10 Reasons Our Civilization Will Soon Collapse

A deep dive into the problems world leaders have let spiral out of control.

By Alan Urban on October 15, 2023



Kevin Key

That's right. Our entire global industrial civilization is going to collapse. And soon, which means within the lifetimes of most people alive today.

I realize this is quite the claim, and a pretty terrifying one if you're under 50 or so. In this article, I will list 10 problems the world is facing, each of which could cause the collapse of civilization all on its own. Which means, ***if even one of these problems isn't solved, our civilization is doomed.***

Before I continue, let me explain what I mean by "collapse." First of all, it doesn't necessarily mean that humans will go extinct. While that is certainly a plausible scenario given the many existential threats we are facing, I still believe it is unlikely. Small groups of humans survived in very difficult conditions for tens of thousands of years.

By collapse, I mean a breakdown of social institutions like governments and economies, followed by a dramatic decline in the human population. I realize that's still kind of vague, so here's a more specific definition I found in the book, How Everything Can Collapse.

It says, *"A collapse is the process at the end of which basic needs (water, food, housing, clothing, energy, etc.) can no longer be provided [at a reasonable cost] to a majority of the population by services under legal supervision."*

As society breaks down, life will get simpler and simpler. By the late 21st century, people will be living the way they did in the early 19th century.

How do I know this? Let's start with humanity's biggest problem. No, it's not climate change. It's something most people have never even heard of.

1. Overshoot

Although I've listed overshoot as just one of the many problems humanity is facing, I could argue that it's the *only* problem we're facing because every other problem on this list is the result of overshoot. Let me explain…

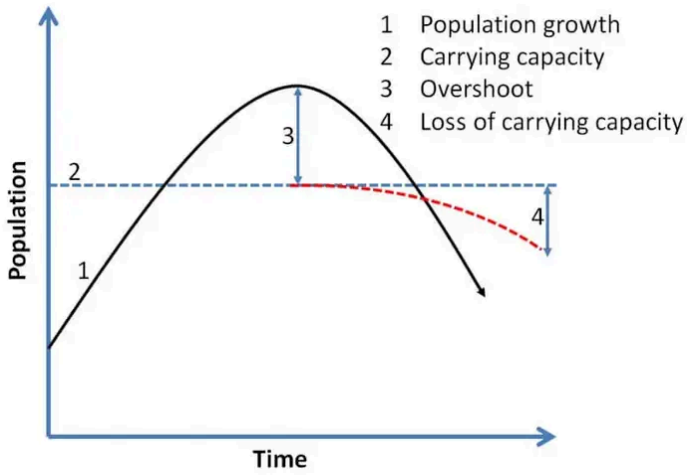
If you've never heard of ecological overshoot, it's what happens when an organism uses up an ecosystem's resources faster than they can regenerate. This happens all the time in nature.

For example, let's say a herd of deer are placed on an island with no predators and plenty of grass. The deer eat as much grass as they want, and the herd grows exponentially.

As their numbers grow, they eat the grass faster and faster until there is almost no grass left. The grass starts to grow back, but it gets eaten right away, and the deer even eat the roots of the grass, stopping it from growing back at all.

Now the population of deer has overshot the island's carrying capacity. There are too many deer and not enough grass, so most of the deer starve to death. The grass finally gets a chance to start growing back, but the carrying capacity of the island has been reduced.

This exact scenario has actually happened before, on St. Paul Island and St. Matthews Island off the coast of Alaska.



This happens with every type of organism, from yeast in a petri dish to humans on a planet. When predators are removed or a new food source is introduced, the population skyrockets then collapses as the food source is exhausted. (There's a great book called Overshoot: The Ecological Basis of Revolutionary Change which explains this in detail.)

So the question is: How long until humans overshoot the Earth's carrying capacity?

We already did. About 50 years ago.

That's according to the Global Footprint Network. Every year, they calculate the date when humans have used up as many resources as the planet can generate in a year. It's called Earth Overshoot Day, and last year it was on July 28th, which means that every year, humans use the equivalent of nearly 1.75 Earths.

You might be wondering, if we used up an entire planet's worth of resources by July 28th, then how did we continue to live after that date? We continued by using resources that had accumulated long before humans came along. Things like forests, aquifers, topsoil, and fossil fuels. Eventually, those surplus resources will be gone, and every year we will be forced to live on what the planet can generate that year.

This is something the average climate activist doesn't seem to understand. Even if we could stop climate change, our civilization would still have the problem of dwindling resources. Now that we've gone into overshoot, the population is destined to plummet no matter what we do.

We should have seen this coming. (Some people did.) Why did anyone think that infinite growth on a finite planet was possible? Of course we would eventually reach the limits of what the planet can support, but most of us assumed it would happen far in the future, long after we're dead.

Now, we have officially surpassed the carrying capacity of our planet. As we begin to run out of essential resources and food becomes harder to produce, the economy will collapse, the population will finally go back down, and civilization as we know it will come to an end.

What kind of resources are we going to run out of? That's what the next five items on this list are about.

2. The End of Cheap Fossil Fuels

Before I explain this, you need to understand how important fossil fuels (coal, oil, and natural gas) are to our civilization.

The first and most obvious use for fossil fuels such as oil is to make gasoline and diesel for our vehicles. Without those, our civilization would completely collapse because truckers need diesel to get food and supplies to the stores. Not to mention the fact that most people in the developed world need gasoline to get to their jobs.

But gasoline is just one small part of our precarious civilization. As explained in the book, How The World Really Works, there are at least four other things we need: cement, steel, plastic, and ammonia. And they all require fossil fuels.

We need cement and steel for construction projects, we need plastic for everything from household items to medical equipment, and we need ammonia to produce nitrogen fertilizer, without which half the world would starve.

That's why I roll my eyes when someone says, "We need to stop using fossil fuels *now*!" We can't just stop. If we did, people would riot and society would descend into chaos.

I don't deny that fossil fuels are destroying the environment. Of course they are. But before we quit fossil fuels, we need to find new ways to create cement, steel, plastic, and ammonia, among other things. Otherwise, we're doomed anyway.

Now you can see how crucial fossil fuels are to our civilization. We need to transition away from them before we actually run out of them. And that's a problem because it looks like we're going to run out of them soon. Let's focus on oil.

People have been talking about peak oil for decades, but if you've never heard of it before, peak oil is the point at which the amount of oil extracted every year peaks then goes into terminal decline. This happens because there is a finite supply of oil on the planet, so as time goes by, oil companies make fewer and fewer new oil discoveries.

Although oil companies like Exxon Mobil continue to find new sources of oil, overall, oil and gas discoveries are at their lowest level in 75 years, leading many people to believe that we have already reached peak oil. And in fact, there are signs that worldwide peak oil production happened in 2018.

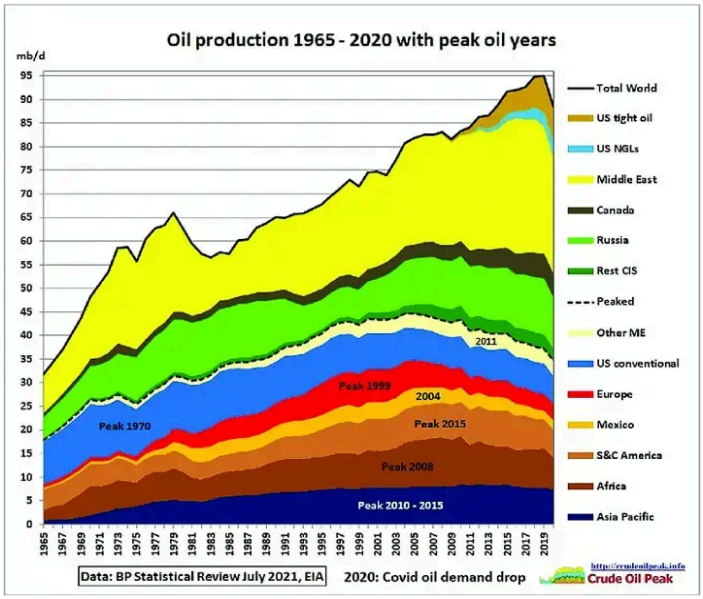


Image via ResearchGate

As you can see, every oil-rich nation is producing less oil despite the fact that global energy demand is increasing.

The United States reached the peak of its conventional oil production back in the 1970s. But thanks to new fracking technologies that allow companies to extract oil from shale fields, the U.S. has seen a boom in oil production over the last 10 years, making it one of the world's largest producers of oil.

However, this boom appears to be short-lived. There isn't as much shale oil as conventional oil, and it's very expensive to extract. In fact, most of the companies selling shale oil have gone bankrupt. Which makes you wonder, if the world still has plenty of oil left as some people claim, why are we resorting to expensive, hard-to-reach sources like shale fields?

Technically, the world will never run out of oil. The problem is that the remaining oil reserves will be so far underground and so hard to reach that it would take more energy to pump it out than we would get from the oil itself.

In other words, it will get so difficult to make a profit from fossil fuels that investors will simply stop investing in them. It's already happening. Meanwhile, global energy demand continues to increase. Countries are pumping it out of the ground as fast as they can in order to lower gas prices, but even countries like Saudi Arabia are already near maximum output.

Of course, oil isn't the only fossil fuel. There's also coal and natural gas. However, there is evidence that we will reach peak coal and gas in the coming decades.

Humans have used more fossil fuels in the last 30 years than they did in all of history before that. If we continue at this pace, there is no way we will still have enough fossil fuels for everyone in another 30 years. We'll be forced to switch to green energy.

Switching to green energy would be better for the environment. However, we can't use renewables like solar and wind power to produce cement, steel, plastic, and ammonia. Even if we could, there are other problems with green energy. For one thing, it's not actually green.

3. The Failure of Green Energy

Pollution

What do people actually mean when they say "green energy"? From what I can tell, most people think it means energy without damage to the environment. We get our energy, the environment is okay, everybody wins. Unfortunately, that's not how it works.

Although green energy sources such as wind turbines and solar panels produce fewer emissions than fossil fuels, they still produce some emissions because we need fossil fuels to create them.

First of all, we need oil to extract the materials needed to create wind turbines and solar panels. Diesel-powered trucks transport the materials to factories, then they transport the wind

turbines and solar panels to their destinations. Oftentimes, helicopters are required to set up the wind turbines, especially offshore turbines.

Not only do we need fossil fuels for all this, parts of the solar panels and wind turbines are literally made from fossil fuels. Remember, plastic is derived from oil, and the blades on wind turbines are made of plastic.

It gets worse: Most electric vehicles are up to 50% plastic. So while you're cruising around in your Tesla feeling good about how you've reduced your carbon footprint, just remember that it took at least three barrels of oil to create your car. Probably a lot more if you count the energy it took to make all the other components.

There are other ways to create plastic, but they're a lot more expensive. So even if we were making cars that somehow didn't require any fossil fuels, they'd be too expensive for most people. Hell, they're *already* too expensive for most people.

This is the sad irony of the so-called green energy revolution: *If we stop using fossil fuels, we'll see a collapse in the production of renewables.* And really, they shouldn't even be called renewables because wind and solar farms have to be rebuilt every 20-30 years. They should be called *rebuildables*.

Fossil fuel emissions aren't the only problem with green energy sources. To create computers, solar panels, electric vehicles, and all sorts of other technologies, we need metals. *Lots* of them.

Most people don't know about all the rare metals in their phones and devices—metals such as europium, indium, manganese, neodymium, terbium, tungsten, and many others. To get these metals, companies destroy local ecosystems and dig huge holes in the ground for strip mining.

It has been estimated that mining already influences up to 30 million square miles of the Earth's surface, which is about 15% of the Earth's land surface, but this is just the beginning. To keep up with demand, companies are cutting down rainforests, ruining wildlife habitats, and they're even planning on mining the ocean floor, which could have all sorts of environmental consequences.

One of the most important metals for green energy is lithium. Because it's the least-dense metal, it stores a lot of energy for its weight, which is why it's the preferred metal for electric car batteries. Unfortunately, lithium mining is also destroying ecosystems.

You might argue that it's worth destroying a few ecosystems in order to live in a world with fewer greenhouse gas emissions, but if so, you're missing the point.

Right now, 1% of cars in the United States are electric. If we still need to replace the other 99% with electric vehicles, but we're already harming the environment by mining metals everywhere

we can find them, *imagine how much more destruction we'll do by the time every car in the United States is electric.* And that would still only be 19% of the world's vehicles.

So far, renewables only make up about 4.5% of world energy production, so we have a *long* way to go before changing the entire world's grid to green energy and replacing all the gas-powered vehicles with electric vehicles. To accomplish that, the damage we'll do to the environment could potentially outweigh the damage done by climate change.

Jevons Paradox

Even if renewables didn't require fossil fuels and didn't damage the environment, it wouldn't matter. We aren't switching to them fast enough to make a real difference. Why not? Because new sources of energy don't replace old sources—they simply get added to the total.

Most people have this idea that humans have been switching energy sources for the last few centuries. First we used wood, then we used coal, then we used oil and natural gas, and now we're switching to renewables. In reality, we're still using all of the old energy sources. In fact, we're burning more coal than ever before.

Sure, we're using renewables too, but they haven't stopped us from continuing to burn more fossil fuels every year. In 2021, for example, there was a 5% increase in global energy demand, and half of that was met with fossil fuels, especially coal.

Renewables aren't replacing anything. All they're doing is making electricity slightly cheaper, which only encourages people to use more electricity. This is a great example of the Jevons paradox.

What's the Jevons Paradox? Basically, when new technologies or government policy increase the efficiency with which a resource (such as fossil fuels) is used, the price drops. However, the lower price causes people to consume more, thus raising the price again and negating any efficiency gains.

Here's a great example: Back in the 1970s, most cars only got about 13 or 14 miles per gallon. Then in the 1980s, auto companies improved the fuel economy of their vehicles, and by the 1990s, most cars were getting 19 or 20 miles per gallon.

Did this save people money on gas? Nope. Instead, people started driving more, going out more often and splurging on summer road trips. People drove so much more that they simply used more gas while spending as much on it as they did in the 1970s. The same thing is happening with people who buy hybrids (see the chart below).

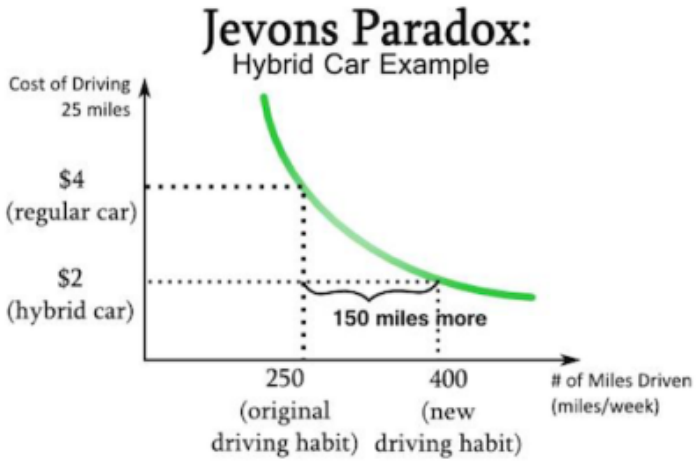


Image via cfo.university

And now, we're seeing the same effect with renewables. Wind and solar bring down the cost of electricity, causing people to use more of it until the price goes up again.

Peak Metals

Now let me be very clear—I am *not* saying that we shouldn't be producing wind turbines, solar panels, and electric vehicles. Of course we should. We're going to need them in order to transition to a post-carbon world once fossil fuels are too expensive to extract.

However, we have one huge problem that no one wants to talk about: Like fossil fuels, the resources we need to create renewables are limited. There are only so many rare metals in the ground, and there aren't nearly enough of them for ideas like the Green New Deal to actually happen.

As I said above, we have a very long way to go before replacing all of our fossil fuels with green alternatives. Imagine billions of electric cars charging up on a grid powered exclusively by renewables. What would it take to make this dream a reality?

According to the IEA (International Energy Agency), to reach net-zero by 2050, we need to mine six times as many metals as we currently are. This is quite the problem given that we're already mining metals as fast as we can.

Solar panels need tellurium, wind turbines need dysprosium, and batteries need lithium. Given that only a small percentage of our grid runs on renewables and we're already struggling to mine enough metals, the dream of a Green New Deal doesn't seem very likely.

If you don't believe me, I'm going to quote a letter written by experts in Earth science and delivered to the United Kingdom's Committee on Climate Change a few years ago. Here's what they said:

To replace all UK-based vehicles today with electric vehicles … would take 207,900 tonnes cobalt, 264,600 tonnes of lithium carbonate (LCE), at least 7,200 tonnes of neodymium and dysprosium, in addition to 2,362,500 tonnes copper. This represents, just under *two times the total annual world cobalt production, nearly the entire world production of neodymium, three quarters the world's lithium production and at least half of the world's copper production during 2018."* [emphasis mine]

And that is just the United Kingdom. To replace the planet's entire fleet of gas-powered vehicles with electric vehicles would obviously require far more metals than we have.

This is why the so-called Green New Deal is a fantasy. I don't mean to attack people who support it. Their hearts are in the right place. And I'm not saying we shouldn't try to create more renewables. We *have* to. I'm just saying we won't be able to create enough to sustain our energy-hungry civilization.

We can't even get rid of our gas-powered vehicles. And even if we could, transportation represents only 27% of our total emissions anyway.

You might wonder why we can't recycle these metals. We can, but the problem is with the energy required to recycle them. To recover tiny specks of metals like indium and terbium from every smartphone that gets thrown away would be very difficult, if not impossible. For most metals, it simply isn't worth the cost.

Our only options are to search for replacement metals (which isn't going well), search for new deposits, and dig deeper into current mines. Over time, the quality of the ore will go down and the metals will get more and more expensive.

It's already happening. After years of decline, the cost of renewables is going up. Think about that. The transition to renewables has barely even begun, and we're already seeing diminishing returns.

For all the talk about *why* we need a Green New Deal, there's very little talk about *how* to enact a Green New Deal. And now you know why. There simply aren't enough metals to make it happen.

4. Dwindling Resources

Now that I've destroyed your dreams of a green techno-utopia, let's look at some other resources that are in short supply.

Rubber

Rubber is essential to the modern world. We need it for tires, shoes, wire insulation, conveyor belts, masks and gloves, seals on refrigerator doors, and plenty of other things.

Most people don't know this, but rubber comes from a tree—the rubber tree. It's actually called hevea brasiliensis, a tree from South America.

And unfortunately, climate change is making it harder to grow these trees. Droughts and floods are making them struggle to survive, and tapping too much of the sap (which is used to make rubber) can kill them. Plus, they are very vulnerable to white root disease, and climate change is making leaf blights like that more common.

All of this is why there's been talk of a "rubber apocalypse." There simply aren't any good substitutes for this wonder material.

Sand

Yes. Believe it or not, the world is running out of sand, or at least the kind of sand that we use every day.

Sand is the second most-used substance in the world after water. It is necessary to make glass and roads and concrete, and our civilization couldn't exist without those things. Just one house requires 100 tons of sand and gravel to build. That's why many countries actually have a strategic reserve of sand.

So why can't we just go to the Sahara desert and scoop up all the sand we need? Because that sand is formed by wind, which means the grains are smooth and round. We need sand formed by water, the kind of sand that is rough and has jagged edges. That sort of sand comes from beaches and riverbeds.

The world's tallest building, the Burj Khalifa, is surrounded by sand, but it is desert sand. If they had used that kind of sand to make concrete for the building, it would have collapsed. So they had to import thousands of tons of sand from Australia.

Sure, we can take sand from the beaches and riverbeds (both of which are terrible for the environment), but since it's so heavy, it's expensive to transport. And as we use up all the most convenient sources of sand, we're having to ship it farther and farther. We could also crush rocks to create our own sand, but that is very energy intensive. And thus, very expensive.

Sand is so valuable that there are actual sand mafias in places like India and Morocco. They bribe officials to look the other way while they harvest sand, ignoring the consequences to local ecosystems. And if anyone gets in the way, they get killed. This problem is only going to get worse.

You can learn more about the rubber and sand shortages in this CNBC video.

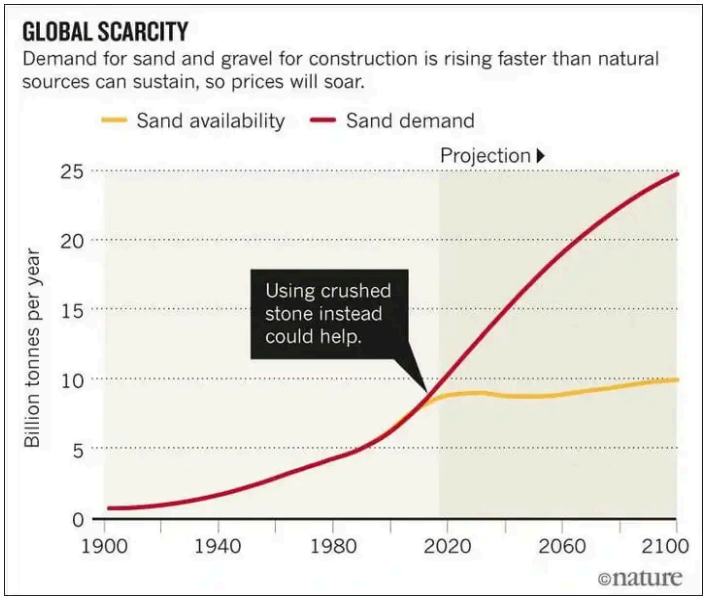


Image via Mother Jones

Fertilizer

This one is particularly frightening. Our entire civilization depends on nitrogen fertilizer. Without it, our crops would not produce enough food for everyone. Not even close.

And right now, fertilizer prices are at record highs. This is partly because of the war in Ukraine, but it is mainly because natural gas prices are near record highs, and there are many reasons for this.

Natural gas accounts for 80% of the price of nitrogen fertilizer. As the world begins to run out of natural gas, fertilizer is going to get a lot more expensive. It's already gotten so expensive that many farmers are having to cut back on production, which means much higher food prices come harvest time.

Maybe we'll find new sources of natural gas and, as a result, nitrogen fertilizer will become a lot cheaper. But nitrogen isn't the only thing we need to make fertilizer. We also need phosphorous. And there is a growing amount of research that indicates we will hit peak phosphorous by 2030, after which the price will begin to climb rapidly.

As I said, our civilization couldn't have grown to 8 billion people without fertilizer, so if we're not able to create enough fertilizer, then we won't be able to grow enough food for everybody.

Speaking of growing food, I should also mention the loss of our topsoil.

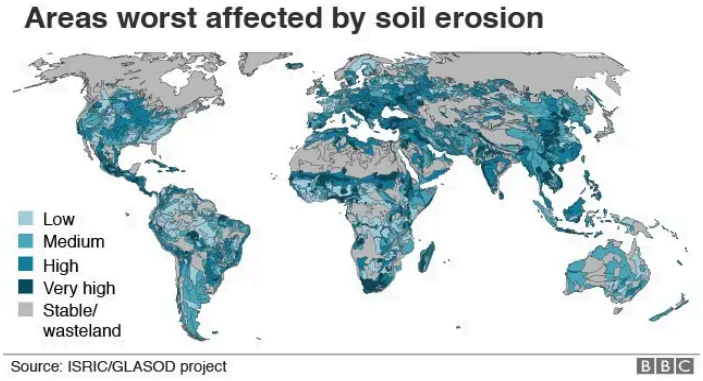
5. Topsoil Erosion

The average person doesn't even know what topsoil is. They think you can plant food on the same piece of land over and over without limit. In reality, once topsoil erodes away, the land it was on becomes unproductive. This is why the loss of our topsoil is one of humanity's biggest problems.

To understand why topsoil is so important, you need to understand that topsoil is a living thing. If there were nothing but dirt beneath us, we wouldn't be able to grow food. But there isn't just dirt beneath us. There's also soil, and soil contains all sorts of microorganisms like fungi, bacteria, bugs, and tiny plants. All these things combine to form healthy soil in which we can grow food.

Right now, our topsoil is eroding 10 to 40 times faster than it can regenerate. In fact, it can take up to 500 years for nature to form a single inch of topsoil, yet most farmers are going through a centimeter of topsoil every year.

It's been estimated that the world has lost about 70% of its topsoil since industrial agriculture began. As a result, 30% of the world's arable land has been abandoned due to it being unproductive. It gets worse: According to the U.N., we only have 50 years left before our topsoil is completely gone.



There are many reasons for this, but let's talk about minerals first. Topsoil contains dozens of minerals that microorganisms need in order to survive. Plants absorb these minerals as they grow. After the plants are harvested and sent to market, the minerals inside them are now gone from the soil forever, leaving fewer minerals behind for the microorganisms to use.

This problem is so severe that in North America, the soil has already lost 85% of its minerals over the last 100 years. And every other continent (except for Australia) has lost over 70% of its minerals.

Not only does this mineral depletion make it very difficult for microorganisms to thrive, it makes our food less nutritious. Modern food has far less calcium, copper, zinc and other essential minerals, leading to mineral deficiencies even in people who are well fed.

Our topsoil is also dying because of NPK fertilizers (which are made up of nitrogen, phosphorous, and potassium). These fertilizers gradually change the pH of the soil until it is so acidic that bacteria have a hard time surviving. That's a problem because some bacteria convert minerals into chemical forms that plants can use. Without them, the plants are less nutritious and struggle to thrive.

Yet another problem is the overuse of pesticides, herbicides, and fungicides. These also make it harder for plants to absorb minerals. Just as plants need beneficial bacteria to absorb minerals, they also need fungi, but fungicides kill the beneficial fungi as well as the harmful fungi.

At this point it might be fair to ask, "Why do farmers keep using these methods if they're killing the topsoil?" The answer is that there's always been enough topsoil left for the next harvest. Fertilizers help the plants grow faster and larger, and chemicals like pesticides, herbicides, and fungicides kill harmful insects, weeds, and fungi, allowing the crops to grow freely.

Yes, these things kill the topsoil, causing it to dry out and erode away. But farmers only lose about 1 centimeter of topsoil per year, and since many farms sit on at least a couple feet of topsoil, the problem simply isn't urgent enough to force farmers to change their methods.

This is a common theme with issues related to collapse. Since people only live 70-80 years, they have a hard time considering long-term problems that extend beyond their own lifetime, and an even harder time making drastic changes to their business practices, especially if doing so could mean earning less money.

However, when it comes to topsoil, we're now reaching a point where the consequences will be felt in the lifetimes of many people alive today. Food will become less nutritious and harder to grow, which will cause prices to go higher and higher until many people simply can't afford to eat.

We could slow down the rate of topsoil erosion through conservation practices in agriculture, but that would only delay the consequences. There are now so many people on Earth that we've essentially painted ourselves into a corner. We can't keep using up our topsoil, but we have to if we want to eat.

6. Water Shortages

Imagine living in a city with severe water shortages. In the richer areas, the water is only on for a few hours a day, giving residents a brief window in which to take showers and fill up their water bottles. However, they aren't allowed to wash their vehicles, water their lawns, or fill their swimming pools.

In other parts of town, things are even worse. The water is never on at all, and residents have to stand in the hot sun for hours, waiting in line so they can fill empty buckets from the spigot of a government water tanker.

These people are extremely careful with their water. They reuse it as much as possible, even cleaning plates and utensils in old dishwater. When the water gets too dirty to reuse, they flush their toilets with it. Rarely do they get to take a shower, opting instead for a wet washcloth and a little bit of soap.

They have enough drinking water to prevent severe dehydration, but they have to ration it to ensure they have enough left for cooking their food and brushing their teeth. Still, it is inevitable that some people use contaminated water, leading to a rise in diseases.

As for food, only people in richer areas are able to afford fruits, nuts, and vegetables. Everyone else relies on cheap—and thus, unhealthy—foods high that are high in sodium and carbohydrates and low in nutrients, which leads to even more illnesses.

And those are the lucky ones. Because crop yields are so low, food is very expensive, so the poorest people barely get enough food to survive, if they can afford it at all.

Meanwhile, the land around them is bone dry. Lawns have turned to dirt with a few tufts of dry grass. Many of the trees are dead, leaving behind skeletal branches. And the air is dusty, with stand storms blanketing the city in a fresh layer of dirt on a regular basis.

Because of all this, cities and states begin fighting each other for water rights, to the point where water mafias emerge and decide who gets water and who doesn't. Neighboring countries that rely on the same mountains and rivers for water go to war with each other.

This is the future we're heading for if something isn't done about the global water shortage. In fact, this is what life is already like in many parts of the world, especially India.

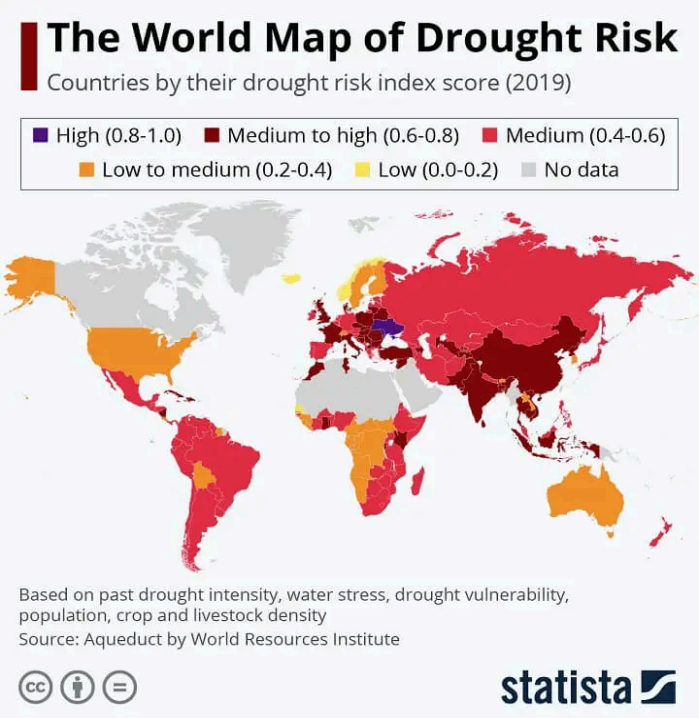


Image via Statista

But why is this happening? The main reason is drought. The US West is experiencing the worst megadrought in 1200 years. In fact, countries all around the world are experiencing some of the worst droughts ever thanks to climate change. Even major rivers such as the Mississippi are drying up.

Until recently, droughts were manageable because states and countries could just pump more water from underground. But now, even the aquifers are running dry.

The United States has many aquifers, but two of the most important are California's central valley basin and the Ogallala aquifer, which stretches from South Dakota all the way down to Texas.

90% of the water from these aquifers is used for irrigating crops, making them essential for growing food. In fact, they provide 20% of the world's grain crops and 40% of the fruits and vegetables consumed in the United States.

So how fast are we depleting these aquifers? Pretty damn fast considering the Ogallala aquifer dropped by 12 inches in 2021. Rainfall refills the aquifer, but that only amounts to about 1 inch per year. If we don't do something, the Ogallala aquifer could be dry within 20 years, leading to thousands of farms going bankrupt amid the worst dust bowl in history.

I'm not saying we're all going to die of thirst. Even as things get really bad, most people will still be able to find enough drinking water to avoid that. Instead, what will happen is severe food

shortages. 75% of groundwater goes toward agriculture. If the aquifers dry up and the droughts continue, we won't be able to grow enough food for everybody, and chaos will ensue.

There are 33 countries that are expected to experience extreme water stress by 2040. Some notable ones include Spain, Greece, Israel, Saudi Arabia, Iran, Iraq, Pakistan, and parts of India.

Those last two are very concerning. They are both nuclear-armed nations, and they hate each other. India only has a few years left to solve its water crisis. Otherwise, hundreds of millions of lives will be at risk.

We wouldn't be running out of groundwater if it weren't for all the droughts happening around the world. Without droughts, we would have plenty of water in the rivers, and plenty of rain would seep through the soil and refill the aquifers.

But it looks like the droughts are here to stay, and they're being worsened by one thing…

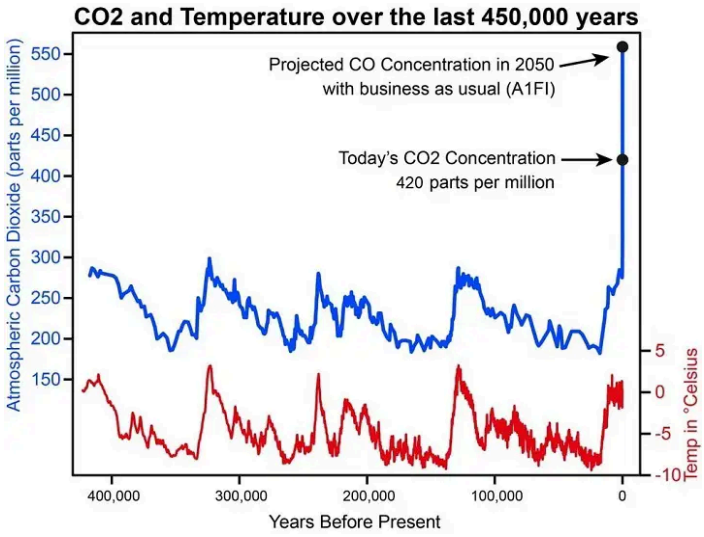
7. Climate Change

For this article, I'm not going to attempt to prove climate change is real and that we're causing it. (If that's what you're looking for, this site does an excellent job. Also check out this list of bad arguments and myths about climate change.)

On the one hand, climate change is incredibly easy to understand. The amount of carbon dioxide in the atmosphere essentially functions as a thermostat for the planet.

- Increase the concentration of carbon dioxide in the atmosphere and the temperature goes up, which causes more carbon dioxide to be released, driving the temperature even higher.
- Decrease the concentration of carbon dioxide in the atmosphere and the temperature goes down, which causes more carbon dioxide to be sequestered, pushing the temperature even lower.

This is how it's been for hundreds of millions of years.



On the other hand, climate change is incredibly difficult to understand because it has an uncountable number of effects that all interact with one another. That's why climate change has been referred to as a hyperobject, something so vast that it is beyond human comprehension. I believe this is part of the reason people have ignored it for so long.

You can't see or touch climate change unless you're in the middle of a drought, flood, heat wave, hurricane, or some other natural disaster. And even then, we can only say that those disasters are more likely or more severe because of climate change. They aren't climate change itself.

Part of the problem is that scientists and the media have done a terrible job explaining climate change to the public. For example, a few years ago, Bill Nye went on Tucker Carlson Tonight to explain why climate change is real and why it's such a serious threat.

I was very disappointed. Bill Nye spent the segment talking about ski resorts going out of business, vineyards having to move farther north, and sea levels rising a little bit over several decades. If that's what people think climate change is, no wonder they aren't worried about it.

I will explain in one sentence why climate change is so dangerous:

The increasing number and severity of natural disasters will eventually cause simultaneous breadbasket failures around the world, and the subsequent food shortages will lead to global famine and the breakdown of society.

Why can't people like Bill Nye just say that? Perhaps they don't want to scare people, but frankly, people *should* be scared. While it's true that sea level rise will destroy cities all around the world, we will probably experience global famine before any major cities are underwater.

And to be honest, that bold sentence above is a huge simplification. If food shortages were the only consequence of climate change, we might find ways to adapt. For example, we could grow more food indoors, we could cut down on food waste, and we could convert cattle-grazing land to croplands.

But there is much more to climate change than food shortages. Climate change is already causing record-breaking hurricanes, floods, droughts, heatwaves, wildfires, water shortages (see above), mass migration (see below), and more.

In the past 10 years, the number of billion-dollar disasters has gone up dramatically, even when adjusted for inflation. Just this year we've had five 1000-year rain events in the United States.

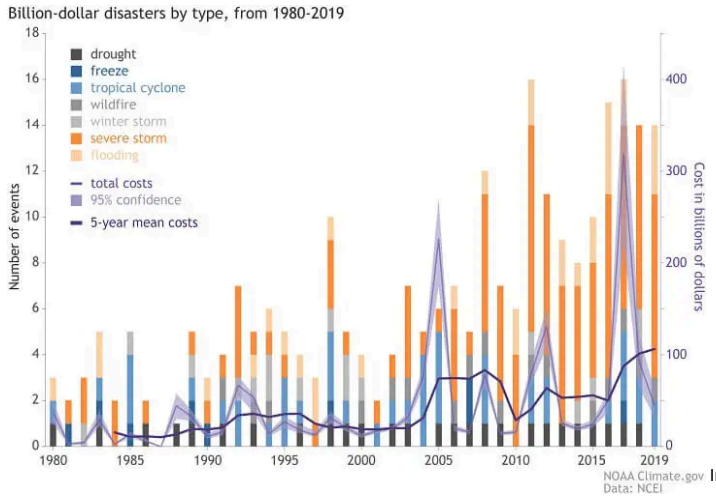


Image via climate.gov

Things are so grim that some government agencies are openly admitting that society could collapse. In 2019, General Mark Milley (Trump's chairman of the Joint Chiefs of Staff) commissioned a report that concluded the U.S. military could collapse within 20 years due to climate change.

A more recent report, published by the U.S. Marine Corps University, refers to climate change as a "hyperthreat" which could "provoke cascading tipping elements, accelerating a transition to a 'Hothouse Earth' state, which is uninhabitable for most species."

There won't be any one flood or heatwave that causes society to collapse. Instead, it will be like death from a thousand cuts. As soon as an area recovers from a disaster, it will be hit with another. And then another. Some areas will be hit with multiple climate-driven disasters at once.

Eventually, countries won't have the money or resources to rebuild. Infrastructure will fall into disrepair, and rolling blackouts will become the new norm. As everything falls apart, deliveries of food and supplies will become unreliable. Soon after, we'll see widespread civil unrest and a huge spike in crime as desperate people search for food.

For decades, climate scientists have known this is what will happen if climate change isn't stopped. But until recently, most of them thought we had more time. As it turns out, the climate models have underestimated the impacts of rising temperatures. Events that weren't supposed to happen until 2100 are happening now.

For example, last year scientists were shocked when a heat dome over British Columbia caused temperatures to get as high as 121°F…in *Canada*. It beat the previous highest temperature ever recorded in Canada by 9°F.

Then last spring, Antarctica saw temperatures 70°F higher than normal. A temperature variation that large shouldn't be possible in Antarctica, and yet it happened, setting a new world record for the largest temperature excess above normal.

More recently, the United Kingdom set a record with temperatures going as high as 104°F. Climate scientists thought there was only a one-in-a-hundred chance of temperatures getting that high. Month after month, year after year, we keep seeing record-breaking temperatures and disasters.

As I write this article, *China is experiencing the worst heat wave in recorded history.* Their rivers are drying up, and the lack of hydropower is causing rolling blackouts all across the country. Meanwhile, *Pakistan just saw its worst flood in history, leaving millions of people homeless.*

It's becoming clear that the climate change is happening faster than expected. And as a result, we're already seeing a rapid increase in crop failures due to droughts, floods, and high temperatures. Both the U.S. and India just had their smallest wheat harvests in 20 years. Meanwhile, heatwaves in Europe and China are causing many other crops to wither as well.

Here are a few more examples of crop failures around the world. According to a UN report, the world's farms are already being stretched to the breaking point. This means that even if the war in Ukraine ends tomorrow, food prices will continue to rise for the foreseeable future.

All of this is happening at a little over 1 degree of warming. What will happen at 2 degrees of warming? You might think it would be twice as bad as now, since 2 is twice as much as 1, but it doesn't work that way. The effects of climate change get exponentially worse as temperature rises, and we are on track for over 2°C of warming by 2050, probably even sooner.

And 2°C of warming is likely to be more devastating than expected because every year, climate scientists keep finding out that the Earth is more sensitive to temperature changes than they thought.

There are some people who still hold out hope that we can stop catastrophic global warming. I can understand this. Hope is a much better feeling than grief, and that's why some people cling to it no matter bad things get.

But the truth is, we have likely already triggered many irreversible tipping points. And even if we haven't, we definitely will soon because governments are showing no signs that they will reduce their burning of fossil fuels. In fact, many European nations are back to burning coal, the dirtiest of all fossil fuels.

No wonder climate scientists are warning that we face a ghastly future, with top scientists such as Will Steffen stating that collapse of civilization is the most likely outcome. And then there's James Lovelock, the famous English scientists who proposed the Gaia Hypothesis. He said that we should enjoy life now because in 20 years, global warming will hit the fan. That was in 2008.

I'm not saying we should completely give up. The faster we draw down our use of fossil fuels, the less damage we'll do in the long run. But the hard truth is that we are going to exceed 2°C of warming no matter what we do. If that triggers tipping points that take us up to 4°C of warming, billions of people will die.

And I still haven't even mentioned one of the greatest consequences of climate change…

8. Biodiversity Loss

We are living through our planet's sixth mass extinction event. The last one occurred about 65 million years ago and was the result of an asteroid. It was so destructive that it caused the dinosaurs, which had been around for 165 million years, to go extinct. Now we are in another mass extinction event, but this one is being caused by us.

It's amazing how few people know this. Once again, the media has done a terrible job explaining the severity of the crisis, so let's take a look at what's happening to wildlife around the world.

Since the dawn of civilization, humans have killed 83% of wildlife. Most of that has happened in the last 50 years. In fact, humans have wiped out 69% of animals since 1970.

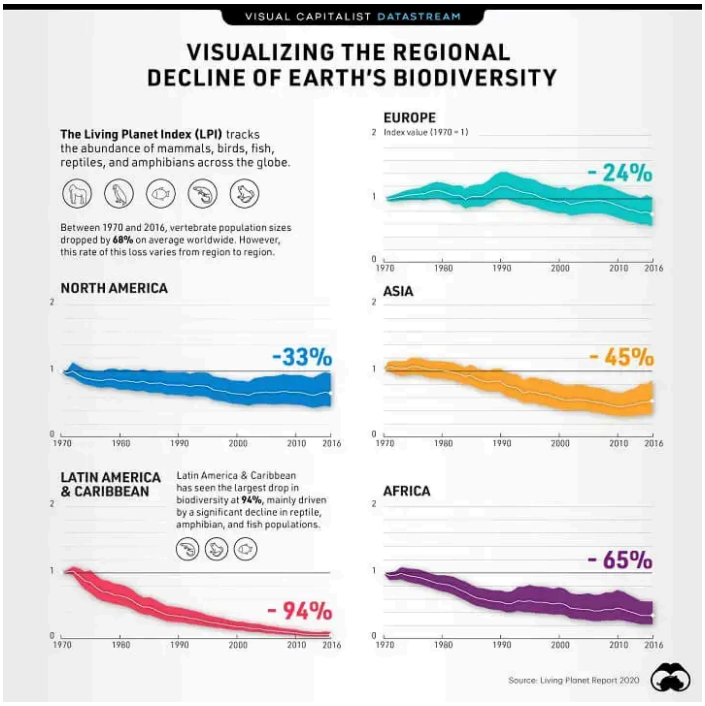


Image via Visual Capitalist

Let's start by talking about insects. If you're over 30 years old, think back to your childhood. Do you remember all the bugs that used to hit the windshield of your parent's car? I remember when my mom stopped for gas, she would clean all the dead bugs off the windshield with a squeegee.

Today, I never have to clean bugs off my windshield. Every now and then I'll see a bug or two on it, but that is rare. And it's not just windshields. If you ask me to go into my backyard and catch a bug, it would take me a while. I might see a few flying insects, but it's hard to find any that I can actually catch. But when I was a kid, I could walk into the backyard and grab a bug immediately (I know because I did).

This anecdote is even more startling when you consider that I grew up in the desert but today I live on the gulf coast.

So where did all the insects go? It's pretty simple: we killed them through a combination of pesticides, habitat loss, and climate change. We are literally witnessing the insect apocalypse, and it's our fault. Flying insect numbers have plunged by 60% in less than 20 years. This is unsustainable.

You might be thinking, "What's the big deal? Bugs are annoying." It's a big deal because bugs form the foundation of our food chain. If that foundation erodes, then every living thing that depends on it will struggle to survive.

It has been estimated that the total weight of the world's arthropods (insects, arachnids, millipedes, centipedes, and crustaceans), is 17 times higher than the total weight of all the

world's humans. As the arthropods die off, animals that depend on them for food—such as birds, reptiles, and amphibians—will die as well.

It's already happening. Over the past 50 years, bird populations have declined by 29%. And now, scientists believe birds are going extinct hundreds of times faster than previously thought. Meanwhile, frogs are disappearing and many reptiles are threatened with extinction.

The situation is so bad that scientists believe half the species on Earth could go extinct by 2050. The loss of that many species will have an "extinction domino effect" that leads to food webs collapsing and more plant and animal species dying. This is why some scientists are warning that the world will run out of food in a matter of decades.

Modern people, especially those in the Western world, are so used to living in cities that feel separate from nature, they've forgotten that cities depend on nature for their existence. We need nature in order to have fresh air, clean water, and healthy crops.

We are literally destroying our life support system. As the Australian government said in its latest State of the Environment report, "Environmental degradation is now considered a threat to humanity, which could bring about societal collapses." (Learn more about it here.)

And I still haven't mentioned what's happening to ocean life. Climate change is warming the ocean at the same rate as if five Hiroshima bombs were dropped in it every second. As a result, the oceans are headed for a mass extinction event on par with The Permian Extinction. If you've never heard of that, The Permian Extinction was the Earth's largest mass extinction, in which 90% of all species went extinct

The most obvious danger to humans is the collapse of fisheries, which is already underway. About 3 billion people eat fish as a part of their daily diet. Without fish, they will have to find other sources of protein, but as I've made clear in this article, that is going to get harder and harder as ecosystems fall apart.

The less obvious danger is the decline of phytoplankton, which make up the base of the aquatic food chain. If the phytoplankton die, nearly everything else in the ocean would die as well. Phytoplankton populations have already declined by 40% since 1950, and they continue to decline by about 1% per year.

Phytoplankton aren't just important for feeding other ocean life; they also create at least half of the oxygen we breath. This is why some experts have warned, if the ocean dies, we all die.

And it's not just animals that are dying; the plants are, too. Deforestation is happening faster than ever before, with Brazil setting records for how fast they're cutting down the Amazon. Overall, plants are going extinct 350 times faster than normal.

As I already said, we are destroying our life support system, and we're doing it so quickly that some researchers believe we only have a 10% chance of getting through the next few decades without societal collapse.

All of these problems I've written about above are going to lead to another major crisis you might not have considered yet.

9. Migrant Crisis

In order to understand the coming migrant crisis, first we need to take a look at what is currently the largest refugee crisis in the world and how it has affected neighboring nations. I'm talking about the Syrian refugee crisis, which is a result of the Syrian Civil War.

There are many reasons Syria ended up in a Civil War, but one of those reasons is a severe drought which was likely worsened by climate change. From 2006 to 2010, Syria had a devastating drought that turned 60% of the nation into desert.

This was the longest drought Syria had faced in nearly 1000 years. It was so bad, it caused 75% of Syrian farmers to suffer total crop failure, and it caused 85% of all livestock to die.

A huge portion of the Syrian population worked in livestock and agriculture, so this drought caused about 800,000 people to lose their income. Ultimately, about 1.5 million people moved from rural areas to urban areas in search of work, and all these new urbanites caused a lot of tension between groups like Kurds, Arabs, Alawites, and Sunnis.

The Syrian Civil War began on March 15th, 2011. It began with peaceful protests which were part of the Arab spring which had been sweeping across the Middle East. The Syrian government cracked down on the protestors, but that led to a growing number of militant groups who opposed the government.

As the violence got worse, infrastructure such as roads, utilities, schools, hospitals, and water/sewer systems were either damaged or destroyed. This forced people, especially parents, to find safer places to live.

In all, about 13 million refugees left their homes, and over half of those left the country entirely. About 3.6 million refugees ended up in Turkey, but another 2 million went to places like Lebanon, Jordan, Iraq, and Egypt.

Now let's pause for a moment: Imagine if you were living in Syria at this time. Your home and/or local infrastructure has been destroyed, 90% of people are living in poverty, disease is rampant, families are starving, crime is out of control, and militant groups want to recruit you or your children to fight in the war.

Wouldn't you try to leave, too? As a parent, I would be desperate to leave. I would do everything in my power to get my children somewhere safer. And that's what millions of parents did. They literally risked their lives trying to get to Europe, and thousands of them died on the dangerous journey across the Mediterranean sea.

As for those who made it to Europe, most of the them were (and still are) treated very poorly. Europeans see them as outsiders who are bringing crime and disease, and stealing jobs. Of course, this is completely unfair. As I made clear, most of the people fleeing Syria had no choice.

Still, when there's a huge influx of foreigners into a nation, it's going to cause racism and xenophobia to flourish. It's a sad fact of human nature. We are very distrustful of people who are different from us or who belong to a different group. Especially if the arrival of those people coincides with economic problems.

As a result of all this, there has been a huge surge in right-wing extremist groups across Europe including neo-Nazi groups (even in *Germany*). This has led to anti-migrant policies being implemented across Europe, the election of xenophobic leaders such as Erdogon in Turkey, and the construction of a massive border wall between Turkey and Syria.

To be fair, a country can only handle so many refugees. There is a practical limit to how many refugees a country can accept before total chaos ensues.

So why did I spend all this time talking about Syria? Because it will put the rest of what I have to say in perspective:

The Syrian refugee crisis is considered the largest refugee crisis of modern times, and it has caused chaos and tension all across Europe. This happened because of a mere 7 million people leaving the Middle East and heading North.

The climate crisis is expected to produce up to 1.5 billion migrants by 2050. Even if only half of them leave their home countries, it will be a refugee crisis *100 times worse* than the one that has happened across Syria and Europe over the past decade.

The world is not ready for all these climate refugees. They will cause chaos and tension the likes of which we have never seen.

Right now, the Middle East is home to about 547 million people, and it could have as many as 724 million by 2050. But according to scientists, the Middle East is literally becoming uninhabitable.

The Middle East is warming twice as fast as the rest of the world. By the time the world is 1.5°C warmer than pre-industrial times, the Middle East will be 4°C warmer. Heat waves will be so severe that if you don't have air conditioning, you will simply die due to high wet-bulb temperatures (another scary effect of global warming).

And as we know, power grids will be strained more and more as temperatures rise, which guarantees tens of thousands of heat-related deaths every summer. Maybe even hundreds of thousands. This will encourage even more people to move North.

Meanwhile, the Middle East is already experiencing severe droughts, which is a problem when 70% of the region's agriculture depends on rain. Lakes and rivers across the region are drying up, leaving less water for people and for crops. It's also disrupting the flow of electricity for people who rely on hydroelectric dams. This is why water scarcity is expected to lead to more conflict.

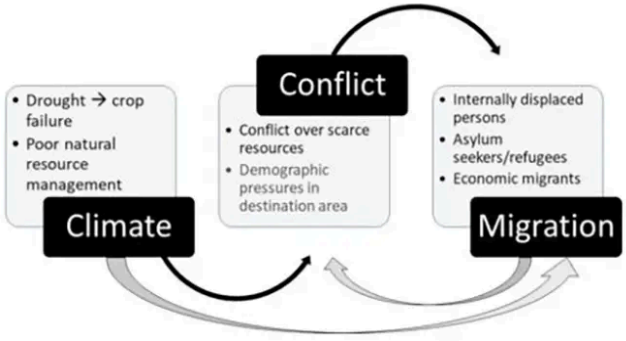
At the same time, other regions are getting too much rain. As of this writing, the floods in Pakistan have created a huge 100km-wide inland lake. Millions of people are homeless, and wheat crops have been destroyed, causing Pakistan to look to Russia for more wheat in a world that is *already* running low on food.

And let's not forget about sea-level rise. This study shows that Middle Eastern countries will lose several major coastal cities by 2050. For example, Basra, the second-largest city in Iraq, could be mostly underwater by 2050. The latest research indicates that up to 340 million people will live below annual flood levels by mid-century. Where will they go?

Hopefully I've made it clear why we're not ready for the climate refugee crisis. In fact, the situation is so severe that we couldn't fully prepare even if we tried. Most countries are already struggling to keep their populations fed, so there is no way we can handle hundreds of millions of hungry migrants.

So what is going to happen? Unfortunately, we will probably see a huge rise in the number of wars, both civil and regional. People are going to fight for whatever resources are left, and refugees will be viewed as undesirables who need to be deported, imprisoned, or executed.

Again, this is just a fact of human nature. A peer-reviewed study called "Climate, conflict and forced migration" confirms that climate change will lead to more wars and more refugees. The graphic below explains how.



Source: "Climate, conflict and forced migration" in January 2019 issue of Global Environmental Change

Although the surge in climate migrants will lead to civil and regional wars, that is only one of the many reasons major wars will become more common in the coming decades. In fact, most of the reasons listed above (peak oil, dwindling resources, water scarcity, food shortages, biodiversity loss, and climate-related disasters) will all contribute to a steep rise in wars and conflicts.

10. Increasing Conflict

As I write this, Russia and NATO are in a dangerous proxy war in Ukraine. The reasons for this are extremely complicated, but one of the major causes is dwindling resources.

I believe Russia recognizes that the world has passed peak oil and that energy is going to become more scarce. They also understand that droughts and floods (along with fertilizer shortages) are making it harder to produce food.

Now look at Ukraine. It has huge deposits of oil and natural gas, it has some of the best farmland in the world (it is known as the breadbasket of Europe), and it used to be part of the USSR. Because of this, Russia believes that taking back Ukraine is the best chance they have of securing a strong position in the changing world order.

Because of this, they will not give up on taking over Ukraine. If they did, it would put them at a major disadvantage as the climate gets more erratic and resources become more scarce. This is why I believe Putin would rather start a nuclear war than accept defeat (which is exactly what Russian state TV is warning).

Welcome to the resource wars.

The Arctic

Russia might also be willing to go to war over resources in the Arctic. According to a US Geological Survey, the region has 13% of the world's undrilled oil and 30% of its untapped natural gas. There could also be a $1 trillion in rare metals and minerals.

Also, as the Arctic melts and summer sea ice begins to disappear in the near future, the Transpolar Sea Route (TSR) will be the fastest way to get around the region, significantly lowering shipping costs. Now you can see why the Arctic is so valuable.

In 2021, Putin threated to knock out the teeth of any adversary that tries to take any territory claimed by Russia. And since Russia is claiming everything from their coast all the way to the North pole, it's easy to see how a conflict in the Arctic could begin.

The US, Russia, Canada, Denmark, Finland, Sweden, Iceland, Norway, and even China are claiming rights to the Arctic's oil, gas, and rare-earth minerals. As fossil fuels become more and

more expensive and demand for electric vehicles and renewables skyrockets, the Arctic could easily become the center of global conflict, possibly even leading to World War III.

That might sound far-fetched, but keep in mind that China owns about two-thirds of the world's rare-earth metals and minerals. Because of that, they are poised to dominate the 21st century by selling batteries and renewables to the rest of the world as fossil fuels run out.

This is a major threat to the U.S. empire, so you can bet it will do everything it can to get control of rare metals and minerals wherever it can.

India and Pakistan

Another regional conflict that could grow into a world war is in South Asia. Water is already becoming a scarce resource in countries like Pakistan, where many women and children walk miles every day to find fresh water. It's an even bigger problem in India, where 3/4 of homes don't have tap water. And of the homes that do, 70% of them have contaminated water.

Since several major rivers cross the India-Pakistan border, water is a major source of tension between them. As I mentioned above in the section on water shortages, India and Pakistan have both agreed to something called the Indus Waters Treaty. It gives control of three eastern rivers to India, and three western rivers (including the Indus River) to Pakistan.

Both countries have been accusing each other of violating the treaty. For example, right now India is building hydroelectric plants in the Indus river, but Pakistan says that will reduce their water supply.

The prospect of two nuclear-armed nations fighting over a river that is gradually running dry is terrifying. Even a small nuclear conflict would cause global famine. At the moment, relations between the two nations have calmed, but that is unlikely to continue as climate change causes rivers to dry up.

Pakistan will face major water scarcity by 2025. Meanwhile, India's water demand is projected to be twice the available supply by 2030. It is hard to imagine these two countries continuing to get along through the 2020s, but we can hope.

Meanwhile, it looks as though Pakistan's government is headed for collapse, which would be a disaster for the world. For years, Pakistan's government has been irresponsible, running into major financial problems.

Now, Pakistan is attempting to recover from its worst flood in history. It has affected 33 million people and left 1/3 of the country under water. But that is just the beginning. 65 percent of their main food crops have been destroyed by floodwaters, and 3 million livestock have died.

Because of economic issues and food insecurity, Pakistan has been heading toward collapse for years. This disaster will only speed things up.

The biggest concern for other nations is Pakistan's nuclear arsenal. As military generals in Pakistan struggle to get by, will they continue to ensure the security of weapons? What if the government is overthrown and generals are forced to flee? What if extremists take control?

It Only Gets Worse

There are many other ways that the fight over resources could lead to war. Israel, Saudi Arabia, and the United States would love to overthrow Iran's government and take their oil, but it is likely that Russia and China would come to their defense.

Meanwhile, North Korea could start threatening to use nuclear weapons if countries don't give them the resources they need to survive, literally holding the world hostage.

As climate disasters destroy infrastructure around the world, and as crucial resources become harder to find, many countries will turn on each other. Of the 25 countries deemed most vulnerable to climate change, 14 are already mired in conflict.

And this is just the beginning. We've only begun to see the effects of climate change and biodiversity loss, and resources like fossil fuels and rare-earth metals were abundant until very recently. If countries are already turning on each other, what will the world look like in another 10 or 20 years?

All this is why the Defense Department sees climate change as a serious threat to its operations that will lead to new global conflicts, ones we haven't even anticipated yet.

As Defense Secretary Lloyd Austin said, "Climate change is an existential threat to our nation's security, and the Department of Defense must act swiftly and boldly to take on this challenge and prepare for damage that cannot be avoided."

And according to the IPCC, "Increased drought and flood events and increased pests and disease from rising temperatures cause widespread crop failure. Rising ocean temperatures, marine heatwaves, and ocean acidity lead to a dramatic decline in fisheries contributing to migration and conflict."

They also wrote that "Food insecurity from food price spikes due to reduced agricultural production associated with climate impact drivers such as drought can lead to both domestic and international conflict, including political instability."

Nuclear Annihilation

On August 1st, 2022, the United Nations chief, Secretary-General Antonio Guterres, said that "humanity is just one misunderstanding, one miscalculation away from nuclear annihilation."

Countries are spending hundreds of millions on doomsday weapons which give a false sense of security. Meanwhile, the risk of nuclear proliferation is increasing and the guardrails the prevent nuclear escalation are weakening.

Over the past 70 years, the world has gone to the brink of nuclear armageddon over a dozen times. *And that was during a time when fossil fuels were plentiful and food was becoming more and more abundant.* As food becomes harder to produce (both due to climate disasters and a lack of fossil fuels needed for industrial agriculture), we can expect to go to the brink of nuclear annihilation again.

When will we go over the edge?

Conclusion

For decades, it's been obvious that our global industrial civilization has an expiration date, but only recently have many scientists come to realize that the expiration date could be during their own lifetimes.

Fifty years ago, humans overshot the carrying capacity of the planet. Since then, we have been exploiting the Earth's resources faster and faster, stealing from future generations. Our civilization wouldn't even exist without fossil fuels, but we are rapidly running out of them. And it appears green energy won't be able to replace them as there aren't enough metals in the ground.

Even if we had unlimited clean energy, we would still run out of crucial resources like rubber, sand, groundwater, and the ingredients for fertilizer. As the world's topsoil erodes, it will get harder and harder to grow enough food for everybody.

Eventually, we might not be able to grow food at all. Water shortages are already becoming a major problem, and this is just the beginning. Climate change is drying up the rivers, burning down the forests, and causing disasters the likes of which we've never seen.

Meanwhile, life of all types—from tiny plants to giant mammals—are going extinct even faster than they did during previous mass extinction events. As the web of life falls apart, human societies will become impossible to maintain.

All this chaos will lead to the worst migration crisis in the history of the world. The political tension and fights over resources could very well lead to nuclear annihilation. But things are so bad that even without nuclear war, we could still see human extinction by the end of this century.

Believe it or not, there's a lot more bad news that I didn't cover in this post. I barely touched on climate tipping points, and I could have written about our crumbling infrastructure, the millions dying from pollution, the increasing risk of deadly pandemics, and much more, but this article is already far longer than I originally intended.

It doesn't please me to share this information. Personally, I am terrified. Not just for myself, but for my two young children who I had before I knew all this. I apologize if I have frightened you.

People have asked me, "If we're all doomed anyway, then what's the point of scaring people? Why not just let them live their lives?" It's a fair question. My answer is that *the more people know about our predicament and start preparing for what's coming, the greater chance humanity has of surviving this century and creating sustainable societies in the distant future.*

I don't know if that's even possible. Perhaps we will pass so many climate tipping points that temperatures will rise high enough to snuff out life across the entire planet.

Or perhaps after the population declines and the planet warms, new societies will spring up in places like Greenland and Antarctica. They won't be societies that use fossil fuels, so they will likely be much simpler and more connected to the Earth. Maybe these societies will learn from our mistakes and take better care of nature—and each other.

If there's any chance that a future like that is possible, then we should do everything we can to make it happen. The first step is to inform people about what's happening, and the second step is to help them prepare. Those are the twin goals of this site.