

CREATING A BETTER CLIMATE FUTURE

How you can
start solving
climate change in
5 minutes a day

PHILIP KENT-HUGHES



FREE Guide
track your success
+100 Actions
to choose from

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PART 1

How We Can Solve the Climate Crisis

“Climate change is a threat to human well-being and planetary health. There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all.”

—Intergovernmental Panel on Climate Change (IPCC),
Sixth Assessment Report (2021)

WE CAN CREATE A BETTER CLIMATE FUTURE!

Are you concerned about the effects of climate change? Year after year, leaders go to climate conferences, and promise to act, yet carbon emissions continue to rise. Does this give you the feeling that there is something wrong with the way things are? Would you like to be empowered to join millions of people already changing the system?

With growing concern, I have witnessed reports of worsening forest fires, heat waves, floods, hurricanes, and other climate catastrophes from around the world. For many years, I went to climate protests and signed petitions, trying to promote change. Then in 2019, there was debate in the media about declaring a 'climate emergency'. As an advisor in emergency management, I was inspired to start writing. At first, it was important to identify the main obstacles preventing climate action and how to help people create system change.

Then I used emergency response principles to develop step-by-step solutions. With simple procedures, even a daunting task can be completed. Life is busy, so I've organized the areas of the response into manageable sections, such as food, transport, energy, production, and consumption.

Everyone has their own situation; some have financial constraints, while other people have different challenges. I've provided a wide range of options to be inclusive. Choose the actions that work best for *you*, tackling the easy ones, then moving to others that are more involved. Many actions take only a few minutes and can be included into a daily routine.

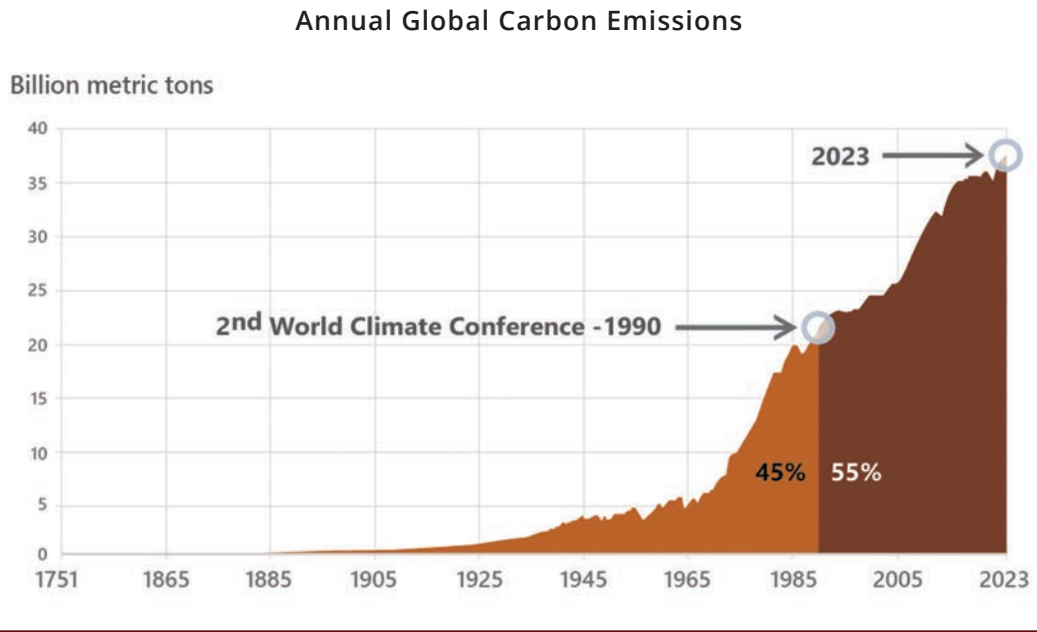
In this book, you'll discover checklists focused on reducing emissions in individual households, and other activities designed to influence corporations to apply sensible and sustainable solutions. There are real-life examples of how I applied the options, where I had difficulties, and what I did to address them. You will have the choice to take action individually, with your friends and family, or even with people in your town, city, country, or all over the world. There will be opportunities to find new community and make new friends.

We still have time to turn things around. We can worry less about the future by knowing that we are doing our part to make the world a better place. When we join the rising tide of people acting on the climate crisis, we will generate an unstoppable force that will change the direction of corporations, industries, and even economies.

What is the *real* problem?

Climate change isn't the problem; instead, it's the consequence of ignoring the science. Or as UN Secretary-General António Guterres noted, "Climate change is the defining issue of our time" and "Scientists have been telling us for decades. Repeatedly. Far too many leaders have refused to listen."¹

Like crime scene detectives, to find the source of a problem we need to review the facts.



Source: International Energy Agency (IEA) CO₂ Emissions in 2022

The international community agreed to act on climate change in 1990, but instead of falling, emissions grew even more rapidly than before (shown in the graph).² The 2015 Paris Climate Change Conference failed as well. Thirty years of failure cannot be an accident. Why isn't change occurring more rapidly?

The real problem is not emissions. **The real problem is there are obstacles to positive change.**

As an emergency management advisor, I've helped large organizations prepare for incidents that may threaten people's lives. Even after writing a new plan and training their team, sometimes there were problems preventing these organizations from responding effectively to an

incident. However, I found that if we ask the right questions, we can find out who or what is responsible for the obstacles. Then we can deal with them, and even prevent other problems from happening in the future. To solve the climate crisis, the essential first step is to correctly identify the obstacles which are preventing meaningful change. The main purpose of this book is to identify these obstacles and provide solutions to overcome them.

What are the obstacles?

Investigators found that oil and gas corporations spread misinformation about climate change that their own scientists knew to be untrue.³ They also worked in secret to defeat the United Nations' attempts to reduce emissions.⁴ Other investigations found that oil and gas corporations spent more than \$1 billion on climate-related lobbying of politicians and political parties soon after the 2015 Paris conference.⁵ It's no wonder traditional methods of creating positive change have failed when opposed by this vast wall of money that corrupts and undermines democracy. (For more details, see Appendix A: "Oil Companies Knew.")

Even considering these revelations, it would be naive to blame the oil and gas industry for everything, because most other industries have done little or nothing to reduce emissions. Science has shown that all sectors have options to halve emissions by 2030, so why aren't the solutions being implemented?⁶

Nicholas Stern, Professor at the London School of Economics, wrote a report on climate change for the UK government. He explained, "Climate change is the greatest market failure the world has seen,"⁷ because "those who damage others by emitting greenhouse gases generally do not pay."⁸

Why has the free-market economy failed so badly? One of the main objectives of the free market is profit. Annual profits can decide executive bonuses, dividends to shareholders, and influence the share price. Because of this, many companies often focus on making quick profits instead of investing money and other resources into reducing emissions. This focus on annual profits can also lead to corporate leaders doing nothing about their emissions and passing the consequences on to the next generation.

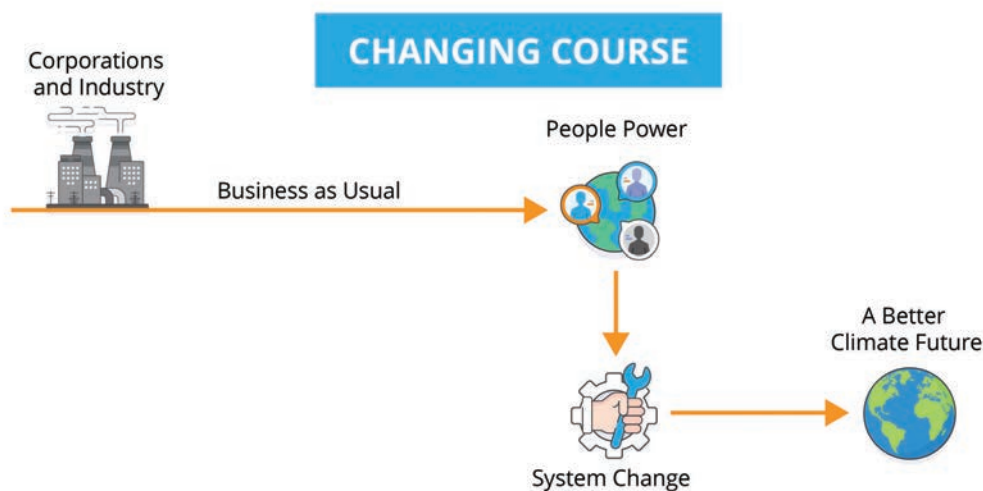
Some people say that we have a choice between looking after the economy and jobs or the environment. However, this is a false choice—because we can have *both*. Researchers found that companies that include environmental, social, and corporate governance (ESG) into their growth strategy can outperform their competitors.⁹ When we abandon false ideas about the free market economy, then we can solve climate change.

We can have a healthy economy, jobs, and emissions reductions and still create a better world for present and future generations. Nicholas Stern said of the response to climate change, “If we get this right, it will be more powerful than the industrial revolution.”¹⁰

How can we overcome the obstacles?

Most corporations, industries, and governments are doing too little, too late to reduce emissions. It is up to us to act now, and we should not ask for permission or wait anymore. We can guide a new direction for corporations, industry, and even entire economies by creating system change. We can keep the benefits of the free market, such as freedom of choice, competition, and innovation, while creating sensible objectives for the economy other than just profit and growth.

History shows us that when large numbers of people have stood up for an important issue, then change has followed. There have been many important social movements that achieved success, such as voting rights for women, civil rights in the US, the anti-apartheid movement in South Africa, ousting dictators, and marriage equality, to name just a few. Through people power and unified actions, we can change the direction of corporations and create system change that will lead to a better world.

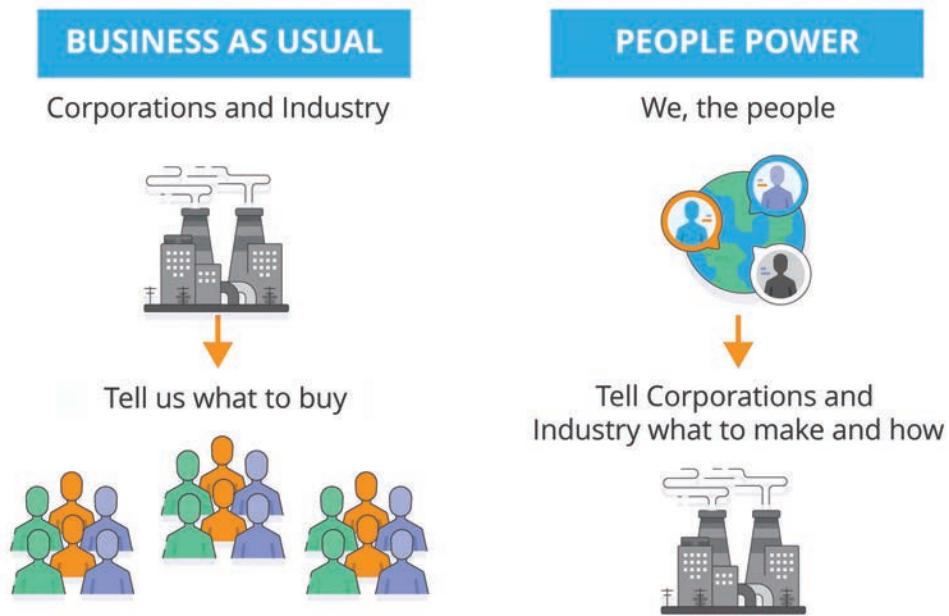


Some people have said we need a revolution to tear the free market down. But what if there was a way of solving climate change by using the rules of the economy to change itself?

How do we create system change?

Corporations have used advertising to tell us what products and services to buy. Some politicians have fueled culture wars to distract us and make us afraid. This is, in part, so we won't hold them accountable for failing to do their jobs, to serve the people instead of the corporations that give them money. It's time we turned the tables on both corporations and

the politicians. We have been told what to do and think for too long, it's time to reclaim our power. It's time we tell them what to do to serve our needs. **We the people, can step up to provide the leadership that has been missing. We can reverse "business as usual".**



How can we use the economic system to change itself?

So far, some of the main ways to take climate action have been:

- Protest and lobby politicians to make regulations.
- Take direct action to physically stop fossil fuel corporations.
- Use the legal system, to impose rulings to stop oil and gas expansion.

Pages 9 - 16 are not included in this preview

PART 2

A New Emergency Plan to Solve Climate Change

“The climate we experience in the future depends on our decisions now.”

“Our choices will reverberate for hundreds, even thousands, of years.”

—Intergovernmental Panel on Climate Change (IPCC),
Sixth Assessment Report (2021)

HOW TO SUCCESSFULLY USE THIS BOOK

Choose your own adventure!

There is a variety of options for taking action. In addition to reducing your own emissions, you can also spread positive success stories. You might be happy using social media or speaking face-to-face with friends, while others may prefer to work on their own. You could also participate in influencing government to act, signing petitions, or protesting polluting corporations. There are many ways to help create change, so choose the ones that suit your situation. There will be some easy actions to start with, and I'll also give examples of how I applied them. While I have written this book with individuals and small groups in mind, many of the steps can also apply to businesses and organizations.

Most global greenhouse gas emissions are from these main areas: food, energy, transportation, as well as production and consumption. So, to make it easy, the implementation part of the book is divided into these sections. Each of these includes an introduction that covers the situation and then five action methods. Each action method has an icon, a color, and a banner, as shown below.

Action Methods

	PERSONAL ACTIONS	REDUCING YOUR OWN GREENHOUSE GAS EMISSIONS
	COMMUNICATE	SHARING INFORMATION OR YOUR EXPERIENCES
	CONNECT	CONNECTING FAMILY AND FRIENDS, OR JOINING GROUPS
	INFLUENCE	ENCOURAGING POSITIVE CHANGE
	COMPEL	HELPING THOSE RELUCTANT TO CHANGE

The action methods include an easy-to-follow, step-by-step checklist. While working through each section, I suggest going through the checklists and attempting as many actions as possible. You can review the personal actions to reduce your own emissions, then choose any of the other action methods that work best for you. All actions are offered with the understanding that the only thing being asked is that we do the best we can, considering our own circumstances.

Choose your own level of involvement

You can focus on actions you enjoy, the ones you are good at, or those where you have a specialized skill. The choices might align with one or more of the different levels of involvement, which can include:

- **Lifestyle changer:** Reduce your own emissions and be an example of how this is possible for others. You could choose to share your success in person or online.
- **Ethical campaigner:** Change your purchasing decisions on your own, with your group or with an environmental organization, or as part of a campaign listed at www.climate-action.org.
- **Quiet campaigner:** Take part in protests marches, sign petitions, or volunteer in a support role at an environmental group in your spare time.
- **Climate circle organizer:** Create a group to share success and encourage each other. This is explained in more detail in Step 5, "Create unstoppable momentum."
- **Online influencer:** Send messages and spread ideas and information through social media.
- **In-person campaigner:** Volunteer in a more active role at an environmental group in your spare time. This could include lobbying politicians and protesting at corporate headquarters

Pages 20 - 23 are not included in this preview

STEP 1: BECOME A CLIMATE HERO

Many people look up to and admire great leaders, people who have risked their lives to save others, those who have succeeded in principled achievements, or even fictional characters. We are both the main character and author of our own story. So, let's recognize that and appreciate that power. If we decide to take action and strive to create a better world, then we can be the hero in our own story by playing our part in changing the course of history.

Be a change agent

We can respond to climate change by recrafting our lifestyles. We can achieve this by altering our existing habits and behavior patterns. Change is not always easy, but it doesn't have to be as hard as we sometimes make it. The book *Atomic Habits* by James Clear helped me understand that by making many small changes that gradually add up, we can make a big difference in our lives.

Create a new identity

Atomic Habits also suggests that instead of focusing only on the outcome, a good starting point is to change our belief about who we are. Don't worry, it's not too drastic. I decided that part of my new identity would be the statement "I am living a sustainable, zero emissions lifestyle." Even though this is something I am aiming for, this statement is written in the present tense. I find that this prompts my brain to unconsciously work towards it. I read it frequently, and I find it helps to reinforce my thinking and motivation.



PERSONAL ACTION

CREATE A NEW IDENTITY

Your new identity

Write out a belief statement about your own new identity and who you want to become.

Add the identity statement to your Climate Action Guide.

Creating a positive future through our choices



Pages 26 - 38 are not included in this preview

PART 3

Implementing the Actions

“There are multiple, feasible and effective options
to reduce greenhouse gas emissions,
and they are available now.”

—*Intergovernmental Panel on Climate Change (IPCC),
Sixth Assessment Report (2021)*

Pages 40 - 46 are not included in this preview

Food

A photograph showing a landscape where a forest has been cleared. In the foreground, there is a large, messy pile of uprooted trees, branches, and yellowish-brown soil. The background is filled with a dense forest of tall, thin trees with green foliage, some of which appear to be standing amidst the cleared area. The sky is overcast and grey.

Source: luoman via iStock

ACTIONS – FOOD

Food is a critical building block for life. However, our ability to feed people is now increasingly under threat from droughts, floods, fires, and desertification—climate change makes all of these worse.⁴⁸



Sources: *Our World in Data*, *The Lancet*, and Intergovernmental Panel on Climate Change (IPCC)⁴⁹

Situation

Many advances in agriculture mean that it has never been easier for some people to get food. When some people are hungry, they simply go to a store and buy food items that are ready to cook. Alternatively, they can go to a restaurant and enjoy a meal not only prepared for them but brought to their table. If they don't want to go out, they can have cooked meals delivered to their doorstep.

For other people who rely on growing their own food, if the seasons are bad or they face droughts, floods, or fires, there could be little or no food at all.

Globally, a staggering one in three people (2.3 billion) are affected by moderate or severe food insecurity.⁵⁰ Of these, 870 million people face hunger, and 149 million children suffer from malnutrition.⁵¹

The United Nations says we can feed the world with the amount of food currently being produced.⁵² How is that possible? Many factors come together in this complex issue but there are solutions we can all take part in. For example, more than one third of all food produced worldwide is lost or wasted each year, estimated at 1.3 billion metric tons and worth around US\$1 trillion.⁵³ Food loss happens because of issues with harvesting, storage, and transport, or food is wasted by retailers, food service, or consumers.⁵⁴ Individuals and industry make many choices about food each day that contribute to food loss and waste, as well as emissions.

One way of feeding a growing population, for instance, has been to cut down more forests to expand the land used by agriculture. Humanity has already cleared an area about the size of South America for crops and an area the size of Africa for livestock.⁵⁵ This is the major cause of biodiversity loss and is one of the major drivers of climate change.⁵⁶

It is estimated that the food production system is responsible for 25% of global greenhouse gas emissions every year.⁵⁷ With a growing population, global food production is projected to increase 50% by 2050.⁵⁸ Without making vital changes now, this will have a significant impact on nature and emissions. Instead of going down, emissions from agriculture are expected to increase by 30% by 2050 (IPCC).⁵⁹

But it's possible that this number could go down. Remember that the relationship that humanity has to food is about decisions made. Indeed, the single most powerful thing we can do to change how food affects the climate crisis is to make different choices. The IPCC reports that if more people switch to healthy food lifestyles, it will lead to significantly reduced emissions.⁶⁰ Healthy food decisions will lead to low emissions.

We the people have the power to create and influence positive change. When individuals make different food choices, the food industry will have to adjust the supply to meet the shift in demand. Industry professionals will then make different choices, and collectively, this will reduce emissions. The following section includes actions that will help support farmers and the food industry, reduce hunger, and achieve significantly lower emissions.

We Can Feed All People If We Choose To!



Source: Tinnakorn Jorruang on iStock

Objectives

These objectives are aimed at reducing emissions related to food as well as supporting the UN's Sustainable Development Goals (SDGs):

- Encourage and support farmers and all the food supply chain to reduce their emissions by at least 45% by 2030, then to net-zero as quickly as possible.⁶¹
- End hunger and malnutrition (SDG 2.1, 2.2).
- Halve per capita global food loss and food waste (SDG 12.3).
- Encourage sustainable food production systems and resilient agricultural practices that increase productivity and production (SDG 2.3, 2.4).
- Indigenous lands should be protected from encroachment of agriculture and forestry in accordance with the United Nations Declaration on the Rights of Indigenous Peoples.⁶²

These are some of the interconnected solutions we need to create a better future. You can find out more about the Sustainable Development Goals at <https://sdgs.un.org/>

How to achieve the objectives

Based on research efforts, several connected solutions are required to improve food systems:⁶³

1. Consumers switch to a lower-emissions food lifestyle.
2. Farmers, transportation, and food production reduce greenhouse gas emissions and food loss.
3. Retail, food service, and consumers reduce food waste.
4. Government creates policies which support farmers.
5. We protect forests and reduce the expansion of agricultural lands.
6. We share research and methods to support agriculture improvement in production while lowering emissions.

We will explore how we can reduce emissions and food waste, as well as communicate and encourage positive change and collaboration with consumers, farmers, researchers, producers, retailers, and government. The additional aim is to give you the information you need to make educated decisions on creating a healthy, sustainable, and low-emissions food lifestyle.

Personal Actions

The decisions we make as consumers can significantly influence emissions from the food sector. If we can become more thoughtful about the food we put on our plates, the choices we make will help decide the future. The extent to which people will be able to adjust their food lifestyles will vary according to people's circumstances. The following suggested changes are intended to be applied while respecting regional contexts, including cultural and religious norms, as well as acknowledging different income levels and personal preferences.

Our Choices Make a Difference



Source: Anastasia Gubinskaya on iStock

Pages 54 - 57 are not included in this preview

The guidelines note that more than 80% of people in the United States have a food lifestyle that is low in fruit and vegetables.⁷² Also, many people are exceeding total protein recommendations for meats, poultry, and eggs.⁷³ The guidelines suggest that on balance, half of the food on our plates should be comprised of fruit and vegetables.⁷⁴ Because our choices can bring about change, healthy food decisions will lead to low emissions. The MyPlate symbol only suggests proportions of food groups, not absolute amounts, because each person has different calorie and nutritional needs.⁷⁵

What I did

I made small adjustments, changing one meal in a week. I gradually swapped red meat for alternatives such as chicken or fish. I also started having more vegetarian meals. Over six months I reduced my red meat intake by half. I put the money I saved on less meat towards buying more fruit and vegetables. I will continue to adjust my food lifestyle to reduce my emissions even more. To make changing habits easier, review the “Tips to Help You Be Successful” section. One way to make a change is to pick the most enjoyable option. One way I did this was to make sure new recipes were tasty and easy to make. Some farmers and farming associations are already making important progress toward low- or zero-emissions produce, and these growers should be supported by consumers and governments.



PERSONAL ACTION

EAT FOOD WITH A LOWER CARBON FOOTPRINT

Talk with people

If you share meals with other people, involve them in the meal choices, the changes to make, and when they will take place.

Substitute from high- to low-carbon foods

Little adjustments, such as eating less beef, can quickly and significantly reduce your food footprint. There are many alternatives made from vegetable protein and other products that look and taste like meat.

Reducing portion size

Reducing the amount of high-emissions food in a meal is also a step in the right direction.

Half the plate

When planning meals, aim to fill half your plate with fruit or vegetables. If those who eat more red meat than recommended by the guidelines reduce their intake, it will be healthier for them and will reduce emissions.

Planning saves time and money

With a meal plan agreed on, you can plan what you are going to eat for the week. Deciding what recipes to use will inform the ingredients you need. Making meals tasty can support change acceptance. The MyPlate website presents more meal planning resources: www.myplate.gov/resources/print-materials.

No Meat Monday – No Meat May

One way to create a new food habit is to pick one day a week and aim for low emissions. If Monday is the first day of the working week for you, then starting change might be better on a different day, like Wednesday, for example. There is also No Meat May, a challenge from a group in Australia. They have a website with lots of resources, such as recipes, meal plans, blogs, and more: www.nomeatmay.org.

Transporting Our Food

It's not only the choice of food type that is important; how it is shipped can decrease or increase emissions as well. Food can be transported in many ways. It can be produced locally, driven by truck over long distances, canned and shipped by sea, or picked fresh and air freighted. Each of these modes of transportation has a different amount of carbon emissions. Fresh food transported by air freight will likely have the highest emissions, in some cases 50 times higher than sea freight.⁷⁶



PERSONAL ACTION

REDUCE TRANSPORTATION EMISSIONS OF FOOD

Buy in season

One of the simplest choices around reducing our emissions is buying fresh fruit and vegetables in season.

Buy local

If there is a tag or label, find out where the fruit and vegetables are coming from. By buying local or regional produce, you support farmers and businesses in your community. You also help fight emissions and pollution by reducing delivery distances for trucks and other vehicles.

What I did

I have been buying fruits and vegetables in season, which are more likely to be grown locally or from the nearby region. I have also been checking labels of fruits and vegetables to make sure they haven't been air freighted long distances.

Reducing Our Individual Food Waste

When there is food loss or waste, all the resources used to make it are squandered and the emissions were created for nothing. But those emissions still contribute to climate change.

The situation

The United Nations Environment Programme estimates that one-third of the food produced in the world for human consumption every year is lost or wasted. This amounts to 1.3 billion metric tons costing US\$1 trillion.⁷⁷ In addition, estimates suggest that 8% to 10% of annual global greenhouse gas emissions are associated with food that is not consumed.⁷⁸ If food loss and waste were represented by a country, that nation would be the third largest source of emissions.

Food loss and waste

Let's consider two separate aspects to this problem:⁷⁹

- *Food loss* occurs at the production level: at the farm, during post-harvest processing, or in the distribution stages.
- *Food waste* mainly takes place at retail and consumption stages.

Food Loss: 369 million metric tons			Food Waste: 931 million metric tons		
					
Farm	Transport	Processing Packaging	Retail	Food Service	Consumers
Not enough data available			118 million	244 million	569 million

As you can see from the previous table, most of the food that isn't eaten is wasted by consumers after they buy it and take it home.⁸⁰ In countries where data was available, food waste was high at the household level, estimated at 569 million metric tons per year.⁸¹

Setting your own objective

One of the Sustainable Development Goals set by the United Nations Programme is to halve per capita global food waste at the consumer level.⁸² Consider setting an objective of reducing your food waste by 50% within the next three to six months or another suitable time frame that matches your circumstances.

Growing and composting

Think about planting some vegetables or herbs to eat. This could be in a small garden, or in pots if you are renting. Instead of throwing away your food scraps, see if you can put them in a home compost bin, or use a compost program at a community garden if there's one nearby.

What I did

We started with creating the statement "We value food and don't let it go to waste." It took about six weeks of habit formation, and it didn't always go to plan, but we forgave our mistakes and kept going. My father and I used all the ideas on the next page to reduce our food waste by 80%. While reducing emissions, we also saved money. Then we planted a small vegetable garden. It was enjoyable to plant vegetables and then eat the fresh food we had grown. You could start with one plant in one pot and see how you go.

**Planning saves money**

Taking a few minutes to plan what you are going to eat for the week can make the process easier. Deciding what recipes to use will help to work out the ingredients. Check what you have already, then make a shopping list. Also, avoiding impulse buys can help reduce waste.

Not typical is beautiful

We can help retailers reduce food waste by buying oddly shaped fruit and vegetables. A straight banana tastes the same as a bendy one!

Make a date

Food products often have a “sell-by” date used by the retailer which you can ignore. “Best-before” dates show when the food is at its best quality. The date you need to know is the “use-by” date, which is the last date recommended for the use of the product.⁸³

Store wisely

Put new food to the rear of the shelf and push older items to the front. This applies to the refrigerator, freezer, and cupboard. Use airtight containers to keep opened food fresh in the fridge and close packets tightly.

Check freshness

A few times a week, go through the fridge and check meat, dairy, fruit, and vegetables for dates and freshness. Then prioritize eating food that could go bad soon. Use mature fruit and vegetables in smoothies or juices.

Love your leftovers

Leftovers can be kept for about three days in the refrigerator.⁸⁴ If you don't think you'll be able to eat them soon, freeze them. Leftovers can be eaten for lunch or as ingredients to make pasta sauce, stew, burritos, frittata, or soup.

Odd ingredients?

At some point you might have a few vegetables you are not sure what to do with. Ask family or friends for recipe suggestions, look online for “What can I cook with [ingredient 1] and [ingredient 2]?” or use a recipe app.

Communicate



COMMUNICATE

SHARE INFORMATION ABOUT YOUR EXPERIENCES

Conversations about food

People often want to make a positive change and reducing emissions from food is an easy way to start. You can tell people how you have changed your eating lifestyle in person or on social media. If you find a tasty low-carbon recipe, or a new low-carbon food, you can tell your friends.

Spread the word

Share what you've learned about food waste with friends, family, and colleagues. Consider writing an opinion piece for your local newspaper. Share "I Value Food" graphics and articles on social media and invite people to learn more. If you start growing vegetables or herbs, you could post about your first crop. Some people might take a photo and post on social media (consider adding hashtags: #climatechange or #lowcarbonfood).

Community groups

Do any of the organizations you are a part of serve food, such as your workplace, school, college, sporting association, or social clubs? If so, consider finding out how they manage food waste. Large organizations might have a sustainability manager. Find the person you think might be most receptive to discussing ways they could reduce waste. Using the tips in the previous section, they might be able to save food, emissions, and money.

Connect



CONNECT

CONNECTING WITH FAMILY AND FRIENDS OR WITH GROUPS

Discussing food emissions and waste

Talk with your family and friends and find out what they do to reduce waste: how much are people throwing out, and how much money might they save if they throw out less?

Sharing is caring

If you have too much food that might go bad, consider sharing with family, friends, neighbors, or a charity. If you have processed or packaged food with a “use-by” label, then this is helpful when donating, so recipients know that the food is still safe to eat. If you are going away for more than a few days, check your fridge and cupboards and give away anything that might not last.

Community gardening

Are you part of a community or other social garden in your area? If you haven’t gardened before, consider trying it. Growing evidence indicates that exposure to plants and green space, and particularly to gardening, is beneficial to mental and physical health.⁸⁵ Is there a vegetable garden at your school, college, or university? If so, consider taking part. You can search online for community gardens in your city. For example, community gardens in New York are listed at www.grownyc.org/gardens/our-community-gardens.

Volunteer with local food rescue organizations

Hundreds of organizations across the globe are actively working to rescue and redistribute safe and clean food to those in need. In some areas they are called food banks or food pantries. If you can spare the time, volunteering is a great way to impact the specific food waste challenges in your area.

Positive change can happen by identifying and measuring not only greenhouse gas emissions, but also other ecological impacts. These include polluting runoff from the use of fertilizer and herbicides, as well as water and land management. The findings of the research “support an approach where producers monitor their own impacts, flexibly meet environmental targets by choosing from multiple practices, and communicate their impacts to consumers.”⁸⁹

Government Leadership

In each of the four Implementation sections—food, energy, transport, production, and consumption—there is an influence section which outlines ideas for basic government policy on climate action. For each of the Government Leadership sections, a generic plan outline is presented in the Appendix. If your government doesn’t already have these in place, then you could try meeting with a political representative or candidate from the voting district or region you live in, as they are more likely to listen to someone who might vote for them. You could do this with family, friends, or through local political or climate action groups.

There might be organizations that support candidates whose policies include taking action on climate change in your region. An example of this is the Brand New Congress in the United States. You can get involved by signing petitions, writing letters, sending emails, protesting, and in other ways.

Your vote counts

Find out which politicians and political parties have declared that they will not take money from the fossil fuel industry. Consider voting for politicians and political parties who will act now to reduce emissions by 2030.



Whom do I approach?

If your government doesn't have a food emissions reduction plan already in place, then you could approach a national or state government representative. Alternatively, you could approach an official in agriculture. You could do this on your own, with friends, or through a local political or climate action group by searching online.

Make it your own

The outline to lobby government is in Appendix C: Framework for Food. You can edit this and make it your own if you like and then discuss it or send it to your local political representative. Sections are included to discuss supporting farmers to implement existing solutions, research into emissions reductions, reducing food loss, uptake of new technology, and many others.

Single issue

You could start with one issue that applies to your region or one that particularly interests you.

Look and listen

Consider doing a quick search online to find out if these ideas already exist in your state or country. Always ask questions first and actively listen. Then start a conversation about potential areas for action.

Compel

Workers in some professions, such as doctors or lawyers, need to be registered. People need to have a license to operate heavy machinery or transport dangerous goods. There is also a social license to operate, which is the ongoing acceptance of a company or industry's business practices by its employees, stakeholders, and the public.⁹² This is often linked to an organization's environmental and social impact as well as their governance (ESG)⁹³ In recent years, an organization's commitment to sustainability and low greenhouse gas emissions has become increasingly important.⁹⁴

One of the most significant things about a social license is that it can be taken away from an organization by its customers, and even by its employees. For example, if a retailer refuses to reduce food waste or sell low-carbon food options, then the public can stop buying from them and even protest in various ways against the organization. Our networked world is expanding the ability of consumers to make decisions and share their experiences online about products and services. We have control over the products we buy, and this gives us power. We can shift our buying patterns, communicate information, connect with each other, and demand positive action. When we combine our individual choices with other people and demand climate action, we have the power to change the way corporations and entire industries operate.



COMPEL

HELP THOSE RELUCTANT TO CHANGE

You decide what to buy

If food brands or retailers refuse to reduce waste or emissions, then you can choose not to buy their products or shop at their stores. Importantly, let them know you will no longer be buying from them because of their failure to take action on climate change. This can be done in person at a store or via email or social media. It works more effectively if you can connect with others to make a coordinated response.

Food Conclusion

This is a pivotal moment in history, and now is the time to find a balance between the way we are producing and using food, and how we are sustaining the vital ecosystems for future generations.

We can take action today because many of the solutions that we need are available right now. We can all play a part in reducing the food currently lost or wasted globally. This can contribute to improving access and affordability of food for the people who need it most.

We have discussed many ways to reduce our own greenhouse gas emissions, and some of the most effective ways are choices we make about the types of food we eat. We have also identified a wide range of options to communicate, connect with other people, influence, and compel action. Each time we stop food from being lost or wasted, we are reducing the impacts on land and water and saving energy, labor, and transportation resources, while reducing greenhouse gas emissions.

Think about the example we give to our friends, family, or children. We can promote the value of food and respect it by not wasting it. Can we make wasting food as unacceptable as littering? I believe we can.

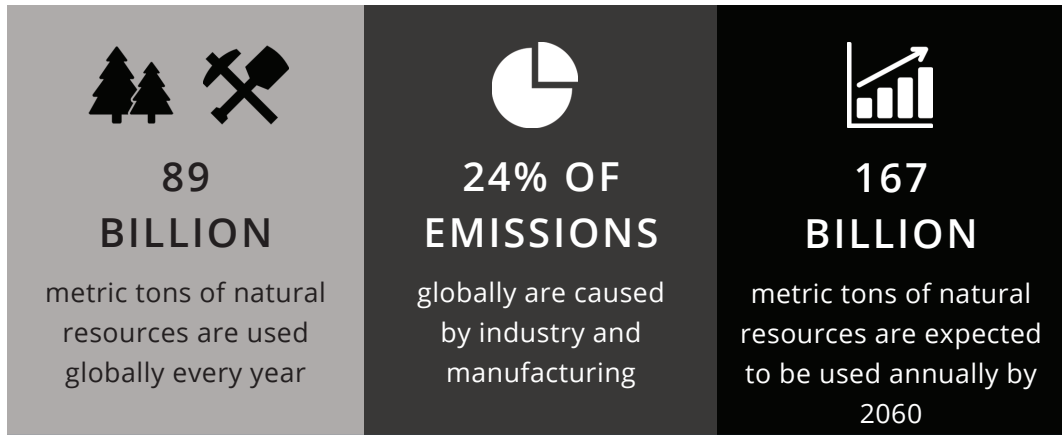
Think about the emissions reductions you have made and how much food waste you've prevented. Remember to celebrate the progress you are making!

An aerial photograph of a large-scale open-pit mine. The mine's terraced levels are visible as a series of concentric, stepped ridges descending into a deep valley. A winding road, likely a conveyor belt or access road, snakes through the lower levels of the mine. In the background, rugged mountains with patches of snow rise above the mining site. The overall scene depicts a significant industrial operation in a mountainous region.

Production and Consumption

Source: Billy Clouse on Unsplash

ACTIONS – PRODUCTION AND CONSUMPTION

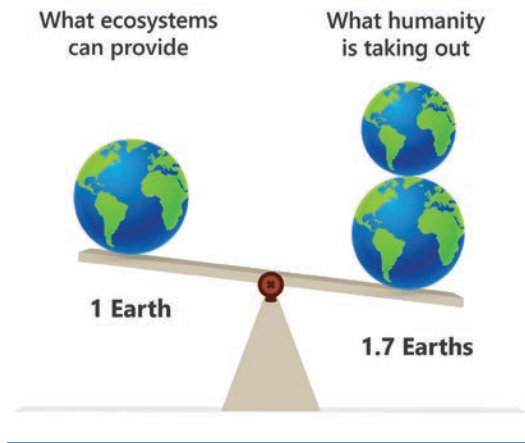


Sources: OECD and Our World in Data⁹⁵

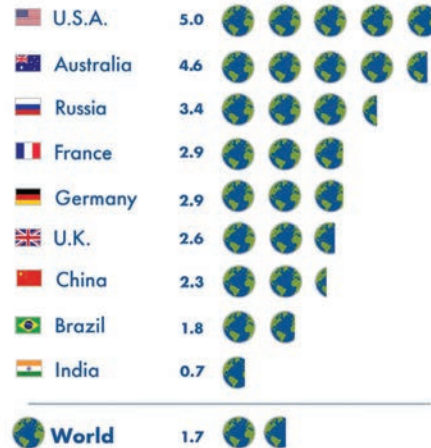
Since 1950, many aspects of human civilization, such as population, the economy, demand for energy, and pollution, have increased rapidly.⁹⁶ Global demand on natural resources also became higher than what ecosystems could regenerate in one year.⁹⁷ This impact of people on the earth is referred to as the ecological footprint.⁹⁸ It can be calculated by adding up total demand for crops, fish, livestock, fiber, timber, land used for habitation and roads, and waste such as carbon dioxide.⁹⁹

In the same way that a person can go into debt with a credit card, humanity is going into debt by using more than the earth can provide—to be precise, we use an amount of ecological resources equivalent to 1.7 Earths each year.¹⁰⁰ This is degrading ecosystems and causing major impacts on people.

Our Ecological Footprint



How Many Earths We Would Need



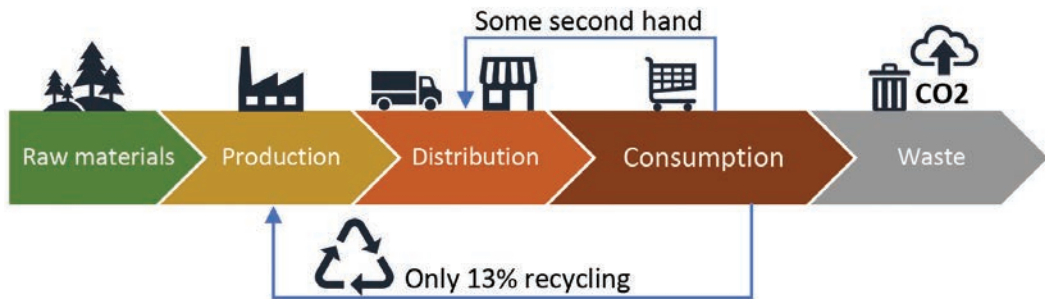
Source: Global Footprint Network 2021

This way of life is illogical and unsustainable. By looking at the ecological deficit for each country, it shows how many Earths we would need if everyone lived the same lifestyle. We can see that the high-income countries have the highest rates. For example, if everyone lived like people in Australia or America, we would need more than four Earths to provide all the ecological resources needed.

Situation

We use more than 89 billion metric tons of natural resources annually—this includes agriculture, forestry, metals, minerals, and fossil fuels.¹⁰¹ Turning these into materials and products causes 13 billion metric tons of greenhouse gas emissions every year.¹⁰² This is caused by a wasteful linear, or straight-line, economic model as illustrated on the next page.¹⁰³ It operates by taking natural resources to make products, which are used and then thrown away at some point in a process described as “take, make, waste,” as illustrated below.¹⁰⁴ Globally, only 13% of products are recycled each year.¹⁰⁵

Linear Economy (Take, Make, Waste)



Source: Based on United Nations Industrial Development Organization, *Driving Towards Circularity*

The climate crisis has exposed that our current way of production and consumption is outdated and unsuitable for our modern way of life. With the global population expected to increase to 9.6 billion by 2050, the extraction and use of natural resources is set to nearly double.¹⁰⁶ This is an urgent problem that needs to be fixed now.

Some industries are only just developing the new technology needed, while others are doing little. Ignoring the problem is not a solution, and “business as usual” must end. We need to extract fewer materials and use what we already have. To stop climate change and the destruction of vital ecosystems, we need to make production and consumption sustainable.

The “take, make, waste” model should be replaced with a circular economy. In this new model, products are designed for durability and made to be taken apart, which makes them easier to repair.¹⁰⁷ Products are reused, repaired, refurbished, or taken apart and recycled. This means fewer natural resources are extracted because materials are used around and around the circular economy, as illustrated below.¹⁰⁸

Simplified Sustainable Circular Economy



Source: Based on United Nations Industrial Development Organization, Circular Economy

The outcome is fewer greenhouse gas emissions and less impact on ecosystems and biodiversity. This more closely matches how natural systems efficiently use energy. The more we reduce our use of materials, the more sustainable our consumption will be.

Pages 82 - 156 are not included in this preview

PART 4

Reviewing and Updating the Plan

“Every bit of warming matters,
every year matters,
every choice matters.”

—*IPCC Special Report on Global Warming of 1.5°C*

STEP 7. REVIEW PROGRESS

Now that we have gone through the process of reducing emissions, most people will find there will be a few areas that need more work. There are several reasons why we might have emissions left:

- In many cases, there are no zero-emissions product or service options.
- No labeling or information is given about the emissions created by products or services.
- Some changes take time, such as installing solar panels.
- It might be difficult to afford low- or zero-emissions alternatives.

Because you may have lingering emissions to work on, it will be useful to look at continuing to reduce emissions as an ongoing process.

The Process

We can approach reducing emissions as a series of steps:

- 1. Plan:** Create objectives.
- 2. Reduce:** Work through the actions to make personal emissions reductions.
- 3. Review:** Measure the remaining emissions.
- 4. Offset:** When emissions are unavoidable, offsets are activities that balance out your emissions by reducing or removing greenhouse gases from the atmosphere.²¹⁶
- 5. Net-zero:** Achieve a state of net-zero emissions when human-caused greenhouse gas emissions are balanced by removals over a specified time.²¹⁷

We need to stop all emissions as quickly as possible and let the earth recover from the damage that has been done. However, we don't have all the solutions to stop emissions right now. If we all do the best we can, then as new solutions become mainstream, prices will continue to fall, and more people will be able to afford to reduce emissions further. Until that happens, carbon offsets are an option to achieve net-zero. Offsetting should not be used as an excuse for maintaining high carbon emissions for individuals, businesses, or governments. Some examples of offsets include supporting projects that replant forests with a biodiverse range of trees or supporting developing countries in creating renewable energy.

Carbon Footprinting

After reducing emissions, it's time to review your progress. The total amount of greenhouse gases that a country, organization, or individual is responsible for is called a carbon footprint.²¹⁸ The definition we are using for carbon footprint includes all greenhouse gases.

This means conducting a carbon footprint assessment for your household to see what emissions you have left. This gives you the opportunity to celebrate your progress, and it will also help you know the total amount of emissions to offset, if this is something you want to do.

How carbon footprint calculators work

Of the many online carbon footprint calculators, most don't cover all the areas in this action plan, such as energy, food, transport, products, and services. I found two calculators that do and that are free to use. One is The Nature Conservancy calculator, which is designed for residents in the United States. The other calculator has an international approach and is provided by an organization called Trace, which provides carbon offsets for individuals and businesses.

What I did

We worked out our carbon footprint and were surprised that it was higher than expected, because we didn't think we were overconsuming or wasteful. The good news was that we now had some useful information that would help us to reduce emissions in the future. We found that household energy and transportation were the largest contributors, so we will focus on these for the next cycle of reducing emissions.

Select the option below that suits you. Detailed explanations of how to use the online calculators are included in the *Climate Action Guide*.

Pages 160 - 168 are not included in this preview

CONCLUSION

I want to acknowledge that when we struggle, it is normal to sometimes stumble and fall. Several times when we tried to reduce emissions, it took longer than expected or didn't go as planned. Even though I wanted to be a good example and reduce our emissions significantly, we had trouble making progress in several areas. This made me feel like I was failing.

Then I thought about the reasons for writing this book. I want to make the world a better place because I believe that this is the right thing to do. There is also a strong need for me not to be a bystander. I feel it is unacceptable to have knowledge that something is wrong and to do nothing. It's like watching someone drown and not even calling for help. I know there are many existing solutions available, and we can turn the situation around. I also feel that we have a strong moral responsibility to keep the conditions on Earth safe for present and future generations. Connecting with this knowledge and these feelings helped me get started again.

The important thing is to restart and then keep going. I began with simple things, creating easy wins, and building on success. I talked to my father, and we approached emissions reductions by working together.

One of the main things I have learned is that while reducing emissions and encouraging others to change, it may take some time and things may not always work out on the first try. Sometimes, when you are working on a long-term objective, setbacks and obstacles can get in the way. If we never give up and keep going forward, then we can't fail.

As you progress, I wish you well. I hope you will reduce your own emissions, encourage those around you, and influence others to take action now. I hope that an additional result will be that you feel more positive and confident about your future and life on Earth.

I strongly believe that as more people take action every day, it will create an overwhelming tide of change, making the world a better place and protecting our beautiful home.

Best wishes,
Philip

Keep updated about actions at www.climate-action.org.

A Clean Energy Future



Source: Zhongguo on iStock

Supporting the Author

I would be very grateful if you could take a few minutes to write a short review of this book. By sharing your thoughts, it may also assist other people decide if it might be useful to them. You can use whatever platform you prefer.

To write a quick review on Amazon, login and either:

1. Go to the top and click “Returns and Orders”, then scroll to find the book, and click on the button “Write a product review”

or

2. Search for the name of the book and scroll down and look on the left, past the “Customer Reviews” until you see “Review this Product” and click on the button “Write a product review”.

Your review will be very helpful, and I am interested to hear what you think.

Thank you,
Philip

APPENDICES

Appendix A: Oil Companies Knew

Obstacles

For some industries that need to respond to the climate crisis, a significant change is necessary. Consider the self-interest of an energy company whose assets are coal-fired power stations or oil and gas infrastructure. These facilities cost hundreds of millions of dollars and are costly to transform into renewable energy or another type of business. It might seem a lot easier and more profitable to do nothing or even to actively resist change. The following are a few documented examples of oil companies' resisting climate action.

1982: Oil and gas companies knew

In the 1980s, scientists at the oil companies Exxon and Shell reported that carbon dioxide levels had increased since the Industrial Revolution and that this was mainly caused by "fossil fuel burning and deforestation."²²³ They estimated that if emissions continued to increase, the temperature would rise by 2°C by 2050 and 3°C by 2080.²²⁴ Shell scientists reported, "Such relatively fast and dramatic changes would impact on the human environment, future living standards and food supplies, and could have major social, economic and political consequences."²²⁵

1998: American Petroleum Institute's "Roadmap"

The American Petroleum Institute helped organize a group that included oil companies Exxon and Chevron to develop a plan to promote the "uncertainties in climate science" to the public, the media, and politicians.²²⁶ Their plan stated, "Unless 'climate change' becomes a non-issue, meaning that the Kyoto proposal is defeated and there are no further initiatives to thwart the threat of climate change, there may be no moment when we can declare victory."²²⁷

1998: Disinformation

Exxon published a pamphlet titled, “Global Climate Change: Everyone’s Debate” and sent it to politicians in the United States and around the world. It contradicted their own scientific reports by saying, “Nearly all CO2 emissions come from natural sources. Only a small amount comes from burning fossil fuels.”²²⁸ Exxon also placed advertisements, of which 81% expressed doubt about climate change.²²⁹

2001: Kyoto failure

The United States didn’t ratify the Kyoto treaty and dropped out in 2001.²³⁰ The treaty only produced a commitment by 37 countries to reduce emissions by 5%.²³¹ This marked 16 years of diplomacy drowned by propaganda and disinformation.

2015 to 2018: Buying political power

By this point, promoting uncertainty was no longer viable, so some fossil fuel companies switched to obstruction. Investigators at Influence Map found that in the three years following the Paris Agreement, ExxonMobil, Royal Dutch Shell, Chevron, BP, and Total had invested more than \$1 billion on climate-related lobbying.²³² It was also found that during the 2017 through 2018 midterm elections in the United States, the fossil fuel industry spent \$359 million on lobbying and donations to national politicians and parties.²³³

2021: Greenwashing

New York City filed a lawsuit asserting that ExxonMobil, BP, Royal Dutch Shell, and the American Petroleum Institute systematically misled consumers about the central role their products play in causing the climate crisis.²³⁴

Appendix B: Impacts and Crisis Escalation

Impacts of Climate Change

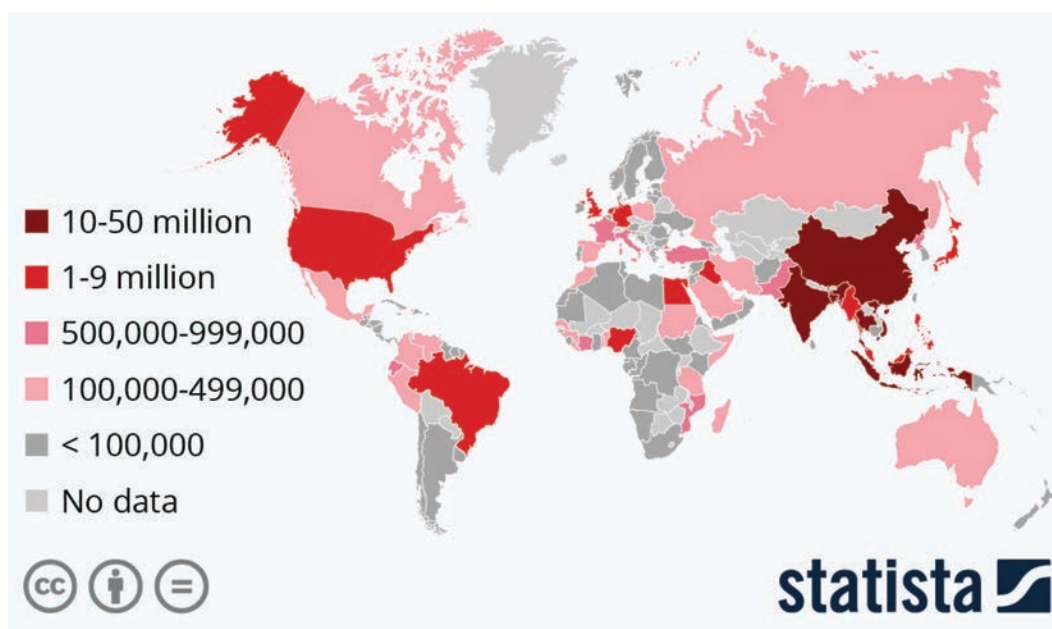
Displacement

Rising sea levels are displacing people all over the world. Communities in Bangladesh, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tuvalu, the United States, and many others have lost their homes to sea inundation.²³⁵ Every year, more and more people will lose their homes, and based on current projections 360 million people will be threatened by annual flood events by 2100 in a +2°C scenario.²³⁶

Studies led by NASA scientists show that the average global temperature on Earth has increased by at least 1.1°C (1.9°F) since 1880.²³⁷ As temperatures continue to rise, many people will be living in areas that will become too hot for humans. This will affect an estimated 1.5 billion people by 2070 in southern Africa, Central and South America, Southeast Asia, Australia, India, Mexico, and the Middle East.²³⁸ What happens if tens or hundreds of millions of climate refugees go on the move?²³⁹ Climate change is affecting people all over the globe now, and with each passing year, it becomes everyone's problem.

The map below shows the number of people per country living on land expected to be under sea level by 2100. This is assuming a rise in sea levels of 50-70cm (2°C temperature increase/not taking into account ice sheet instability).²⁴⁰

Where Most People Are Affected by Rising Sea Levels



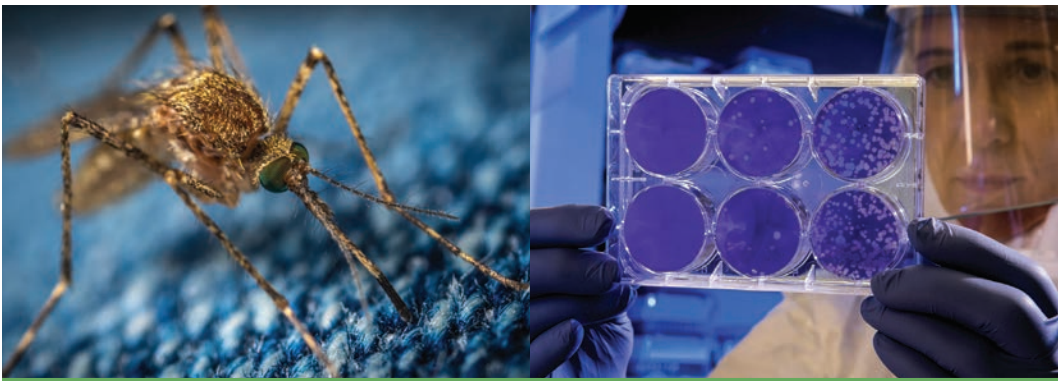
Source: Scott A. Kulp and Benjamin H. Strauss, *Nature Communications* [diagram by Statista]

Research by the United Nations showed that there is a vicious cycle, where people living in poverty suffer more than others from the adverse effects of climate change, resulting in even worse inequality.²⁴¹ People in poverty are less likely to afford insurance or be able to pay for repairs from the damage due to natural disasters.²⁴² These impacts are already pushing around 100 million additional people into poverty every year.²⁴³ Therefore, climate action is also an issue of social justice.

Disease

During a pandemic, the last thing anyone wants to hear is that warming temperatures will mean more diseases. Yet researchers at Stanford University found that as it gets warmer, mosquitoes will roam beyond their current habitats.²⁴⁴ This will increase the risk of dengue fever, zika and West Nile virus, for about 1 billion people in Europe, Russia, northern Asia, and North America over the next 50 years.²⁴⁵

Mosquito and a Scientist Examining Virus Particles



Source: Ezop Камелев and Centers for Disease Control and Prevention (CDC) on Unsplash

Ecosystem destruction

Climate change is contributing to the collapse and death of entire ecosystems. Wildfires have been sweeping across the Amazon, Australia, Canada, China, Europe, and the United States, affecting wildlife and communities. In the polar regions, the loss of sea ice affects marine ecosystems, which includes polar bears, seals, birds, fish, and whales.²⁴⁶

Fire in the Amazon



Source: *Brasil2* on iStock

Polar Bear Mother and Her Cub



Source: Alexey Seafarer on iStock

Ocean heatwaves are causing the mass die-off of coral reefs, kelp forests, seagrass, and mangroves.²⁴⁷ Apart from processing large amounts of carbon dioxide, these ocean forests are the homes, shelter, and feeding grounds of thousands of marine species.²⁴⁸ They act as nurseries for millions of fish that people rely on for food.²⁴⁹ Living coral has declined by 50% and coral reef biodiversity has declined by at least 60% since the 1950s.²⁵⁰ But all is not lost—there is still time to preserve and protect ecosystems and biodiversity.

A Healthy Coral Reef Ecosystem



Source: Olga Tsai on Unsplash

Dead Coral Reef from Bleaching



Source: Rich Carey on iStock

Is Climate Change an Emergency or a Crisis?

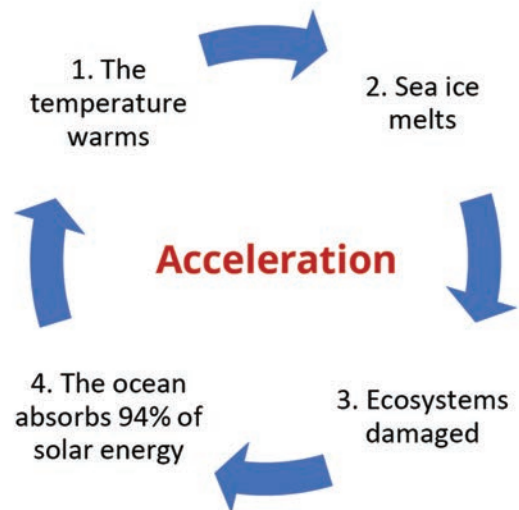
An emergency is “any incident, whether natural or human-caused, that requires responsive action to protect life or property.”²⁵¹ People are losing their homes and lives now because of rising sea levels and worsening natural disasters.²⁵² Therefore, climate change should be considered an emergency.

A crisis, on the other hand, is a “situation that threatens an organization’s strategic objectives, reputation, or viability.”²⁵³ Climate change threatens the way of life of communities now and will affect the entire human race in the coming decades, as well as increasing the threat to animals, plants, and the collapse of ecosystems. Considering this, climate change also represents a crisis for most life on our planet. We must recognize that if a crisis is managed properly and in time, then some impacts may be reduced, or avoided completely.

Crisis Escalation

Sea ice reflects up to 90% of solar energy.²⁵⁴ However, rising temperatures cause sea ice to melt, and without ice cover, the sea absorbs most of the warmth from the sun.²⁵⁵ This absorption then warms the ocean, which makes the ice melt faster, accelerating climate change.²⁵⁶ The diagram on the right illustrates how melting sea ice leads to a positive feedback loop.²⁵⁷

Ice Melting Positive Feedback Loop



A review of satellite photos of the Earth has shown that between 1994 and 2017, more than 28,000 billion metric tons of ice has melted.²⁵⁸ Ice loss is also a key driver of sea-level rise, which threatens hundreds of millions of people.²⁵⁹

Floating Ice in the Arctic Sea



Source: Rixipix on iStock

Pages 182 - 224 are not included in this preview