

CLIMATE CHANGE

By

Mukhtar Zaidi

AN ANECDOTE AND A PERSPECTIVE

Planetary Boundaries

1. Climate Change
2. Stratospheric ozone depletion
3. Rate of Bio-Diversity loss
4. Chemical pollution
5. Ocean acidification
6. Freshwater consumption
7. Land-use change
8. Nitrogen and phosphorus pollution
9. Air pollution or aerosol loading

MUKHTAR ZAIDI

He runs a Seminar Series "Eye in Silicon Valley" where they do seminars via teleconferencing for the academia of Pakistan. Presently they are doing a seminar on Teaching AI and Deep learning, with eight Pakistani universities onboard NED, Habib, DSU, LUMS, UOW, to name the few. They are also developing an emotion reading app using AI with these Universities, Presently, PIAIC (Presidential Initiative of Artificial Intelligence and Computing) is also on board as the recipient of this program.

He runs a science book club "Movement of Reading Science" where they read the books of science, with members across the globe.

You can join this Movement of Reading Science by contacting him directly:

zaidi@alumni.stanford.org

Climate Summit 2009 in Copenhagen ended without any agreement among the nations, the predominant reasons were cited as two.

- 1) Distrust between rich and poor nations
- 2) The disbelief of some that it is a hoax.

To those who think climate does not matter, US department of defense considers Climate change the biggest national security threat, ahead of the wars we fight or terrorism.

Let's dissect the sequence of events that ended up in Arab Spring 2010 and see what climate has to do with it. It was a blistering heatwave in Russia that caused massive wildfires and prolonged drought. Vladimir Putin restricted exports of wheat and other staple crops. Similar restrictions were imposed by Australian Prime Minister Kevin Rudd due to their dozen years of drought. There were some additional factors the global rise in the cost of phosphorous for fertilizer and the rise in the cost of fuel. The food riots erupted in Africa.

When the region was bubbling with unrest, the Tunisian vendor Mohammad Bouazizi set fire to himself to protest mistreatment by police he provokes international revolution we called it Arab Spring, starting toppling of the Egyptian regime, the indirect effect of climate change in Russia, a country farthest away. So, everything is connected to everything else, what happens in one part of the world has a ripple effect on the other side of the globe without any discrimination if the country is rich or poor.

If we see illegal bush meat trade in Borneo Malaysia, it is because their rainforest is destroyed due to overlogging and their protein intake source is gone. The way we consume fuel in US affects life in Pakistan and vice versa. Everything is connected to everything. There is no rich and poor divide when it comes to abusing the planet, it affects everyone the same way.

So, what is it? It is ignorance and ignorance we must fight. The biggest return on investment in the battle against Climate change will come from education. Which this admirable body of engineers PAE is doing via this Symposium. If we add the facts and the study of Climate Change in our high school curriculum, this battle will be won. The problem will be over, we then have created the future generation with the value system that makes them a true steward of this planet.

Stockholm Resilience center in Sweden and the Drawdown Project in US are doing some amazing work in that respect. I will briefly talk about the planetary boundaries that Stockholm Resilience Center advocates we must adhere to, to keep this world from going to hellfire, and a must teach in our High school curriculums to inculcate that knowledge in the youth of our future so as to ensure we at least have a future.

These Planetary Boundaries are as follows:

- 1) Climate Change
- 2) Stratospheric ozone depletion
- 3) Rate of Bio-Diversity loss
- 4) Chemical pollution
- 5) Ocean acidification
- 6) Freshwater consumption
- 7) Land-use change
- 8) Nitrogen and phosphorus pollution
- 9) Air pollution or aerosol loading

I am pretty sure Dr. Allard will talk in detail about these boundaries and whatever the research Project Drawdown is doing on the subject, but before I hand over the forum to Dr. Allard, I want to address the second reason why the Climate Summit in Copenhagen 2009 failed, which was the disbelief, that climate change is a hoax. Although the science clearly is on the global warming side, it is beyond a shred of doubt that it is real. But when the oil and fossil fuel lobbyists say that the weather on the planet has and will change with or without human intervention, they are actually absolutely right and the data is on their side.

In 4.5 billion years of this planet, the surface was roasting hot before, then it was freezing ice age for 2.6 billion years, those conditions were the horror show for mankind. This planet has seen at least 5 known ice ages and may I surprise you by saying that by one theory we are still living in the last ice age, it is the interglacial epoch of the last ice age. All the Ice ages had the interglacial warm eras for a short period of time and then the ice age again. Temperature fluctuations on this planet have been horrendous.

This last 10000 years are known as the Holocene epoch. Holocene epoch has been our Garden of Eden. If you look at the data, this has been the most comfortable steady temperature era for human evolution where modern life has become possible. No matter how much we are in love with ourselves, this planet was never designed for us. We just got a lucky chance on evolution by the climate in our favor and the bigger predators like dinosaurs moved out of the way. We got hold of science where we remain not just the product but the force of evolution, causing other species to go extinct and tipping the climate in a gross way to cause our own extinction possible.

Granted the climate could have tipped without our contribution, but with the help of science, we now have the power to influence the climate in a positive way. By measuring our impact, modeling the climate employing the powerful computational machines, calculating the outcome and reining that beast, should we not do that to prolong our favored status on this planet, just a little while longer.

The powerful computational machine is the key.

If I ask my audience what is the coldest place in the universe? And then surprise them by saying it is not someplace in dark space, it is about 40 miles from where I am in Silicon Valley in the outskirts of Berkeley in a Pipe. By Cryogenic processes we have achieved .003 degrees Kelvin temperature, far lower than any other place in the universe. That is where experiments are being conducted for quantum computing. To give you a reference point, the Google group claims it has 53 qubit computer performed, in 200 seconds an arcane task that would take 10000 years for Summit a supercomputer IBM built for the department of energy that is currently the world's fastest computer. 200 seconds is less than 3.5 minutes, writing is on the wall.

Dear honorable audience, then what if anything high-speed computation has to do with climate change and the carbon footprint? Everything, power full computation can help us solve the climate models with an infinite number of variables in a jiffy. Those solutions from "Climate Modeling" will give us the way out, but we still have to act and for that, we have to educate our children. After all, it is their life in the future.

With that, without any further ado, I will invite Dr. Allard to take over the forum and enlightened us with data and diagrams.