THE BEST RESEARCHERS IN THE WORLD

PRESENT THE RIGHT STRATEGIES TO PREVENT A CLIMATE CATASTROPHE!

In this book, we show with very simple strategies

How we can:

- Lower the temperature on earth again!
- Prevent the melting of the poles!
- Stop the rise of the sea level!
- Minimize or completely prevent damage from tornadoes!
- Build earthquake-resistant houses with simple measures!
- Eliminate water shortages in all countries!

Book design - Kircess Buchverlag/Publisher.

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Introduction

Key governments and independent agencies have asked us to bring our vast knowledge in the field of climate change to the world, and we look forward to sharing our findings. This book serves as our initial report on our findings, our research, and a path forward.

We at Fidegogard are ready to respond to these requests in the most open and transparent way possible. Herein, we offer all our knowledge and findings to all of humanity so that the most important and effective measures can be implemented on a global basis, immediately.

I, Volker Mothes, President of Fidegogard, would like to briefly take this opportunity to introduce myself and our collective, as this book has been crafted with many industrious hands and intelligent minds with expertise in all fields relevant to climate change, around the world. We exist as a global network of scientists, engineers, physicists, geologists, social scientists, computer scientists, nuclear specialists, and particle scientists. We approach these existential threats with open minds and open hearts.

Fidegogard deals with truly global problems and contemplates only the best possible solutions. In fact, we have already developed many vital technologies that are already in use worldwide.

Each member, whether a researcher or inventor, donates their time for the cause. We work in our spare time, but our work is vital. The age of the members in our organization ranges from 35 to 85. You can't apply to work for us. Instead, we scour the planet for the most extraordinary people in their respective fields. The selective nature of our organization allows us to focus our attention on areas where we can make a real change.

To mitigate any potential for confusion or misappropriation, we sometimes get asked if we are a secret organization.

But what does secret even mean?

We, like nearly every business on Earth, choose not to broadcast all our business practices to the world. We are not a secret organization, but rather, a selective group of professionals pursuing the truth and providing reasonable and available solutions. Our findings are like the original Coca-Cola recipe, secret but valuable.

Our members include several well-known public figures, including presidents, former presidents, tech CEOs, celebrities, and more. Their personal privacy is the primary reason that we will never mention any names of people active in our organization. Their privacy is a cornerstone of our group, and we will only publish information on a need-to-know basis. With climate

change, so much of what we can do right now is exactly what the world needs to know, and this book is an open report on our findings.

This publication will be the first in a series and will include a complete overview of our ideas and how we can start to implement them. Complete scientific details will be made available in later publications. Including them here quickly becomes unwieldy.

Where we publish matters, and we have selected the United States as our publishing hub. The reasons for this choice are vast and important, but we start from a place of imagination. Imagine a world without the United States, without all its inventions, and without all its clever and innovative minds – what would our world look like today? In the past 250 years, the United States has consistently been at the forefront of technological advances, and we see no reason for that to change. We hope our inventions will become synonymous with United States engineering and creativity.

But these are global problems. We offer our entire base of knowledge to the world because it is of little use if only the United States acts. Climate change is hardly the only global problem that the United States could never solve alone.

How can we prevent climate change?

Let's start with the most basic of tenets: doing nothing will accomplish exactly that, nothing.

If we want to accomplish our goals of slowing, stopping, and even reversing climate change, we must act. Of course, only together, with our hands, our knowledge, and our common resources. These efforts will be collective, and we hope that you will join us.

Idle Hands Do Not Prevent Climate Change.

With a population of more than eight billion people, Earth has more than enough hands available, but very few of them know how to use them, at least in furtherance of the goal of humanity - to create something. In the realm of climate change, no one has developed real and concrete solutions like we have. We hope to guide the planet's hands to become the most efficient tool on Earth.

Resources are a more complicated discussion, but at the end of the day, there is also enough money available. How we choose to use and utilize our resources is the most important thing to consider.

We do not necessarily need money or other concrete resource to create something, or more germane to this book, to stop climate change. To us, money is just a reward for something we've done for someone else. Some

earn massive amounts of money with minimal startup funding. In the world of climate change, perhaps an example is most fitting.

Imagine you buy two pounds of delicious cherries, and while eating them, you get the idea that you want to share them with the world. The brilliance of renewable products like cherries is that they are unlimited, at least when considered on an indefinite timeline.

The cherries we eat today come from millennia of growing, harvesting, planting, and starting the process again. Cherries were first documented in the third century B.C in a book called the History of Plants, written by Theophrastus, an early botanist and protégé of Aristotle. Within this book, cherries are mentioned to have been known to the Greeks and cultivated by them for centuries. In other words, we are lucky that our ancestors had the same brilliant idea to share. They also wanted to make us happy with abundant food and therefore sowed and planted grains, vegetables, and fruits on a generational basis.

But now, today, under our example, you start with just two pounds of cherries. The question becomes whether it is feasible to share your limited cherries with the world, with millions of hungry mouths, and the answer is a resounding ‘Yes!’

Of course, your two pounds of cherries cannot possibly feed a million people today, but in the future, over time, it is very much possible. But before we do, remember that cherries are just one easy to understand example.

It is the same with humanity. Our future generations must continue the process of sowing and planting. These same principles function in thousands, maybe even millions, of other products and commodities around the world. For now, let’s stick to cherries for the purpose of our example, and let’s imagine that you save just fifteen cherry pits from your supply.

Suppose you grow cherry trees from fifteen cherry pits. The life cycle of a cherry tree from a cherry pit can vary depending on various factors, such as the cherry variety, location, soil richness, climate, and the care of the tree. However, it typically takes five years for a cherry tree to bear fruit.

Of the fifteen pits you plant, ten trees grow, and of those ten trees, you take another twelve cherry pits from each of them. That's 120 cherry pits. From those, one hundred trees grow after another five years. Of course, the first cherry trees are already bigger and bear more fruit.

And so, ten trees become one hundred trees, which become one thousand trees, and ultimately one million trees. This is exactly what happens countless times in this

world every day! The secret is not to grind all grains into flour and eat all the bread but to sow part of the grains again and again. We must teach people how to do it repeatedly, because throughout history, new generations constantly need to learn the lessons of the past.

Turning to the more existential threats of climate change, global warming, and global cooling – we need to start from a fundamental place. How do we correctly define 'climate change'? Climate change doesn't necessarily mean that the Earth gets warmer; It can also mean that the climate atmosphere cools. Climate change is precisely that: any time where the climate changes faster or more dramatically than our history would indicate.

The Ice Age represents just one example of a cold climate change. In 2023, we are mostly concerned with global warming, but global cooling would be equally as horrific. The harvests would fail, and many crops would become untenable in places where they used to thrive. Whether warming or cooling, dramatic climate change never benefits the world.

What is climate?

Generally, the answer is exactly what you think it is. Climate is the weather in an area, whether it be a microclimate or the entire globe. It includes things like temperature, wind speed, humidity and more. Climate is

the air we breathe and the nature that exists around us. We experience a myriad of climates in our lives, but let's consider just two for the time being – the climate in front of a building in a specific region (outside) and the climate inside the building (inside).

When we're talking about an outside climate, we can look at historical analysis and current scientific readings to predict what the climate might be now and what may happen in the future. Meteorology has come a long way since people first started trying to predict weather patterns, and generally, we already know what our weather will be. However, some constants remain. January in Helsinki is always going to be cold. In other words, the climate for a particular geographical area, such as New York City, has a typical annual weather course.

Logic tells us that it won't be below freezing in summer in New York, and in December, you aren't likely to see temperatures one could describe as balmy. Likewise, one assumes warm temperatures all year round in Havana. History teaches us all, and only a fool ignores it. Despite our knowledge about the current and short-term climate, recent times have shown more and more unpredictability. No matter the conditions or our ability to predict the weather, this is what we call the climate outside.

Inside climate is a different concept. We also call an artificially created relationship between temperature and

humidity in an enclosed building a type of climate – the inside climate. Even though the climate inside may be harder to predict, certain trends can't be ignored. Here, too, one can assume certain temperatures on average. If you go into an office or shopping mall, you can predict that it will typically be an overall pleasant climate. If you consider a steel mill, the logical expectation would be that the air would be hot.

People perceive the concept of temperature differently, at least within certain limits. 86°F (30°C) will feel subjectively different to different people. To some, it will feel like a burning hot summer day, and to others, it may feel like a refreshing spring. Of course, the temperature is only one metric as to how a climate is measured. Humidity is an equally important factor that people tend to underestimate.

86°F (30°C) with a humidity level of 30% will always be more comfortable than the same temperature with a humidity level of 78%. Put another way, Las Vegas can exceed 110°F (43.3°C) on a summer day, and it's still more pleasant than 90°F (32.2°C) in Miami. This is because of the humidity in the air.

There is a very unpleasant side effect with a humidity level of 78% or higher, in addition to feeling hot. We can actually feel this ourselves when we expose ourselves to high humidity conditions, and it all comes down to

breathing. Put simply, breathing at a humidity level of 78% humidity is much more challenging than at a humidity level of 30%. Why? Because the air itself hold more mass, and the weight of the air bears a direct relationship with the difficulty of breathing.

The warmer the air and the higher the humidity, the higher the water content in the air. This is important, because when you include warmer temperatures, the humidity rises even further. Put simply, warm air can absorb much more water than cold air. It is this additional water in the air that makes the air heavier, making it harder to breathe. The opposite is also true - oxygen content in air is lower when the humidity is higher!

It is challenging to work physically or even walk with higher humidity because of this additional mass of the water in the air. Even more, when there is less oxygen in the air, the human body needs more respiration to obtain the same amount of oxygen. In other words, the human body absorbs less oxygen at 86°F (30°C) and a humidity of 78% than at the same temperature and humidity of only 30%.

How Climate Affects Human Growth

Through this insight and countless hours of research, we have even discovered that this is the reason why people in warmer countries tend to be shorter in height than

those similar representations in colder countries. The demographics match the traditional notions, namely that Italians, Indians, and Mexicans tend to be shorter than their counterparts from Canada, Sweden, or the Netherlands. Public records confirm this trend is factually accurate, and more importantly, these size distinctions are substantial.

Of course, this kind of research omits people that expatriated from another area and only applies to people who were born in and grew up in the subject area. Once the human growth phase is complete, Mexicans, Indians, or Italians in Canada cannot continue to grow, even if they choose to move to another part of the world.

Even within the artificial boundaries of a nation like Germany, some parts of the country have taller people and others are known for shorter people. Generally, people from Hamburg are taller than Bavarians. These height differences exist even though the temperatures do not differ substantially. This indicates that temperature and humidity are not the only factors at play.

Is Germany an anomaly or the norm? The principles mentioned above are the primary reason that we see height and size differences around the world. We explained that the oxygen content in the air is the primary reason for height differences in people, and in cold countries, the oxygen content is higher than in warm

countries. But just as true, the differences in temperature between Hamburg and Munich are not substantial.

In Germany, it is not the heat that plays the decisive factor. It remains a simple exercise of physics, but in essence, it all comes down to air pressure and gravity. The key distinction in this problematic example is that Hamburg sits at a mere 20 feet (6.1m) above sea level, while Munich has a much higher altitude, 1,706 feet (520m).

This difference is why a person in Hamburg weighs more at the airport than the same person just one hour later at the airport in Munich, assuming they didn't eat or drink anything. Even the suitcase will be lighter to carry in Munich than in Hamburg. The objective measurement of gravity is lower in Munich because Munich is 1,706 feet higher above sea level, making the barometric air pressure in Munich lower, and as noted above, lower air pressure automatically and irrefutably means less oxygen in the air, making breathing more difficult.

Put another way, the human body has less oxygen available to develop physically in Munich or warm countries than in Hamburg or cold countries. Generally, that's why these height differences exist between different countries and regions – warm and moist air contains less oxygen. Further, the higher the altitude of a city, the less air pressure and, correspondingly, less oxygen is available to the people that reside there.

That's not to say that altitude is the only metric to consider. If a child in Bavaria spends substantial time outdoors (i.e., in the fresh air), he may ultimately obtain and use more oxygen than his or her counterpart in Hamburg, especially if that child spends a lot more time in his nursery in front of the television. This is one way a child in Munich can naturally receive more oxygen than a child in Hamburg, and under these circumstances, a child in Munich can grow taller than one in Hamburg. In essence, our research have found that a person's height is largely affected by oxygen and air pressure.

We are not ignoring the importance of genetics in this discussion, but our analysis has proven that genetics are subordinate to the metrics discussed above.

You can see this phenomenon within every family around the world. If genetics were the only or definitive concern, all children in the same family would be the same height. The nurture element of the equation is equally important. It makes no difference whether one is the first-born or last-born child of the family.

However, in a fascinating corollary to our research, we discovered that here, too, when a child is born in the winter, he or she tends to get more oxygen in its first few months because of the colder air climate than a child born in the summer. This too has been proven to affect the overall height of a person.

The Role of Airflow

Currently, our research has led us to ask significant questions about the human body, including the very role our human lungs play in various processes in our bodies. The lungs do much more than simply exchange oxygen and carbon dioxide. While they are the first organ that encounters the air, they also offer powerful access points for thousands of viruses, fungi, and bacteria, in addition to even less savory things.

Viruses and bacteria enter our bodies via our lungs. Even worse, when we breathe these bacteria and viruses into our lungs, they don't just stay there. Indeed, when the viruses are in our body, they begin to multiply, and we exhale them through our coughing and regular breathing. This continuously enriches the air with viruses and bacteria with every breath. And no mask in the world works to stop this process entirely.

When we are sick with the flu (virus) or the common cold (bacteria), and the windows of a room are closed, the room becomes entirely filled with our exhaled viruses and bacteria within just a few minutes. This is hardly a safe environment for human recovery.

It doesn't matter whether someone wears a mask or not. If a person shares the room with the ill person, exposure cannot be escaped. While the N-95 mask has become

synonymous with protection, the reality may not match the expectation. In June 2022, I discovered a valuable demonstration of how to determine the permeability of a mask when it comes to viruses and bacteria. It is very revealing.

A salt crystal is demonstrably larger than either the smallest bacteria or virus and yet, if you simply pour salt water through a mask and collect the water in a bowl, the water in the bowl still tastes salty. If the mask doesn't prevent salt crystals from passing through its fabric, then the passage of viruses or bacteria will have an especially easy time.

Let's look at the science of this test.

Salt crystals are larger than both viruses and bacteria. This is objectively and provably true. Independently conducted testing proves that salt crystals can range in size from a few micrometers to several inches, depending on the type and conditions under which they form. Conversely, viruses are much smaller and usually have a diameter of 20 to 400 nanometers. Bacteria are even larger than viruses and can range from a few micrometers to several hundred micrometers, depending on the species.

If a mask does not prevent a salt crystal from passing through it, the typical virus (like COVID-19) will have an easy time getting into your lungs. Our test results prove

the inescapable truth, no mask can truly protect a person against viruses or bacteria.

Breathing ‘beyond the mask’ is another major concern when it comes to mask efficacy. Anyone that wears eyeglasses knows that when you add a mask into the mix, they get fogged up immediately.

Therefore, any patient suffering from a bacteria or virus illness should prefer ventilation over other climate factors. Being exposed to less concentrated air is the most important metric in this analysis. Otherwise, with a more closed system, the patient is forced to breathe in their own viruses and bacteria again and again, only prolonging the disease.

Put simply, if the patient breathes fresh air, the recovery process is accelerated, and the person recuperates faster. That is the goal of medicine. And it works because the body exhales viruses and bacteria through normal respiration, allowing the patient to recover faster. What’s more, the number of viruses and bacteria in the body decreases faster than in enclosed rooms, where the patient is forced to inhale the growing population of bacteria and viruses over and over again.

The same principles apply to alcohol and other intoxicants. Ethanol, the active ingredient in spirits, wines, and ales around the world, operates as a depressant drug

in the human body. Generally, it is processed through the human liver, creating a euphoric or depressive effect. But not all ethanol is processed through the liver.

Indeed, some alcohol is processed through the lungs and the bloodstream. In essence, if someone consumes alcohol, they should sleep in a well-ventilated room rather than a closed environment, at least when it comes to the processing of the alcohol. Without ventilation, the person is forced to breathe in his own breath again and again, and each breath is enriched with ethanol molecules, and the body requires more time to break down the alcohol.

If you're alone, this rarely creates an issue. However, if several drunk people coexist in a single space, each person is forced to inhale the alcohol from the others. The drunkest people effectively share their alcohol with those people that have drunk the least.

Our fascinating study into these effects offered some astonishing results, most notably that something as simple as a brisk stroll dissipates the effects of alcohol three times faster than resting in a room without ventilation. It takes such a non-ventilated person three full hours to completely break down the alcohol in his system when it takes a walker only one. Even more, a walking technique does much more than break down alcohol in a faster and more efficient way.

Another advantage is that the liver is relieved of that work when the lungs break down the alcohol. Interestingly, the lungs break down alcohol even faster than the liver. And because people naturally breathe faster during a walk than while in a bed, the alcohol in the body is broken down more quickly.

So, if you ever find yourself in a situation where you have had too much to drink, consider taking a brisk one-hour walk instead of what may sound better in the moment, lying down resting or sleeping in a room with the windows closed.

These results extend proportionally based on time, meaning that a two-hour walk was as effective in the processing of alcohol as six hours of closed-climate bed rest. What's more, it has been scientifically proven that alcohol damages the human body and the brain substantially less if it leaves the body via the lungs.

The realization that the human lungs even absorb calories through the lungs is equally fascinating. I had the thought one day during meditation - do fast food employees absorb uncountable calories through their lungs, even if they never eat the food, just by standing in the fat-laden air of the kitchens they work in? Certainly, with all the frying and baking going on in any restaurant, the air in the kitchens would have microscopic droplets of fats among more normal components. Do people absorb fat

molecules through respiration? This may not mean much if you cook for yourself or your family, but if you are on a kitchen line for eight (or more) hours a day, this could add up to substantial caloric intake. It has almost become a cliché that chefs and cooks tend to be overweight or even obese.

Could this be seen in another natural phenomenon of cooks? Perhaps you have experienced this phenomenon yourself: If you cook for a long time, you feel no longer hungry. As a noted home chef, I am intimately aware of this phenomenon.

How does the sun affect the body?

The climate is warming, and the sun's intensity is increasing. Anyone that has looked up at the sun (carefully, with eye protection) knows that exposure to strong sunlight on the body can have various effects, depending on factors such as length of exposure, radiation intensity, skin type, and sunscreen use.

Here are just some potential effects of intense sun exposure on the body:

- **Sunburn:** Too long and intense sun exposure can cause a skin burn, known as sunburn. The skin becomes red and painful, and it may peel.

- **Tanning:** Moderate sun exposure can cause the skin to tan. This is the body's response to UV radiation to protect itself from further damage.
- **Skin Aging:** Chronic sun exposure can lead to premature skin aging because UV rays damage collagen fibers in the skin, leading to wrinkles and sagging skin.
- **Skin Cancer:** Exposure to UV rays increases the risk of skin cancer, especially in people with fair skin.
- **Dehydration:** Prolonged exposure to the sun can cause the body to become dehydrated as perspiration accelerates dehydration.

None of these are good for the human body. Therefore, protecting the body from excessive solar radiation is crucial, including wearing suitable clothing, regularly applying sunscreen, drinking plenty of water, and postponing exposure to the blazing sun to cooler parts of the day. Likewise, intense sun exposure to the hair and scalp can have various effects.

Here are some possible consequences:

- **Dry Hair:** Sun exposure can dry out the hair and make it brittle, making it more susceptible to split ends and hair breakage.
- **Faded Hair Color:** UV rays can fade the pigments in the hair and cause dyed hair to lose its color faster.

- **Sunburn on the Scalp:** If the scalp is exposed to the sun unprotected, it can get burned, which can cause pain and redness.
- **Skin Cancer:** Too much and long-lasting sun exposure on the scalp can increase the risk of skin cancer.

It is crucial to protect the hair and scalp from the sun. Wearing a hat or using a sunscreen spray for the hair is the absolute minimum level of protection recommended.

Is the sauna healthy or harmful?

Saunas are celebrated around the world, but the truth is less innocent than spending a few minutes in an especially warm room, whether it is dry or wet. In saunas, the hot air damages our lungs when we breathe it in, and almost as bad, the low oxygen level in the air damages our entire body since only a few oxygen molecules are present.

Hot and dry air can cause the mucous membranes in the lungs to dry out and irritate the airways. This can lead to various discomforts, including coughing, panting, and shortness of breath. In extreme cases, high air temperature can even lead to severe damage to the respiratory tract. In these conditions, the proteins in the skin and muscles crystallize, potentially clogging the capillaries and other small blood vessels.

Some bacteria on our skin are especially important, and even a short time in a sauna can harm or even kill them. The exact temperature that kills bacteria varies depending on the type of bacteria, but generally, most bacteria die at temperatures between 140-176°F (60-80°C). Even a sauna visit of fifteen minutes is enough to reach these temperatures.

Human skin is home to a variety of bacteria that can be both harmful and beneficial. However, some of them are particularly important for the human organism. One of the most important is *staphylococcus epidermis*, a bacterium found on the skin and mucous membranes that plays a vital role in the defense against harmful micro-organisms. Another important bacterium is *propionic-bacterium* acnes, which is part of the normal skin flora and regulates the skin's pH level.

A healthy microbiome on the skin is crucial for the health and functioning of the skin. It helps keep harmful bacteria at bay, maintain skin moisture, and reduce the risk of skin diseases. Disrupting the microbiome on the skin can lead to a number of problems, including acne, fungal infections, and allergic reactions.

Anyone can conduct these same tests at home to determine what happens to the human body when visiting a sauna. Here’s a test you can conduct on your own. After preheating an oven to 200°F, put one half

pound of ground beef, a raw egg, and a small, fresh green leafy vegetable on an oven-safe dish and place it in the oven for 15 minutes. You will see the result - the egg has become firm, the ground beef is cooked and the green leafy vegetable is so dried up you can crumble it in your hands. The same thing happens to the human body every time it is exposed to sauna climate conditions.

Do you still believe that visiting a sauna is healthy for our bodies? Based on these test results, and others, we strongly advise against any visit to a sauna, especially where the temperature is much considerably higher than the normal body core temperature.

The Role of Cities

What caused the increasingly rapid rise in temperature over the past 50 years? The actual reasons are quite simple – humanity. Indeed, we are the fundamental cause of global warming, and as more people are born every day, the climate inevitably warms up.

From a fundamental perspective, human overpopulation is to blame for global warming, and as the population expands, so will climate issues. As of July 2023, the population of Earth stands at 8,103,075,138, a full one hundred million higher than just a year ago. From 1927 to 2022, the population grew from a number in the millions to the shocking experience of a six billionth person being

born. The seven billionth person was born on October 12, 2011 in New Delhi, and just last year (2022), the eight billionth person came into the world, just 11 years later. This is precisely where the climate catastrophe begins for all of us humans.

What does the population have to do with global warming? The average human being produces more than 100 watts of body heat per hour during light activity, and much more when the activity levels rise. For example:

Activity Level	**Energy Production**
Rest	150-200 Watts
Moderate Activity	200-300 Watts
Intense Activity	300-500 Watts
Sports	500-1000 Watts

On an individual basis, this does not cause any problems regarding climate change, but collectively, it changes everything. A simple calculation reveals that the eight billion people on Earth produce at least 800 billion watts of body heat per hour, the same as one hundred million kilowatt-hours. And importantly, if they are physically active or playing sports, these values increase dramatically. Put another way, all of humanity generates as much heat in one hour as 400,000,000 two-thousand-watt space heaters. Importantly, these figures only include human activity. There are an estimated eight

billion farm animals, wild species and pets on Earth that also generate heat, all day, every day.

Are human beings causing global warming and climate change? Based on our research, the answer is an unequivocal “YES!” But that simplistic answer cannot be the end of the analysis. Here is our clarifying, more complete answer to this most important question:

Imagine, in an uninhabited area covered by forest, the forest is cut down, and a residential area is created, a small settlement. This is what happened in New York City, and it remains the perfect example.

Approximate Population of New York	
1780	33,000
1830	312,000
1900	3,400,000
1960	7,800,000
2000	8,100,000
2020	8,700,000

The development of New York City is not unique on this planet, but you can clearly see that in just 250 years, what was once uninhabited land has become one of the biggest cities on Earth. New York City, with its vast number buildings, streets, supermarkets, schools, parking lots,

airports, and more has never been constant. Every day, it continues to grow.

New York is just one example of the explosive growth of ‘the city’ as a concept. Thousands of cities around the world have experienced similar development over time, starting from essentially wilderness to become a concrete jungle. However, the city has become as detrimental to the climate as the entirety of the cars and trucks on American roads.

Compare the environment of the city to that of a forest. The forest floor remains very calm when the sun shines on an unpopulated forest. Its trees provide offer shade for the forest soil. More importantly, there are next to no thermals, so-called updrafts in the forest ecosystem.

Another adverse effect of the city is due to the permanent updrafts and thermals. With these, the winds in the region increase, adding to the cycle of destruction. As air flows upwards into the atmosphere, other air must move back in to replace it at the ground level. More wind in an urban setting also means that the soil dries out faster. The result is lower yields, often even crop failures.

On the other hand, the development of the city removes many of these trees, creating conditions that foster more thermals and updrafts. Ever since the time when a small settlement emerges from the wilderness, additional

thermals are created due to the roofs and other surface areas of the buildings. They heat up dramatically through sunlight exposure, and this heat directly impacts the climate dramatically.

But this principle is affected by much more than trees. The roads heat up as well, their dark color absorbing more sunlight than it reflects. Furthermore, the cars heat up in the city, generally based on the color of their paint. Black cars heat up under direct sunlight significantly more (and faster) than white cars. And this heat flows upwards due to the natural phenomenon that heat always rises. When solar radiation is exposed upon the city, it always rises.

And in any major city, there are millions (maybe even billions) of surfaces that impact the number of thermals created. The city is an amazing place of thermal activity, and this implicates climate change as we know it. Due to this total sum, an enormous number of thermals are created when solar radiation is exposed on this settlement, and they all rise upwards.

But the sun isn't the only reason this settlement creates more thermals. Indeed, a forest is less likely to experience thermals because the trees do not heat up significantly. Instead, trees reflect the sun instead of absorbing it. The reality is that it is not just the heat, it is also how that heat is absorbed and stored.

But what happens when you add the collective temperature of the people living in the area. Human's constant body core temperature of about 96.8 °F (37°C) nearly always exceeds the temperature of the climate in any settlement city. This difference between the average human body temperature and the climate around us is the very reason these thermals exist.

Of course, this is all affected by the amount of ventilation! When residents open their windows for ventilation, this warm air flows upwards immediately. And when warm air rises, new air must automatically move in to replace the old on the ground. Otherwise, we would have no air to breathe.

This is precisely the air movement that we perceive as wind. And over time, the general trend has shown that cities grow, and the bigger a city becomes, the associated thermals only increase. Increased thermals require more air flowing in at the ground level.

Rain is another consideration in our analysis and research. When it rains in the forest, nearly 90% of the water directly enters the forest soil and seeps into the Earth. The remaining 10% of rainwater is collected by the trees to be absorbed by bark and leaves.

Evaporation is the scientific word for what happens next, when rain reenters the atmosphere. However, generally,

the entire soil of the forest floor receives most of the rainwater. In a city, this rich and fertile soil has been replaced by concrete and asphalt streets, and the trees have been replaced by the steel and glass of skyscrapers.

Another adverse effect of the settlement is that only about 20% of rainwater can seep into the ground and enrich the groundwater in the city. The rest of the rainwater flows into the sewer system or evaporates back into the atmosphere from the building and car roofs, streets, and parking lots. When 80% of the ecosystem's water goes back into the atmosphere unused, clouds will form more quickly, ensuring even more rain. This is why climate change, as we know it, begins in the cities.

Now that the settlement has been built in a city, the water can no longer fully penetrate the ground and replenish the groundwater. Instead, and to the detriment of the climate, the water stays on the surfaces to only evaporate. Sometimes, rainwater may not even touch the ground. So where does this water go?

Cities have developed vast systems of drains and sewers to help move the water away from the city's residents, but there are drawbacks to these water systems. Namely, a city's sewers and waterways directly harm the climate, dramatically. This movement directs the water away from the place nature intended - the soil. The soil underneath the streets, buildings, parking lots, airports, and cars

remains dry. It is precisely this missing water that must now find its place elsewhere.

And this is not about a few hundred gallons. The amount of water that falls in the world's cities is not a drop in a bucket. We are talking about trillions of gallons of water that must move from where it initially fell as rain. The water must find an alternative place due to our Earth's many cities, villages, and communities.

Much like how money was discussed earlier, water is a finite resource on Earth. No matter the climate, the amount of water on the planet remains consistent. How we manage it is what truly matters.

Where does the water go following a rainstorm? The final water destination, of course, is our oceans. Our rivers also function as a network of arteries that bring fallen rainwater to its natural destination. The basic rule resulting from this concept is when we have less water on land, there is more water in the oceans.

The most logical conclusion is that the rise in sea levels is caused not only by the melting of the poles, but also the drying out of the soils on land. In a large city like New York, the soil under the asphalt or concrete rarely sees a drop. Without these artificial barriers, the soil would be able to hold much more water than it currently does, and city operations have made the decision to direct the flow of

water to various tunnels and aqueduct system to deliver it where they want.

Of course, this also applies to other every large city worldwide. Smaller cities and towns also experience this reality when it comes to the flow of rainwater, sometimes to a lesser degree. Every city, settlement, and even country road displaces water from the land. And this water is then found in the oceans, collectively causing sea levels to rise.

How much water can one cubic meter of soil absorb and store? From the outset, we need to note that there are myriad types of soil, from hard clay to dry sand. The results in this kind of examination will be entirely dependent on location and the type of soil present.

Testing has revealed the soil moisture value, also known as bottom water absorption capacity. Typically, one cubic meter of sandy soil can typically hold between 5.3 to 7.9 gallons of water. On the other hand, that same one cubic meter of loamy soil can hold more than 26.4 gallons of water. Clay-based soils, which contain a high proportion of clay minerals, have the highest capacity to absorb and store water and can absorb up to 52.8 gallons of water per cubic meter.

These processes of raining, evaporating, and raining again come with another drawback - faster cloud formation,

especially in the cities. It is here, at this settlement, that drier soils, less groundwater, and a much quicker cloud formation in the atmosphere all lead to climate-based issues for everyone.

Even more, conditions in the city are optimal for higher winds and storm systems, and sometimes, they even develop into tornadoes. Tornadoes arise from the relationships between warm and cold air masses, precipitation, and air pressure differences. Put simply, a tornado forms when warm, moist air rises and meets cold, dry air. This leads to unstable atmospheric conditions that announce the beginning of a thunderstorm. When that thunderstorm takes place, the rising warm air can be the center of gravity of precipitation, eventually resulting in the rotation of the entire air mass.

When a low-pressure area overlaps with a high-pressure area, a so-called "supercell storm" can occur – the cold air sinks below the warm air, amplifying the simple storm into a powerful weather system. Under the right conditions, the storm's rotation can become so strong that it expands to the ground and forms a tornado.

Following a storm, up to 80% of the rainwater goes back into the atmosphere, evaporating in just a few hours, and allowing even more clouds to form, leading to another rainfall. Only 20% can penetrate the ground when the rain hits a city again. This cycle is untenable when it comes to

long term planning for climate change. Even though more water may fall from a storm, less and less will enter the ground soil.

Under these conditions, this evaporation and rainfall cycle will occur more frequently. More clouds also mean less sunlight for plants, people, and animals. The rainwater in the sewer system is another consideration, redirecting water from entering the all-important groundwater systems. In some regions, so much rain forms that flash floods occur after a heavy rainstorm, creating even drier dry soils, more clouds in the sky, and heavier subsequent rainfall.

This is what we call climate change or global warming, and today, the implications are nothing less than the planet's very survival. Every person, farm animal, pet, vacuum cleaner, cooking stove, oven, heating stove, car, bus, or ship engine, heater, air conditioning system, every engine of an airplane, and every steel stove in a factory warms the atmosphere enormously, and this collective warmth drives climate change.

And what about carbon dioxide?

Traditional concepts of global climate change have focused on carbon dioxide as the primary factor. They have focused on reducing vehicle and manufacturing emissions to varying effect. If there are no vehicles and no

or industry, will there be no carbon dioxide emissions? Hardly.

The verified truth - it is not just the industry and cars that produce carbon dioxide! In fact, an average human being produces about as much as one to two tons of carbon dioxide every year just through breathing alone. The actual amount of carbon dioxide a person produces through breathing varies depending on age, height, weight, gender, and activity level, and this estimate is based on an average breathing rate and the amount of oxygen a person inhales and exhales per minute.

But the truth remains - on average, a single person produces approximately two tons of carbon dioxide annually. When considering this idea, you must keep the global population in mind. In 2022, the Earth's population exceeded eight billion people. That's sixteen billion tons of carbon dioxide emissions, every year, due to human respiration alone. This massive growth explains climate change better than just focusing on vehicles and industry. In 1804, there were only two billion tons of carbon dioxide emissions annually from human respiration. Now, that amount has increased eight-fold. Consider the global human population:

Global Population	
Year	**Population**
1804	1,000,000,000

1927	2,000,000,000
1960	3,000,000,000
1974	4,000,000,000
1987	5,000,000,000
1999	6,000,000,000
2011	7,000,000,000
2022	8,000,000,000

These calculations only factor in the carbon dioxide coming from human respiration. But consider the truth that we are not alone on the planet. Every animal, including bacteria and fungi, also contribute. Our calculations have shown that carbon dioxide emissions from farm animals and pets are also in the billions of tons per year. A single cow produces a significant amount of carbon dioxide annually through her breathing, just like we do – depending on size, physical activity, and diet.

However, it is crucial to note that cattle's primary source of carbon dioxide emissions is not their breathing but the methane they produce through their digestion. A single cow can produce more than one thousand pounds of methane annually. This corresponds to several tons of equivalent carbon dioxide emissions. The potential issues of farm-based methane emissions have long been discussed as a serious component of climate change and they should not be ignored.

Indeed, agriculture remains a primary factor in global greenhouse gas emissions, mainly through methane emissions. Likewise, the amount of carbon dioxide a dog or cat produces when breathing also depends on size, physical activity, and breathing rate. Based on an average breathing rate, an 11-pound dog or cat produces approximately 155 pounds of carbon dioxide per year.

It is important to note that dogs and other animals have a smaller carbon dioxide footprint than humans, as their physical activity and energy requirements are lower. Nevertheless, our pets contribute to a significant amount of carbon dioxide emissions. With about four billion dogs and cats as pets, another 280 million tons of carbon dioxide emissions are released into the atmosphere annually.

As we mentioned earlier, traditional science has long focused its climate change work on car, truck, train, and plane traffic, and they aren't entirely wrong. Traffic is one of the world's largest emitters of greenhouse gases. Nearly a quarter of all global greenhouse gas emissions are estimated to come from vehicles. In 2022, global greenhouse gas emissions from traffic amounted to approximately sixteen billion tons of carbon dioxide emissions.

You may have already noticed the amount of carbon dioxide in the atmosphere from all forms of

transportation is roughly the same as the amount of carbon dioxide emitted only through human breathing. These emissions come mainly from operating motor vehicles, including cars, trucks, trains, and aircraft. Emissions from traffic continue to increase as the demand for mobility grows worldwide. As human population increases, traffic, livestock, and pets also increase. Thus, we have more body heat and carbon dioxide emissions, and, of course, more global warming.

In the future, we must first and foremost think about the increase in people in addition to a strong focus on shifting to electric vehicles. This shift to green energy is not misguided, but other factors must be considered.

Allow me to extend this theory to its natural conclusion:

Any increase in the total number of homes, hotels, and cruise ships also means a significant increase in rats, bacteria, dust mites, and bedbugs.

Do rats, bacteria, dust mites, and bedbugs breathe in oxygen and release carbon dioxide? Yes, absolutely. These pests also breathe in oxygen just like humans, but some can also inhale anaerobically. Likewise, bed bugs have a complex, breathable pulmonary system that absorbs oxygen and releases carbon dioxide to generate energy.

Rats are a fascinating species when it comes to carbon dioxide emissions. An average rat produces about 0.005 ounces of carbon dioxide per hour. Assuming a rat is active for just twelve hours a day, it would produce nearly 1,500 pounds of carbon dioxide in one year.

It is estimated that there are several million rats in New York City alone. A 2019 New York City Department of Health report estimated that there are approximately two million rats in New York City, but the actual number may be much higher. Anyone who has been to New York knows that rats are ubiquitous. The conditions in the city, such as abundant food and hiding places in the subway tunnels and sewer system, are perfect for a rat's eco-system.

Basic mathematical calculations prove the absurd:

(2,000,000 rats) x (1,322 pounds each) = 1,200,000 tons annually, just in New York City.

Think about the rats of Bangalore or Saigon, and these numbers increase exponentially. That's insanity! How many cars does it take to equal the emissions of the New York City rat population? It is difficult to determine the exact number of cars at any point in time, but statistics prove helpful. According to the United States Environmental Protection Agency (EPA), the average annual carbon dioxide emission of a new car in the United States is about 4.6 tons.

Therefore, we can divide the total amount of carbon dioxide emissions of 1,200,000 tons by the average annual carbon dioxide emission per car to get an estimate for the number of cars:

1,200,000 tons / 4.6 tons per car = 260,870 cars.

That's right! The rats in New York City create as much carbon dioxide as 260,870 cars and trucks! Imagine how much all the rats worldwide produce in terms of carbon dioxide per year! One rat alone produces about 1,322 pounds of carbon dioxide annually. Ten rats produce as much carbon dioxide as one car annually!

So, humans are, to a considerable extent, to blame for global warming! Add those responsibilities to the carbon emissions of animals around the world, and as Al Gore once famously described it, this is 'an inconvenient truth.'

What contributes to global warming?

Our findings conclusively prove that large swaths of the Earth's surface will become uninhabitable within fifteen years. Droughts and floods are the natural consequences, and their number and severity will only continue to grow. The provable conclusion is that less arable land will be available for agriculture, posing an existential threat to the world's ever-growing population.

We have evaluated all available data and have now come to a universally frightening conclusion - global warming is already advancing at a rate that is uncontrollable for humans. Even with massive efforts, the question of whether we can stop global warming remains unanswered. But we must try.

The Issue with Coffee

In addition to the passive heat emitting from every one of the eight billion people on Earth, other issues surrounding climate change stem from the fact that every one of them needs to eat and otherwise sustain themselves. Let's consider the impact of just one commodity - coffee.

Around the world, coffee is becoming scarce due to increasing demand and a lack of suitable acreage to grow sufficient crops. Coffee plants only thrive in certain climatic zones, and these zones are becoming smaller due to climate change. In addition to climate change, other factors are also responsible for coffee shortages: population growth, plant disease and pests that attack coffee plants. In many coffee-growing regions, political instability also causes problems.

If demand for coffee continues to grow and supply cannot be increased, coffee will likely become scarcer and more expensive, perhaps even becoming a real luxury for only the 1%. This could lead to social unrest and a deterioration

in the quality of life in coffee-growing and -exporting countries. Coffee is just one such crop. The situation is similar for many fruits, grains, and vegetables.

Global grain consumption is also steadily increasing. According to the Food and Agriculture Organization of the United Nations, global cereal consumption will be nearly three billion tons in 2022. By 2050, global grain consumption is expected to double. The increase in cereal consumption is mainly due to population growth and rising living standards. In many countries of the world, the number of people who can afford a balanced diet is rising. Cereals are an important source of carbohydrates, protein, and fiber, and are used to make a variety of foods, including bread, pasta, rice, cereals and beer. Increasing grain consumption has comes with a myriad of environmental impacts.

Grain production uses a lot of water. In addition, large areas of land are required for grain cultivation. This leads to deforestation and water pollution. Unfortunately, there is not an unlimited amount of arable land available on Earth to feed the population.

The Real Costs of Construction

According to the United Nations Global Housing Watch 2021, 1.6 billion new homes have been built worldwide in the last twenty years. This equates to an annual rate of 80

million new homes every year. Most new housing has been built in China, India, the United States and Brazil. However, even with this many new homes annually, demand for new housing continues to grow even faster than construction. By 2030, a global housing shortage of 311 million homes is expected. This shortage will be most noticeable in developing countries, but perhaps the bigger impacts will come from climate change.

One thing is for certain - temperatures will continue to rise, eventually turning the world into an unbearable oven within a mere fifteen years. Every year, new temperature records are set in various places. In 2023, the high temperatures in Death Valley, California regularly exceeded fifty degrees centigrade, a climate that cannot sustain much life, especially human life. Even beyond these rural hotspots, the cities of Earth are also experiencing explosive temperatures. In 2023, Phoenix, Arizona and its suburbs sweltered more and longer than most, with several records including 31 consecutive days of 110 degrees Fahrenheit-plus (43.4 degrees Celsius) weather.

Cities are one area where construction directly impacts global warming. When more houses and apartments are built, they will install new roofs, walls, and facades. That’s right – the buildings themselves are a substantial driver of global warming.

The result of these new constructions, put simply, is the addition of more surfaces for the sun to shine on, creating solar heat. Once warmed by the sun, this solar heat is stored in the buildings. At night, when temperatures drop, the facades and roofs release this solar heat back into the atmosphere. With the construction of every new façade and roof, heat is absorbed and released every day through solar rays. When it comes to global warming, heat is the enemy.

Consider this illustration - A three-hundred-meter-tall building with a footprint of one thousand square meters has a facade area of about 22,646 square meters. While statistics like this apply to large building projects like One World Trade in New York, it applies to every building of any size, around the world. But in our example, the building comes with 22,646 square meters of façade, replacing the one thousand square meters of land that would only be heated with no construction at all. This is more than twenty times the surface area that would exist without the building. Instead of only one thousand square meters, more than 22,000 square meters are now heated. In other words, in New York and other cities around the world, houses get more sunlight than a normal ground without houses would.

Importantly, every square meter counts in warming the atmosphere, including all constructions, not just

skyscrapers. Roads, bridges, and airports also play a role in this analysis, quite simply because the more surfaces are warmed by the sun, the more heat enters the atmosphere. But not all constructions operate the same way. The color of the construction will impact how this works.

Black cars, facades, or asphalt affect climate change more than lighter colors because black surfaces absorb more solar energy than light ones. As a result, the surrounding air heats up more. This warming, whether stemming from a light or dark construction, leads to an increase in heat waves and other extreme weather events. This means more heat and more air rising in the atmosphere, which brings additional wind and more dangerous storms like hurricanes. None of this is good.

As stated earlier, this phenomenon does not only apply to skyscrapers. It also operates with every home and apartment around the world. Consider the sheer volume of homes on Earth, in each of their forms. Calculating the surface area created by these billions of structures may be impossible, but collectively, they offer a place for the sun to capture and store sunlight. And just like with skyscrapers, when it gets cooler at night, the city releases the stored heat back into the atmosphere.

This may be clearer if we define the calculations on a per square meter basis. The solar energy that reaches the

Earth is called solar radiation and varies depending on location, time of day, season, and weather conditions. While there is divergence based on these criteria, the average solar radiation reaching the Earth's surface approximates 1,361 watts per square meter, per day (w/m^2). This is called the solar radiation constant and indicates the average power irradiated by the sun on an area of one square meter at the outer edge of the Earth's atmosphere. In deserts or high-altitude regions, solar radiation tends to be higher than in temperate latitudes or those near the poles.

The more the Earth's surface warms, the more the atmosphere automatically warms. Permanently. Consider this comparison between the past (1927), when the two billionth human was born, with the present (2022), when the eight billionth human was born. We need to think about the vast number of homes, offices, and other constructions built over the past one hundred years.

Every construction plays a role in this, including houses, airfields, and roads. But even mobile constructions like cars impact the heat. Just like with the building, if the sun hits a car, it hits all sides and the top, much more surface area than if the car was not there. And we even must add the many ships on the oceans, because they also have a much larger surface area than just the water. Every

surface counts when it comes to capturing sunlight and heating up the atmosphere.

Aviation Must Become Cleaner

Even airplanes factor into this analysis. Of course, there are more planes today than there were in 1927. But with airplanes, cars, and ships, it's not just the surface area of the aircraft that matters. Aircraft engines emit a substantial amount of heat into the atmosphere.

This effect has been called "contrails" (short for "condensation trails") for decades and exhaust gases from aviation engines can reach temperatures of up to 1,500° C. These exhaust gases heat up the ambient air, causing surrounding temperatures in the atmosphere to rise. The warming of the atmosphere by aircraft contributes significantly to global warming because the warm air expands greatly at this altitude, becoming lighter and naturally rising. This creates a difference in air pressure that can lead to winds and storms, even hurricanes, if there are particularly large numbers of aircraft in a particular area.

Contrails remain in the atmosphere for hours, and in some cases, can form artificial clouds. The ice crystals in the contrails serve as condensation nuclei for the formation of cirrus clouds, and cirrus clouds can remain in the sky for several days or even weeks. These cloud formations

contribute significantly to atmospheric heating by reducing solar radiation reflected from the Earth and intercepting infrared radiation reflected from the Earth's surface. This prevents the heat from being radiated back into space, where we want it to go. Instead, the heated atmosphere remains under the artificial clouds of the contrails on hot days.

Nearly 100,000 airplanes fly above the Earth every day, 80,000 passenger planes and 20,000 cargo planes. Global air traffic consumes about 2.4 million barrels of aviation fuel every day, equivalent to 156 million gallons. Aviation fuel consumption contributes significantly to climate change and continues to heat the Earth's atmosphere each year as more and more aircraft fly. By 2023, aviation will account for more than 3% of global greenhouse gas emissions.

3% is a substantial amount, but that is hardly the end of the story. We also need to consider how many man-made clouds are caused by airplanes, because these affect global warming too. We estimate that airplanes create more than 100,000 artificial clouds worldwide every day, each spreading over several kilometers. And because these artificial clouds are in the sky, less and less solar heat can radiate back into space. The more solar radiation is reflected into space, the less the Earth's atmosphere warms up.

The Most Important Metric - Reflection

In order to properly address these problems, we need to consider what natural elements of Earth reflect sunlight on Earth well and what reflects it poorly. This is the starting point for any discussion about curing these problems in the future. Several things reflect sunlight extremely well:

- **Water surfaces:** Oceans, lakes, and rivers reflect sunlight, giving them their characteristic blue appearance.
- **Clouds:** Clouds reflect sunlight, making the sky appear bright and cloudy.
- **Snow and ice:** Snow and ice reflect sunlight very strongly, making them appear white and shiny.
- **Earth's surface:** Earth's surface reflects sunlight to different degrees depending on the material. For example, dark surfaces such as forest floors and roads reflect less sunlight than light surfaces such as sand and snow.

The amount of sunlight reflected from the Earth is called the albedo. Earth's albedo is calculated to be, on average, 30%. This means that 30% of the sunlight that hits the Earth is reflected and 70% is absorbed. In other words, under normal conditions, 70% of the sun's heat remains on Earth. However, the Earth's albedo is not a constant and varies depending on the season and weather

conditions. Generally, the albedo is higher in winter than in summer because the Earth is covered with more snow and ice.

Earth's albedo plays an important role in the climate. It determines how much sunlight the Earth absorbs and how much it reflects into space. A higher albedo would make the Earth cooler because it would reflect more sunlight back into space. Likewise, a lower albedo would make the Earth warmer because it would absorb more sunlight.

In recent decades, Earth's albedo has increased because the planet has more and more surface area for the sun to heat up. One thing we can and should do is find ways to make the albedo measurements rise, but what can we do to make that a reality?

White roofs reflect sunlight into space better than black roofs because white roofs reflect more light than black roofs. The color of a roof has a massive impact on how much heat it absorbs and how much it reflects. Black roofs absorb more sunlight than white roofs, causing them to heat up. White roofs reflect more sunlight than black roofs, making them cooler. A study by Lawrence Berkeley National Laboratory showed that white roofs can reflect up to forty percent of the sun's energy in hot regions.

Black roofs, on the other hand, reflect only about twenty percent of the sun's energy. This means that white roofs absorb up to twenty percent less energy than black roofs in hot regions.

Therefore, one simple solution is to focus on constructions and vehicles being painted a lighter color. Cars, asphalt, houses, and roofs should be designed to be lighter in color, white if possible. Light colors could lead the revolution against global climate change.

Even better than light colors, mirrors could create more direct reflection of the sun’s rays. Put simply, placing mirrors on rooftops and in deserts would cleanly and efficiently reflect sunlight back into space, reducing the amount of sunlight absorbed by the Earth. This would be a cheap and easy way to reduce the amount of sunlight absorbed by the Earth, because as we all know, mirrors reflect sunlight most efficiently into space. Ideally, a mirror can reflect nearly 100% of incoming sunlight, depending on the quality of the mirror material and the precision of its manufacture.

Consider water, the substance that covers most of the planet. Both water and desert sand have lower reflectivity than a well-made mirror, but still reflects 5-10% of incident sunlight. The rest is absorbed and converted into heat because water has a lower reflectivity (lower albedo) than most mirror surfaces. Desert sand also has a lower

reflectivity than a mirror. The albedo of desert sand is typically between 20-40%, which means that about 60-80% of the incident sunlight is absorbed and only a small percentage is reflected.

The primary objective of our work is to efficiently reflect sunlight into space, and considering elemental aspects of science, mirrors are the best choice. But they are not the only option.

Cosmic Dust Must Be Reduced

Most people have no idea of the importance of cosmic dust, let alone how many tons fall to Earth each year. Incredibly, more than 9,000 tons of cosmic dust falls to Earth each year - more than 24 tons per day. This means that in addition to the rare impacts of larger meteorites, the smallest dust particles are constantly raining down.

Just to consider the long-term effects of this cosmic dust on the planet, we know the circumference of the Earth has increased by about fifty kilometers in the last billion years, and the vast majority of this expansion comes from cosmic dust. Overall, this is a good and normal thing, but the negative consequences cannot be ignored. The primary problem that results from the increase in the circumference of the Earth is global warming. Why? The larger the circumference of the Earth, the more solar radiation hits the Earth. This is an irrefutable fact.

The consequences of this expansion cannot be overstated. As the circumference of the Earth increases, gravity automatically increases, and with it, the air pressure. One irrefutable fact remains – the higher the air pressure, the higher the temperature.

When measuring the temperature of a gas, you must consider the average kinetic energy of the gas molecules. If the air pressure rises, the gas molecules are pressed more strongly against each other, which increases their average kinetic energy and raises the temperature. On Earth, we commonly see this phenomenon when looking at various altitudes. Generally, air pressure decreases with increasing altitude because the air molecules are farther apart as altitude increases. When the air molecules are farther apart, there are fewer collisions between them. As a result, the average kinetic energy of the molecules decreases and the temperature drops.

Air pressure is highest at the Earth's surface because the air molecules at the Earth's surface are surrounded by other air molecules. As a result, there are more collisions between the molecules and the average kinetic energy of the molecules is higher. Therefore, the temperature at the Earth's surface is higher than in the higher layers of the atmosphere, assuming all other conditions remain constant.

Did you know that the Earth's rotation moved faster in the past than it does today, and is currently slower than it will be in the future? One billion years ago, scientists have confirmed that the Earth made one full rotation in just 18 hours. That's right – one billion years ago, a day was only 18 hours long. Today, that same rotational journey the Earth makes every day takes 24 hours. In the future, this trend will continue. In 500 million years, it is estimated that a day will last 25 hours, allowing the sun to shine even more intensely on Earth. This will only make the challenges of climate change more difficult.

These changes are not only temporal, but as discussed above, we have seen the Earth expand in size as well. This comes with some important and potentially devastating consequences. As the internal pressure of the Earth increases, Earthquakes and other similar disturbances occur. But importantly, the increased internal pressure also raises the temperature inside the Earth, and these increases lead to a warmer atmosphere. When the Earth's crust warms, the temperature of the air and the oceans also rises.

We can look at the layers of sediment on our planet to determine these long-term trends, and one thing must be considered in more depth. Layers of coal tell a very specific story about how we got to this point in time, one where global warming is an entirely existential threat.

Coal may self-ignite underground under certain conditions, namely under high pressures and temperatures of between 200-300 C. Various factors, such as the type of coal, grain size, and pressure, offer some answers for this wide temperature range, but one thing remains certain - at higher temperatures, coal ignites at lower pressures. Even more, the temperature of the Earth increases with depth.

Layers of coal formed over millions of years from the decomposition of dead plants that, over time, sank into swamps and bogs. These plants were eventually covered by sediments and transformed by pressure and heat. The longer the plants were exposed to pressure and heat, the harder the coal became. Put simply, trees and plants died and were covered by sediment. But as the Earth continues to expand, the layer above the plants and trees also grows. The pressure increases and coal, oil and natural gas are formed.

Beyond a certain depth, however, the pressure and heat become so great that the oil, gas, and coal inside the Earth ignite themselves. This is the essence of geothermal energy, created by the coal, gas and oil igniting and burning inside the Earth and passing through the Earth's crust into the atmosphere. This results in another major problem.

The carbon dioxide stored in trees, coal and oil over millions of years is released during combustion in the Earth's interior, reentering the atmosphere via fissures in the Earth and the oceans, further polluting it with increased carbon dioxide. This carbon dioxide took millions of years to develop through photosynthesis that was removed from the atmosphere throughout history.

All this because of cosmic dust. We must start with the fundamental question – can humans do anything to stop or reverse this from happening, and the answer is a definitive 'Yes!' Remember, 9,000 tons of space dust fall to Earth every year, more than 24 tons per day. Our idea is to send ten rockets a day, each carrying one hundred tons of coal, toward the sun. The cost would be minimized because the rockets would not be designed to return to Earth. The rockets could be made almost entirely of coal, with a small propulsion unit and a thin shell hull made of metal. Just ten rockets could carry more than one thousand tons of coal from Earth. Let's do the math to make the analysis a bit clearer.

The Earth grows 9,000 tons per year. Under our plan, 365,000 tons of coal or wood would leave the Earth on an annual basis. By doing this, we would actually reduce mass on the Earth and with it, huge amounts of carbon dioxide from coal would be reduced as well.

Coal is not the only substance we could remove from the planet if our plan becomes a reality. Some countries, like the United States, Russia, and China, could send spent uranium fuel rods to the sun and neutralize them without consequences. If we considered this spent nuclear fuel as a commodity, the U.S. may even find a new source of revenue.

The Role of Trees

Trees play a fascinating role in the story of climate change. Over the past century, common scientific knowledge has informed us that more trees will lead to a better climate. More trees mean more photosynthesis which means more oxygen. This is undoubtedly true, but our research directs us to an even more important realization - trees increase global warming on Earth.

The reason for this goes far beyond the old school thinking of photosynthesis and looks to the fact that trees don't reflect sunlight, but rather store it. Whether through natural rotting or fire, this energy is naturally released over time, even if that time might be millions or billions of years in the future. Due to their size, trees have a massive surface area to refuel and store solar energy. Much like our discussion above as it relates to houses and buildings (e.g., facades), trees store a massive amount of energy. Even house facades cannot store the same energy as the

planet’s trees, largely because of the vast forests we have. In fact, trees may be even more harmful to climate change than facades. Trees only store carbon dioxide and solar heat for a short time and eventually release it back into the atmosphere when they burn or rot. One hectare of forest stores between 100-200 megawatt hours of energy per year, the rough equivalent to the annual energy demands of thirty to sixty households.

In 2021, forty million hectares of forest were destroyed by fire worldwide, mostly in Russia, the U.S., Canada, Brazil, and Australia. That's nearly twice as much as in 2020, just one year earlier.

In other words, eight billion additional megawatt hours were released into the atmosphere in 2021 than in 2020. Even more, forest fires not only increase surface temperatures, but also increase the carbon dioxide concentration in the atmosphere. Today, we burn coal, oil, and gas on a large scale, and this represents the collective amount of stored energy of the sun and carbon dioxide from the air.

Trees are responsible for global warming to a large extent because they directly store sunlight and completely release it back into the atmosphere. This is very frightening. In the future, we should only plant trees that are truly beneficial to humans and animals. Only these

carefully selected species can help cure global warming while providing a significant part of our food needs.

Effective Tools to Fight Global Warming?

We have conducted vast research in a number of fields of study and have concluded that we must take important action now to combat climate change. If we choose to ignore it, surely, climate change will be the end of humanity. But if we pursue these measures, we can truly stop global warming!

Measure 1 – Population Control

This is the most crucial measure to be taken. If we do not implement it now (or soon), there will be no life on Earth, and this tragic fate may not be as far off as you think. Our calculations indicate that within fifty years, maybe as few as thirty, humanity may be doomed. We must reduce the global population, now. According to our calculations, the world's population should not exceed four billion people. This figure represents the population levels of 1974, where the climate was not warming and remained somewhat stable.

The only sensible and immediately effective measure would be for the international community to decide that only a maximum of one child may be born per family until we reduce the population to four billion people. While

this measure may be controversial when it comes to aspects of personal liberty and freedom, it remains the only long-term solution to the impending crisis.

It will take time before we return to our goal of four billion people, but once we do, at that level, the climate will improve, and we can begin to cool the climate again. Fewer people means less body heat, fewer cars, less power consumption, fewer apartments and houses, fewer pets, fewer aircraft, less livestock farming, less food consumption, and more. Population control is the one metric that would directly help the problems of global warming.

But now we get to the most important factor that seriously threatens all our lives - the oxygen factor. The oxygen consumption of eight billion people is a real threat to our climate. Every person needs to eat. Every person needs to keep warm. The number of fireplaces is rapidly increasing, consuming vast amounts of oxygen, just like heaters, cars, trucks, ships, and airplanes. We assume we will have an extreme lack of oxygen in just a few years. Already, one hundred million people have been added to our planet's population in just six months!

How much oxygen does an airplane flying from Paris to New York consume? An Airbus A380, for example, consumes one hundred tons of oxygen per flight hour, whereas a Boeing 747 consumes about 75 tons of oxygen

per flight hour. It is estimated that an aircraft over a distance of 4,350 miles consumes two hundred tons of oxygen. This is roughly equivalent to the amount of oxygen produced by 20,000 trees per year. 200 tons of oxygen, that's 400,000 pounds. And there are more than one hundred thousand flights per day.

Generally, an adult consumes about twelve cubic inches of oxygen per hour per 2.2 pounds of body weight. This means an adult weighing 155 pounds consumes about 855 cubic inches of oxygen per hour. During physical exertion, the need for oxygen increases significantly. For example, an adult weighing 155 pounds can consume up to 6,100 cubic inches of oxygen per minute during a sprint.

So, we see that oxygen consumption is increasing enormously worldwide, and with it, carbon dioxide emissions. More carbon dioxide emissions mean more heat in the atmosphere. But will it even be possible to produce sufficient oxygen as our population continues to demand more and more? The population continues to grow, more and more trees are being felled, and houses and roads are being built. We have noted that rats and dust mites also consume oxygen. More houses mean more dust mites and more rats. The consumption side of oxygen is truly a terrifying thing to study – it is used by nearly everything. The production of oxygen is the other side of the story, and it is equally fascinating.

Trees only produce oxygen when they have leaves. But in winter, for about six months a year, from November to May, most trees in the Northern Hemisphere have no leaves at all! The leaves are the only parts of the tree that can photosynthesize. Photosynthesis is a process in which sunlight, water, and carbon dioxide are used to produce oxygen. The oxygen is then released into the atmosphere. The rest of the tree, such as the trunk, branches, and roots, cannot produce oxygen at all. These parts of the tree support the leaves and provide water and nutrients from the ground, but they do very little when it comes to the production of oxygen.

In the future, we will have to seriously consider whether we prefer to breathe or drive a car. Consumption is increasing every day because the population is growing. We will get a very serious oxygen problem very soon if we don't keep the population in check!

Measure 2 – Artificial Lakes

What works better to prevent rising sea levels? A 5,000-acre forest or an artificial lake of 5,000 acres? An artificial lake can store an enormous amount of water almost immediately and offers a number of other important benefits.

To store the same amount of water as one of our planned artificial lakes, the forest requires years, if not decades.

Even at its most functional, a forest can never hold the amount of water within a confined area of 5,000 acres. A lake, on the other hand, especially considering that our artificial lakes and artificial waterholes will have an average depth of over 300 feet, can store as much water as the seas if extended over several projects.

Oxygen production is just one benefit from the creation of these artificial lakes. Food production in a lake is far easier and faster than hunting wildlife in a forest. Compared to a forest, this artificial lake can provide substantially more food in a very short time. Consider the amount of fish, mussels, crabs, shrimp, octopus, shellfish, and seaweed that could be harvested under controlled conditions of an artificial lake. Even more, the lake provides an ecosystem where these primary foods grow more efficiently than any food source coming from the forest. Likewise, an artificial lake provides millions of people and animals with potable water.

From a macro perspective, a lake containing green plants and algae can produce a significant amount of oxygen. The amount depends entirely on the size of the lake and the number of green plants in it. Plant photosynthesis produces oxygen, making them play an essential role in oxygen production in waters. However, it’s not just the production of oxygen that lakes, artificial or not, contribute to.

Lakes and oceans also play a vital role in storing carbon dioxide because carbon dioxide is water soluble. However, it is crucial to note that any carbon dioxide uptake harms the ecosystem, as it may lead to carbon dioxide over-saturation in the water, contributing to an overall reduction in the pH of the water. This is a delicate balancing act that we will have to navigate together.

Of course, a forest can absorb substantially more carbon dioxide than water, but unfortunately, it can only store it. A forest remains unable to completely convert carbon dioxide into oxygen. At some point, the tree releases this carbon dioxide back into the atmosphere, either when the tree dies or the wood is burned.

Another function of both lakes and forests is that they serve to regulate the groundwater levels, but our research has proven that an artificial lake does it more efficiently. An artificial lake or waterhole raises the groundwater level in its surroundings. The forest does not raise the groundwater level, nor does it contribute to water storage in the soil. In fact, trees and forests have a number of adverse effects when it comes to water storage.

Trees extract moisture from the soil, and if it does not rain for a long time in this region, the groundwater level drops rapidly. Trees withdraw water from the groundwater system twenty-four hours a day, affecting the groundwater levels further due to the large number of

trees. And even worse, due to the lowering of the groundwater level, the water levels of lakes and rivers also decrease. This dramatic effect happens thousands of times worldwide every year, best evidenced by the measured water levels of lakes and rivers.

The creation of 1,000 artificial lakes is a surprising solution to the problems we've described in this book. The scale of these artificial lakes is large, each measuring 400 square kilometers, with a depth of 100 meters. Our plans are currently developing a land use plan for these lakes, but we expect them to be constructed in uninhabited areas of Earth like deserts and savannahs.

Consider this - Earth's total surface area is 510,072,000 square kilometers, but only about 14,000,000 of those are inhabited. This means that 98.6% of the Earth's surface is uninhabited. In other words, finding the land for this project is not the issue. The real issue comes with desire, and if the countries of the world can come together, we can truly make a difference.

These lakes would host green algae, seagrass, and other beneficial organisms to convert carbon dioxide, up to twenty times more efficiently than trees. Even more, fears of forest fires around the world could be mitigated or eliminated entirely because of these lakes. These reservoirs would have secondary and tertiary benefits as well, reflecting sunlight back into space, faster and more

efficiently than the Earth's surface. The artificial lakes could also be used for fish farming and algae production to feed the world population. And finally, they would also actively contribute to lowering sea levels by hosting billions of gallons of water above sea level.

How to Prevent Sea Levels From Rising? The solution is impossibly simple: digging and building artificial deep waterholes and artificial lakes in uninhabited areas. There is enough space for this on Earth. On every continent, vast regions of openness offer space for artificial deep waterholes and artificial lakes. If these were properly distributed across the surface of the planet, they could store an entire ocean. Waterholes and artificial lakes on Earth have several positive effects on the environment:

- **Increased Biodiversity:** Waterholes and artificial lakes are critical water sources for many animals and plants, resulting in higher biodiversity.
- **Water Cycle Regulation:** Waterholes and artificial lakes help regulate the water cycle by absorbing excess water and releasing it slowly.
- **Flood Reduction:** Flooding is reduced by storing excess water in waterholes and artificial lakes.
- **Improving Soil Quality:** Waterholes and artificial lakes help improve soil quality by providing nutrients and keeping the soil moist.

- **Controlling Soil Erosion:** Waterholes and artificial lakes can help control soil erosion by absorbing excess water and releasing it slowly, rather than turning it into fast rivers that drain the soil and could take it with them.
- **Increased Agricultural Production:** The creation of artificial lakes can increase agricultural production, as farmers will be able to irrigate their fields.

The Sahara Desert is the largest hot desert in the world, covering an area more than 3.5 million square miles in size, about one-third of Africa's total size. Because it is mainly uninhabited, you could create hundreds of waterholes and artificial lakes in the Sahara Desert alone.

Our research has shown that the optimal size is a circumference of 12.5 miles, but flexibility exists. The lakes and waterholes should have differing depths but a minimum depth of at least 325 feet because, at this depth, the lake or reservoir cleans itself better via natural elements like plants and bacteria. It also restricts the maximum temperature and does not overheat. For self-cleaning, we must introduce plants and other organisms into the lake. Bacteria play a significant role.

The edge of the waterholes or lakes should be flattened with grass so that animals can drink undisturbed. In addition, we should plant a barrier of bamboo around the entire lake. Bamboo can withstand many environmental

conditions, including strong winds. Additionally, bamboo is attractive as a windscreen because it grows very quickly and can therefore be quickly replanted or rebuilt if damaged. The growing bamboo uses water from the artificial lake. This would also prevent a rapid silting up of the artificial lake or waterhole in the desert. Animals and humans could also obtain clean drinking water here in the future. These artificial lakes would always be fresh, potable water.

What are the enormous benefits of farming fish in artificial lakes? Aquatic farming would further protect our oceans. Another advantage is an enormous dietary supplement in areas where fresh food is a challenge. Even more, we would create millions of jobs, including in Africa, from fish farming to fish processing and more.

Because we could fully control these aquatic ecosystems, the fish, seafood, and seaweed would become quite simply the cleanest seafood in the world for consumption. The lakes would only be fed by rainwater and would therefore have no water contamination. A healthy population of flora would help maintain the lake's purity.

The same applies to various plant species that can grow in a lake, clean and without chemicals. In artificial lakes, we should introduce a variety of plant species like phytoplankton, algae, seaweed, and kelp.

Phytoplankton are microscopic plants that swim in the uppermost layers of the oceans and are of great importance for oxygen levels and carbon sequestration. Algae are a widespread plant type in the sea and can come in various shapes and sizes, from microscopic single-celled algae to large algae banks. Sea grasses are aquatic plants that grow in coastal areas and lagoons and play an essential role in the ecosystem by serving as a habitat for many marine animals. Kelp are large, deciduous algae that grow in cold water in temperate and sub polar regions and are a crucial part of coastal ecosystems.

What problems do our current rivers, lakes, and oceans pose for our fish and, thus, also for us humans? Rivers and lakes are contaminated. From our natural waters, we are exposed to:

- Pill residues
- Lead
- Intoxicants and narcotics
- Heavy metals
- Pesticides, Microplastics
- Chlorine, Arsenic
- Pollutants from agriculture and industry, including pesticides, fertilizers, heavy metals, and other toxic chemicals.
- Bacteria and viruses.

- Waste such as plastic and other materials entering the water.

What measures can we take to prevent rising sea levels? According to estimates, between 200 and 300 million tons of salt are extracted annually from opencast mines worldwide. This opencast salt extraction corresponds to approximately eighty trillion gallons of water. In other words: that's 300 billion cubic meters of water.

Let's illustrate this amount with a comparison.

The Caspian Lake Sea, Lake Baikal, and Lake Titicaca have about the same quantity of water as all salts that reach our oceans every year. This contributes to sea levels rising because this salt is yet another element added to the oceans. The oceans continue to rise due to our salt.

We hollow out the Earth, extract the salt, and ultimately, this salt ends up entirely in our seas. Has anyone ever thought about the source of the salt we extract from underground salt mines? Or whether this salt is even partly responsible for the rise of our oceans? This salt enters the oceans via detours, such as cooking pots, sewage, and rivers! The same is true if we use salt as grit on the roads against black ice. This salt not only ends up in our oceans via the sewers, it also pollutes the seas with salinity. Even more, they fill the oceans with their mass and cause the oceans to rise. Every ounce of salt that we

mine correlates to the same mass of salt that in the world's oceans every day. This has been the case for hundreds of years.

After all, where are the salts we extracted from salt mines 200 or 300 years ago? It is already in the oceans, and unfortunately, it will always stay there. Salts don't evaporate like water does. This may sound like an absurd conclusion, but our research confirms its validity.

We should now actually replenish these mines with the salt we've taken over time. We should also replenish the coal we've taken from mines throughout human history with salt from the sea, and we should only be using use only sea salt for all purposes. Because sea salt cannot cause the seas to rise any further, we would also achieve a lowering of the world's oceans.

Even just filling the mines with rainwater would be helpful, if only considered as a water storage facility. These immense volumes could help us lower sea levels again. This measure would also be the fastest and the most cost-effective to accomplish our goals. If the rainwater slowly seeps into the ground, the groundwater levels rise again, and enormous masses of water are stored here.

All these measures contribute to the lowering of sea levels again!

Measure 3 – The Elimination of Coal

Humanity has known for decades the problems with coal, with pollution being number one. We must stop burning coal, at least the way we have been doing. Remember, carbon has been stored in the coal, underground, for millions of years. It is only released through the acquisition and burning of it.

When one ton of coal is burned, about 3.6 tons of carbon dioxide are released. This is one of the main reasons why the atmosphere continues to warm. A furnace not only burns coal but also extracts oxygen from the air. As a result, the exhaust gases are heavier than the burned coal itself. Carbon dioxide weighs more than burned coal because it consists of one carbon atom and two comparatively heavy oxygen atoms. These are each about sixteen times heavier than a single hydrogen atom. We already know the relative atomic mass of carbon dioxide is 44.

Measure 4 – Light Colors

We should make sure to use as few dark colors as possible outdoors, be it cars, rooftops, or roads. If possible, they should all be light-colored, preferably white. This measure would directly help to reduce the increase in global warming. As previously discussed in this letter, light colors

reflect carbon dioxide back into space much more efficiently than other colors.

Measure 5 – Reduced Vehicles

Since the invention of the automobile, the number of vehicles on the roads has exploded. As of 2023, it is estimated that there are 1.5 billion cars around the world. In terms of comparison, that number has gone up more than 30% since 2008 and 4.2 percent since 2022. One cure for global warming is a significant reduction in the number of registered vehicles. This goes far beyond the carbon emissions from the engines of these vehicles because every car has a larger surface area to absorb sunlight. The number of vehicles registered worldwide continues to increase. This is mainly due to the growing world population.

Car windows continue to cause problems and further global warming. As you likely already know, the interior of a car can get incredibly hot on a summer day, reaching temperatures of over sixty degrees Celsius. Windowpanes convert sunlight into heat by absorbing solar radiation consisting of electromagnetic radiation of varying wavelengths. The absorbed energy is then converted into heat.

As a result, the number of cars must be drastically reduced, and by accomplishing that goal, global warming

would automatically be minimized. We would also have much more parking space and less energy consumption in the production of vehicles. We all know vehicles contribute to global warming. We need to act like it.

Measure 6 – Artificial Icing

The re-glaciation of the planet's remaining glaciers, along with the North and South Poles with snow cannons will dramatically reverse climate change. In addition to the use of snow cannons, some cities may be able to move snow from roads to amplify the benefits of these re-glaciation projects.

Artificial icing of the North and South Poles with snow cannons has many advantages:

- Slowing the rising of sea levels
- Arctic and Antarctic will be better protected.
- Water supplies will improve.
- Animal habitats will recover.

Overall, the artificial icing of the North and South Poles with snow cannons is a promising technology that can help mitigate the effects of climate change on the entire world. How can we restore the ice at the poles?

More than 90 billion tons of natural ice melted every year between 1980 and 2010. Ice on Greenland's glacier has declined by an average of 238 billion tons annually, just

since 2002. It is important to note that this melting ice at the poles not only has an impact on the sea level but also on the climate, world weather, and other ecosystems that depend on it.

The first simple measure to slow the melting of the glaciers is to install snow cannons. Especially during winter months, these cannons would help restore the glaciers to their former glory – on the mountains and at the North and South Poles. This technology has functioned effectively and efficiently on ski slopes for decades and could be one tool we use to help combat climate change. In essence, snow cannons work by turning compressed air and water into snow.

Here is a brief overview of the process:

- **Water absorption:** A pump sucks water and delivers it to a container.
- **Compression:** The water is then compressed.
- **Mixing with cold air:** Compressed air is then mixed with cold air to allow water droplets to freeze.
- **Ejection:** The water droplets are then expelled from the cannon barrel and released into cold air.
- **Icing:** The water droplets freeze immediately as they come into contact with cold air, forming tiny ice crystals.

- **Bringing the ice crystals together:** The ice crystals congregate and grow into larger ice crystals, forming the snow.

A typical snow cannon can produce between 3,500 and 7,000 cubic feet of snow per hour, depending on the size and power of the cannon. Some state-of-the-art snow cannons can produce up to 50,000 cubic feet of snow per hour. These capabilities could easily manage, in a very short time, to re-freeze the glaciers properly. Therefore, we should cover as many hilltops as possible with snow cannons to freeze again every winter, even to extend the snow season into spring and autumn shoulder seasons.

Even in summer, mountains at higher altitudes can hold ice as long as the temperature remains below freezing. As long as the temperatures remain low, snow cannons will work.

Another technique we are actively investigating is the use of fire-fighting planes (typically used to extinguish forest fires in the summer) to load and drop snow directly on the glaciers and hilltops from the air.

Once we add snow and ice to the poles and mountains, we must protect it. In the future, this snow should not be allowed to simply melt again, returning to our waterways, and ultimately, our oceans. Instead, it should be converted into a form of permanent snow. The mountain

tops and glaciers should be filled with the same amount of snow as they had 200 years ago. Once present, the snow should be inundated with water so that it hardens, sticks to the glacier, and does not later become a dangerous avalanche.

The same principle considered for the planet's mountain ranges applies, of course, to the North and South Poles as well. These remote areas would be used to permanently host snow and ice through snow cannons, planes, and other techniques to be developed over time. If a snow cannon produces four hundred cubic meters of snow per hour and we set up one thousand snow cannons each at the North and South Poles, then in just one year, we could change the world.

<u>And the math checks out:</u>

If we ran these snow cannons non-stop, they would produce four hundred cubic meters of snow per hour. Multiply that by the 1,000 snow cannons and the 24 hours of daily operation and 365 days in a year, and you end up with a staggering 7,565 cubic miles of snowpack, every year. This could be represented as a relatively small parcel of land at the poles. Our research indicates that a parcel of land measuring 110 x 110 miles would be sufficient. And all this from just 1,000 snow cannons. Of course, the snow cannons should run exclusively on solar or other green energy.

But isn't it always dark in the polar winter? The reality is that other clean energy options exist to solve the problem, including geothermal energy. Indeed, it is very possible to extract geothermal energy at the North Pole and the South Pole.

Although both poles are extremely cold parts of the Earth, underground heat deposits in some parts of Antarctica and Greenland can be harnessed to leave us with clean and renewable geothermal energy. Geothermal energy is already an important source of energy for several nearby countries. One example is the Iceberg Point geothermal power plant in Greenland, which has been in operation since 1990 and is an essential energy source for the local community.

But how can you transport water through an area with temperatures consistently below freezing? Temperatures at the North Pole are consistently cold, often lower than -22F (-30C). Transporting water through pipes in these conditions is a challenge due to freezing, but there are several methods available to mitigate any issues.

Here are some possibilities:

- **Insulation:** A crucial aspect of transporting water through cold regions is insulation. Pipes and other water transport pipelines must be well insulated to prevent the water from freezing or cooling too

much. We could use materials such as polyurethane foam or mineral wool.

- **Hot water transport:** One way to transport water in freezing areas is to use hot water. If the water is heated to a higher temperature than the environment before transport, it remains liquid and does not freeze. Geothermal energy is a great idea here.
- **Antifreeze:** Antifreeze is also possible, such as alcohols or glycols, to prevent water from freezing. These chemicals lower the freezing point of the water so that it remains liquid even at very low temperatures.

The glaciers and poles can help us store enormous amounts of water to help slow down or even prevent rising sea levels. Snow can increase the reflection of sunlight as well, resulting in a reduction in the absorption capacity of carbon dioxide, which contributes to lower greenhouse gas emissions.

The Problem with Fireplaces

Operating a fireplace at home as a heat source is very inefficient. Did you know that running a fireplace does not work to warm a room or home, at least not very well? A fireplace actually does more to cool a room than what we want to accomplish – warmth.

When we light a fire in a fireplace, the exhaust gases of the wood and the heat flowing out of the wood must, of course, escape. We all know – heat naturally rises. Any air that escapes from the fireplace into the atmosphere leaves the home via a chimney. That air must, of course, get back into our house, or else the home would become a vacuum without any air at all. This air is drawn into the house through the tiniest cracks (e.g., windows, doors, floors, etc.), even if the windows and doors are closed.

Now suppose that the outside air temperature is far below the average room temperature inside. In that case, this means that the rooms in the building cool down quickly wherever the fireplace is not running. The air on the floor gets especially frigid in any room with a fireplace. Any air that flows upwards must automatically be replaced at the ground level. Not only do we get cold feet through this effect, but the home, as a whole, is actually cooled by the incoming cold outside air instead of being heated by the fireplace. This goes against logic, but its truth is inescapable.

Our pets, which very often lie on the ground, notice this effect the most. The cold air that flows along the ground cools the animals. They often get colds and even dangerous infections as a result. We have proven through research and experimentation what this means.

The house's overall temperature is actually cooler when a fireplace is burning.

Every time a hot particle of air flows through the chimney, cool air from outside must replace it. If too many homes in any geographic area are operating a fireplace in winter, the air saturated with exhaust gases from the area also returns to our homes. As such, fireplaces are inefficient and harmful to the atmosphere due to exhaust fumes and the resultant thermals. Unfortunately, this also means that the fireplaces participate directly in global warming.

Any emission of additional heat into the atmosphere means warming the atmosphere immediately above the fireplace and beyond. Then, winds drive exhaust fumes, warm air, and particulate matter into more remote regions. We all believe that when a fireplace is burning, the exhaust gases will be distributed quickly in the air. This may be true for a single fireplace, but the collective nature of fireplace use cannot be understated.

When a higher percentage of homes try to heat the air via fireplaces in a city or a settlement, especially in winter, the overall impacts can be massive. Fireplace exhaust gases can travel extremely long distances through natural winds. In the long term, the transfer of gases and aerosols by winds can contribute to them being transported thousands of miles.

Think of the eruption of the Icelandic volcano Eyjafjallajökull, which last erupted in 2010. Over several days, it carried its ashes and gases across Europe and the Atlantic. Air traffic was interrupted for several days throughout Europe, even thousands of miles away from the eruption. Likewise, fireplaces cause similar negative effects due to their heat and emissions.

Once we observe how much wood we have to burn to feel any heat in the room, it is more than unwise to use a fireplace as a heat source. Imagine a fireplace that could distribute its heat directly into a room, in all directions, simultaneously. That's one thing that could increase efficiency. On average, however, a log fire can produce only 25,000 to 30,000 British Thermal Units per hour. That's only 8.5 kilowatt hours in terms of electricity.

We can easily compare that with the heat that would result from running four fan heaters at 2 kilowatts each. Within minutes, any normal room would get extremely warm using the space heaters, far hotter than it would ever get from a single fireplace. You can certainly imagine how warm this room would get if the fan heaters did not switch off. And, of course, electric heaters warm up a room in minutes, much faster than the fireplace could ever manage.

Logic determines the reasons for this discrepancy. What happens to all the heat the fireplace does not give off in

the room through radiant heat? The rest of the heat from this fireplace simply goes unused through our chimney and into the atmosphere, absolutely wasted in terms of warming a house. By using space heaters instead, no air leaves through the chimney, and no cold air flows into the home because no warm air has to escape from the fireplace.

This makes these space heaters much more effective. Even more, they don’t produce any exhaust gases or particulate matter. And if the electricity was generated by hydroelectric power, wind power, or solar energy, we get an added benefit as even the power generation process would not increase climate change.

This example shows how much heat we generate and release unused into the atmosphere with a fireplace. Additionally, a fireplace even cools our house through the inflowing cold air, the opposite of the desired effect. But it's not just fireplaces that warm our atmosphere. Unfortunately, vast amounts of heat come from stoves, cars, busses, ships, commercial HVAC, ovens, airplanes, and factories. This also contributes to the warming of our atmosphere.

These heat sources are largely responsible for the Earth's extreme warming. They all burn at high temperatures, implicating the very temperature of the planet. If all these artificial heat sources of humans did not exist, global

warming would halt, and storms would abruptly subside, all because warm air (thermals) from all these heat sources automatically flow upwards and automatically attract cold air again.

The greater the thermal activity, the more air must be sucked in from the environment. Especially in the summer, you can observe this principle in action very easily. Thunderstorms form quickly after hot summer days, and it all comes down to heat rising into the atmosphere. And normal summer thunderstorms can, under the right circumstances, develop into more deadly storm systems like tornadoes or hurricanes.

According to the National Oceanic and Atmospheric Administration, there have been an average of 1,253 reported tornadoes per year in the United States over the past fifty years. Some of the most severe tornado years in the United States were 2011 and 2017, when there were hundreds of reported tornadoes resulting in severe damage and loss.

You can clearly see here that thermals have continued to increase in the United States in recent years, and you'll notice how frequently violent storms and other climate disasters happen in population centers. Consider places such as Los Angeles, Boston, Chicago, and Las Vegas, and how densely packed the houses are. When the sun shines on these (and other) cities and population centers around

the world, the result will be more extreme updrafts, which will result in more extreme weather.

More importantly, when it rains, the vast majority of the water will remain on the streets and sidewalks, only to evaporate back into the ecosystem. In these population centers, billions of watts of heat and carbon dioxide rise into the atmosphere when people operate fireplaces.

Is Green Energy Always Climate-Friendly?

No! Why? Because these technologies also cause the climate on Earth to be warmed. Certainly, the production of electricity, with its vast network of generators and coils, implicates global warming. But the story doesn't end there. Final consumers also warm up the climate by simply using the electricity, no matter how it is sourced. Whether we're talking about vacuum cleaners, stoves, ovens, cars, busses, ships, heaters, HVAC, airplanes or factories, every time electricity is used, it affects our climate.

All these things contribute to global warming because they emit enormous amounts of heat into the atmosphere. No matter what technology is used to generate energy, all of them contribute to global warming.

A Side Note on Trees.

Did you know that we could eliminate 2.1 gigatons of carbon dioxide annually if we could simply stop dead trees and leaves from rotting? If we could do this, it would be a wise consideration for any climate change researcher. Of course, it would be wise to find ways to eliminate such a large amount of carbon dioxide from our planet without giving up anything.

When discussing topics like those covered in this book, it's easy to overlook the additional carbon dioxide emissions that come from our forests. It is precisely this topic, the normal cycle of forests, that most people have not even considered. The stark reality is inescapable. Forests not only store carbon dioxide during a tree's life but also release the entire stored carbon dioxide back into the atmosphere at the end of the tree's life. It is a dual force working against us and the climate in this all-important fight.

The forests of Earth are constantly exhaling carbon dioxide because all carbon dioxide stored in the wood and leaves of dead trees rot on the forest floor. Forests contribute to the carbon dioxide cycle in the ecosystem by absorbing carbon dioxide from the atmosphere and storing it through photosynthesis in plant material such as wood. When this material rots after the death of the plants, it is released again and thus wholly returns to the atmosphere as dangerous carbon dioxide. This process,

unused heat from the wood, naturally contributes to global warming.

The amount of carbon dioxide released into the atmosphere worldwide by rotting wood depends on various factors, such as the amount of rotting wood, climate, and humidity in the region. However, estimates suggest that the amount of carbon dioxide released by wood decomposition approximates 2.1 gigatons per year. This corresponds to 3.9% of annual global carbon dioxide emissions from all human activity.

One idea to solve this problem is simply to use the rotting wood and leaves from the forest floor in heat and power plants. As a result, significantly less oil and coal would be burned, consumption would go down, and ultimately, less carbon dioxide would be emitted into the atmosphere. These truly are the goals of any climate change scientist, and we are actively in pursuit of the best methods to accomplish them.

But we can also easily save carbon dioxide ourselves every day! Each of us, whether at home or in the office, must play a role! Collectively, we could save billions of watts of electricity daily just by pulling electrical plugs out of the socket.

If appliances like washing machines, dishwashers, printers, and every other type of device are not in use

(e.g., standby mode), they still consume electricity. This means that if the devices are not turned on and just waiting for us to use them, they consume between 6 and 13 watts of electricity each! That adds up, especially in the digital age where most people have multiple devices.

With this technology and idea fully effected, daily energy savings in the U.S. alone would amount to billions of watts of electricity. Less energy consumption also means fewer carbon dioxide emissions to the environment. On a more personal basis, that equates to nearly $150 per year per household in savings and – thousands of dollars a year for businesses and government agencies.

The sheer number of electrical devices makes accurate estimates impossible, but it's clear that we're wasting power without receiving any benefit, and that is something we must try to solve. The amount of electricity consumption depends on various factors, such as the number of devices, their efficiency, their duration of use, and the respective electricity tariffs. One thing is for certain – this problem has been getting worse for decades and the future does not appear to be slowing down.

It is estimated that standby devices consume billions of kilowatt hours of electricity every day on a worldwide basis. Even worse, this is wasteful behavior. This can significantly strain the power grid and the environment,

especially in regions with unstable power supplies or high energy demands.

Strategies for the Future

What causes climate change?

- Body heat of 8 billion people
- Body heat from farm animals, wild animals and pets
- Heated apartments, schools, shops, and offices.
- Street lighting
- Steel furnaces
- Internal-combustion engines
- Generators, including wind power and hydroelectric plants.
- Fireplaces
- Rotting wood and leaves in forests and parks
- Standby devices

Some effects of climate change include an increase in the number and severity of extreme weather events such as heat waves, droughts, and floods. Generally, a rise in global temperatures also comes with a rise in sea levels due to melting ice.

In addition, an increased concentration of carbon dioxide in the atmosphere can also lead to the acidification of the oceans. When carbon dioxide is dissolved in the oceans, it

reacts with water to form carbonic acid, which lowers the pH and makes the water acidic. This can affect marine organisms with calcareous skeletons or shells, as the more acidic water can dissolve these structures. This acidification affects far more than marine organisms, however, and through various food cycles, it can directly affect humanity as well.

A higher concentration of carbon dioxide can also affect photosynthesis and plant growth. Plants need carbon dioxide for photosynthesis, but a higher concentration of carbon dioxide favors the growth of weeds and pests. This can directly and negatively affect food production around the world.

Once we start with the assumption that carbon dioxide is guiding global warming, we must start inquiring about techniques and methods we can use to help make the world a more livable place.

How can we to stop the global increase in temperature and even reverse it? Our research has proven that if we had carbon dioxide levels of the past, temperatures would correlate. There is a straightforward solution to lower the temperature on Earth and it is far less complicated than some would have you think. The answer is simple. We need to eliminate a large portion of carbon dioxide from the atmosphere. What impact does a higher carbon dioxide concentration in the atmosphere have? This is the

very essence of climate change. Several cost-effective options for achieving these goals already exist.

The first strategy: Convert carbon dioxide into oxygen.

One tested strategy to combat climate change is the conversion of carbon dioxide into oxygen, in very large quantities, through processes like photosynthesis. By doing this, we can massively reduce the amount of carbon dioxide in the atmosphere. It is this simple - Less carbon dioxide in the atmosphere equals less climate change. But how do we convert carbon dioxide back into oxygen?

What sequesters carbon dioxide better than trees? Green algae and seagrass can positively affect the Earth's climate by removing carbon dioxide from the atmosphere and producing oxygen, without the negative side effects of tree forestation. Primarily, green algae absorbs and stores carbon dioxide directly from the atmosphere. Using photosynthesis, green algae utilize solar energy to convert carbon dioxide and water into sugars and oxygen. The oxygen is released into the atmosphere while the carbon dioxide is stored in the algae.

Green algae are the most important oxygen producers on Earth. They already produce about half of all the oxygen in the atmosphere. Oxygen is needed by all carbon-based lifeforms.

Green algae can also help improve water quality. They remove pollutants such as nitrogen and phosphorus from water, pollutants that tends to degrade water quality and affect overall human and animal health. Green algae must play an important role in combating climate change because it is uniquely capable of efficiently and effectively removing carbon dioxide from the atmosphere, producing oxygen, and improving water quality.

We suggest the construction of massive water tanks (>100,000 cubic liters) with seawater, algae, and seaweed. Our plans posit these water tanks would be most effective in and around city centers. If utilized appropriately, they could effectively replace trees as an oxygen source. Green algae and seagrass improve air quality, all while sequestering carbon dioxide, especially in the cities.

Similarly, seagrass may be a tool to fight climate change. This is a special type of marine grass that produces oxygen and removes carbon dioxide from the atmosphere. It can also filter pollutants from water, improving water quality. Seagrass is a proven carbon dioxide absorber. A study by the University of California - Davis, found that seagrass can remove one hundred times more carbon dioxide from the atmosphere than trees. Seagrass can also filter up to 97% of pollutants from water.

Seagrass is a sustainable and cost-effective way to improve air and water quality in cities. It is also an

effective way to combat climate change. Here are some of the benefits of planting and managing seagrass in our massive urban water tanks:

- **Improving air quality:** seagrass produces oxygen and removes carbon dioxide from the atmosphere. This can improve air quality and people's overall health.
- **Improving water quality:** seagrass can filter pollutants from water, improving water quality.
- **Combating climate change:** seagrass can remove and store carbon dioxide from the atmosphere. This can counteract climate change and protect the environment.

Seagrass produces more oxygen per unit area than trees because seagrass is particularly efficient at photosynthesis in water. In addition, it maintains high growth rates under ideal conditions. During photosynthesis, plants like seagrass absorb carbon dioxide from the atmosphere and convert it into organic compounds using only sunlight and water. Oxygen is released as a byproduct of this process.

The main difference between seagrasses and trees is that trees are a comparatively slow-growing plant, and their photosynthetic output is highly dependent on seasonal and environmental conditions. Seagrasses, on the other

hand, grow in a marine environment where constant light and temperature conditions prevail. The high productivity of seagrass means that it can produce more oxygen per unit area than trees. At night, the water tanks could still be illuminated with LED lights powered by solar energy to promote the growth of algae and seagrass on a full-time basis.

This type of algae produces the most oxygen and can multiply very quickly in both salt and fresh water. Through photosynthesis, algae absorb carbon dioxide and produces oxygen. Part of our master plan includes a planned inoculation of controlled oceans, lakes, and rivers with our algae, massively increasing their growth potential. There is more room for oxygen producing flora in oceans, lakes, and rivers than on land.

Importantly, algae grows much faster than trees. It reproduces quickly and within weeks can reach a substantial biomass. Unlike trees, they are not tied to specific soil conditions and can grow in both fresh and salt water. *Chlorophyta* algae have a high efficiency in using light, water and nutrients for photosynthesis. They can also use water and nutrients more effectively than trees, resulting in efficient biomass production. Algae have many advantages, including the simple truth that forest fires and storms affect them less than trees and forests.

The second strategy: Propagating fish stocks in the world's oceans.

A corollary of the first strategy is a massive expansion of consumable fish and seafood products. Through mass propagation of algae in the waters, we can achieve an increase in fish population around the world. Fish and other aquatic food sources will easily find more food through the increased algae, and thus, the fish population in the world's oceans will explode. If necessary, we also reintroduce young fish into the waters.

The third strategy: Waters such as oceans, lakes and rivers will be cleaned again by algae.

As already stated, algae play an important role in cleaning water bodies. Algae can absorb and store pollutants such as heavy metals, nitrogen compounds, and phosphates from water. This process is called "algae fixation" or "algae absorption." This also reduces the turbidity of the water.

With their filamentous structures or mucus secretions, they can trap suspended solids and sediments in the water, even helping to clarify the water. As a food source, algae use organic pollutants, which they break down in the water, helping to improve water quality.

The fourth strategy: Biofuel production.

Large-scale biofuel development is possible under our plans because green algae also produce large amounts of biomass. In addition, algae cells contain oils and lipids that can be used as raw material for biofuel production.

How much biofuel can be produced from a ton of *chlorophyta*? One ton of Chlorophyta algae has an average oil content of 30%. This means that there are about 300 kilograms of oil in just a single ton of algae. We estimate that nearly 300 liters of biodiesel or other biofuels (bioethanol, biogas) can be obtained from 300 kilograms of algae oil.

<u>The fifth strategy: Using bacteria to rid the oceans of plastic waste.</u>

Can bacteria break down plastic? Yes, some bacteria actually break down chemical compounds in plastic, using them as a food source. This process is called "biodegradation." An example of such a bacterium is *ideonella sakaiensis*. It was recently discovered that this bacterium is capable of degrading polyethylene terephthalate (PET). The bacterium produces an enzyme called PETase, which enables the degradation of PET plastics.

The Depth of Trees

The depth of the roots of a one hundred-foot-high tree varies depending on the species, soil conditions, and other environmental conditions. In general, however, the roots of a tree can reach up to two to three times as deep into the ground as the tree's height. Thus, the roots of a one-hundred-foot-high tree could theoretically reach up to 200-300 feet deep into the ground.

A one-hundred-foot-high tree can absorb different amounts of water from the soil depending on the species and growing conditions. However, it is estimated that a mature deciduous tree absorbs an average of about 70 to 135 gallons of water daily, while a conifer requires slightly less. Some trees can absorb up to 265 gallons every day.

This is the primary reason why it is better to create artificial lakes to combat rising sea levels than to plant a forest with trees. Put simply, trees remove water from the soil too quickly to store carbon dioxide efficiently. An artificial lake also stores much more water than a tree or an entire forest ever could!

In addition, compared to a forest, an artificial lake can provide much more food, quickly, including fish, mussels, crabs, shrimp, octopus, shellfish, and seaweed, all more efficiently than any food source coming from the forest.

Even more, an artificial lake provides millions of people and animals with clean and safe drinking water.

From a macro perspective, a lake containing green plants can produce a significant amount of oxygen for the atmosphere. The amount depends entirely on the size of the lake and the number of green plants existing in it. Plant photosynthesis produces oxygen, making plants play an essential role in oxygen production in water. It's not just the production of oxygen that lakes, artificial or not, contribute to. Lakes and oceans also play a vital role in storing carbon dioxide, as carbon dioxide is water soluble.

However, it is crucial to note that any carbon dioxide uptake necessarily harms the ecosystem, as it leads to carbon dioxide over-saturation. This contributes to an overall reduction in the pH of the water.

Of course, a forest can absorb considerably more carbon dioxide than water, but unfortunately, it can only store it. A forest remains unable to completely convert carbon dioxide into oxygen. Indeed, at some point in the future, the tree releases this carbon dioxide back into the atmosphere when the tree dies or when the wood is burned.

Another function of both lakes and forests is that they serve to regulate groundwater levels, but our research has proven that an artificial lake does it more efficiently.

In fact, an artificial lake or waterhole raises the groundwater level in its surroundings. The forest does not raise the groundwater level, nor does it contribute to water storage in the soil. In fact, trees and forests have several adverse effects when it comes to water storage. The trees extract moisture from the soil, and if it does not rain, the groundwater level drops rapidly. Because the trees withdraw water from the groundwater system 24 hours a day, it affects the groundwater level further.

And even worse, due to the lowering of the groundwater level, the water levels of lakes and rivers also decrease. This dramatic effect happens thousands of times worldwide every year. When taken too far, the lake can dry up entirely.

To prevent this, our research has directed the use of rainwater collection pipes to maintain the volume of these waterholes and lakes. These would allow heavy rain in one area to be transported to where the water was needed. In other words, if it rains heavily in one area, this rain can be transported to other lakes and waterholes. For more than a century, we have connected the world with rails, roads, electrical cables, telephone cables, and gas pipes. There is no reason why we couldn’t continue this trend by building a network of water pipes.

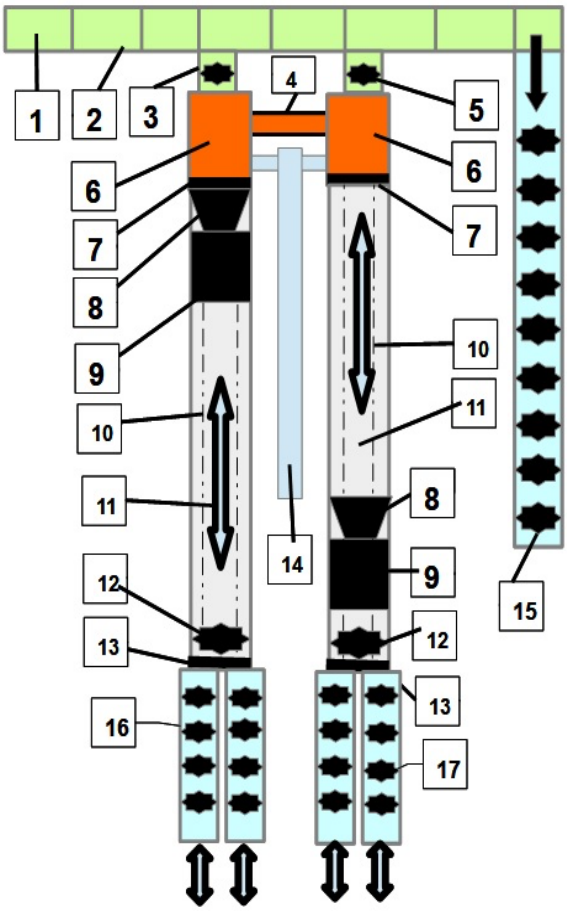
From an engineering viewpoint, it would be easy to lay underground water pipes and compressed air pipes,

creating a network and connecting it to our artificial lakes. Compressed air lines replace pumps because compressed air can transport water hundreds of miles, the most efficient infrastructure for our purposes.

Petawatt 2025 – The Real Solution

Through our proprietary technology, we can store vast amounts of carbon dioxide in our Petawatt 2025 pipe system. This is yet another tool in our fight against global warming. This book will only briefly describe our new technology but full and complete details will be more fully presented in subsequent publications. This is our gift to the world, and upon release, everyone anywhere in the world can build this technology, patent-free and with zero intellectual property concerns. Petawatt 2025 doesn't belong to us – it belongs to the world.

Petawatt·2025¶



The Petawatt 2025 pipe system requires no coal, oil, gas, or nuclear energy and uses only minimal solar or wind energy. If necessary, it can also work with geothermal energy. With both cylinders alternating, it can separate as much as 12,680 gallons of water from compressed air in just 24 hours.

The specifications of this system are complex, but it is all based on the large volume of the cylinders (>50,000 cubic meters). With this system and other ancillary systems, enormous amounts of carbon dioxide can be extracted and stored. One ancillary system can utilize high pressure and cooling to instantly convert the extracted carbon dioxide into dry ice.

If Petawatt 2025 plants were built worldwide, we could produce nearly unlimited amounts of pure, safe drinking water, around the world. In our future, no one would ever struggle for potable water. Even more, through the Petawatt 2025 technology, we can also:

- Generate compressed air
- Generate electricity
- Store electricity
- Transport electricity
- Provide drinking water
- Vent a city
- Store carbon dioxide

There is currently no technology like the Petawatt 2025 on the market.

Petawatt 2025 – A Technical Discussion

This section of the book will provide a very basic look at our Petawatt 2025 system and how it can be used to stop

climate change, and more. The diagram above is a simplistic representation of the device in the hopes that the reader will be able to conceptualize how it works.

Obviously, more technical analysis will be revealed as we begin to build the device. In the meantime, this should serve as a primer for the technology.

It all starts with the main pipe (11). Measuring four meters in diameter and two kilometers long, this main pipe serves as the pressurized area that will be used to vacuum and distribute airflow. The pistons in the main pipe are driven by an electric locomotive (9) driven on gears (10) with a pressure cylinder (8). These are all found within the main pipe and can be locked by an airlock (13) and turbine (12). Driving this piston compresses the air in the pressure chamber (6).

While this design relates to our prototype, other technologies may be used to push the pressurized vessel. Our research contemplates approximately ten minutes of pressurizing time with the electric locomotive. This corresponds to 12 km/h.

The resulting negative pressure in the main pipe causes the turbine to rotate through the incoming air, thereby generating energy until the electric locomotive arrives at the pressure chamber. Since a negative pressure is created

in the main pipe, the air is sucked from the two pipes (16) through the open airlock (13).

The turbines (17) in the system start turning due to air flow, generating electricity. Then imagine we put the locomotive in reverse, pulling the piston back from its pressurized position. When that happens, the generator generates electricity again since all the air is pushed out of the main pipe. The air pushed out of the main pipe flows into the second pipe and causes the turbines there to rotate, generating even more power.

The length of the main pipe can be adjusted depending on the location and the available space. Obviously, the longer the pipe, the more air we can move and the more energy we can generate. The electric locomotive operates remotely and moves with its pressure cylinder to the end of the pipe where the pressure chamber is connected.

In our example, the pressure chamber is one hundred meters long. The pressure chamber is separated from the main pipe by a pressure lock. Here, all air in the two-kilometer pipe is compressed to twenty bars in the pressure chamber. The closed pipe has an air content of more than 25,000 cubic meters.

If 25,000 cubic meters of air, at 25°C degrees, is compressed in a closed pipe to a pressure of twenty bar, what will the air temperature become? To calculate the

temperature of the air in this scenario, we apply the ideal gas law to arrive at the result: 912°C. With this pressurized air in the pressure chamber at twenty bar air pressure and a temperature of more than 900°C, how can we use the energy? This high temperature can be used to accomplish several things before cooled air is reintroduced into the compressed air tank pipe. 912°C hot air contains a shocking amount of energy, and can be used for various applications, including:

- Heating water
- Desalinate sea water for drinking water
- Clean wastewater
- Quickly dry materials such as food, paint, varnish, and coatings
- Smelt metals such as steel, copper, and aluminum
- Heat treatment of glass, ceramics, and metal materials
- Remove dirt and contamination
- Incineration of waste
- Steam electricity generation

By compressing the air, we can store it in the compressed air tank (1). This is the primary storage unit for this type of energy, allowing immediate availability, when desired, to generate electricity using the twenty-bar air pressure. If that electricity is needed again, the compressed air from the compressed air tank at twenty bars is released into

adjacent turbines, located in a pipe, and separated through an airlock.

Petawatt 2025 - There is currently no comparable technology that performs these diverse functions simultaneously. Of course, in areas with more available space, the overall length of the main pipes can be increased up to ten kilometers.

We can also increase the corresponding number of main pipes to achieve additional benefits. Up to fifty electric locomotives can run side by side in the main pipes, supplying a large city with more than enough energy and heat. Access hatches to the main pipe – one per kilometer – always allow a safe entry to carry out repairs or maintenance, work on the locomotive, the gears, or any other part of the system. Another advantage is the primary by-product of using the system - potable water.

Just how much water is in 25,000 cubic meters of air at 25 degrees Celsius and 70% humidity? At 25 degrees Celsius, air can hold a maximum of around 23 grams of water per cubic meter. Since the volume of air in this scenario is 25,000 cubic meters, we can easily calculate the maximum amount of water this air would contain. If we could achieve 100% humidity, the maximum amount of water would be calculated as such:

$(23\ g/m^3)(25{,}000\ m^3) = 575$ kilograms

However, since the air in our main pipe is only 70% saturated, the actual amount of water in the air is 70% of the maximum amount of water, or 402.5 kilograms, still a substantial amount. If we recover only 30% of that potential water as condensation in the compressed air, we have obtained 120 liters of pure drinking water in just 10 minutes. The electric locomotive runs three times an hour (or 72 times a day) to compress air, making nearly 8,600 liters of drinking water every 24 hours.

Several times a day, we free the pressure chamber from water accumulations from the compressed air and store this water in the pipe. Thanks to the compressed air, we can then transport the collected water anywhere, without the need for complicated pumps. Through this tremendously complex system, we can, in just a few simple steps:

- Generate compressed air
- Store compressed air
- Transport compressed air
- Store carbon dioxide
- Generate energy
- Transport energy
- Generate heat of about 900 degrees
- Transport heat through the compressed air
- Collect 17,000 liters of drinking water from the air in 24 hours.

- Transport water

These compressed air lines can be laid over thousands of kilometers, for example from Los Angeles to New York. Depending on the requirements, compressed air is pumped into the air lines or removed from the air lines to generate electricity.

Anyone who produces electricity can use our technology to feed compressed air into the compressed air tank. Anyone who then needs energy takes compressed air from the line and uses our technology to produce the required electricity in adjacent turbines. Our technology has been designed to benefit a number of stakeholders, and all without pollution. Air pressure meters control and remunerate the transaction. We also use the energy stored in compressed air pipes, which can be stored in this unique system indefinitely without significant losses. Cities or countries feed their excess energy into these compressed air pipes and can immediately access the stored energy again if required.

And best yet, not a single ounce of carbon dioxide is produced in any of these processes. This is the cleanest of clean energy.

The Extraction of Carbon Dioxide

Sometimes, we think that removing carbon dioxide from the air is the only thing we need to do and that there won't be any kind of unexpected consequences. But our research has focused on all potential outcomes related to the extraction of carbon dioxide from our planet, and they are all positive. Removing large amounts of carbon dioxide from the air would help reduce atmospheric carbon dioxide levels, thus mitigating the greenhouse effect.

The greenhouse effect is a natural process in which gases such as carbon dioxide, water vapor, and methane trap the sun's heat in the Earth's atmosphere, keeping the planet warm – sometimes too warm. The proportion of carbon dioxide in the atmosphere is currently about 0.04%, or 400 parts per million.

That means that out of a million air molecules, about 400 are carbon dioxide. The truth is clear. Carbon dioxide levels in the atmosphere have increased throughout human history, and especially in the past several decades due to human activities such as burning fossil fuels and deforestation. These destructive tactics have led to increased global temperatures and other tragic effects of climate change.

The capacity of the Petawatt 2025 system must be large in scope to effectively and efficiently capture sufficient carbon dioxide. However, this large-scale system is exactly what we have designed. Can we store carbon dioxide in large quantities with our Petawatt 2025 technology? Yes. Our plans hope to involve the construction of thousands of miles of pipes into the Earth and then forcing carbon dioxide into them at high pressure. There are no limits to the potential of Petawatt 2025.

The pressure capabilities are another metric to consider, but for the purposes of this example, 40 bar is the pressure considered. If we pump carbon dioxide into a 5,000-mile pipe at high pressure, we can store millions of tons of carbon dioxide, more than enough to begin the process of stopping global warming.

While 5,000 miles may sound like an impossible distance, the Chinese already have gas pipelines far longer. The longest gas pipeline in the world is the Petro-China West-East pipeline, stretching more than 8,704 kilometers between Xinjiang to Shanghai. The West-East pipeline was completed in 2005 and has a capacity to move 17 billion cubic meters of gas annually. It is part of a more extensive network of pipelines and infrastructure that transport natural gas from different regions of China for consumer use.

Consider the Chinese pipeline only in terms of Petawatt 2025's feasibility. Our plans require new pipelines to be laid, likely across a challenging global map. But if we could find a way to manufacture and install these pipes, we could pump the carbon dioxide through them. Here, of course, in our system, the storage of carbon dioxide is at a significantly higher level than in relatively pure forest air. There is no doubt. We can store an enormous amount of carbon dioxide in a much shorter time than any forest.

The Petro-China West-East pipeline runs over five-thousand miles and has a diameter of 13 feet. This would allow our system to store nearly four billion cubic feet of carbon dioxide. To perform the calculation, we need to multiply the cubic meters by 40 bar, across ten pipes:

$(109{,}767{,}760\ m^3)(40)(10) = 43{,}907{,}104{,}000\ m^3$

We could collect a staggering 43,907,104,000 cubic meters of carbon dioxide! 43 billion, 907 million, 104 thousand - cubic meters of carbon dioxide. When those massive amounts are converted into mass, how much does one cubic meter of carbon dioxide weigh? One cubic meter of carbon dioxide has a mass of 4.36 pounds under standard conditions So, with 43,907,104,000 cubic meters. we're talking about 87,814,208 million tons of carbon dioxide stored.

This amount would counteract any impact that humans have had on the environment and climate change from the beginning of human history until today – and so much more. Extraction is the easy part.

We will need each country to establish and secure its own storage facilities. If we can get the world on board with our plans, we can extract a considerable amount of carbon dioxide from the atmosphere in a very short time, and if each country stores it, we will reduce global warming significantly.

Carbon Dioxide Becomes Oxygen

After learning about our technology, one of the concerns most people have is having solid or liquid carbon dioxide in storage facilities. It harkens back to the days when we buried nuclear fuel as if it couldn't possibly cause problems in the future. But of course, we have a plan for that too, and there are two options – the natural way or the artificial way.

The natural way is based on algae. As presented earlier in this book, an important part of our plan will require the creation and maintenance of large artificial lakes designed to host vast algae, which will operate to convert this carbon dioxide back into oxygen naturally.

There, the stored carbon dioxide is slowly released in the most efficient way into the water so that the algae can absorb carbon dioxide from the environment and convert it into oxygen – photosynthesis. Some algae can absorb up to twenty times more carbon dioxide per unit area than land plants.

For example, *chlorella vulgaris* and *chlorella pyrenoidosa* are alga types scientifically proven to be effective in lowering carbon dioxide levels. This algae family predominantly binds to carbon, allowing it to essentially eat the carbon dioxide, with clean and healthy oxygen being the sole byproduct.

But the idea of large man-made lakes seems challenging and prohibitively expensive – there must be another way. And there is – the more artificial method. Even though it's artificial, that doesn't mean that it is harmful. Indeed, this process, handled under lab conditions, may even be safer than the uncertainties of nature.

In the International Space Station, oxygen must be produced artificially so that the astronauts can breathe. This is accomplished through electrolysis, a fast and easy way to convert carbon dioxide into oxygen. For this purpose, the carbon dioxide atom is split into carbon monoxide and oxygen, producing carbon monoxide as an intermediate product. Subsequently, the carbon monoxide is converted into methane under a separate

process using hydrogen. This releases free, plentiful, and clean oxygen.

In scientific terms, these processes are known as the ‘Sabatier Reaction’ and ‘Boudouard Reaction.’ Their effects are used in closed systems to generate oxygen for the air we breathe in spacecraft or space stations. The best part is that we don’t need to go to space to accomplish the same thing with our stored carbon dioxide.

Indeed, it is feasible to accomplish artificial photosynthesis to convert carbon dioxide into oxygen. In plants and other organisms, photosynthesis uses chlorophyll and sunlight to absorb carbon dioxide from the air and convert it into various organic compounds, including oxygen. Artificial photosynthesis tries to imitate this process. It operates by utilizing sunlight and artificial catalysts to drive the same reaction, water splitting into oxygen and hydrogen and using the products obtained to synthesize organic compounds – oxygen. It uses carbon dioxide from the air as a carbon source and converts it into organic compounds, releasing oxygen as a by-product.

One promising approach is using so-called "heterogeneous catalysts," which are applied to the surface of solid carbon dioxide. The conversion to oxygen is fast, efficient, and safe. Therefore, we can absolutely store carbon dioxide in large quantities and then return it

as oxygen. This method helps the world lower global temperatures and reduces wind and damaging storms.

The Problems with Blue-Green Algae

Not all algae are helpful when it comes to fighting climate change. Blue-green algae is formed by a combination of factors, including:

- Excessive nutrients such as phosphorus and nitrogen
- Proximity to land cultivation
- Proximity to sewage treatment plants
- Proximity to commercial livestock operations
- Warm water temperatures
- Too much light
- Low water flow and movement

We have conducted extensive research on this issue for over five years and have reached a frightening conclusion. Most people believe that the leading causes of blue-green algae in rivers, lakes, and oceans is over-fertilization (mainly by nitrogen and phosphorus from agriculture and sewage), but that is hardly the case. No, we came to a different conclusion. We came up with it while in swimming pools.

Agriculture and industrial wastewater have no impact here.

Human and animal urine consists of water, electrolytic salts, metabolic waste products such as ammonia, urea, creatinine, and uric acid, and additional pass-through substances like dyes, medications, and drugs. Feces consists of undigested food remains, bacteria, and white blood cells. It also contains fats, cellulose, water, and salts that the body cannot digest.

We have determined that these substances exist in all swimming pools, no matter the chlorine treatment in operation. These wastes come directly from people, and some of them even float on the surface of the water. Therefore, they cannot be filtered by the traditional filters. Exposure to urine and feces fosters the growth of blue-green algae, but there's more. We, humans, can get infected directly by other humans as well via:

- Skin dandruff
- Fungi from skin and nails
- Sweat
- Urine
- Feces
- Cosmetics
- Sunscreen
- Hair oils
- Hair

Even cancer cells are detectible in stool and urine by performing special tests, such as stool DNA tests or bladder tumor marker tests. These tests can help detect early signs of cancer. This means that even cancer cells float in water that we may accidentally swallow. Some skin diseases can also be transmitted via direct contact or by transmitting viruses, bacteria, or fungi and can therefore be contagious.

In a swimming pool, the water must be regularly cleaned and disinfected to ensure a safe environment for swimmers. Everyone knows this. But is the water ever really cleaned so intensively that we cannot get infected? Even if it were, no swimming pool system can handle the constant onslaught of people currently in the pool. If someone is relieving themselves, it may still be floating in the water for hours before it passes through the pool's filtration system. This is simply not good enough.

The frequency in which swimming pool filtration systems require new filters or maintenance can vary depending on the size of the pool, the number of people swimming in the pool, and the manufacturer’s recommended maintenance interval. Filter changes may be required every year or every few years, depending on the type of filter and conditions. Of course, different types of cells react differently to these tests.

Cancer cells cannot be filtered by the typical swimming pool filtration system. Even coronaviruses are detected in water and cannot be filtered out. At least swimming pools and hotel facilities have filters. The results without any filtration at all would be even more tragic, at least for the swimmer. However, cleaning and disinfecting the water is of nominal benefit because no matter how modern and well designed, the introduced mass simply overwhelms the system.

But how does this work with our rivers and lakes? Even in the Baltic and Norths Seas, blue-green algae can be found, and people and animals die from it every day. Dogs regularly die from blue-green algae poisoning because they drink unfiltered water from lakes and streams. This alga is a clear and present danger for all living organisms.

We have been increasingly concerned with the contamination problem in lakes and rivers. Here, too, we found another constant of humanity. In the wild, no one uses the restrooms, even when they are plentiful and available. Instead, people regularly go into the water, often only up to the waist, remain there for about ten minutes, and get out of the water again. They did not swim a single inch. Whether they admit it or not, we all know what they are doing. When pressed on the issue, everyone eventually admits the same thing – that it is allowed and not problematic to use these wild waters as

a bathroom. This is the genesis a large portion of the pollution in the rivers and lakes, around the world.

Our research has conclusively proven that at 90% or more of the general population use lakes and rivers as bathrooms. But curiously, everyone thinks they are the only one who does. The physiology of this fact reveals a stark reality. The pressure that water exerts on the human body triggers a stimulus in the body so that we feel like we must go to the bathroom. After all, water has nearly 800 times the pressure of air.

This is why the world's oceans are continue to get more and more polluted. We are eight billion people. A healthy person produces, on average, between 27 and 67 ounces of urine daily, based on fluid intake, physical activity, and health status. On average, two billion gallons of urine are produced every day!

So, the leading cause of blue-green algae is, simply put, human beings. Luckily, this is one problem that we can solve through creative thinking, sanitation, and regulation.

The Human Impact on Tornados

Tornadoes result from complex weather phenomena caused by the interaction of air currents, humidity, and temperature differences in the atmosphere. A tornado

forms when warm and moist air masses meet and collide with cold and dry air masses. This causes instability in the atmosphere, which is called a supercell. A supercell is a thunderstorm with a rotating upward motion that creates an area of low air pressure.

If the rotational velocity of the air cells is high enough, this can cause the air to spiral and form a vortex. This vortex can intensify into a tornado as warm, moist air from the surrounding area is drawn into the vortex, which only further intensifies it. The amount of air moved by a tornado can vary greatly depending on the size and intensity of the storm.

To give a rough estimate: A strong tornado can reach air speeds of more than 400 km/h, with a diameter of several hundred meters. These weather events are massive, and fast moving. If we assume that the tornado has a cylindrical shape and has a height of one kilometer, then theoretically, it could move an air mass of several hundred thousand cubic meters in mere minutes.

Humans have a dramatic impact on the number and severity of tornados around the world. Once you agree that human activity has had an impact on the climate, it’s an easy step to implicate tornados in that analysis.

Our concept of prevention begins with a ring of pipes installed in the ground around a tornado-prone city.

Depending on the size of this city, the length of the pipe might be, for example, 35 kilometers and with a diameter of 4 meters. This pipe would have a volume of nearly 440,000 cubic meters.

When a tornado approaches this city, we will activate the system and suck this pipe empty with our Petawatt 2025, creating a near-vacuum. In other words, we would remove 440,000 cubic meters of air from the pipe. Our Petawatt 2025 system's volume is nearly 50,000 cubic meters, meaning we would only need to move the dual cylinders ten times to create the vacuum.

So now, when the tornado approaches this city, there are flaps in the ground that can be manually or automatically opened and closed. These flaps are connected to the pipe through our proprietary technology, and would be opened at the moment the tornado touches down. When the trunk of the tornado swirls over a flap, the tornado itself becomes trapped in the tube itself, where it can cause no additional damage.

To calculate the flow velocity of the air, we need to apply Bernoulli's equation, which describes the relationship between the pressure and the velocity of a fluid.

The Bernoulli Equation: Bernoulli's equation is a fundamental equation in fluid mechanics and describes

the relationship between the pressure, velocity, and height of an in compressible fluid in a closed system.

In our context, Bernoulli's equation is:

$P1 + ½(\rho)(v1^2) = P2 + ½(\rho)(v2^2)$, where P1 and P2 are the pressure at the two ends of the tube, ρ is the density of the air, and v1 and v2 are the velocity of the air at the two ends of the tube.

Since the tube has been evacuated of air, the pressure at one end of the tube approaches zero, while the pressure at the other end of the tube is equal to the atmospheric pressure of one bar. Therefore, we can write Bernoulli's equation for the tube as follows:

Substituting the values for air density and pressure into the equation, we get: $½(1.225\ kg/m^3)(\ v1^2) = 1$ bar. If we solve for v1: $v1 = v2(1\ bar / 1.225\ kg/m^3) \approx 408$ m/s.

This means that the air would flow into the container at the astonishing speed of 408 meters per second, so long as the pressure difference between the container and the environment is one atmosphere and the opening of the container is ten meters. This would be sufficient to suck the trunk of the tornado completely into the pipe, in just a few seconds.

We don't have to eliminate in the entire tornado through this tube, however. If it does not work completely the first

time, we simply open other flaps in the city to essentially catch and collect the weather. Then, other flaps are then immediately closed, eliminating the threat entirely. This technology could save countless lives.

Of course, the Petawatt 2025 is also immediately put to work again, so that the tube is repeatedly sucked empty of air, so that as much air as possible of the tornado can be sucked in. This system will undoubtedly eliminate the tornado, after just a few seconds.

This pipe system can perform several other functions. We can ventilate an entire city when needed. In other words, the vacuumized pipes can simply suck the bad air (e.g., pollution, industry, etc.) out of a city.

This pipe system is beneficial even for cities without tornado danger. Beyond tornados, the real-world applications are limitless, including the removal of all smog and pollution from any city's climate. Consider cities that permanently suffer from smog, such as:

- **Los Angeles, California:** Los Angeles is known for its poor air quality due to the high number of cars and its location in a valley.
- **Houston, Texas:** Houston is a city with many industrial and refinery facilities that contribute to-smog-formation.

- **New York, New York:** New York City is one of the most densely populated cities in the United States and has countless cars and trucks. Smog in the city is also caused by nearby industry, shipping traffic, and air pollution from other regional cities.
- **Phoenix, Arizona:** Phoenix is known for hot and dry conditions that contribute to smog formation.
- **Salt Lake City, Utah:** Salt Lake City is surrounded by high mountains that cause smog to become trapped in the city.

These are just a few examples of many United States cities that struggle with smog problems. Of course, since we are writing the book for the world, and the United States wants to help the whole world solve climate problems with new technologies, this pipe system can help many other cities around the world.

Using Petawatt 2025, all polluted air in the cities is simply sucked by the vacuum of the pipe system and then transported to a water basin with a step system such that the air cannot immediately rise to the surface. This technology allows the air to be held in this water basin for the required time (several minutes) for cleaning. After that, it returns to the water surface in the form of pearls.

One important consideration is the relative weights of gasses. Carbon dioxide is heavier than oxygen. Carbon dioxide has a molecular mass (44 grams per molecule),

while oxygen has a lower molecular mass (32 grams per molecule). This means that carbon dioxide molecules have a greater attraction to the Earth's surface and therefore, tend to accumulate near the ground. Oxygen, on the other hand, is lighter and tends to reside in higher layers of the atmosphere.

Earthquake Proof Housing

Earthquakes can be triggered by various causes. The most common causes of earthquakes are:

- **Plate Tectonics:** Earthquakes are often caused by the movement of tectonic plates in the Earth's crust. When two plates move against each other, stresses build up and are eventually discharged in the form of earthquakes.
- **Volcanism:** Earthquakes can also be caused by volcanic activities such as magma uplift and lava eruptions.
- **Human activities:** Blasts during mining, construction, or geothermal projects can lead to induced earthquakes. The damming of water in reservoirs can also alter tectonic stresses due to the resulting pressure.
- **Glacier melt:** When large ice masses melt, the underlying Earth's crust can rise or sink, creating

stresses that can be discharged in the form of earthquakes.

- **Meteorite impacts:** Extremely rare events in which a large meteorite strikes the Earth can result in very powerful earthquakes.

Explosive blasts inside the Earth can also trigger earthquakes. These are induced earthquakes. Blasts inside the Earth can cause earthquakes by altering the natural stresses in the Earth's crust. An explosion inside the Earth creates a shaking that propagates in all directions. When this shaking encounters pre-existing tectonic stresses in the crust, these stresses can be released and cause an earthquake. There are numerous cases where blasts inside the Earth have triggered earthquakes.

This is particularly true with large blasts or continuous blasting in mining, geothermal drilling, and some construction activities. A well-known example is the 1989 Newcastle quake in Australia. A coal mine was conducting continuous blasting to mine coal. These blasts generated shaking that released tectonic stresses and caused a magnitude 5.6 earthquake, causing serious property damage and personal injury.

Another example is the 2017 Pohang earthquake in South Korea. A geothermal well near the city of Pohang resulted in repeated blasts to inject water into the geothermal

reservoir. These blasts eventually resulted in a magnitude 5.5 earthquake that also caused property damage and injury.

The Idea of Residential Ships

In the future, in earthquake areas or areas with known risks of other unforeseeable natural disasters, we should build residential ships that float on water. Our master plan includes the development of these floating cities, not unlike the largest cruise ships already floating the seas. These ships, however, would not be designed for tourism, but rather for the best possible way to live human life. Residential ships can, of course, be built anywhere worldwide to provide temporary housing, under a number of circumstances.

The flexibility of housing vessels for emergency purposes is incredible, from hosting the homeless, students, seniors (with or without full-service care), temporary workers and even people on holiday. Residential vessels or houseboats would be particularly suitable for:

- Earthquakes
- Hurricanes, tornadoes, cyclones, hurricanes
- Heavy, torrential rain
- Devastating forest fires
- Chemical spill
- Volcanic eruption

- Nuclear power plant meltdown
- Plagues
- Heat waves/cold waves
- Temporary housing during epidemics
- Refugees, homeless, students, seniors
- Temporary workers

One key advantage of residential ships is that the water has absorbent properties that substantially dampen vibrations and shock waves that come from earthquakes. Put simply, boats and ships will not shake the same way as a structure on land. No residential ship will ever be damaged by an earthquake! No human being will be killed or injured! But there are many other advantages.

Residential ships can be built very quickly in shipyards and can also be returned to a shipyard at any time for refurbishment, maintenance or repairs. Compared to traditional houses, residential ships are often 100% recyclable. They can be designed and built in a very short time, even offering affordable housing in major cities located near water. We envision a modular approach, where these ships may be designed and built as simply as Legos.

Another massive advantage of a residential ship is that it can change its location anytime. At the threat of a natural event, the residential ships can simply leave their location quickly, with or without a plan to return after.

But what about areas that are not near navigable waterways? Tornados tend to occur on land, far away from any lake or river that could house a residential ship. To fix this problem, we should use existing lakes or canals, including artificial lakes and waterways discussed earlier in this book. Our tools to fight combat climate change possess the ancillary benefits of safe housing in emergency conditions and more.

Residential ship projects must begin as soon as possible, because there will be new and unforeseen natural events and disasters. The sooner we are ready, the safer the world will become. If canals already connect individual lakes, or if a new canal is built, the residential ship can relocate very quickly in order to navigate away from any imminent danger. Consider the ability to simply move a city's population away from approaching hurricane.

Once the event or danger is over, the residential ship can simply and easily return to its original location.

Based on our research and expertise, a well-equipped group of excavators and trucks could build 500 meters of canal per day. In other words, it would take slightly more than a year to design and build a two-hundred-kilometer canal, but once built, it could immediately offer an escape route in the event of natural or manmade tragedy.

These canals should be equipped with a lockable gate every ten kilometers to protect against outside forces like climate, geology, earthquakes, or other unforeseen events. These locks would allow the canal to be repaired, and after repair work, the channel could then be filled with water again. The gates should always be closed, operational only when the floating accommodation ships move.

As soon as the first ten kilometers are finished, the first residential ships could move there, and the first residents could move in. If the canals were to be constructed in very dry areas, the canals would need to be sealed at the bottom to prevent water from escaping. A variety of techniques could be used to seal the canal to the ground and ensure that water does not escape from the canal into the surrounding soil. The exact method depends on the soil conditions and other factors, but in general, sealing a channel to the ground involves the following:

- **Preparation of the sub soil:** The soil must be excavated to certain depth to ensure that the duct rests stably on the subsoil.
- **Use of waterproof materials:** The walls and bottom of the channel are lined with materials that are waterproof. This can be a combination of concrete, plastic sheeting, or special sealing layers.

- **Testing the waterproofing:** After the channel is built and sealed, it is tested for leaks to ensure that it is properly sealed.

A residential vessel not only provides a place for everyone to live safely and comfortably, but it also offers a variety of opportunities for shopping and recreation. Not all options need to be accommodated on every residential ship, as not every ship needs to have a movie theater. The residential ships can visit each other, offering different goods and services than a person's own residential vessel.

Why would anyone want to visit another ship?

- **Shopping:** Some residential ships have a shopping mall, boutiques, and jewelry stores.
- **Culinary experiences:** various restaurants, from buffet restaurants to upscale restaurants with Michelin stars.
- **Spa and wellness:** many residential ships have a spa and wellness center where you can enjoy massages, beauty treatments, and other relaxation services.
- **Sports and fitness:** a gym, a jogging track, or a sports field. Courses such as: Yoga, Pilates, Intensity Workout, Zumba, Dancing, Strength Training, Karate, Taekwondo, Kung Fu, Judo, and more.

- **Entertainment:** there are often live music shows, theater performances, movie screenings, and karaoke.
- **Games:** Onboard residential ships, you can also participate in slot machines or table games such as blackjack, roulette, and poker.
- **Learning and culture:** some residential ships offer lectures, workshops, and courses on various topics, including history, art, culture, and science. But also cooking and baking classes.

Especially in earthquake areas, we should provide residential ships as soon as possible to the residents in the endangered regions. In these artificial channels, which are filled with water, these channels will also make a decisive contribution to ensuring that sea levels fall again.

Mega Cities - The Future or Science-Fiction?

The idea of starting fresh with new cities in new locations designed to work better under modern conditions is not new. Economists and governments have toyed with the idea for decades. Our research confirms the potential benefits of this long-term strategy to combat the planet's biggest concerns. Sometimes referred to as either economic islands or Mega Cities, these massive projects would essentially eliminate hunger, unemployment, refugee problems, and poverty.

The concept starts from a simple place – the creation of a new place to live for an estimated 200,000 people. Our research has determined that Mega City operates most efficiently at this population level. This is the level where people and refugees (from war or poverty) can begin to live their best lives.

Of course, recreational opportunities are a key focus of our plan. People need to live, not merely exist. When this book was initially published, millions of refugees were forced to leave their homes for safety, often losing everything they had. Wars in Ukraine and Syria have made this population of refugees explode.

Natural disasters and economic problems also add to the long list of people that need help. But unlike most refugee camps around the world, Mega Cities really offer the people living there the opportunity to grow and develop as people and as a society. People could choose to move to a Mega City temporarily or permanently, working and going to school, just like in the cities we have today.

People that don't have the skills to participate in Mega City society would be trained to become an asset. These projects could be built at countless locations around the world. Every country on Earth could host one or more of these modern marvels. Imagine – we can choose the climate and location where we can do the most amount of good for the world.

Our designs focus on an area of 400 square kilometers, as the most efficient use of space. One of the most important considerations is the importance that these economic islands can be created anywhere the Americas, Africa, Europe, Asia, and more.

The focal point of the Mega City is the central structure. Our design, based on years of research, shows that several 300-meter-high building complexes will host the infrastructure, businesses, and residences for Mega City citizens. These 50-story buildings, with approximately 10,000 square meters of usable space, would be much more than apartments and stores.

Indeed, each floor and each surface has been considered and designed for the highest efficiency level.

Mega City Agriculture

Part of that efficiency comes from innovative methods of growing food. Several floors of each central structure would be dedicated to animal and plant-based farming. A plethora of fruits and vegetables, based mostly on the climate and the desires of Mega City residents, could be grown using vertical hydroponic systems.

Even coffee and cocoa can grow in a closed greenhouse, allowing us to grow crops that would otherwise not grow in a specific location. Imagine living in a more remote part

of the world like Iceland, but still having the ability to eat fresh strawberries at any time of year. Beyond fruits and vegetables, however, these central structures would also host animal farms of various types. Again, efficiency and quality would be the prime focus.

Just like with strawberries, just imagine being able to have the most tender beef on Earth, better than Wagyu or Kobe, without even needing to leave your home. All farm systems in the Mega City would be designed with efficiency in mind and to make good use of any associated biological waste through aquaponics, an integrated agricultural system where fish are raised in an aquaculture system and related wastewater is used to irrigate fruit and vegetable crops.

Taking this a step further, effluent from fish farming contains nitrogen compounds, phosphates, and other nutrients that can be used as fertilizer for plants.

This system offers several advantages over traditional methods of farming, including greater efficiency in the use of resources such as water and fertilizers, reduced reliance on chemical fertilizers, and increased biodiversity. But we don't want to focus only on farming techniques of the past.

Even though they may be unsavory to some people today, insect and mealworm consumption may be the most

efficient food source yet. Mega Cities will be designed to include farming these creatures for human and animal consumption. Insects and mealworms are being studied increasingly and cultivated as sustainable alternatives to traditional animal proteins in the diet.

Even today, some cultures have embraced insects as a food source, and in some places like Siam Reap, Cambodia, they even have high-end restaurants that focus on them as a delicacy. They have high nutritional value and a low environmental footprint, requiring less water, land, and feed resources than traditional livestock.

Even more, insect farming is a much faster process. Mealworms take four to eight weeks to mature from egg to adult. On the other hand, a cow or rabbit takes much longer to serve as a food source. A myriad of insect species can also be farmed as a food source, including grasshoppers, mealworms, and bee larvae. At every turn, insects, livestock, and fruits/vegetables will be grown, harvested, and delivered so that there is little waste.

The Mega-Electrical Grid

In each economic island, biogas plants will be installed to produce electricity. Beyond the electrical infrastructure, these biogas plants will also supply the entire community with hot water.

Any agricultural or personal waste will be used as raw materials in the biogas plant to produce even more fuel. This system offers several advantages over traditional methods of waste disposal and energy production. It enables more efficient use of waste by converting it into a sustainable energy source.

This is a massive advantage!

Through vertical farming, a Mega City can grow whatever it wants, wherever it wants, whenever it wants. A Mega City in Florida could continue to grow oranges like they do today in the Sunshine State, or they could venture into more profitable crops. This kind of flexibility is one of the most important elements of the economic island. Traditional fears of flooding, drought, or climate change would be a memory of the past. Likewise, our agricultural plan would never be destroyed by bugs or other pests. A specific light and heat cycle would also be developed to grow plants and animals most efficiently.

The 300-meter-high central structure would be surrounded by vast infrastructure to process any meat, fruit, vegetables, or fish grown in this Mega City. In turn, they would be sold locally through newly designed supermarkets or through various home delivery options. In the event of overproduction, any products could be packaged and delivered anywhere in the world. But not

only agricultural products have to be produced in these economic islands.

There are many different industrial productions that a variety of products can also be produced in these economic islands:

- **Automotive:** Automobile and automobile parts
- **Pharmaceutical and Chemical:** chemical products such as plastics, paints, varnishes, drugs, and more.
- **Electronics:** electronic devices such as smart phones, computers, consoles, televisions, and more.
- **Food:** the manufacture of food, beverage, and packaging.
- **Textiles:** clothing, fabrics, carpets, and other textile products.
- **Construction:** tools, construction, and building materials .
- **Engineering:** machinery, equipment, and tools.
- **Paper:** manufacturing paper, paper board, and other paper products.
- **Plastics:** production of plastics and plastic products such as films, containers, packaging, and more.

The power these Mega Cities would consume is nothing to laugh at, and our plans and research have more than prepared for even the most demanding power usage.

Electricity and heat would come from biogas, but we would also utilize geothermal energy and other renewable energy sources like the sun and wind.

For geothermal energy, a probe is drilled nearly two kilometers into the Earth. This will supply the entire Mega City with electricity and hot water. Geothermal energy is one of the most economical energy sources over the long term because it is located directly under our feet, eliminating any distribution costs. Scientists and researchers have estimated that the geothermal energy we can access today will be sufficient to meet humanity's energy needs for thousands of years. The advantages of geothermal energy are:

- **Sustainability:** a truly inexhaustible and renewable energy source
- **Cost-efficient:** geothermal energy is cost-efficient (over a long period of time)
- **Availability:** geothermal energy is available worldwide
- **Environmentally Friendly:** geothermal energy emissions are low, without waste or residue
- **Reliability:** geothermal power plants have high operational availability and long service life
- **Versatility:** Geothermal energy can be used for heating, electricity, and cooling

There will be much more in the Mega City than a central hub. We have designed other towers, even taller, specifically for homes and apartments for residents to live in. Of course, space saving, tall residential buildings will be integrated into these economic islands.

With a minimum height of 500 meters, these buildings have been designed to give people a comfortable, efficient, and gorgeous place to live. Recreational facilities, sports, retail, daycare for children, and educational institutions for all ages will be built directly adjacent to the residential complexes.

Think about the cities we live in today. How many roads, sewers, power, telephone lines, and more are currently required to connect the houses with electricity, water, sewage, and telephone? Historically, cities have been built outward, often measuring one hundred miles to cover an entire metropolitan area. Everything the people could ever need in our Mega Cities will be readily available.

Most facilities will be reachable by elevator, and others may require a short walk to a neighboring building. And imagine the views!

The sheer scale of these buildings will offer some of the most beautiful views a modern city could potentially want. If your apartment is 500 meters high, your horizon could be nearly 80 kilometers over the country's natural

landscape. This view is truly magnificent. On a clear day, based on the specific location in a building, the visibility from an apartment or business could stretch as far as one hundred kilometers:

Height	Visibility
2m	5km
10m	11km
50m	25km
100m	35km
200m	50km
300m	61km
400m	71km
500m	79km
600m	87km
700m	94km
800m	100km

But a nice view is only the beginning of what Mega City residences offer. And the element of amenities cannot be ignored. All of today's modern conveniences, like bakeries, butchers, hairdressers, flower stores, post offices, supermarkets, laundry services, health care, nursing services, pharmacies, banks, gyms, and restaurants would all be located in the same buildings people live in. A person's errands would take minutes instead of hours.

Just take the elevator up or down, or maybe take a short stroll into the neighboring building through a connected, elevated walkway. Of course, these superstructures would also have a cinema, a theater, and more. People will not only save time but will also save significantly on other life expenses.

But these Mega Cities will not be devoid of nature. Parks will be a central focus as we build these projects. Our designs include a park based on New York's iconic Central Park, filled with a lake, seating, fountains, a playground for children (and pets), a skate park, a golf course, archery opportunities, a giant chess set, and other activities. We are limited only by our creativity.

Our master plan contemplates a total of one thousand Mega Cities to be built worldwide. If we were able to complete these, 200 million people would have a comfortable place to live and work, far better than even the most cosmopolitan cities that exist today.

Work/Life Balance. We have developed an innovative work/life balance for Mega City residents. Our model is based on the concept that an independent and pleasant working environment for the population is paramount. However, we are steering clear of the traditional 40-hour work week. We plan to encourage people to work the way they do best.

Maybe that means working intensely for two full months before having one full month off as vacation time. Salaries would be aligned to maintain constant pay over those three months. Likewise, if a person favors a weekly schedule, they may be able to work for three weeks in a row before having one full week off. Some of these models may be industry specific.

We also focus on flexibility regarding the hours of the day a person works and the industry they work in. Through technology, the job seeker considers the work required and the shifts available before selecting their schedule. This means a person can work overnight in fish production, if they choose, and could work the next day in a wholesale bakery. While mandatory rest breaks will be required, anyone with the requisite skills can work at any job they want, whenever they want.

There will be more than enough work to go around. For those that do not have the skills to work in the Mega City, vast training centers will be established to help bridge the gap. Even more, at each workspace, there will be manuals and explanatory videos to explain each individual work process.

These will be multilingual and will help to evaluate the quality of the work performed. The goal is to have everyone participate without a long apprenticeship. Transportation (when necessary) within the Mega City will

come from electric cars and trains. A network of roads and rails will be connected by dispatch centers designed to coordinate the smooth operation of the entire economic island.

Moving from one area to another will be vastly easier than even the most modern of subway systems and roads.

We firmly believe that the shortest distance to a brighter future is in an educated population, and a Mega City will offer immense educational opportunities. Through online and in-person learning, we will offer classes for children and adults in a myriad of subjects. People will be able to learn wherever and whenever they like. Special schools and classrooms will be built, but online learning will also play a large role. Any computer or smartphone will make the best lecturers in the world accessible. Some classes will help the population be more efficient employees, but others will be designed to help people enjoy their lives more. Theoretical, practical, and manual learning exercises are a great way to encourage anyone. Some topics of special importance to us are:

- **Languages:** better language improves communication skills and understanding of other cultures
- **Mathematics:** important for many careers, including science, technology, engineering, and more

- **Science:** provides children and adults with an understanding of the world around them and encourages their curiosity and interest in research and exploration
- **Social Sciences:** help children understand human society and culture and teach important skills such as empathy, collaboration, and critical thinking
- **Arts:** help develop creativity and enhance emotional, social, and cognitive skills
- **Sports:** because it teaches us physical fitness, teamwork, and leadership skills
- **Arts and Crafts:** we can get creative with paper, cardboard, fabrics, and other materials to improve fine motor skills and hand-eye coordination
- **Gardening:** we learn about plants and nature while working and planting in the garden
- **Cooking/Baking:** we learn about food and its composition

Learning apps allow for a personalized and interactive learning environment and can tailor learning to the individual's needs and progress. It is important to note that the effectiveness of video and learning apps depends on the quality and relevance of the content.

Conclusion

If we can simply suck away the carbon dioxide, exhaust fumes and soot on the streets from the cities and replace it with fresher air, we will be going a long way to combat climate change.

As humans, the air we breathe is always near the ground, our technology can only improve its lifesaving grace. We have presented a number of global plans to combat climate change and save humanity.

We really can stop climate change in its tracks in a short time and maybe even begin reversing it. The goal is always the same – we want to live at home, travel to experience others, and exist in peace. Ignoring climate change will not accomplish any of these in the long term. Only action will, and our technology, combined with our expertise, allows us to move mountains where others are afraid to even move paper.

The planet will continue to go around the sun every year, but if we act now, those sunbeams may be a bit more pleasant.

Volker Mothes
President Fidegogard