

## A JUST AND HEALTHY FUTURE FOR THE 100 PERCENT

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Three years ago, I asked a neighbor's grown daughter why the food security movement struck such a chord with young people these days. She answered simply, "Because we know that you guys aren't going to do anything about climate change, and when everything falls apart we want to be able to feed ourselves."

Of course, we then believed that the Congress would surely pass legislation to curb our domestic carbon emissions, and somehow international agreements would pull us out of a planetary climate nosedive. But the intervening years have shown us that my neighbor's daughter was right: America set one 130 thousand new all-time records for heat, drought, and floods last year, yet as the weather gets wilder, a majority of us tell pollsters that we do not believe climate change is a problem. With February temperatures into the eighties in Chicago, and murderous tornadoes striking Illinois and Michigan during months that used to be winter, we watch a presidential campaign where nobody will even mention the fate of the diaphanous atmosphere that provides our only protection from the howling universe outside.

These are hard things to think about. The worst predictions you have ever heard about climate change still factored in forceful action to reduce emissions. Yet we look away from the enormity of the threat and the changes that must be worked in our lives if we are to respond. Give us a fig leaf of deniability and we will pretend that it is just going to get a little hotter, and that people may have to sandbag their beach houses. And so the corporations and ideologues oblige us with their campaign denying climate change, and we gratefully keep our heads in the sand.

I am not setting myself apart here. I have a good grasp of

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\* Executive Director of the Grand Canyon Trust, a regional group working to protect and restore the Colorado Plateau. This talk was delivered at The University of Colorado Law School symposium *A Life of contributions for All Time: Symposium in Honor of David H. Getches* on April 27, 2012.

how much about my life must change, and I have done almost none of it. But a series of conversations with young people has awakened me to dimensions of this crisis that I did not understand, ultimately bringing me before you today to give a talk that, frankly, dismays me.

It began with a group of astonishingly bright college students tasked with studying the future of the Colorado River for an international symposium on freshwater resources in a changing climate. One of them asked me what I think of climate models that show a 15 percent decline in precipitation over the basin within the next thirty years. I said that my modest understanding of chaotic systems leads me to believe that if you just keep pumping in more energy, they will eventually fly off into a different equilibrium where the new normal could easily be an unlivable disaster.

I felt terrible for a moment, having managed to give an answer that was both dark and trivial, and then I saw the five students exchange a look that was not meant for me. It was a look that said that they knew all this far better than I, had thought far worse, and were surprised to hear somebody from my generation actually fess up to the problem. It was a look that said, "We are building our lives in the shadow of this looming reality that you guys have created and are doing nothing about."

That first insight led to many subsequent conversations in which I entered a world where our children look at a future of catastrophe, wondering how they will feed themselves and organize a society; a world where we have become, at best, irrelevant through our inaction; and a world where they have taken to the streets protesting the broken, corrupt politics we have made. I fear that we are opening up the widest, most painful gulf between generations that one can imagine. Either young people have checked out from despair, or their thought has shifted to dealing with the coming storm that is our legacy to them.

My daughters have grown used to having Dad cry silently and for no reason when I hug them or look at the beautiful wildlife in our yard. About a third of the species on earth are expected to go extinct in the chaos, and these innocents simply break my heart.

Today's world requires that we hold two images in mind at once: an unflinching view of the tragedy beginning to unfold on our present course, and a vision of an unprecedented joining

together to save ourselves using all the resources of technology and love available to us. So I will spend a few minutes giving snapshots of the world we are in, where the hour is far later than we normally allow ourselves to understand. And then I will talk about what we, along with our children, might begin to do, because heartbreak can either flatten us or give us the fierce courage and joy we will need to do the thousand things necessary to choose a different future.<sup>1</sup>

As I am sure you know, scientists now consider 350 ppm of atmospheric carbon dioxide as the level beyond which warming threatens the ecological support systems and severely challenges the viability of today's complex human societies. Unhappily, we are now above 390 ppm and worldwide greenhouse gas emissions are rising faster than ever before recorded.

We get numbed by numbers. How bad could a few degrees really be? Well, a few degrees are already changing atmospheric circulation so that Australia's wet westerly winds are veering south to dump their rain over the ocean. The land is in permanent drought. In January 2009, a record heat wave struck South Australia, buckling rail lines like spaghetti, infesting stagnant reservoirs with algae, and blowing out power to Melbourne. Across the city, on the hottest day ever recorded there, the Internet went down; air conditioning stopped; people were stranded in elevators; hospitals were without power; and all the traffic lights went out, trapping emergency vehicles in gridlock. Rioting broke out within hours before the power was mercifully restored. The next week, the Black Sunday bushfires sent four-story high walls of flame racing across the land, killing 175 people. Prime Minister Kevin Rudd said, "Hell and its fury have visited the good people of Victoria."<sup>2</sup>

Every day, with our thick new atmosphere, the earth soaks up about four hundred thousand Hiroshima bombs more energy than it radiates back into space. So, ever since 2007, the Arctic ice cap has been more than a million square miles

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1. This talk borrows heavily from several sources: Bill McKibben's invaluable book, *EARTH: MAKING A LIFE ON A TOUGH NEW PLANET*; Lester Brown's (Earth Policy Institute) authoritative volume, *PLAN B 4.0: MOBILIZING TO SAVE CIVILIZATION*; and the speeches of climate scientist James Hansen. Any errors introduced are mine.

2. *Australia's Deadliest Bushfire Kills 84*, REUTERS (Feb. 8, 2009) available at <http://www.reuters.com/article/2009/02/08/us-australia-firesidUSTRE51610420090208?i=20>.

smaller than normal—Santa’s elves and the polar bears treading the open waters more than fifty years ahead of predictions. In the last five years, Greenland’s ice melted more than a trillion tons. On the other side of the globe, temperatures on Antarctica are rising 75 percent faster than a decade before, faster than anywhere else on earth. Sea levels are expected to rise by six feet during this century, drowning nearly every rice-growing river delta in Asia, and inextricably linking the fate of the hundreds of millions who depend on the rice to the fate of the far away ice sheets.

Rising seas greatly amplify the damage from big storms, and storms are getting much bigger. Atlantic Hurricanes have increased 75 percent over the last decade—they are stronger and do not die out on making landfall. Typhoons in Bangladesh have increased 400 percent, flooding the dwellings of a hundred million people in 2006. Typhoon Marakot dumped nine and a half feet of rain on Taiwan in 2009. The last thirty years have yielded four times as many weather related disasters as the first three quarters of the twentieth century combined.

Temperatures in the Himalayas are rising by a degree every decade, or about the amount of variation since before the invention of agriculture ten thousand years ago. The ice sheet that provides drinking and irrigating water for billions downstream in China and India has lost three hundred vertical feet of ice since the Mallory expedition took the first photos in 1921. Early this year, the National Academy of Sciences reported that comparatively modest climate change in the past has routinely destabilized civilizations, through drought, famine, and disease. The study notes that today’s societies are better resourced but more dependent on infrastructure, more densely populated, and more vulnerable. With the world’s hungry already numbering more than a billion, the melting of the Himalayan glaciers presents the biggest challenge to food security humanity has ever faced.

Closer to home, the disappearance of snowpacks in the Rockies and Sierras threatens water supplies for 75 percent of the population in the western U.S. There is a fifty-fifty chance that Lake Mead will run dry in the next eight years, prompting Pat Mulroy of the Southern Nevada Water Authority to observe, “You cut off supply to the fifth-largest economy in the world.”<sup>3</sup> And with the breadbasket of the U.S. Great Plains

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3. *How the West’s Energy Boom Could Threaten Drinking Water for 1 in 12*

now facing chronic drought, it may not be as easy as we always thought to transfer water from agriculture to thirsty cities.

The Colorado Plateau, where I live, is in the climate bull's-eye—projected to get at least eight degrees hotter this century. Rising temperature bakes the moisture out of the soil and throttles photosynthesis, and even most desert plants cannot adapt. Native grasses will be extirpated from the region within thirty years—taking the habitat for the rabbits and mice, which feed the coyotes, snakes, foxes, and raptors. That is what it means to wreck the base of the food chain. The plants also help hold the land together—protecting against the massive dust storms that cover the snowpack in the dreaded dark blanket that sends the water flooding off the hills six weeks early, confounding irrigators and exposing the soils to further desiccation.

Everything I have described is already underway in what we might now call garden variety climate change. Without massive action, most scientists believe we are headed toward atmospheric carbon dioxide concentration of at least 650 to 700 ppm—levels at which the fossil record shows that delicately named nonlinear scenarios kick in. I will close this depressing catalogue with just one of these horrors.

Near the poles, where things are happening fastest, the potent greenhouse gas methane exists in immense quantities in frozen tundra. Temperatures over the region have risen ten degrees in the last decade and researchers are discovering methane chimneys rising from the permafrost, further warming the air. If this vicious cycle continues to develop, the permafrost could release the equivalent of 270 years of current worldwide carbon dioxide emissions with no further help from us. And—that is not dystopian science fiction; it is just what our planet does when the atmosphere gets this far out of whack. As I said, these are hard things to think about. But do we really mean to ignore them completely?

We know all this, and we know that we need to do something about it. The problem is in knowing where to start, and in deciding that today—now—is the time.

Once you have laid out the global dimensions of the problem, all the possible solutions seem puny in comparison. It is really tempting to hope for some grand international bargain

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*Americans*, PROPUBLICA & THE SAN DIEGO UNION-TRIBUNE (Dec. 21, 2008) available at <http://www.propublica.org/article/how-the-wests-energy-boom-could-threaten-drinking-water-for-1-in-12-america>.

on emissions, but that is not going to happen within any meaningful timeframe . . . unless we all decide to change things. In this hyper-connected world, it may not be possible for politicians to lead anymore, but they can follow. Imagine how quickly both parties would jump on this if polling showed that 75 percent of us thought saving the planet was a top priority.

So, for each of us, starting small and close to our hearts is the key, partly because we know the issues, and partly because the essential insight is that there are innumerable portals to exactly the kind of response that is needed. The human scale, which is the only one open to us, is also the only scale that will make a difference—multiplied by seven billion. According to Desmond Tutu, God says to each of us, “[t]he only one I have is you.”

The answers usually are not complicated, and generally people are already working on them. In my field, imagining an arid West beset by climate chaos, we must first protect the aquifers and watersheds as they will be the most essential things and will also be deeply threatened. Likewise, the functioning of the biggest wild places must be preserved, restored, and linked where possible, to serve as carbon sinks, water filters, and refuges for the wild creatures that will be pushed to the brink, and without whom we will go mad. In each place, we need to determine the parts of the landscape that hold the world together, and then defend them as if our lives depended on it.

The real question here, as in so many other areas, is the social one of how we will accomplish these simple acts of sanity with the urgency we might feel if we could actually see the droughts, roaring fires, tornadoes, and floods coming down over the Flatirons. How, indeed, when today we struggle for years on end to win protection for each bit of stream or forest or grassland? We need to ask ourselves what the conservation community has to look like to get this fundamental work done in real time.

There are obvious alliances we must forge with recreationists and farmers and sportsmen. We really do not have the luxury of defining our interests and parsing our differences so finely any more. This will be easier if we make conservation simple again: holding the vision of a networked landscape but keeping the work local, and embracing the chaos of many constituencies.

And, of course, our children are the most irreplaceable

allies of all. They are keen observers and networked like nothing the world has seen before. And when you get on to these subjects, the next generation might be motivated and react in ways we scarcely imagine. The key is to meet them where they are, already quietly figuring out how to share life preservers while we keep rearranging deck chairs. The title of my talk, *A Just and Healthy Future for the 100 percent*, comes from the Salt Lake [City] climate action group Peaceful Uprising, and exemplifies the inclusive, all for one and one for all, approach of people who know there might not be enough lifeboats.

Understandably, the next generation has tended to focus on recreating our communities and our systems for producing food and power so that they are distributed, equitable, climate friendly, and durable in the face of the rough times ahead. We have much to learn from them, and perhaps something to contribute.

Here again, the work is right in front of us, whether your propensity is to start a farmer's market, or don gas masks and walk the halls of Congress as part of the Beyond Coal Campaign. Others may have the training to lead the technological revolution in transportation and green energy foreseen by visionaries like Amory Lovins, or the compassion to work with the world's poorest and most vulnerable people. Perhaps, if you know any smart, young lawyers, they might bring a precedent-setting case on Black Swan events, or something else that could change the landscape like David Getches's Boldt Decision did.

I believe that a lot of the stress and malaise in our country today arises because we know we are in trouble, and we are making ourselves crazy by whistling past the graveyard. It would be an enormous relief to admit, collectively, the challenge we face, and start doing something about it. In the end, even if it becomes very difficult, remaking society into something that can endure will be the most hopeful and exciting work we could ever do.

Let me leave you with this thought: if all the climate scientists are somehow wrong, and we take forceful action, then we will have been thriftier with our resources, cleverer with our technology, more compassionate about our fellow denizens of planet earth, and more loving with our children than we really needed to be. And if the scientists are right and we have awakened a planetary geophysical wrath, where would

you rather be when it hits than arm-in-arm with your kids and community trying to do the right thing, come what may?