaluations are essential to monitor the group's work and their progress in working as a team.

Students will work in collaborative groups or literature circles when reading *Among the Hidden* and addressing questions about the book. Students will work together to identify evidence of the current population policy illustrated in the novel. Students will also collaborate together to make blog posts on the classroom blog.

### Jigsaw

In groups, students will read different texts or passages from a single text then share and exchange information from their reading with their classmates or members of another group. If working in a group, they will then **share their** findings with the original members of the group. This is a good strategy to help create peer collaboration and differentiate instruction for struggling readers.

I plan to incorporate this strategy by having students read newspaper articles. Each group or pair will be assigned an article to read. The students will then become the “expert” and report their research/information to the rest of the group.

### Rendered Text Experience

Through this strategy students are expected to read a text and then find one word, phrase, and sentence that summarize the major points of the article by highlighting the major words and phrases highlighted in the article.

Students will use this strategy when reading newspaper articles about the current situations with population growth and the environments in China and the United States. Students then will justify whether or not it was ethical and moral to use the lives of children in a political movement.

### Reciprocal Teaching Strategies

Reciprocal Teaching Strategies are useful techniques to use in the classroom, especially when working with struggling readers. The strategies follow these tasks: Predict Question, Infer, Connect, Summarize, and Clarify. Students will complete these various strategies with the text they read. These strategies allow for students to build upon their prior knowledge to generate predictions and connect to the text, summarize to demonstrate understanding, generate inferences and citing evidence to demonstrate their thinking, and clarify words they do not understand.

In reading the articles and novel *Among the Hidden*, students will work together to complete these strategies in a jigsaw format or complete them all on their own to help them break down the text for a cohesive understanding.

### Teacher Resources

- Novel: *Among the Hidden* by Margaret Peterson Haddix
- Blog Account through Google Docs- [www.blogger.com](http://www.blogger.com)
- Student accounts made on Google
- Highlighters/color pencils
- News Articles used in class for blogging purposes:
  1. “China’s Brutal One-Child Policy” *New York Times*
  2. “China’s One Child Policy” *Time Magazine*
  3. “China’s Environmental Awakening” *New York Times*
  4. “Beneath Booming Cities, China’s Future Runs Out” *New York Times*
  5. “As China Roars, Pollution Reaches Deadly Extremes” *New York Times*

6. “How Long Before the Great Plains Runs Out of Water?” *Washington Post*
7. “Epic Drought in West is Literally Moving Mountains” *Climate Central*
8. “Climate Change Ups Odds of a Southwest Megadrought” *Climate Central*
9. “Climate Change, Minus the Hot Air”
10. “An Oyster in the Storm”

### **Classroom Activities**

All activities, including reading the novel, should take one month and two weeks.

Activity One: What is Population Control and what are the Points of View (one month)

Students will be arranged in small groups or literature circles while reading the novel *Among the Hidden*. With this group, students will work together throughout the book to answer various questions about the novel and complete various tasks.

#### Objectives:

- Cite Evidence from the text to support inferences made
- Identify the central ideas and how they author illustrates this in the text

#### Accessing Background Knowledge

1. Students will read article “China’s Brutal Population Policy”
2. *Rendered Text Experience*: as they read, highlight items in assigned colors:
  - Central Ideas: Green
  - Textual Evidence that Supports Central Ideas: Yellow
  - Key Words: Blue

After they have finished reading, answer the following using their Cornell Note-Taking Template:

- When was the policy established? What was the ruling of the policy?
- Why was the population policy created?
- How was the policy enforced?
- Do you see any discrepancies/issues arise with the policy?
- Did the policy work? Why or why not?

#### Formative Assessment:

3. *Reciprocal Teaching Strategies*
  - Students will complete chart (appendix B) as they read *Among the Hidden*

- Blog posts: Students will have to report back to the blog once a week and discuss how the policy in place in the novel is similar/different to the one China had in place for homework. Students can use their chart as a reference

Summative Assessment:

1. Students will access this website:  
<http://climateandcapitalism.com/2009/05/30/population-control-10-reasons-why-its-the-wrong-answer>
  - Review the 10 reasons Simon Butler discusses on why the United States does not need a population policy
  - They will need to pick three reasons and discuss them in-depth in a blog post. They need to summarize the reason and explain how they feel about that particular reason
  - Students will also be required to post on two other students blog post about their thoughts on these reasons and generate questions or establish connections

Activity Two: What's the Environment Situation? (3 days)

Objectives:

- Cite Evidence from the text to support inferences made
- Compare two interpretations of different scenarios and evaluate author's choices

Formative Assessment: Jigsaw Activity

1. As a class, we will read together these two articles about China's current environmental situation:
  - China's Environmental Awakening
  - As China Roars, Pollution Reaches Deadly Extremes

Students will highlight any information that indicates something in the environment

2. With their literature groups, students will read one of the following articles about the United States:
  - Epic Drought in West is Literally Moving Mountains
  - Climate Change Ups Odds of a Southwest Mega drought
  - Climate Change, Minus the Hot Air
  - An Oyster in the Storm

In a chart, groups will work together to identify the similarities between environmental conditions in the United States and China. With their group, they will create a poster that highlights the central ideas, summarizes the argument the article makes about the

environment, and highlights the similarities between the U.S. & China. The other groups will perform a gallery walk and write down the information the other groups mention on their posters.

### Summative Assessment:

1. On their own, students will read the following two articles
  - Beneath Booming Cities, China's Future Runs Out
  - How Long Before the Great Plains Runs Out of Water?

Students will have to complete a blog post identifying the similarities between the research and explain their thoughts about what they read, establish 2 connections to other environmental issues they see arise in the United States as a result of climate change/population growth

Activity Three: Socratic Seminar (7 days)

### Objectives:

- Research, develop and write arguments and counterarguments for claim
- Cite Evidence from the text to support conclusions

Students will work with a partner to create an answer for the following question: *Should the United States put a population policy in place?*

Students will work together to research evidence for their argument and gather information to create a counterargument to oppose the other side. Here are the requirements:

- Develop three well-researched claims
- Must use an article used in class to develop one argument
- At least two articles or informational texts that support their argument need to be found and used as other resources for their claims

### **Bibliography**

Butler, Simon. "Population Control: 10 Reasons Why It's the Wrong Answer - Climate & Capitalism." Climate Capitalism. May 30, 2009. Accessed October 24, 2014.

Interesting website that states opposing reasons for why a population policy is not necessary in the United States. Why students are going to visit this website and access the reasoning the author has as a blog activity.

Gardner, Daniel. "China's Environmental Awakening." *The New York Times*, September 14, 2014. Accessed October 22, 2014. [www.nytimes.com](http://www.nytimes.com).

Interesting article about the current environmental status in China; it addresses the need to address these escalating issues or else their large population is not going to be able to prosper

"GeoHive." - Current World Population. Accessed October 24, 2014.  
[http://www.geohive.com/earth/population\\_now.aspx](http://www.geohive.com/earth/population_now.aspx).

Interesting website that shows how population around the world is growing by the second. It also has the daily counts broken down by countries

Grant, Lindsey, and Inc Growth. *The Case for Fewer People: The NPG Forum Papers*. Santa Ana, Calif.: Seven Locks Press, 2006.

This text was valuable resource that had collection of speeches of people arguing the various sides on the population debate.

Hohm, Charles F. *Population: Opposing Viewpoints*. San Diego, Calif.: Greenhaven Press, 2000.

This was an interesting text and valuable resource. The chapters were arranged so that they would present the arguments for population and against population based on topic.

Jian, Ma. "China's Brutal One-Child Policy." *The New York Times*, May 21, 2013.  
[www.nytimes.com](http://www.nytimes.com).

A good resource that explains the population policy in China and the cruel results in created

Plumer, Brad. "How Long before the Great Plains Runs out of Water?" *The Washington Post*, September 12, 2013. Accessed October 13, 2014.

I found this article that pertained to one of our discussions in seminar about water use in the United States and **how** our usage has changed in a span of ten years. I'm going to have my students read the article as an activity to develop their point of view on whether the United States should have a population policy in place.

Spencer, Cathy. "Interview: Garrett Hardin." *Omni Magazine*. Volume 14, June, 1992. Accessed May 5, 2014.

Interview with Dr. Garrett Hardin who favors population restriction in the United States. He offers many suggestions on how the United States could employ a population policy and his reasoning for do such a measure.

Yardley, Jim. "Beneath Booming Cities, China's Future Is Drying Up." *The New York Times*, September 28, 2007. Accessed October 24, 2014.

This article discusses the status of fresh water in china and how the booming economy adds to the predicted fresh water depletion. Students will read this article in order to compare the current status of fresh water in the United States.

## **Appendices**

Appendix A: Common Core Standards

CCSS.ELA-Literacy.RI.6.1

Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-Literacy.RI.6.2

Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments

CCSS.ELA-Literacy.RI.6.8

Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

CCSS.ELA-Literacy.RI.6.9

Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).

CCSS.ELA-Literacy.WHST.6-8.1

Write arguments focused on *discipline-specific content*.

CCSS.ELA-Literacy.WHST.6-8.1.a

Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

CCSS.ELA-Literacy.WHST.6-8.1.b

Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources

## Appendix B: Reciprocal Teaching Chart

### Side A

<b>Questioning</b>	<b>Predicting</b>	<b>Connecting</b>
<p><i>Pose <u>at least three questions about the reading</u>; these could include questions that <u>address confusing parts of the reading</u>, or <u>thought questions</u> that the reading makes you wonder about.</i></p>	<p><i>Identify <u>at least three text-related predictions</u>; these predictions should be based on new developments in the reading and your predictions should help the group to <u>anticipate what will happen next</u>.</i></p>	<p><i>Make <u>at least three connections</u> between ideas or events in the reading to <u>your own experience</u>, <u>the world around you</u>, or <u>other works of literature</u>. Be prepared to explain these connections to your group.</i></p>

### Side B

<b>Summarizing</b>	<b>Clarify</b>	<b>Inferences</b>
<p><i>Beyond retelling what happens in the reading, identify what you think are the <u>three most important events/details from the reading</u> and <u>explain why they are important and how they are connected</u></i></p>	<p><i>Identify words or phrases that you do not understand. <u>Define</u> those words and give an <u>example</u> of how the word is demonstrated</i></p>	<p><i>Make <u>at least three connections</u> between ideas or events in the reading and <u>cite evidence from the text to support your generalizations</u>. Be prepared to explain these connections to your group.</i></p>

### Notes

---

<sup>1</sup> Lindsey Grant, *The Case for Fewer People: The NPG Forum Papers*, Santa Ana, Calif.: Seven Locks Press, 2006, p. 466.



- 
- <sup>2</sup> “Geohive- Current World Population”, last modified October 24, 2014, [http://www.geohive.com/earth/population\\_now.aspx](http://www.geohive.com/earth/population_now.aspx)
- <sup>3</sup> Ma Jian, China’s Brutal One-Child Policy, *The New York Times*, May 21, 2013.
- <sup>4</sup> Daniel K. Gardner, China’s Environmental Awakening, *The New York Times*, September 14, 2014
- <sup>5</sup> Charles F. Hohm, *Opposing Points of View: Population*, San Diego, Calif.: Greenhaven Press, 2000, pg. 12
- <sup>6</sup> Ibid, p. 12
- <sup>7</sup> Lindsey Grant, *The Case for Fewer People: The NPG Forum Papers*, Santa Ana, Calif.: Seven Locks Press, 2006, p. 477
- <sup>8</sup> Ibid p. 261
- <sup>9</sup> Cathy Spencer, “Interview: Garrett Hardin”, *Omni*, June 1992, p. 61
- <sup>10</sup> Lindsey Grant, *The Case for Fewer People: The NPG Forum Papers*, Santa Ana, Calif.: Seven Locks Press, 2006, p. 475.
- <sup>11</sup> Charles F. Hohm, *Opposing Points of View: Population*, San Diego, Calif.: Greenhaven Press, 2000, p. 24
- <sup>12</sup> Ibid p. 24.
- <sup>13</sup> Cathy Spencer, “Interview: Garrett Hardin”, *Omni*, June 1992, p. 62
- <sup>14</sup> Brad Plumer, “How Long Before the Great Plains Runs Out of Water?”, *the Washington Post*, September 12, 2013.
- <sup>15</sup> ibid
- <sup>16</sup> Jim Yardley, “Beneath Booming Cities, China’s Future is Drying Up” *The New York Times*, September 28, 2007.
- <sup>17</sup> “Population Control: 10 Reasons Why It’s the Wrong Answer” last modified May 30, 2009, <http://climateandcapitalism.com/2009/05/30/population-control-10-reasons-why-its-the-wrong-answer/>.
- <sup>18</sup> ibid
- <sup>19</sup> Charles F. Hohm, *Opposing Points of View: Population*, p. 13
- <sup>20</sup> “Population Control: 10 Reasons Why It’s the Wrong Answer” last modified May 30, 2009, <http://climateandcapitalism.com/2009/05/30/population-control-10-reasons-why-its-the-wrong-answer/>.
- <sup>21</sup> ibid
- <sup>22</sup> ibid
- <sup>23</sup> ibid
- <sup>24</sup> ibid
- <sup>25</sup> ibid

**Curriculum Unit Title**

Human Population: When is Enough, Enough?

**Author**

Michelle Hilbeck

**KEY LEARNING, ENDURING UNDERSTANDING, ETC.**

CCSSRI6.1: Cite specific textual evidence to support analysis of science and technical texts  
CCSSRI6.2: Determine central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions  
CCSSRI9/RL6: Compare and contrast one author’s interpretation to that of another  
CCSW6.1: Write arguments to support claims with clear reasons and relevant evidence

**ESSENTIAL QUESTION(S) for the UNIT**

- What comparisons can we make between the novel *Among the Hidden* and the real life events and laws/policies in place in China?
- Using China as an example, what effects does a growing population have on our food supply?
- Would a population law or policy be beneficial to our future? Explain your views citing evidence from appropriate sources.

**CONCEPT A**

**CONCEPT B**

**CONCEPT C**

Identifying Central Ideas

Comparing Two Texts

Making a Claim and Argument

**ESSENTIAL QUESTIONS A**

**ESSENTIAL QUESTIONS B**

**ESSENTIAL QUESTIONS C**

What is the central idea or point the author is making?  
  
Can you cite evidence from the article to support the central idea?

Can you compare and contrast the population policies that are present in the novel to that of the real example created in China?

What is your stance on human population: is it necessary to have a population policy in the United States?  
  
Can you cite evidence from articles and research to support your argument?

**VOCABULARY A**

**VOCABULARY A**

**VOCABULARY A**

Central Idea

Population policy  
  
Propaganda

Claim  
Argument  
Counter argument  
Socratic Seminar

**ADDITIONAL INFORMATION/MATERIAL/TEXT/FILM/RESOURCES**

Novel: *Among the Hidden* by Margaret Peterson Haddix  
News Articles for Students to Read:

- As China Roars, Pollution Reaches Deadly Extremes
- Beneath Booming Cities, China’s Future is Drying Up
- Climate Change Ups Odds of a Southwest Mega drought
- China, the Climate and the Fate of the Planet
- How Long Before the Great Plains Runs Out of Water?