Climate Code Red: the Case for a Sustainability Emergency

The Reality Report 2008-02-22 23:07

The Reality Report interviews Philip Sutton of the Greenleap Strategic Institute and coauthor of a new report called "Climate Code Red: the Case for a Sustainability Emergency." http://www.climatecodered.net/ The report reviews disturbing new data and scientific understanding of climate change, explains why existing institutions have failed to respond adequately to the problem, and outlines an appropriate response.

These are not a choice amongst many options, but a necessity for life. It requires a "crash programme" — as quickly as possible — to thoroughly decarbonise the economy in a time period measured in years to a decade or so, not decades to a century or more. - Climate Code Red report

Climate Code Red

Jason Bradford hosts The Reality Report, broadcast on KZYX&Z http://www.kzyx.org/ in Mendocino County, CA.

In 2007 the Intergovernmental Panel on Climate Change released its Fourth Assessment Report and shared a Nobel Prize with Al Gore. While this is big news, even more important evens unfolded during the Arctic summer where the polar sea-ice turn to water at a frightening speed and, in the words of one glaciologist, "100 years ahead of schedule". A black open ocean in the Arctic absorbs more heat and undermines the already precarious situation with the Greenland ice sheet, which is now poised to slip into the sea this century and raise sea levels by 5 meters. Once sea levels rise, the fate of the West Antarctic ice sheet is sealed, unleashing an additional 5 meter rise. Droughts are intensifying, forests are dying and burning, major crops are failing, killer storms are more frequent, and it is all happening with a 0.8 C global temperature rise. Because of climate system inertia the emissions already in place would probably take the planet up to 2 C.

NASA scientist James Hansen told a December 2007 congregation of the American Geophysical Union that we surpassed the dangerous temperature zone a few decades ago at a 0.5 C increase and that we should be aiming to reduce atmospheric carbon dioxide concentrations substantially below today's level of 380 ppm to around 320 ppm. But United Nations negotiations and most national governments are targeting a range of 450 to 550 ppm--deciding that it is okay to create an inhospitable planet with temperatures rising 3 to 8 C. The last time the Earth was that warm, sea levels were 25 meters higher and no glaciers existed. Scientist James Lovelock states that in such a world ocean life would collapse and humans could only inhabit the polar regions.

Politics and business as usual are no longer options anymore. The report from David Spratt and Philip Sutton "Climate Code Red: the Case for a Sustainability Emergency" provides an overview of:

1. Recent science 2. Appropriate targets 3. Case for emergency action

The report's Introduction reads:

"Because we are primarily guided by the need to advocate actions that are capable of fully solving the problem, we can only conclude from the available evidence that if we are to stop global warming becoming 'dangerous', it is not a question of how much higher will be OK, but rather by how much we need to lower the existing temperature if we are to return our planet to the safe-climate zone."

This report is a jolting break from the soft-pedaling and dangerous compromises that have led climate policy to accept greenhouse gas levels that lock in catastrophe. The report is ultimately empowering because it clearly makes the case that only through facing reality and making arrangements that conceivably solve the problem is our work purposeful. And the report finally outlines how, with a shared sense of purpose and heroic leadership, humans have the technical and social capacity to go into “emergency” mode and design an economic and environmental turn-around in 10-20 years.

This is the first of two interviews with Philip Sutton about Code Red.

Resources

James Hansen presentation https://admin.emea.acrobat.com/_a45839050/p89418435/ Sea level rise maps http://flood.firetree.net/

Transcript of the attached interview: The Case for a Sustainability Emergency

transcribed by Brian Magee

Jason Bradford: Welcome to The Reality Report. I'm your host Jason Bradford, and this is February 18, 2008. Our guest today on the show is Philip Sutton of the Greenleap Strategic Institute and co-author of a new report called Climate Code Red: The Case for a Sustainability Emergency.

The report reviews disturbing new data and scientific understanding of climate change. It explains why existing institutions have failed to respond adequately to the problem and outlines an appropriate response. That's at climatecodered.net.

We are back now with Philip Sutton on the line from Australia. Let's just make sure we can hear you, Philip. You there?

Philip Sutton: Hi, how are you?

JB: Alright. I'm fine, thank you.

I'm going to give a little introduction to the show. It's going to be a long one; it's part of a two-part series.

Basically, in 2007 the Intergovernmental Panel on Climate Change released its Fourth Assessment Report and shared a Nobel Prize with Al Gore. While this is big news, even more important events unfolded during the Arctic summer where the polar sea ice turned to water at a frightening speed and, in the words of one glaciologist, “100 years ahead of schedule.”

A black open ocean in the Arctic absorbs more heat and undermines the already precarious situation with the Greenland ice sheet, which is now poised to slip into the sea this century and raise sea levels by 5 meters. Once sea levels rise, the fate of the West Antarctic ice sheet is sealed, unleashing an additional 5 meter rise. Droughts are intensifying, forests are dying and burning, major crops are failing, killer storms are more frequent, and it is all happening with a 0.8 degree Celsius global temperature rise. Because of climate system inertia the emissions already in place would probably take the planet up two degrees Celsius.

NASA scientist James Hansen told a December 2007 congregation of the American Geophysical Union that we surpassed the dangerous temperature zone a few decades ago at a 0.5 degree Celsius increase and that we should be aiming to reduce atmospheric carbon dioxide concentrations substantially below today’s levels of 380 parts per million to around 320 parts per million. But United Nations negotiations and most national governments are targeting a range of 450 to 550 parts per million—deciding that it is okay to create an inhospitable planet with temperatures rising three to eight degrees Celsius. The last time Earth was that warm, sea levels were 25 meters higher and no glaciers existed. Scientist James Lovelock states that in such a world ocean life would collapse and humans could only inhabit the polar regions.

So, in this situation politics and business as usual are no longer options anymore. The report from David Spratt and Philip Sutton, Climate Code Red: The Case for a Sustainability Emergency, provides an overview of the recent science, establishes appropriate targets for greenhouse gas levels, and makes a case for an emergency action.

This report is a jolting break from the soft-pedaling and dangerous compromises that have led climate policy to accept greenhouse gas levels that lock in catastrophe. And the report is ultimately empowering because it clearly makes the case that only through facing reality and making arrangements that conceivably solve the problem is our work purposeful. And the report finally outlines how, with a shared sense of purpose and heroic leadership, humans have the technical and social capacity to go into “emergency” mode and design an economic and an environmental turn-around in 10-20 years.

So, this is going to be the first of a two-part interview with Philip Sutton about Code Red and he is on the phone with us from his home in Australia. So thanks, Philip, for getting up so early. It's Tuesday morning your time, very early Tuesday morning.

PS: That's right. I usually don't get up at 4 a.m. but I'm happy to do it today.

JB: Yeah. I think this subject deserves us making some special arrangements, don't you think?

PS: Yeah, I think so.

JB: Well, why don't you start by telling us a bit about yourself and how this report came about.

PS: Oh, okay. It probably starts about 15 years ago. A friend of mine was working for one of the scientific research organizations in Australia that had carriage of climate change issues. And he'd heard that there's a report come out, he'd just read a report that had been produced, that showed that if we wanted to stabilized atmospheric levels of carbon dioxide in the atmosphere at 350 parts per million—which 15 years ago was roughly what it was at the time—that we would actually have to reduce industrial emissions from the human economy to zero. And, in fact, take it even further and go under to actually extract CO2 from the atmosphere.

And he found this so far out of the normal, so far away from what he thought was perfectly feasible, that he actually was, sort of, almost treating it as a joke. I'd heard around about the same time about the first ice core data that had come out from the Antarctic where it looked like over a period of 100,000 years we'd never had CO2 above 300 parts per million. So it's, in other words, 50 parts per million less. I thought, "this is not a joke, this is actually serious." From a cautionary point of view, going 50 parts per million over what we've ever experienced in 100,000 years seemed like a bit of a crazy risk to me.

And, so, I've had that really kind of burning in the back of my head for the last 15 years. And recent events have shown that, in fact, that intuition that the sort of levels we have now of carbon dioxide are already unsafe right at this moment.

JB: So, a lot has happened in the past year or two that has really kind of solidified that in some people's minds, and why don't we talk about some of the major changes that have happened in scientific understanding just recently.

PS: Sure.

JB: What about—there's a quote—“The Arctic Ocean melting at 100 years ahead of schedule,” for example?

PS: Yeah, well, that's interesting. What's happened is that the IPCC, the Intergovernmental Panel on Climate Change, have been gathering together the results of scientific research in a whole series of areas. And their projections, based on material that other scientists had produced, indicate that the Arctic Ocean might be blue, might be completely free of ice, during the summertime in perhaps 100 years.

And then, relatively recently, another research group started to question that and said, well, it might be 30 years. And then within, in fact, the last summer the reduction in sea ice in a period of two years from 2005 through to 2007 was 22 percent. And that was a real shock to, basically, all the climate scientists who were working on the northern part of the planet, and it was just so far out of what they expected.

But, as it turns out, people are now looking around and there are, in fact, research groups, such as the Postgraduate Naval College where Wieslaw Maslowski is working. And he's been projecting that, in fact, he thinks that the Arctic ice will go probably by about 2013, or something of that sort. You might sort of think, “well, you know, projections, projections—this is stuff produced by computers.” But people have already estimated, on using physical data, that 80 percent of the Arctic ice has already gone.

JB: Because it is so much thinner, right? The naval vessels have been able to document the thinning that has been happening for a long time.

PS: That's right. That's right. What's been happening—and this is remarkable—is that one-third of the melting has been occurring on the top of the ice due to the heat of the sun; two-thirds of the melting has been occurring on the underside of the ice due to the heating of the ocean. So, the water coming into the Arctic ocean is now a lot hotter—about three degrees hotter than it was probably several decades ago. And this is actually eroding the Arctic ice from underneath.

Plus, there's also an amazing effect. I don't know if anybody would have seen the animation that's up on the University of Colorado website where you can see over a 20- or 30-year period the pulsing of the Arctic ice spreading during winter, contracting significantly during summertime. But they've coded the ice with the different ages so that you can actually see the thick ice and the thin ice, etc. And it's almost like watching a heartbeat. You can see the Arctic ice being pumped out of the Arctic and out through the out bays into the North Atlantic and past Greenland. And in the last few years you can just see that it's cleaned out to an extraordinary degree and the age of the ice is just falling catastrophically.

JB: So, let's just get into how the loss of this Arctic sea ice undermines the stability of the Greenland ice sheet and if that goes,what does that imply? What happens to sea level rise? What happens then, to, maybe, the West Antarctic ice sheet?

And explain the term “albedo flip,” which is used in the report.

PS: Okay, alright. Certainly within five years the Arctic ice in the summertime will be all gone. What you then have is an open ocean where as once you had dazzling white ice which is reflecting a large amount of the sunlight back out into space. You then replace that with dark ocean and you can just imagine what that means. If you've got a black jumper on—I don't know what you call that in America...

JB: Suit.

PS: ...but if you've got on dark clothing and you're out in the sunshine you can feel that heat soaking it up. That's what's going to happen with the ocean; that is what's happening with the ocean.

So, albedo is the reflectivity. Albedo in the Arctic is falling and the reflectivity is falling and that means that the heat is now being absorbed much more rapidly. The fact that the ice itself will disappear much faster as the temperature warms, it means that as you lose a bit of ice you heat things up and, in fact, accelerate the loss of ice again. That's the flip.

So you go from, very quickly—in the space of probably about 10-15 years—you go from having almost the normal amount of ice to none. And that's the flip. And the albedo refers to reflectivity, so it suddenly collapses.

JB: So, then move on to what that implies for Greenland.

PS: Okay. If you get the Arctic Ocean free to the air and able to absorb during the summertime, during the hot times of day—and nights for that matter—if you can get that absorbing large amounts of energy, what that will do is it'll evaporate large amounts of water. That means that quite humid winds can then blow across Greenland carrying energy and that can either fall as snow, in some cases, but largely the high temperature air will actually begin to accelerate the melting of Greenland. If it rains things are even harder—the heat transfer then becomes extreme.

The other thing is that just the general heating in the Arctic region will, in fact, mean that just there's a lot more energy that can transfer to Greenland itself. The Greenland ice sheet, the last time it was substantially depleted, was about 130,000 years ago and that was when we had temperatures about the same temperature as we're now generating. So, in effect, Greenland is now in the danger zone. At the present temperatures we will lose almost all the Greenland ice sheet if we just maintain exactly the current temperature. But we're headed to create much higher temperatures so that Greenland is very, very vulnerable.

The big question that people are wondering about is: how quickly will that ice go? Now, some of the work done by Richard Alley and others had suggested that it might take 3,000 years, might take 1,000 years, for the ice to disappear. But what people are noticing now, and some of your listeners will have probably seen photos of this, the surface of Greenland is now being dotted across more and more areas with surface lakes of water as the ice melts. And this water itself will absorb more energy and then it creates moulins which are sort of like chimneys or bore holes down which liquid water go. And that starts to lubricate the ice and make it easy for it to move, and so the glaciers speed up and that's why we're now getting, in fact, ice cracks equivalent to quite large-scale earthquakes in the region as the ice does become destabilized and cracking and moving much faster than it's ever done before in the last 10,000 years.

JB: And so you talk about it being instead of modeling like an ice cube melting it's more of process where it just sort of dissolves more rapidly. Is that the distinction?

PS: Yeah, that's right. I mean, if you're eating a sweet and you want to get a good dose of—like you're eating some sugar or something—if you want to dissolve it quickly in your mouth, you crunch it up with your teeth and then you can really quickly get the dissolved sugar. It's the same sort of thing. What's happening is the Greenland ice sheet is becoming fractured and penetrated by holes and liquid water and that will speed up the loss of the ice dramatically.

Something that's another factor—it's not the most significant issue in relation to Greenland, but it certainly is in relation to the West Antarctic, which is the other end of the world—but just even in Greenland most people don't realize that in the center of Greenland, the island, in fact, the land is quite depressed. And, so, you can get ocean water starting to come in underneath the ice from the glacial outlets and into the ocean, and they can actually carry water into the heart of Greenland. And what people really need to remember is that the reason why we lost, or are losing, the arctic ice so quickly is because the heat that's already stored in the ocean is now becoming available to melt the ice and that sort of effect will start to happen to some extent in Greenland, but it'll be a much more serious problem in the West Antarctic.

JB: Yeah, so let's talk about that. If Greenland goes there's about a five meter sea level rise.

PS: That's right.

JB: Which, for those of us in America that means a little over 15 feet, and the West Antarctic ice sheet, apparently a lot of that is actually sitting in on continental shelf that is below sea level already. So explain what happens then if....

PS: Yeah. It's best to think about West Antarctica not as a continent, but as an archipelago. It's a collection of islands, a bit like you have, sort of, in northern Canada. And what's happening is the ice has been built up originally on the islands and then spread as a ice shelf across the ocean. But then the ice kept on building up until it eventually became so heavy and so thick that it actually grounded on the sea floor.

Now, if you start to get warming of the Antarctic, the southern oceans, then what will happen is that some of this warmer water will start to penetrate under the ice and will start to erode the ice from below and also, particularly if you get sea level rises occurring at the same time, this increases the buoyancy. And, so, there's a real risk, a high probability, as this process builds up that the West Antarctic, a large proportion of the West Antarctic ice sheet, will become quite physically unstable.

I don't know whether people remember the loss a couple of years ago of the Larsen B ice shelf. Now that's ice that was sitting on the water. It was very thick—I've forgotten how many hundred feet thick it was, but it was very sizable piece of ice. When I say “a piece” that doesn't give you quite the right impression. It was probably as big as one of the small states in America.

JB: Rhode Island.

PS: Sorry?

JB: The size of Rhode Island.

PS: Could be, that's right. Anyway, the thing is that that became penetrated with these moulins and sort of like a piece of swiss cheese or something. And within a space of a matter of days or weeks it actually broke up and was just dispersed into the ocean then very quickly melted. The risk is that sort of thing could then occur with the West Antarctic ice sheet which corresponds to probably about 25 percent of the area of Antarctica.

JB: And so it become a sort of positive feedback process. I mean, not "positive" in a nice way "positive,” but one thing feeds into another.

PS: But the thing is that the speed with which that change could occur could be quite dramatic. Like it's not a question of hundreds of years. It's probably once the thing becomes highly unstable it's probably a process that could last maybe a couple of decades at the most, I guess.

JB: Right. Okay. So, besides ice loss what other major indicators are there going on that climate change is reaching certain tipping points?

PS: Okay. Just quickly on the ice loss—it's easy to toss that away, if you like, to say, “it's just a bit of ice loss and there's sea level rise.” But just think about all the places that people like to go on the coast. Those places will be inundated. If you want to think about the human impact, just think that Bangladesh will disappear under the waters with that level of sea rise. They'll be a country of a 100 million or so, 150 million people, who just simply will be displaced.

JB: Gone, yeah.

PS: Yeah. I don't know whether people have seen this, there's a magnificent website that you can go to which is, I think they call it The Firetree—I've forgotten the name of the website—but if you google “sea level rise maps” you'll find this website. And you can cruise around and look at every coastal area in the world and see what the impact would be of a sea level rise of anything from zero up to 14 meters of height. And you suddenly realize just how desperately serious this is in terms of impact on human communities right around the world.

JB: Yeah. I looked at my old house in Davis, California, and with Greenland gone we have beach front property and with West Antarctic gone we're under water where I used to live. So, pretty stunning. Yeah, amazing map. You can find the link to that in your report; climatecodered.net is where you can get your report.

So, yeah, we'll talk a little bit more about that as we go on, some of the impacts on infrastructure. First of all, what do you mean by tipping points and what other ones are being passed right now?

PS: Okay. Tipping points are, essentially, if you get a major change in the climate system and the transition occurs, the level of change that humans cause causes what you might call a disproportionate result. So, for example, at the moment the increasing temperatures are drought-stressing the Amazon basin, the Amazon forest. And at some point—and it probably is not that far away, it's a matter of decades—the forests will become so debilitated, so stressed by the lack of water, rainfall, whatever, that they actually will be prime to drying out and bush fires will start to take over. And within a very short period of time it's quite possible for about 80 percent of the Amazon rain forest to actually cease to be able to support rain forests and it turns into Savannah grassland. That's, if you like, one of these tipping points as in it's a quick flip where something just really shifts dramatically.

The climate system has a number of different feedback systems that sometimes they'll damp things down. So, for example, if you get higher temperatures you get more evaporation of water from the sea. In some circumstances that can produce more clouds and the clouds will reflect a bit more heat back into space, and so that would be a negative feedback. But the critical thing about the climate system is it's dominated by positive feedbacks so that one thing will lead... heating will lead to more heating.

One example of that, of course, is the permafrost area in the Arctic circle. Many people will be familiar with that already. If you get warming that will then start to melt the permafrost that releases methane which has been accumulating over 100,000 years. And the tonnage of it, the quantity is so large that it's quite possible that it could easily equal the total greenhouse emissions that humans have caused from industrial purposes.

So, our activity suddenly then cause this knock-on effect where we get quite substantial additional heating. But that's what people are worried about now, that we are getting very close to the point where the natural processes could actually start adding to the problem rather than helping to damp it down.

JB: And there's some some evidence that these carbon sinks, as they are called, natural processees. I guess we put about 7-8 billion metric tons of carbon into the atmosphere each year from emissions, but some of that is removed. But the removal is slowing down.

PS: I think it's about 2 billion metric tons is removed each year through natural processes. So, forests grow a bit thicker, a bit faster. Some of the carbon will be stored in leaf litter and that sort of thing, in the soil.

In the oceans, the plankton, the algae, many species have—they're small species; they're little single-cell organisms, but they have a calcium shell. And as they form these shells and as the little creatures die, or the plants die, they drop to the bottom of the ocean and they take calcium carbonate down into the depths of the ocean. And so that's a way that you can actually absorb carbon from the surface of the ocean and take it down deep.

Now, if both the forests and if the oceans become too hot, then it actually makes those systems less capable of absorbing carbon. So, for example, in the oceans the plankton don't grow as well; there's much reduced tonnages of plankton growing and so, therefore, the down-draw of calcium carbonate reduces. So you get much less carbon dioxide taken down in to the depth of the ocean. In the case of the forests you'll find that if the heating gets too strong the actual growth rates of the trees then become stressed—once again, often through lack of rainfall.

The soil itself is an interesting thing where the bacteria—some bacteria—will absorb and maintain carbon compounds in the soil. But other bacteria and what have you—fungi—are able to break down that material and release the carbon back to the air as carbon dioxide. So, as things get hotter the balance shifts in the direction of the release of carbon dioxide from the natural stores in the soil.

JB: Talking about the ability of ecosystems to adjust to rates of change, there was an amazing discussion about that. It's not just how much change is going on, but the fact that it's going on so fast. I sort of think about this like of I'm in an automobile going 100 kilometers an hour, which is 60 miles per hour—I'm trying to be metric today—and I stop in 10 seconds it's no problem, but if I stop in one second I'm dead. And so, this sort of parallel rate-of-change issue is really important. Can you tell us about that and the threats to rate of change?

PS: Yeah. Jim Hansen, as the head of the Goddard Institute Space Research Group, he has drawn attention to the shift, or what he calls the isotherms. What that means is areas of equal temperature. At the moment, for example, the temperatures are increasing in such a way that if you pick an area of a particular local temperature and see where that temperature is then located, like the average temperatures then found some time later, you can actually see these bands of temperature moving from the equator and then towards each of the poles in southerly or northerly direction.

At the moment those systems, those areas of equal temperature, are moving at about 75 kilometers per decade. Now, you sort of think, well, look, you can travel that fast yourself. I mean, you'd be going a hell of a lot faster than that on a bicycle. But if you're a tree or something, or a forest, you're not moving at that sort of pace.

And so, we have this problem, and particularly if we keep on heating. Some of the highest rates of heating are expected in the next couple of decades and at those high rates of heating forests and ecosystems will probably have to move at about 120 kilometers per decade. Now, they just simply can't do that. What will happen is that certain species will be able to move rapidly, like insects and mammals and that sort of thing, birds, what have you. But many of the plant species won't be able to move at that rate and the ecosystems will, in a sense, be literally torn apart and their ecological integrity, the relationships between the species we've broken up, and those ecological systems will become dysfunctional and start to degrade. And, in fact, at about the highest expected rates of the increase in temperature, which is probably about just a bit under half a degree per decade, that will pretty much pull apart almost any natural ecosystem around the world. So we're heading into a very, very difficult time from the point of view of protecting species living in natural settings.

JB: Yeah. So one of the threats is you think... the report sort of suggests that most species could go extinct in this century just because the rate of change is so extreme. I mean, more than half; like extremely high number is what you're saying.

PS: Yes, it's an extremely high number. I mean there will be many species that are resilient. I think that, for example—this may sound like a joke—but cockroaches and humans I think will, actually, as species, will do alright. Both cockroaches and humans are very adaptable. But if we're talking about many other species, anything up to a third, a half, and ultimately more, could become extinct. Local extinctions, of course, will be very, very common.

JB: I mean, people have heard about ice ages and the tremendous changes that have happened and there's been a whole series of ice ages and warm periods. So, haven't species adjusted before to incredible changes in temperature?

PS: There are times when we get abrupt climate change. And, so, when you look at the long history of the earth you'll find that over 100,000 years that the climate can vary quite dramatically. And the change between the last ice age and the current warm period, that transition was massively fast and very dramatic. However, what we don't realize is that the rates of change that we've now got equal to those rate of change we had before. In fact, they're probably greater.

And then the other thing to bear in mind is that when we had the this last transition from the ice age to the warm period 12,000 years ago, we had wilderness across the entire world. The world was a wilderness area, if you like. And so the thing is that there was a vast amount of natural habitat and that meant that species that might have trouble and become extinct in local areas were going to be alive and well somewhere else.

JB: Yeah. I remember a research group I was involved in suggested that where we were doing our studies the climate change was going to cause a rate of change that was 100 times greater than what happened during the last transition from ice age to the warm period.

PS: That's right. And you have to bear in mind the natural transitions are much faster than we've normally seen, but, we're actually, as you say, we're now creating a change that will be even faster than that.

JB: Yeah. There was some interesting—interesting in a kind of morbid way—parts of your report talking about the infrastructure that is vulnerable to sea level rise, for example, and for example, fresh water aquifers and just cables and pipelines, all these sort of systems. Can you review a little bit of that?

PS: Yes, well that's right. First of all, as the sea rises the impact is a lot greater. Areas that are affected that you wouldn't expect because you get surges. If you have a major storm, that will carry the sea quite a considerable distance inland. So, for every small amount of sea rise as an average you get much greater impact along different parts of the coast.

The other thing is that many communities are making use of water that's drawn from the soil reserves and once the sea starts to rise that penetrates into the soil and will then contaminate the fresh water and that becomes a problem.

Communities have been used to having reasonably fresh water around their pipes and drains and concrete structures and the basements of their buildings. And as the salty water penetrates through the soil it starts to corrode the concrete and so on. So, all these effects are going to be quite considerable, way beyond the obvious increase in sea level rise.

JB: Right.

You are listening to KZYX Philo, KXYZ Willits and Ukiah. This is The Reality Report and I'm you're host Jason Bradford. Our guest today is Philip Sutton of the Greenleap Strategic Institute and co-author of a new report called Climate Code Red: The Case for a Sustainability Emergency.

The report reviews disturbing new data and scientific understanding of climate change. It explains why existing institutions have failed to respond adequately to the problem and outlines an appropriate response. You can find that report at climatecodered.net.

So, now I'd like to go into the second part of the report, which is about what you call the appropriate targets. So let's backup a little review. You have a statement that says that the official discussions about ice sheet loss by the IPCC are "dangerously conservative." Explain what that means?

PS: Well, the IPCC is a group of scientists and they've done a fantastic job so criticism of them is not general; our criticism is quite specific. What they've had to answer is the question: are human beings causing global climate change? And because the implications of an answer yes or no was so important, they were very conservative, or careful, if you like, in the way that they judged the scientific evidence because they are under such pressure from doubters and naysayers and people from the fossil fuel industry, etc. So they were very careful not to exaggerate their case.

They've now come to a very firm conclusion that humans definitely are causing the current climate change that we see around us. And, so, now the problem is actually different because what we have to do is if it is true—as we are now sure, that humans are causing this change, this current change—then the problem is: how big is it, how fast do we need to act, and so on? And instead of using the normal scientific rule of saying "we will not consider something to be true scientifically," in inverted commas, "unless we're 95 percent sure," we're now in a risk management situation where we have to say it's a bit like getting on a airplane. You wouldn't say, "I'll go on any airplane at all unless I'm 95-99 percent sure that it will crash." What you say is, "If I think there is much of a chance at all—if there is a one or two percent chance it will crash"—you'd choose another airline. So, you switch around the probabilities.

Now, the problem is that the IPCC has been not including very significant data about accelerated climate change—the risk of rapid melting of the ice sheets, etc., etc.—has been excluding that from their current reports because they weren't up to the certainty of 95 percent.

Now, the problem is that some of the models that were used, they were the best models people could put together. But those models that were considered to be reliable, unfortunately, weren't as reliable as they needed to be. And so, for example, the melting of the Arctic ice was not picked up on the same... the models didn't show it melting as rapidly as it's now clear.

So, what we are saying, really, is that the evidence from reality and the evidence from the past earth history, the paleo-history, is now giving very strong indications that things are moving much faster than the IPCC modeling and scientific reporting has suggested. So, we actually need to shift into a risk management position and say, "Look, this thing is now too risky and we really have to get the whole thing under control very quickly."

JB: Yeah. There's also an interesting critique about the way the modeling work is done with respect to what's called "climate sensitivity" and "'slow' feedback" processes. Can you explain the significance of these and the context of the climate modeling and policy?

PS: Okay. What happens with the "fast" feedback would be something like, we put some carbon dioxide in the air, that then causes a little bit of heating, a little bit of heating will cause the oceans to evaporate some water. That water, in fact, is a very potent greenhouse gas. And so a little bit of carbon dioxide will produce a lot of heating, largely through the effect of the increased water in the atmosphere. Now, that's a very fast feedback.

Slower feedbacks are ones where—we talked before about the types of the carbon sinks—so that if you heat things too much then the soil will start to release carbon dioxide back into the atmosphere, the Arctic permafrost will start to melt and release methane and that will have added effect.

So, much of the modeling has not included some of these secondary knock-on effects and these are called "slow" feedbacks; they just simply take longer to have an effect. But in quantity, these feedbacks are very significant and they increase the sensitivity of the earth, probably by twice.

So, the assumption so far has been if you double amount the of carbon dioxide in the air—just as a kind of a reference point—that that would cause a three-degree warming. In fact it's likely, because of these “slow” feedbacks to, in fact, cause a six-degree warming. In other words, twice as hot. So that means that we're actually getting, even now, we're getting much more warming than we expected for any particular amount of CO2.

JB: Right. So, then, let's get into a little bit of the United Nations and its role in negotiating international agreements on climate change and what their temperature targets are. What are the temperature targets for the United Nations frameworks?

PS: Well, the United Nations framework doesn't have any temperature targets. It says we shouldn't have dangerous climate change and that, of course, implies that we shouldn't have temperatures that would cause dangerous problems. But it's, in fact, been one of the issues that the scientific community has turned to relatively late in the piece to start asking, “Well, what do we really mean by dangerous climate change?”

Now, the European Union adopted a standard sometime back where they said two degrees was dangerous and so we shouldn't be going for that. Now, wasn't a target through the Kyoto process, as such, it was advocated to the United Nations process by the European Union. At the recent Bali conference people were talking about trying to avoid a 2- to 2.4-degree change—that's degrees Celsius.

But the thing is, that sort of level of warming, in fact, is highly dangerous. If we've lost the Arctic ice, effectively now, already, with the current heating, then going up more than another degree warning over pre-industrial, on average, that is clearly going to be causing enormous impacts. And there's a real fear, in fact, that the system will run out of control and that the natural systems will heat things up—will add so much extra heating, humans will actually lose control of the climate system and will not be able to reverse the effect. And, so, that's what we have to kind of nip in the but as quickly as we can.

JB: James Hansen as some line about you can't tie a rope around a melting glacier.

PS: That's right. James Hansen has raised a really critical point. He has reminded people—scientists and lay people alike—that the climate system is dominated by positive feedbacks. So, if you get a bit of heating you'll get more heating, if you like. But he's really ran this home to people recently saying this cuts in both directions. If you have a positive feedback and you get some heating, you get more heating; if you get some cooling, you will, ultimately, get more cooling. So, for example, if humans could orchestrate a modest cooling of the earth for a period of some years, enough to kind of have the effect noticed, if you like, by the natural systems, then what you will start to do, in fact, is to re-form some of the ice in the Arctic. That will then reverse the albedo flip. It will, say, if there's a bit more ice, that'll reflect more energy out into space, that'll cool things down a bit, that will make it possible to form more ice. So you can sort of see that process reinforcing itself.

So, James Hansen has actually held out, I think, one of the biggest hopes we've got of getting this whole problem under control. That if immediately, like, if over the next few years humans around the world, people around the world, get together and actually help orchestrate this modest cooling, then we actually do have a real chance of turning around this catastrophic change.

JB: Well, let's go over the numbers a little bit on that. He basically gave a talk at the American Geophysical Union in December 2007. I've seen a PowerPoint presentation of his on the web. And he's basically suggesting that 0.5 degrees Celsius may be the max we should consider safe—rise—and we're already at 0.8, right?

PS: Yeah.

JB: And, so, that implies more like somewhere between 300-350 parts per million, correct?

PS: Yes, that's right. I've actually been directly in touch with James Hansen about that. And his PowerPoint, you'll probably recall, had the tipping point range for the Arctic ice which was somewhere between 300 parts per million and 320. And then a number of the other tipping points he mentioned, he thought the tipping point probably occurred between 300-350.

Somewhat strangely he's actually been saying, “Well, the capture would probably be 350 parts per million.” But if you actually look at that you won't be able to restore the Arctic until you get down to at least 320. So, I think that what's happening is that he's really trying to make sure that the world community realizes trying to stabilize carbon dioxide in the air at 450, in other words, a whole 100 parts per million more, is completely meaningless. Unfortunately, he really hasn't drawn attention to the fact that to be on the safe side we really... we can't have a safe climate world unless we get that Arctic ice back. And to do that we have to be under 320 parts per million.

JB: Right. So you had this report by Nicholas Stern, an economist to the United Kingdom, and that was abdicating, “Well, let's go to 450 or 550 and stop there.” And that would lock in a three-degree, lets say, Celsius rise. But with a low, slow feedback it will go to six-degree Celsius rise. So, it's bizarre. You have this framework saying we're agreeing we're not going to do anything dangerous to the climate, and yet they're setting up policy targets that triple or quintuple the temperature rise of what is already dangerous.

PS: Yeah. It is actually quite bizarre, you're completely right. The incredibly positive contribution that Nicholas Stern made was that he was able to document the fact that taking action on climate change, no matter what it costs—like, literally, no matter what it costs—to get climate change under control, the cost will be less to control it than the cost to humanity and other species if we don't control it. Now, as an economist that was a really important thing to get out into the public arena. And that's what he did, so he has made a major contribution in that way.

Typically, many policy people working with governments around the world, he and others—like even James Hansen with his current target of 350 parts per million—have difficulty saying to people what really needs to be done because they don't think the community is kind of ready for hearing what really needs to be done. And so they quite often will give new targets that they don't actually believe in themselves, but they think are better than the ones we're currently working on.

And, so, I think we're rapidly reaching the point where we really need to be told the truth. It's time that we, ourselves as citizens and as people, kind of grew up a bit and said, “Okay, just let's know what really is the case so we don't have to keep on being led through these false goals that have to be revised a few months later.”

JB: Well, this is what's so discouraging to me and probably you. What is the most discouraging thing for me is to hear of things I know are incorrect being promoted by the people who are supposedly the leaders in this and then events like the loss of the Arctic ice sheet and the threat to Greenland make me realize that it's been kind of... they've been fudging, you might say. And it's because of this social trap that they're all in where they are afraid to say how serious it all is because of the implications.

And, so, what I liked about your report was that it said, “We need to clear that out. We need to basically start over and declare an emergency and get into emergency mode.” We're going to talk more about that on the next show, but let's in the last few minutes we have, let's talk about this quickly. The subtitle of the report is The Case for a Sustainability Emergency. What is it about an emergency that allows people to transcend normalcy?

PS: Okay. None of us would be alive today if we didn't have the capacity to go out of business-as-usual mode. In other words, our ancestors would have died. I mean, there would be so many instances where our ancestors would have died because they had failed to deal with emergencies. So, there's no doubt that human beings have the capacity to say, look, normal life might be going to work and doing this and doing that and, sort of, I mean, just think about how we normally live. We know that's how we normally go.

But in, for example, in war time people don't start quibbling about not being able to maintain the latest car or something. I mean, during the Second World War domestic car production stopped. I mean, that was just it. It was just realized that, sadly, the priority was making tanks and jeeps and all the rest of it.

We have this capacity to do things very differently. If there's a flood or a fire or a hurricane, or whatever, people will act differently; they change their priorities. So, we have this capacity. What we have to do we have to signal to ourselves—socially, signal to ourselves—that this is what the situation we're in.

Now, up to date, what's been happening is, people kept on saying, “Look, you know, encourage people to make changes on climate change; give them the simple things: change some light bulbs,” whatever—all these little tasks. And people will reinforce it. They'll say, “With five simple steps that hardly make any difference to your life you can make a contribution.” Well, it's true up to a point. But the thing is that it's not really sending a social signal saying, “We are in diabolical trouble. This thing is worse that the threat level.” The threat level from climate change is actually worse than the Second World War, including the nuclear threat.

So, we have this capacity to shift into a new mode, but we have to tell each other, we have to have the authorities reinforcing and us buying in to, ourselves, the fact that we are in an emergency mode and then we can do it.

JB: Well, that's what we're going to end on. I'm going to quote something from one of your summaries from part two.

"These are not a choice amongst many options, but a necessity for life. It requires a 'crash programme'—as quickly as possible—to thoroughly decarbonise the economy in a time period measured in years to a decade or so, not decades to a century or more."

So, I want to thank you for saying that, saying what really needs to be said. That's why I called this show The Reality Report. If we don't have a good grasp on reality we're not going to be able to deal with the problems we've got.

So, Philip Sutton, we're going to have you back next time and I want to tell everybody, this has been The Reality Report. You've been listening to KZYX Philo, KZYZ Willits and Ukiah. And Philip Sutton is the co-author of the report, Climate Code Red: The Case for a Sustainability Emergency. And you can get that at http://climatecodered.net/ . This show will be on http://globalpublicmedia.com/ . Thanks to my studio engineer, Tim Gregory. Have a good week, everybody.

http://www.indymedia.org.uken/2008/02/392071.shtml