

**Natural Resources Shaping Arguments**

**Selected Evidence Set**

Food Shortage

**Affirmative/The world is facing a severe shortage of food**

“The world needs to produce at least 50% more food to feed 9 billion people by 2050. But climate change could cut crop yields by more than 25%. The land, biodiversity, oceans, forests, and other forms of natural capital are being depleted at unprecedented rates. Unless we change how we grow our food and manage our natural capital, food security—especially for the world’s poorest—will be at risk” (The World Bank, Food Security Overview, March 21, 2016).

“Already, volatile food prices—and the price spikes that can result—are the new normal. When faced with high food prices, many poor families cope by pulling their children out of school and eating cheaper, less nutritious food. This can have severe life-long effects on the social, physical, and mental well-being of millions of young people. Malnutrition contributes to infant, child, and maternal illness; decreased learning capacity; lower productivity, and higher mortality. One-third of all child deaths globally are attributed to under-nutrition” (The World Bank, Food Security Overview, March 21, 2016).

“Widespread water shortages caused by rising global temperatures could lead to food shortages and mass migration, an expert has warned. The head of the World Meteorological Society, Michel Jarraud has warned that of all the threats posed by a warming climate, shrinking water supplies are the most serious. It is predicted that by 2025, some 2.8 billion people will live in 'water scarce' areas - a huge rise from the 1.6 billion who do now” (Sarah Griffiths, The UK Daily Mail, December 24, 2015).

“Earlier this week the UN's Food and Agriculture Organisation (FAO) announced that Southern Africa faces food shortages, as drought, exacerbated by the El Nino weather pattern, delays planting and stunts crops across the region. 'The presence of a strong El Nino episode in 2015/16 raises serious concerns regarding the impact on food insecurity,' the FAO said in the alert” (Sarah Griffiths, The UK Daily Mail, December 24, 2015).

“Global food shortages will become three times more likely as a result of climate change and the international community needs to be ready to respond to price shocks to prevent civil unrest, a joint US-British taskforce warned in August. Rather than being a once-a-century event, severe production shocks, including food shortages, price spikes and market volatility, are likely to occur every 30 years by 2040, said the Taskforce on Extreme Weather and Global Food System Resilience” (Sarah Griffiths, The UK Daily Mail, December 24, 2015).

“With the world's population set to rise to nine billion by 2050 from 7.3 billion today, food production will need to increase by more than 60 per cent and climate-linked market disruptions could lead to civil unrest, the report said.

‘The climate is changing and weather records are being broken all the time,’ said David King, the UK foreign minister's Special Representative for Climate Change, in the report. ‘The risks of an event are growing, and it could be unprecedented in scale and extent’” (Sarah Griffiths, The UK Daily Mail, December 24, 2015).

“In a rebuff to climate deniers, the CEO of American food giant General Mills has asserted that global warming is being created by human activity and is threatening to disrupt global food supplies. A spokeswoman for the company, whose brands range from Yoplait yogurt and Pillsbury to Haagen-Dazs ice cream and Green Giant vegetables, went further, telling The Huffington Post that a failure to address climate change would make it extremely difficult to feed the world’s growing population, which is expected to exceed 9 billion by 2050” (Jo Confino, Huffington Post, August 31, 2015).

“[General Mills] is not alone in warning about risks to the agricultural sector from rising global temperatures.

Only last year, Walmart’s U.K. supermarket chain, Asda, published a report by consultants PwC which showed that 95 percent of its entire fresh produce range is already [at risk from climate change.](http://www.theguardian.com/sustainable-business/asda-food-waste-risk-climate-change) The study was the first attempt by a food retailer to put hard figures against the impacts global warming will have on the food it buys from across the world” (Jo Confino, Huffington Post, August 31, 2015).

**Negative/The world is not facing a severe food shortage**

“The consistently massive population of hungry people—along with variables like severe weather and economic downturns—sometimes spark warnings that the planet faces [impending food shortages.](http://www.guardian.co.uk/global-development/2012/oct/14/un-global-food-crisis-warning) And yet [more people in the world—1.7 billion](http://www.who.int/mediacentre/factsheets/fs311/en/)—are considered obese or overweight from a daily caloric intake that in some cases is at least six to seven times the minimum. This paradox is nothing new, experts say. It just shows the problem isn't that we have too little food, it's what we do with the food we have” (Mark Koba, “A Hungry World: Lots of Food, in Too Few Places,” CNBC, July 22, 2013).

"’We have two or three times the amount of food right now that is needed to feed the number of people in the world,’ said Joshua Muldavin, a geography professor at Sarah Lawrence College who focuses on food and agricultural instruction. ‘A lot of people aren't analyzing the situation correctly. We can deal with short-term food shortages after a disaster, but fixing long term hunger gets ignored,’ he said. ‘We don't have food shortage problem,’ said Emelie Peine, a professor of international politics and economy at the University of Puget Sound. ‘What we have is a distribution problem and an income problem,’ Peine said. ‘People aren't getting the food, ... and even if [they] did, they don't have enough money to buy it’” (Mark Koba, “A Hungry World: Lots of Food, in Too Few Places,” CNBC, July 22, 2013).

“If there is enough food, a major problem causing scarcity is what we do with it, said Roger Johnson, president of the [National Farmers Union](http://www.nfu.org/index.php), an advocacy group for U.S. farmers. ‘Something in the area of up to half of all that's produced is wasted,’ said Johnson, who runs his own farm in North Dakota. ‘In the undeveloped world, the waste happens before the food gets to people, from lack of roads and proper storage facilities, and the food rots,’ Johnson said. ‘In the developed world, it's the staggering amount of food that's thrown out after it gets to our plates’ (Mark Koba, “A Hungry World: Lots of Food, in Too Few Places,” CNBC, July 22, 2013).

"’I think we need to step out of the way of the market place and let it take its course,’ said Tim Richards, a professor of agribusiness at Arizona State University. ‘We're destroying local food markets around the world by forcing them to buy U.S. commodities.’ ‘We should stop global government support for farmers. The market does a fantastic job of sorting out prices and food production,’ said Richards. ‘If we just stay out of the way, food shortages could be eliminated.’ ‘A lot of folks have different opinions on how to solve the problem of hunger,’ he said. ‘But we have to reframe the debate from food shortages to understanding why so many people are not accessing good, nutritious food’” (Mark Koba, “A Hungry World: Lots of Food, in Too Few Places,” CNBC, July 22, 2013).

“Food shortages are seldom about a lack of food, there is plenty of food in the world, the shortages occur because of the inability to get food where it is needed and the inability of the hungry to afford it. These two problems are principally caused by, as Francis Moore Lappe' put it, a lack of justice. There are also [ethical considerations](http://blogs.worldwatch.org/nourishingtheplanet/interview-with-phil-bereano-part-i/), a higher value should be placed on people than on corporate profit, this must be at the forefront, not an afterthought. In 2008, there were shortages of food, in some places, for some people. There was never a shortage of food in 2008 on a global basis, nor is there currently. True, some countries, in Africa for example, do not have enough food where it is needed, yet people with money have their fill no matter where they live. [Poverty and inequality cause hunger](http://www.globalissues.org/article/205/does-overpopulation-cause-hunger)” (Jim Goodman, “The Food Crisis Is Not About a Shortage of Food,” Common Dreams, September 17, 2010).

“While millions of people go hungry in India, thousands of kilos of grain [rot](http://english.aljazeera.net/news/asia/2010/09/201099203726584604.html) in storage. Unable to afford the grain, the hungry depend on the government to distribute food. Apparently that's not going so well” (Jim Goodman, “The Food Crisis Is Not About a Shortage of Food,” Common Dreams, September 17, 2010).

“We are a nation of vast wealth and resources, but sadly, Congress only seems to posture on the issue of hunger. But much more can, and will, be done by concerned American citizens and nonprofits dedicated to lowering the number of those who go to bed at night hungry. I challenge you to join this fight and find a way to get involved. Can efforts to feed the world’s hungry children become a reality? The answer is YES! . . . Talk to your church, your community government, friends, colleagues, local food bank, etc. There are many resources, our organization, Outreach, Inc. included, that can provide guidance and assistance. Ask what the need is and take action. Just do something yourself, do not wait on ‘others!’ The actions you take today can change the course of the future for millions and you will make a difference!” (Floyd Hammer, “Attacking the Hunger Epidemic – And Winning,” Huffington Post, August 1, 2013).

Water Shortage

**Affirmative/The world is facing a severe shortage of fresh water**

“Clean, safe drinking water is scarce. Today, nearly 1 billion people in the developing world don't have access to it. Yet, we take it for granted, we waste it, and we even pay too much to drink it from little plastic bottles. Water is the foundation of life. And still today, all around the world, far too many people spend their entire day searching for it.

In places like sub-Saharan Africa, time lost gathering water and suffering from water-borne diseases is limiting people's true potential, ***especially women and girls.*** Education is lost to sickness. Economic development is lost while people merely try to survive” (The Water Project, thewaterproject.org, accessed on March 20, 2017).

“Unfortunately for our planet, supplies are now running dry – at an alarming rate. The world’s population continues to soar but that rise in numbers has not been matched by an accompanying increase in supplies of fresh water.

The consequences are proving to be profound. Across the globe, reports reveal huge areas in crisis today as reservoirs and aquifers dry up. More than a billion individuals – one in seven people on the planet – now lack access to safe drinking water” (Robin McKie, The Guardian, March 7, 2015).

“In the Middle East, swaths of countryside have been reduced to desert because of overuse of water. Iran is one of the most severely affected. Heavy overconsumption, coupled with poor rainfall, have ravaged its water resources and devastated its agricultural output. Similarly, the United Arab Emirates is now investing in desalination plants and waste water treatment units because it lacks fresh water. As crown prince General Sheikh Mohammed bin Zayed al-Nahyan admitted: ‘For us, water is [now] more important than oil’” (Robin McKie, The Guardian, March 7, 2015).

“The nature of the problem is revealed by US Geological Survey figures, which show that the total amount of fresh water on Earth comes to about 10.6m cubic km. Combined into a single droplet, this would produce a sphere with a diameter of about 272 km. However, 99% of that sphere would be made up of groundwater, much of which is not accessible. By contrast, the total volume from lakes and rivers, humanity’s main source of fresh water, produces a sphere that is a mere 56 km in diameter. That little blue droplet sustains most of the people on Earth – and it is under increasing assault as the planet heats up” (Robin McKie, The Guardian, March 7, 2015).

“The planet faces a 40% shortfall in water supplies in 15 years because of urbanization, population growth, and increasing demand for water for food production, energy, and industry, the United Nations said on Friday” (Magdalena Mis, Business Insider, March 20, 2015).

“With ‘business as usual’ the world is facing a ‘collapse in our global socioeconomic system,’ Richard Connor, lead author of the report, told the Thomson Reuters Foundation. By 2050 two-thirds of the world's population will be living in cities, and demand for water is expected to increase by 55%, mainly from demands related to growing urbanization in developing countries. Urbanization means that access to safe water and adequate sanitation, though typically higher in cities, has decreased in the fastest growing urban areas” (Magdalena Mis, Business Insider, March 20, 2015).

“World grain production tripled in the second half of the 20th century. The Green Revolution was accomplished largely by doubling the amount of irrigated land. Hundreds of millions of wells now reach into the earth like straws in a thick drink on a hot day. But as with many things, we’re taking more water than we’re getting. Because much food production relies on pumping groundwater faster than it recharges, the world has blown a big food bubble. The Green Revolution turned India — where millions once died in famines — into a food exporter. But now in parts of India, water tables are dropping more than half an inch a day. Many wells are depleted, and irrigated farmland has shrunk” (Carl Safina, “Water Enough for All?” Huffington Post, May 17, 2012).

**Negative/The world is not facing a severe shortage of fresh water**

“To understand the problem people need to read behind the headlines to understand one little fact: There is [no water shortage](http://www.livescience.com/1996-water-precious-wasted-resource.html). Our planet is not running out of water, nor is it losing water. There's about 360 quintillion gallons of water on the planet, and it's not going anywhere except in a circle. Earth's hydrologic cycle is a closed system, and the process is as old as time: evaporation, condensation, precipitation, infiltration, and so on. In fact, there is probably more liquid water on Earth than there was just a few decades ago, due in part to global warming and melting polar ice caps.” (Benjamin Radford, “The Water Shortage Myth,” Live Science, June 23, 2008).

“No, there is plenty of water. The problem is that the vast majority of Earth's water is contained in the oceans as saltwater, and must be [desalinated](http://www.livescience.com/4510-desalination-work.html) before it can be used for drinking or farming. Large-scale desalination can be done, but it [is expensive](http://www.livescience.com/4510-desalination-work.html). But nor is the world running out of freshwater, either. There's plenty of freshwater on our blue globe; it is not raining any less these days than it did millennia ago. As with any other resource, there are of course regional shortages, and they are getting worse. But the real problems are availability and transport; moving the freshwater from where it is plentiful (such as Canada, South America, and Russia) to where it is scarce (such as the Middle East, India, and Africa). Water is heavy and costly to transport, and those who can afford it will always have water” (Benjamin Radford, “The Water Shortage Myth,” Live Science, June 23, 2008).

“Water crises seem to be everywhere. In [Flint](https://theconversation.com/we-helped-uncover-a-public-health-crisis-in-flint-but-learned-there-are-costs-to-doing-good-science-54227), the water might kill us. In Syria, [the worst drought in hundreds of years](https://theconversation.com/what-prince-charles-gets-wrong-and-right-about-climate-change-and-conflict-in-syria-51169) is exacerbating civil war. But plenty of dried-out places aren’t in conflict. For all the hoopla, even [California hasn’t run out of water](https://theconversation.com/californias-water-paradox-why-enough-will-never-be-enough-40889). There’s a lot of water on the planet. Earth’s total renewable freshwater adds up to about [10 million cubic kilometers](http://water.usgs.gov/edu/earthwherewater.html). That number is small, [less than one percent](http://water.usgs.gov/edu/earthwherewater.html), compared to all the water in oceans and ice caps, but it’s also large, something like four trillion [Olympic-sized swimming pools](https://en.wikipedia.org/wiki/Olympic-size_swimming_pool)” (Kate Brauman, University of Minnesota, The Age of Humans, June 6, 2016).

“In our study, we decided to report the fraction of renewable water used up by people annually, seasonally, and in dry years. What does this metric reveal? You’re probably in trouble if you’re using up 100 percent of your water, or even 75 percent, since there’s no room for error in dry years and there’s no water in your river for fish or boats or swimmers. But only local context can illuminate that. We found that globally, just two percent of watersheds use more than 75 percent of their total renewable water each year. Most of these places depend on fossil groundwater and irrigate heavily; they will run out of water” (Kate Brauman, University of Minnesota, The Age of Humans, June 6, 2016).

"’While there is no global water crisis, the serious water and food security problems in some developing countries and regions need to be urgently addressed,’ FAO said. ‘If we want to avoid a future food crisis, we need more investments to achieve productivity gains in agriculture in developing countries using existing and new technologies. . . . Agriculture is by far the biggest water user, accounting for some 70 percent of all water withdrawals (industry: 20%, domestic: 10%). While the daily drinking water needs of humans are very small - four litres per person - the water required to produce a person's daily food is much higher: it varies between 2000 and 5000 litres” (Food and Agriculture Organization of the United Nations, FAO Newsroom, March 12, 2003).

“But the state’s problems are not a result of too little water. The real problem is that the price of water in California, as in most of America, has virtually nothing to do with supply and demand. Although water is distributed by public and private monopolies that could easily charge high prices, municipalities and regulators set prices that are as low as possible. Underpriced water sends the wrong signal to the people using it: It tells them not to worry about how much they use” (David Zetland, George Mason University, Forbes, July 15, 2008).

“We can solve America’s water ‘shortage’ in the same way that we would solve a shortage in any market. Increase prices until the quantity demanded falls to equal supply. This pricing system would ensure that everyone gets a basic allocation of cheap water while forcing guzzlers to pay a high price. Want to use more water? Pay for it” (David Zetland, George Mason University, Forbes, July 15, 2008).

Energy Shortage

**Affirmative/The world is facing a severe shortage of energy**

**“**But there is a serious risk that prices will stay around $50 a barrel until the end of the decade. If that happens, the IEA warned,the world will be forced to rely on a small number of Middle Eastern producers. Most other producers would find prices that low unsustainable, and would be priced out of the market. Reliance on Middle East oil exports could eventually escalate to levels last seen in the 1970s, the Paris-based IEA said in its World Energy Outlook. The IEA, which monitors energy market trends for the world's richest nations, said Asian countries would be hit hardest by the insecurity. Lower oil prices could also hamper the world's transition from fossil fuels to renewable energy, the report warned” (Ivana Kottasova, CNN Money, November 10, 2015).

“According to calculations by Gilbert Masters, Stanford Professor of Civil and Environmental Engineering, Emeritus, current oil supplies in all nations combined would last the world for only about 41 years. Masters painted the sobering picture of the world's looming energy dilemma during a January conference on environmental sustainability” (Michelle Chandler, Insight by the Stanford Graduate School of Business, January 1, 2008).

“Canada's supply of oil could serve as the world's only supply for six-and-a-half years. Central and South America combined would have about three years' worth. Africa contains only a 2.7-year global oil supply, while Europe and Asia combined have 3.3 years total. Half of the world's oil reserves — enough to last 23 years — are found in the Middle East nations of Saudi Arabia, Kuwait, Iran, Iraq, and the United Arab Emirates” (Michelle Chandler, Insight by the Stanford Graduate School of Business, January 1, 2008).

“Those who study energy patterns say we are in a gradual transition from oil and coal to natural gas, a fuel that emits far less carbon but still contributes to global warming. Gates thinks that we can’t accept this outcome, and that our best chance to vault over natural gas to a globally applicable, carbon-free source of energy is to drive innovation ‘at an unnaturally high pace.’ When I sat down to hear his case a few weeks ago, he didn’t evince much patience for the argument that American politicians couldn’t agree even on whether climate change is real, much less on how to combat it. ‘If you’re not bringing math skills to the problem,’ he said with a sort of amused asperity, ‘then representative democracy is a problem’” (James Bennett, The Atlantic Monthly, November, 2015).

“On why the free market won’t develop new forms of energy fast enough [Bill Gates]: Well, there’s no fortune to be made. Even if you have a new energy source that costs the same as today’s and emits no CO2, it will be uncertain compared with what’s tried-and-true and already operating at unbelievable scale and has gotten through all the regulatory problems, like ‘Okay, what do you do with coal ash?’ and ‘How do you guarantee something is safe?’ Without a substantial carbon tax, there’s no incentive for innovators or plant buyers to switch [to renewable energy]” (James Bennett, The Atlantic Monthly, November, 2015).

“[Bill Gates:] But what we’re asking ourselves to do here is change energy—and that includes all of transport, all of electricity, all of household usage, and all of industrial usage. And those are all huge areas of usage. And somebody’ll say to you, ‘Well, hey, lighting, LED technology, is going to reduce energy consumption from lighting by over half.’ That’s true; it’s a miracle, it’s fantastic. But unfortunately, there’s no equivalent in many of these other things, like making fertilizer or making electricity in a general sense. There’s opportunities to conserve that are really good. But the world is going to consume much more energy 30 years from now than it does today” (James Bennett, The Atlantic Monthly, November, 2015).

**Negative/The world is not facing a severe shortage of energy**

“Understandably enough, the stunning increase in North American oil production in the past few years simply wasn’t on their radar. According to the Energy Information Administration (EIA) of the Department of Energy, U.S. crude output [rose](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WCRFPUS2&f=W) from 5.5 million barrels per day in 2010 to 9.2 million barrels as 2016 began, an increase of 3.7 million barrels per day in what can only be considered the relative blink of an eye. Similarly unexpected was the success of Canadian producers in [extracting oil](https://www.eia.gov/beta/international/analysis.cfm?iso=CAN) (in the form of bitumen, a semi-solid petroleum substance) from the tar sands of Alberta. Today, the notion that oil is becoming scarce has all but vanished, and so have the benefits of a new era of petroleum plenty being [touted](http://www.wsj.com/articles/SB10001424053111904060604576572552998674340), until recently, by energy analysts and oil company executives” (Michael Klare, Salon, March 9, 2016).

“Three and a half years ago, the International Energy Agency (IEA) [triggered headlines](http://www.nytimes.com/2012/11/13/business/energy-environment/report-sees-us-as-top-oil-producer-in-5-years.html) around the world by predicting that the United States would overtake Saudi Arabia to become the world’s leading oil producer by 2020 and, together with Canada, would become a net exporter of oil around 2030. Overnight, a new strain of American energy triumphalism appeared and experts began speaking of ‘[Saudi America](http://www.wsj.com/articles/SB10001424127887323894704578114591174453074),’ a reinvigorated U.S.A. animated by copious streams of oil and natural gas, much of it obtained through the then-pioneering technique of hydro-fracking. ‘This is a real energy revolution,’ the *Wall Street Journal* crowed in an editorial heralding the IEA pronouncement” (Michael Klare, Salon, March 9, 2016).

“The world is no longer at risk of running out of oil or gas, with existing technology capable of unlocking so much that global reserves would almost double by 2050 despite booming consumption, [BP](http://www.telegraph.co.uk/finance/newsbysector/epic/bpdot/) has said. When taking into account all accessible forms of energy, including nuclear, wind and solar, there are enough resources to meet 20 times what the world will need over that period, David Eyton, BP Group head of technology said. ‘Energy resources are plentiful. Concerns over running out of oil and gas have disappeared,’ Mr Eyton said at the launch of BP's inaugural [Technology Outlook](http://www.bp.com/en/global/corporate/technology/technology-outlook.html) (Reuters, The Telegraph, March 2, 2015).

“Oil and gas companies have invested heavily in squeezing the maximum from existing reservoirs by using chemicals, super computers and robotics. The [halving of oil prices](http://www.telegraph.co.uk/finance/commodities/11857719/Oil-at-20-a-barrel-It-could-happen-warns-Goldman-Sachs.html) since last June has further dampened their appetite to explore for new resources, with more than $200bn-worth of projects scrapped in recent months. By applying these technologies, the global proved fossil fuel resources could increase from 2.9 trillion barrels of oil equivalent (boe) to 4.8 trillion boe by 2050, nearly double the projected 2.5 trillion boe required to meet global demand until 2050, BP said. With new exploration and technology, the resources could leap to a staggering 7.5 trillion boe, Mr Eyton said” (Reuters, The Telegraph, March 2, 2015).

“The world is, however, expected to reduce its reliance on fossil fuels in favour of cleaner sources of energy as governments introduce policies limiting carbon emissions in order to combat global warming. ‘A price on carbon would advantage certain resources,’ Mr Eyton said. Governments are expected to agree on a framework to limit global warming by limiting carbon emissions at the [United Nation's climate summit in Paris](http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php) starting this month. European oil companies have urged policy makers to introduce a global price on carbon that will favour the use of less dirty natural gas at the expense of coal” (Reuters, The Telegraph, March 2, 2015).

“Economist Julian Simon, former professor of business administration at the University of Maryland and a senior fellow at the Cato Institute, was famous for taking a contrarian position on energy resources, arguing that our perception of scarcity was not validated by the current or historical factual record of energy abundance. In an essay titled ‘When Will We Run Out of Oil? Never!’ Simon argued against Malthusian fears that peak-oil theorists were right and sooner or later the pumps would run dry, as environmental alarmist Paul Ehrlich frequently argued” (Jerome Corsi, World Net Daily, October 26, 2009).

“Similarly, Simon traced the fears in the United States back to an 1885 U.S. geological survey that declared there was ‘little or no chance’ oil would ever be found in California. In 1939, the U.S. Department of the Interior argued U.S. oil resources would be exhausted in 13 years. Then, when that prediction proved a false alarm, the Department of the Interior revised its estimate and declared that it was from 1951 that U.S. oil would be exhausted in 13 years. Simon argued gloomy predictions about running out of oil, coal or any other energy resource including natural gas were typically wrong” (Jerome Corsi, World Net Daily, October 26, 2009).