

## **Solution to Climate Change through Geo-engineering**

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As the years continue to pass, climate change continues to threaten us with a larger scope of impacts. Each impact originating from a more entwined arm of the intricate climatic system. “Investigating potential ecological impacts of climate intervention by reflecting sunlight to cool Earth”, a recent article released by the Proceedings of the National Academy of Sciences of the USA (PNAS), shows us a feeble attempt by the human species, once again, trying to do the one thing that has led us to this position we are now, the so called “quick fix”. Wouldn’t it be great if we just placed a giant reflector in space and controlled the amount of sunlight the earth needs to survive, assuming we know what the number is? Rather than changing the crux of the issue, which is our behaviour, it’s always easier to put some duck-tape over the issue and let the next generation deal with the consequences, right? Luckily, a giant reflector isn’t viable option for our world leaders, so I guess we’ll do the next best thing, pump the atmosphere full of a substance that reflects light. This solution for climate change is like cutting your artery and putting a band aid on the wound in the hope that the problem will go away. It may limit the bleeding for a short time, but until the wound is addressed properly, we all know what is going to happen.

Even though this above mentioned article does not directly propose we are playing god, the fact that this method as a solution is being considered, it is seriously worrying. Do we really believe that our understanding of the earth’s dynamic system is so complete and in depth that we should inject the atmosphere with chemicals through stratospheric aerosol injections? Stratospheric Aerosol injections is the pumping of certain chemicals into the atmosphere to decrease the worlds surface temperatures. This idea originally comes from historic records, which show a relationship between volcanic eruptions and temperature drops. These cooling events resulted from volcanic ash and sulphur that had been injected into the upper atmosphere through volcanic eruptions. Volcanic ash provides a physical barrier between the sunlight and the earth’s surface reducing temperatures, whilst sulphur naturally has a high albedo and thus reflects the sunlight back into space.

Are we really to the point at which we are contemplating playing god? Are we so naïve to believe that consequence beyond our understanding will not occur; and that could potentially be catastrophic to our delicate ecosystem, which is already hanging on by a thread? Have we exhausted all other viable options? Absolutely not.

So why is this Stratospheric Aerosol Injections a bad idea?

Most scientists can tell you that injecting aerosols into the atmosphere is not solving the issue. Let us say hypothetically, that the injection of aerosols into the atmosphere did cool down the earth’s average temperature. The full impact of the aerosols is impossible to predict or fully understand and could result in ecological catastrophe, which could indirectly lead to our own demise. We are reliant on the flora and fauna around us, and if they go, we go.

The article states that there are “over 28 potential risks, and others remain to be discovered” that come with this “climate change solution”. More importantly, if we look from a social standpoint what will happen if we succeed with this method will result in business as usual. Instead of learning from our mistakes, adjusting our behaviour, and learning how to live WITH our environment, human’s destructive behaviour will pave the road for extreme capitalism to rape the earth of its resources in the name of human advancement. All these actions will be defended by the ideology that if we found a quick fix solution for climate change, we will find one for replacing the trees when all the trees are cut down, or for fresh water when there are no glaciers left. The question is, if not now, when? When will humans learn that their behaviour is not viable, or even the simple fact that actions have consequences.

Personally, this topic as a climate change fix is dangerous. We are already playing with forces that have the potential to destroy life on earth as we know it (some of which has been done before). In many ways, the earth is like the human brain. A vastly complex organ with such sophisticated mechanics that even with all our current technology we struggle to scrape the surface of how it all works.

So, at this point you may be asking what is the solution to climate change? The unfortunate reality is that there is no ONE solution. It also depends what perspective you are looking from. From an environmental perspective the solution must involve a combination of the following:

- **Carbon Sequestration** – increasing the quantity of carbon sinks, which means basically, capturing atmospheric carbon dioxide and storing it in a stable form in the ground.
- **Revolutionising our technology to decrease our largest carbon sources** – for example reducing CO2 emission from the transport industry (through companies such as Tesla and other electrical or carbon zero vehicles), detach our energy dependence off coal and onto renewable energy (through solar farms, wind farms and water turbines).
- **Adjusting behaviour-**
  - Researching alternative materials to wood (to decrease the rate of deforestation which is reducing the quantity of oxygen produced and carbon dioxide that the vegetation absorbs).
  - Finding alternative methods of farming to satisfy demand of a growing population whilst decreasing the area of large farms and area needed for cattle.
  - Efficient meat farming practices – the quantity of water and carbon dioxide required to stock the meat shelves at our local deli is a serious reason for concern, especially with demand rising and an increasing population.

From a social and political perspective, the following issues must be addressed:

- **Decarbonising the Economy** – Most economies around the world rely heavily on coal, especially Australia. This means that if we ran out of coal, the world would go into economic recession, this is the scale to which we rely on coal.
- **Regulations Infrastructure** – with the renewable revolution upon us, Australia is quickly falling behind as Australia's politics heavily stunts the energy industry's ability to root itself properly to grow. Legislative barriers are limiting research, disabling efficient implementation, and all because of old political ideologies and lobbyist influence, which continues to delay Australia to advance and catch up with the rest of the world.
- **Energy Infrastructure** – There are more electrical vehicles on Australian roads every day, however, Australia's government continues to slow the transition with a lack of initiative to provide the infrastructure it needs to transition, such as charging docks for electrical vehicles, and subsidies to promote fossil fuel alternative transport.
- **Appropriate Allocation of Funding Resources** – Australia's renewable industry and climate change research has taken a massive pay cut after the current government has re-allocated funds for "other purposes". Instead, old and outdated forms of energy such as coal and fossil fuels continue to be the current governments priority, with huge subsidies still keeping the old technology alive; rather than subsidising renewable energy and providing funding for research in methods for important infrastructure, such as the electricity grid being able to support more renewable energy.

These are a few of the topics that should be on the government agenda, yet they aren't. What will Australia experience over the next 60 years, it is difficult to say. It all depends on how the next few governments decide to address the issues mentioned above. We have the potential of being world leaders in the change that we all know is inevitably coming. Unfortunately, it is not in our grasp individually to make these large-scale changes, and we must wait until someone finally takes charge and pushes Australia into the future. However, as a society we have the ability to pressure the government to help Australia move forward, if not for you or me, then for Australia's children. Our children's future lies in our actions today.