

## Health Impacts of Climate Change (3-part series)

### Part 1: Dr. John Balbus: Overview

*Anne Johnson:* This is Global Environmental Health Chat, the podcast that explores environmental health issues that transcend national boundaries. I'm your host Anne Johnson, and this podcast is produced by the National Institute of Environmental Health Sciences.

What topic brings together a hunter in the remote Arctic tundra and a banker in bustling Shanghai? What unites a nurse in rural India with a water manager in California?

In a word, climate change. No matter where we stand on this planet, no matter how we make our living, climate change affects us all.

In a series of reports released late last year and in the spring of this year, hundreds of scientists and leaders have weighed in on the science of climate change and how it affects us.

One of those reports is the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, or IPCC. The IPCC report was produced by a scientific body under the auspices of the United Nations.

Another report is the Third National Climate Assessment of the United States, a report produced by the U.S. Global Change Research Program to assess climate change in America.

This is the first episode in a three-part series on what these recent reports have to say about climate and human health.

Our first guest is Dr. John Balbus. He's senior advisor for public health at NIEHS, and participated in the development of both the IPCC Assessment and the National Climate Assessment. He'll introduce us to these two reports--how they're similar and where they differ. In the second and third episodes in the series, we'll look at each of the reports in more detail.  
[end music]

Now, neither of these reports is the first of its kind. The IPCC has been putting out reports since 1990 and the first National Climate Assessment came out in 2000. I asked John to tell us what these reports offer that's new.

*John Balbus:* There are several important developments that are new since the previous versions. I think in many ways the most important one is that we are witnessing events and phenomena that make it clear that climate change is happening now. And it's not something that is a speculative, possible thing in the future, but that it's something that we're living through right now and we understand that if it's starting now, it's only going to become more intense and increase over the years. Climate change affects health in many different ways, because climate change involves a number of different kinds of phenomena-- ranging from high temperatures to really heavy downpours to more intense and powerful, extreme weather events like hurricanes. So, among the health impacts of climate change are those that are related to that high heat, so heat stress and problems dealing with the heat. The high precipitation, and really heavy

precipitation, can impact health through flooding or through the washing of contaminants into drinking water supplies or other kinds of water supplies. And then, of course, more intense and severe weather disasters have a whole array of health impacts.

*Johnson:* We're seeing those impacts around the world. But your experience of climate change is different depending on where you live. This difference is reflected in the health chapters of the National Climate Assessment, which looks only at the U.S., and the IPCC Assessment, which focuses on public health globally.

*Balbus:* There are some things that are pretty different, for example if you look at global health, we still have a large problem in poor countries of the world with inadequate sanitation and inadequate clean water supply. And we know that climate change and warmer temperatures has an impact on that, whereas in the United States water treatment is pretty universal and the impact of climate change on waterborne diseases is not anything of the same extent. Where they have something in common, the United States shares with the rest of the world a big burden of disease related to air pollution, so on those kinds of topics, they look pretty similar.

*Johnson:* The reports also share some common themes in terms of what we can do to mitigate and adapt to climate change and improve our health in the process.

*Balbus:* Both the IPCC Health chapter and the National Climate Assessment Health chapter share a much more developed discussion of what we call the health co-benefits of climate change mitigation and adaptation. What this is talking about is the health implications of the things that we as humans need to do about climate change-- things like reducing fossil fuel combustion or improving the mileage on cars or improving the efficiency and the insulation of buildings and homes. All of these things also have a lot of health implications, and in some cases, the health affects of doing something about climate change are very positive. For example, we know that we have tens of thousand of deaths in the United States because of people being exposed to particulate matter air pollution, and a lot of that air pollution is coming from coal-fired power plants. So, if we do things to reduce the greenhouse gas emissions of coal-fired power plants, some of those measures will also reduce the particulate matter emissions. And so we reduce harmful air pollution and get immediate health benefits, even as were trying to prevent longer term impacts from climate change.

*Johnson:* Climate adaptation strategies are being adopted now.

*Balbus:* Some of these adaptation measures are specific early warning systems, either for problems with heat waves or disease epidemics, and some of the progress has been in just ways to assess vulnerability and ways to improve the adaptive capacity of health departments.

*Johnson:* Both reports agree that there's much more that can be done and it's important to have good science to guide our future adaptations.

*Balbus:* While we do have enough science to understand that health impacts are occurring, and to have some idea of where they're occurring, and who's vulnerable and what's the magnitude of these, there are a lot of knowledge gaps. The gaps are biggest in areas like some of the infectious diseases, or understanding the impacts on food systems and the nutritional value of

foods, or looking at some of these mental health impacts that we know occur in the setting of disasters, but there's less study about these in the setting of more chronic-- slow disasters, if you will-- that were observing because of climate change that we haven't really lived through in the past couple hundred years in the same way.

*Johnson:* As we look to the next couple hundred years, it will be critical to keep studying our changing world and assessing how we can build a healthier future.

Thanks to Dr. John Balbus for kicking off our series and introducing us to these important reports. In the next two podcasts, we'll hear more about the IPCC assessment from Dr. Alistair Woodward and discuss the National Climate Assessment with Dr. Kim Knowlton. Find those podcasts on our website at [niehs.nih.gov/podcasts](http://niehs.nih.gov/podcasts).

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