

## **Confronting the Crisis of Climate Change:**

### **A New Generation of Passion, Action and Hope**

Kareem Hammoud, speaker, with Rev. Roger Jones

### **United Nations Sunday, October 20, 2013**

Unitarian Universalist Society of Sacramento

Hymns/Songs: #389, Gathered Here in the Mystery of the Hour; #1064, Blue Boat Home; #159, This Is My Song; #164, For the Earth, Forever Turning.

Special Music: Mary Blanchette, Massenet's Thais, from Mozart sonatas for violin and piano, Bartok.

Shared Offering: for Sacramento Food Bank

#### Introduction of guest speaker:

Kareem Hammoud is a senior in environmental science at UC-Berkeley, where he serves on the Green Initiative Fund. He is a Head Chair of the Berkeley Model United Nations (MUN), a citywide program to engage middle and high school students in United Nations issues, processes and decision-making systems. He was a MUN participant during high school in the LA area.

#### Message:

Good morning, I'm honored to be presenting to you all today. I've been interested in the topic of climate change since around the tenth grade. I had been involved in the Model United Nations program at my high school since my freshman year, and that has continued into my college career as well with the Berkeley Model United Nations. Model United Nations, or MUN, is a nationwide extracurricular in which students represent the policies of different countries in a host of contemporary international issues. The goal is to simulate discussion between delegates, allow people to present their views and research, and reach a compromise through the end product of a resolution. MUN is a great program that exposes a young generation to the issues that plague the world at large, while also developing speaking, research, and writing abilities. It was through MUN that I ignited my interest in international environmental problems, climate change being one of them. Over the years, my involvement in environmental MUN committees,

environmental science and climate science classes, speech contests, and research papers, I've learned a great deal about climate change, and I continue to do so even today. So, on this United Nations Sunday, I want to share some of this knowledge with all of you to give a perspective on what the United Nations, international scientists, and I are doing to address this complex and global issue.

The Intergovernmental Panel on Climate Change (IPCC) released its Third Assessment report in 2007, to which Lord Martin Rees, once president of the London Royal Society, had this to say: "This report makes it clear, ... that human actions are [largely responsible] for the changes we are seeing, and will see, to our climate...substantial climate change is inevitable, and we will have to adapt to this. This should compel all of us — world leaders, businesses and individuals — **towards action rather than the paralysis of fear.**"

I think his last line really hits home for how we should try to feel in the face of such a daunting topic. I would like you all to keep this mind as I speak today. My hope is to leave you informed and motivated into action, rather than scared and reluctant to do anything.

First, a little background information about climate change. The general definition of climate change is a significant change in the average weather conditions over periods ranging from decades to millions of years. Human-induced climate change, or global warming as it is widely known by the public, refers to the observed rise in average global temperature since the 19<sup>th</sup> century.

This rise has corresponded to the growth of industrialization and our burning of fossil fuels. Carbon dioxide, a byproduct of burning fuel, is usually associated with global warming due to its persistence in the atmosphere and its heat-trapping properties.

#### Why the UN thinks climate change is important, and what it is doing

The Intergovernmental Panel on Climate Change, or the IPCC, is a UN-founded collaboration of thousands of scientists from 120 nations. It is what I consider to be the UN's magnum opus in becoming a unifying leader on climate change understanding.

To date, the IPCC has released five reports total; its first in 1990 and its most recent report was released last month. Each of these reports highlights

the importance of taking climate change seriously as a political topic of deliberation in the face of rising global temperatures. In 2007, the IPCC won the Nobel Peace Prize jointly with Al Gore. The Former Vice President has been quite the spokesperson for spreading the word about climate change around the world, including his documentary “An Inconvenient Truth.”

In 2005, the United Nations Framework Convention on Climate Change, or the UNFCCC, drafted and formally enforced the Kyoto Protocol to become the first, and still only, legally binding treaty that works to stabilize greenhouse gas concentrations as part of climate change adaptation. By the end of the Protocol’s first commitment period, which expired in December 2012, industrialized nations that participated in the treaty (which included all of the European Union and some other nations like Australia and Japan) reduced their carbon emissions to 4.2% below 1990 emission levels, just shy of their goal.

One of Protocol’s major pitfalls was the United States’ failure to ratify the treaty, thus leaving out the world’s top polluter from international regulation. So even though the Protocol succeeded in getting some nations to reduce their emissions, it did little to curtail global fossil fuel use since we are now emitting greenhouse gases at higher levels than ever. This can be blamed in part on China, India, and Brazil’s major contributions as rapidly developing economies with high levels of industry that were not bound to reduce their emissions under the treaty.

Climate change is a daunting prospect that truly involves every nation, which is why it is so hard to get the world under one consensus to adjust to it. The UN has tried to do this and continues to do so, but not without complication. Currently, the UNFCCC has planned to extend the Kyoto Protocol until 2020 and develop a successor by 2015, but political and economic blockades to progress remain. Todd Stern, the US Climate Change Envoy, stated: “Climate change is not a conventional environmental issue...It implicates virtually every aspect of a state’s economy, so it makes countries nervous about growth and development. This is an economic issue every bit as it is an environmental one.”

Fortunately, we at least have the scientific community convinced and prepared with solutions.

### What the scientific community thinks

The scientific consensus that human-generated emissions are the primary cause for rising temperature is higher than ever before. Except for a few non-committal geologic and petroleum scientist organizations, scientists in all disciplines attribute the burning of fossil fuels and deforestation to the observed increase in atmospheric carbon dioxide with 95% confidence. This confidence level indicates humanity’s responsibility for climate change is “extremely likely.” It is no longer a question of “what” anymore. The question of “why and what to expect” is what climate scientists have been developing models to describe and explain.

To “solve” the problem of climate change, the IPCC divides our options for action into 2 categories: adaptation and mitigation. Adaptation aims to reduce the adverse impacts of climate change by modifying how we live. An example: relocating people out of populated areas that are likely to become flooded due to sea level rise or arid due to water loss). Mitigation, on the other hand, focuses on reducing the root causes of climate change, in particular the emissions that give rise to it. The IPCC recommends pursuing both strategies, but we should really prioritize mitigation.

As an international community, our number one goal should be to reduce our carbon emissions as quickly and severely as we can. We already have the technologies to do this. An influential paper published in 2004 – 9 years ago – suggested 12 methods developed nations can take to stabilize our carbon emissions and transition into a green-powered economy. None of the suggestions are “simple.” They are required at a grand scale, but they are definitely possible. Here are a few of them: doubling the fuel efficiency of cars; cutting in half the miles travelled by car by increasing low-emissions public transit; and substituting wind and solar power for coal power. While luckily the private and public sectors are undertaking many of these types of projects already, we still need more.

Climate science is a difficult field of study. All of our understanding about climate change is built from a massive interdisciplinary body of work. There are tons of facts relating to climate change from climatology that you’ve probably heard of, but I’d like to give you some of the most startling facts I’ve learned through my classes at Berkeley.

Climate change is not nearly as simple as “more CO<sub>2</sub> = more warming.” The reason is that there are many positive feedback loops in our natural systems that may amplify the warming to a greater extent.

- A positive feedback loop in this case refers to the idea that *more warming will cause more warming which causes even more warming*.
- Some example feedback loops: drier and warmer climates lead to increased wildfires, which release more carbon to the atmosphere. Melting of permafrost in Arctic and global warming of soils releases more carbon and methane to atmosphere. Warmer ocean water holds less CO<sub>2</sub> than colder water, so at a point it begins to release CO<sub>2</sub> back to the atmosphere.
- Considering these and many other possible feedback loops, nearly all of our current climate models are very likely underestimating the amount of global warming we are influencing with our current lifestyles.

Even if we stopped emitting now, we’d still warm for another half century or longer while the ocean and atmosphere equalize with new levels of carbon dioxide for another 1000 years.

- In the best case scenario, one in which we actually significantly move away from fossil fuels and begin implementing green renewable resources and economies, we will still struggle to prevent more than a 2 degree Centigrade (3.6 degrees F) rise in global temperature.

If we continue on our “business as usual” emissions path, we currently expect that atmospheric carbon dioxide levels will be DOUBLE that of what they are today by 2050.

#### Personal thoughts:

I always hear from people, either in person or in the news: what’s the point in even trying to fight climate change? Why should we change what already works in society to make our lives easier, which is what we’ve worked towards doing for the past 200 years? Well, to that I would respond: what do we have to lose from going green? Even if for the very unlikely reason we are over exaggerating

our influence on the global climate, why would it hurt for our society to transition into a more sustainable form of living?

Humans are literally the only species on Earth that treat the planet the way we do – we take more than we need and dump the unnatural waste we create back into the system that gave it to us. For the most part, the Earth is a closed system: what we put into it ultimately becomes our problem; it doesn’t just magically disappear. We are not only harming ourselves, but more significantly we are destroying the livelihoods and habitats of other species at the expense of our comfort. It makes no logical sense to see this as a sustainable form of living.

Even if what we’re doing works now, for the present, who is to say it will still work in the future? The fact of the matter is it won’t. Our oil and coal reserves will be exhausted in the next 400 years, and even quicker if we continue to increase in population and energy use over the next century. We are only postponing the inevitable.

To any climate change skeptic that is against mitigating the effects of warming, I would not bother trying to argue with them with scientific facts after a point. Instead, I would answer “why not?” to their question of “why bother?”

They could say that we don’t understand enough about climate change to invest in mitigation strategies, but as one of my professors put it: “mitigating climate change could be easier than understanding its consequences!” So getting started sooner rather than later is the best course of action.

#### Hope and inspiration

At this point, you may all feel a little overwhelmed, maybe even depressed – I know I was when I first learned all these facts. However, there is some good news: we actually already know exactly what needs to be done! As I said earlier, we need to focus on mitigation as opposed to adaptation, and mitigation is just a combination of regulation and technology development. One of its largest focal categories is increasing efficiency and conservation, and this is where I believe anyone can take part in. There are so many simple adjustments we can make to our lifestyles -- many of you probably already do – turning off the lights when you don’t use them; recycling everything you can and avoiding contamination; not letting the tap run when you’re shaving, brushing your teeth, or

soaping up in the shower; minimizing the use of your home space heater; biking, bussing or walking rather than driving; not buying bottled water; reusing things rather than throwing away them after one use. I'm sure these are suggestions you've heard a million times, but to actually put them into practice is what will make a difference in the long run.

Education is another important and often overlooked factor that we can all involve ourselves in. I take pride in funneling my knowledge to a younger generation of high schoolers through Berkeley MUN. Every year at our annual conference, I moderate the debate in our UN Environment Program committee, which has included topics such as the Kyoto Protocol Reform and Managing the Illegal Timber Trade. I've witnessed students representing nations in the European Union work with industrial powerhouses like China to suggest complicated carbon-tax mechanisms to enforce emissions reductions, and Japan work with the United States to develop regional protocols to sustain global fisheries. Although a little unrealistic in practice, witnessing 15 year olds proposing in-depth solutions to our world's direst environmental problems never ceases to amaze me.

I encourage all of you to take the time to educate yourself on how you can become more sustainable, and then spread those strategies to those around you. We need more people taking an active role to become the stewards of our environment. Play a role in fixing the aspects of your local area that could use a sustainable upgrade.

Let your policymakers know of your concerns. Our governments cannot afford to remain stagnant on this issue for much longer, so it's up to us to pressure them to be the role models for change if they won't be. If a group of 150 high school students can debate such an advanced topic and reach a compromise by the end of 3 days, why can't our own politicians?

The sooner we act, the more time we will have to develop new technologies and adjust to unforeseen catastrophes. And with that, I'll leave you with a favorite quote of mine from Al Gore. He said, "We have everything we need [to fight climate change], save political will. But political will: that's a renewable resource."

Thank you and I wish you all the best.

Sources:

[http://en.wikipedia.org/wiki/IPCC\\_Fourth\\_Assessment\\_Report#Observations](http://en.wikipedia.org/wiki/IPCC_Fourth_Assessment_Report#Observations)

[http://unfccc.int/essential\\_background/the\\_science/items/6064.php#How%20did%20we%20get%20here?](http://unfccc.int/essential_background/the_science/items/6064.php#How%20did%20we%20get%20here?)

<http://www.ipcc.ch/organization/organization.shtml#.UDUubHjhf94>

[http://en.wikipedia.org/wiki/Intergovernmental\\_Panel\\_on\\_Climate\\_Change#Fifth\\_assessment\\_report](http://en.wikipedia.org/wiki/Intergovernmental_Panel_on_Climate_Change#Fifth_assessment_report)

[http://www.ipcc.ch/organization/organization\\_history.shtml#.UDU4Wnjhf94](http://www.ipcc.ch/organization/organization_history.shtml#.UDU4Wnjhf94)

[http://unfccc.int/essential\\_background/convention/items/6036.php](http://unfccc.int/essential_background/convention/items/6036.php)

[http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php)

[http://en.wikipedia.org/wiki/2012\\_United\\_Nations\\_Climate\\_Change\\_Conference](http://en.wikipedia.org/wiki/2012_United_Nations_Climate_Change_Conference)

<http://science.howstuffworks.com/environmental/green-science/climate-skeptic3.htm>

"Climate Change 101" – Lecture slides from Energy and Resources 102: Quantitative Aspects of Environmental Problems. Taught by Professor John Harte, UC Berkeley.

"Global Warming Parts 1-3" – Lecture Slides from Geography 142: Climate Dynamics. Taught by Professor John Chiang, UC Berkeley. [Most information sourced from "Neelin, 2011. *Climate Change and Climate Modeling*. Cambridge University Press."]

"Solving the Climate Problem for the Next 50 years with Current Technologies" (Pacala and Socolow 2004)