The Intersection of Science and Policy: A Conversation with Kerri-Ann Jones, United States Secretary of State for Oceans and International Environmental and Scientific Affairs

Kerri-Ann Jones graduated from Barnard College in 1975 with a bachelor's degree in chemistry and later received her PhD from Yale University. She has worked with the Science and Technology Bureau of the U.S. Agency of International Development (USAID), the National Institute of Health's Fogarty International Center and served on the National Security Council. Additionally, she has held prestigious positions as the Associate Director of the Office of Science and Technology Policy, and as Director of Office of International Science and Engineering at the National Science Foundation. More recently, she was nominated by President Obama in 2009 and is currently serving as the US Secretary of State for Oceans and International Environmental and Scientific Affairs. World Outlook sat down with Kerri-Ann Jones on January 14th, 2015.

Thank you so much for joining us. It seems like you have been everywhere and into everything. What drew you to doing more policy-oriented work and not necessarily sticking to biomedical research?

Thanks for the opportunity to be here. I was a biochemistry/biophysics major in my graduate work. Over the years I went from program work into policy work and I was very lucky to have appointments that were very policy-focused in both the White House Office of Science and Technology Policy, and then my most recent job as Assistant Secretary of State for Oceans, Environment and Science. I think what drew me to policy was that it was very interesting. It let me really draw on my science background; it let me take that science background into the real world and work with a lot of people on very important issues.

So how has science guided policy? How has policy guided how the scientific community works?

I think you hit the nail on the head. There are two ways I look at science policy. The first way is when I was working at places like the National Science Foundation – for example, how does International Policy influence science and investments in science, and advance U.S. science so we can be more engaged in the world and contributing to solutions? I think that was very interesting work and definitely focused in science and how you build more partnerships. There is also the other part of this equation: How is science brought to policy? I worked on that on many issues.

In my most recent job we worked on ocean issues, looking at sustainable fisheries, looking at coastline issues, and looking at ocean acidification. We have also looked at a range of other environmental issues such as air pollution. We have looked at mercury. We have looked at persistent organics.

We have been very involved, of course, in the major environmental challenge that we face: the climate. We are also looking at some of these things which have unique regional dimensions, like the Arctic. The Arctic is very important as its temperature is very affected by climate. It's warming twice as fast as every place else.

You have to have good data and you have to understand what the data is telling you: if a particular fish species is stressed, then, perhaps, the catch should not be quite as large; or if there is something more you need to know about ocean acidification. We need to learn more about what is happening around the world regarding ocean acidification.

That's just a few examples of a range of activities. One I didn't mention is, of course, health. We did an awful lot of work—working with a lot of the other agencies—on global health, where you have to really understand what infectious agents you are dealing with and how it might be possible to address them.

You mentioned the Arctic—how do you see the Arctic as an issue, considering the intersection between the environmental issues of the melting ice sheets, along with the now geopolitical and economic issues of who owns what is now the sea-lanes that have opened up between the ice sheets?

There is a lot to be said on that question. The Arctic is a region that, I should point out, is under tremendous environmental stress. That is changing a lot of things on land and in the sea and it is something that is going to take some years to work through. There is the Arctic Counsel in place. The U.S. is one of 8 Arctic nations. Also on the counsel are 6 permanent participants of the indigenous peoples of Arctic region who really are the people who live there and are the most affected, so it is really important to not forgot about them. While the world is trying to sort this out, the Arctic Counsel is the regional organization that is trying to have those sovereign nations come together and talk about what this means. How we can deal with some of the environmental concerns? And how can we learn from each other about development?

We are not there yet. There is still more ice, unfortunately, that will probably melt. There is not a tremendous amount of movement across the Arctic Ocean yet, in terms of commerce. But I think that the Arctic nations are going to try to work together to sort this out. Plus, I think that there really isn't, at this point, a tremendous conflict about the Arctic. It really has been dealt with. These eight countries have worked together collaboratively.

The U.S. becomes Chair of the Arctic Counsel this [2015]spring—which is a big opportunity.

Where do you see the future of the Arctic developing in terms of economic issues? Have people accepted the fact that it will, sooner or later, just sort of melt away? How are we dealing with what is happening?

It is hard to say—it is not a definitive situation. The ice is melting and there are a lot of changes and there are a lot of coastline changes. There are also other environmental issues in that the different circulation issues often result in the concentrations of toxins in the North. There are many things that have to be dealt with and I think that the Arctic nations are trying to deal with those. They are trying to study them more. You have to get the science in there to understand it. And then you have to deal with some of the adaptation issues. I believe that that is where we are, in terms of whether everybody has accepted that it is going to be this way. I don't think that people really know what "this way" will be at the endpoint. It is a dynamic situation. I think it is a situation where the Arctic nations are trying to prepare for the change. They are trying to understand it through the science and they are trying to prepare for it.

In the last two Arctic counsels, the eight nations signed agreements to try to deal with some of the things that are happening. One was 'search and rescue'—which is very basic. As you begin to have more activity up there, it is very hard to rescue people. So how can those eight countries work together? They signed another agreement, at the last Arctic counsel meeting, to look at how we can prevent oil spills—and how we can deal with this issue.

There is a sense that we are seeing a lot of change. We don't know where the endpoint is going to be, but we have to prepare together for this and we have to share information and work together cooperatively. It is going to be a lot of change. It is going to be hard on the indigenous people whose lifestyle is changing. They are seeing tremendous changes and I think it is a really positive thing that they sit on the counsel as permanent participants.

You mentioned oil spills, which reminded me of our previous oil spill -- Deep Water Horizon. How has that changed our environmental policy toward the Gulf of Mexico and how has that affected your view of offshore drilling?

I couldn't really tell you how it specifically changed the policies about drilling in the Gulf because I didn't follow that that closely. I followed the Deep Water Horizon from my position as International Assistant Secretary—

an international dimension of it. How do we inform neighbors in the Caribbean who may have been affected by that spill? We had certain obligations under agreements—so that is what we dealt with. We also had issues with countries who wanted to offer us assistance—technology they might have had—so we had to deal with that incoming assistance and offers that people made. That was the extent to my involvement in that.

In terms of offshore drilling, we have to be tremendously cautious about the environmental impact. Deep Water Horizon really brought that to the forefront. We also have to think about it in terms of places like the Arctic where you have well beyond your usual challenges. I think we have to really balance everybody's excitement about all of this possible resource with these environmental possibilities for problems. The third piece is that it is really interesting and we are very excited about all of these new oil possibilities, but it ties right back into the climate. What does this mean about how we change our energy profile? I think that we have to link those discussions about the potential for a lot of new energy resources—fossil-fuel-based —with our discussions about climate. We have to be conscious about some of the decisions that we make.

What are your thoughts on the Keystone XL Pipeline and domestic shale production that has come up in the past few years?

On the Keystone XL Pipeline, I don't really discuss my personal opinion because I was very close to the project and it's very controversial and I just don't think it's appropriate for me to weigh-in and say, "Here's what I think should be done." I know that, in the State Department, the executive order delegates the authority to grant or deny that permit to the Secretary of State. And I know that the team there and the Secretary of State are going to be seized with a lot of work, now that the Nebraska case has been resolved, and that they will be looking at "How do we look at this national-interest determination?" It is a very complicated process and it has been a very controversial review of the project because we don't know yet what the decision will be. So that is my opinion on the Keystone Pipeline – which is to give you a sense of how I was involved in it.

In terms of shale gas and the fracking technology, I think that we are at the beginning of trying to understand it better. It is one of those very difficult issues that puts the whole push of economic development right up against the environmental questions. I think that there is a lot of site-specificity and so I think that there is a lot of science that has to be done—both

from the geological prospective and the hydrological prospective. Also important, is understanding what chemicals are being extracted. I think that we are learning a lot and I think we will see it work out – in a state-by-state approach. I know that Governor Cuomo, in New York, has just banned fracking. It is an interesting approach that he is taking. He looked at the studies and he said, "I don't think we should do this." I know that there are communities around the country where this is really important for economic growth. I think that those communities are going to have to have these discussions that are very, very hard.

This is really the basic discussion of our country at this time: the economic push to really develop more—with the environmental balance. We have a lot to do to learn how we balance these two—to make sure they are compatible. It doesn't mean that you don't do any fracking—it just means that you really understand it and you really understand what it is doing to the area that it is in. You really have to work with understanding what it means in terms of climate and what the other opportunities are for a community. You can't look at any of these issues in isolation.

It is it difficult to balance U.S. national interests, the other things that are going on within the United States and the State Department, and concerns about environmental or scientific issues?

I think that all of those things work together. It is always a question of balancing national interest and international interests. It is always a question of balancing your engagement with the world and how it affects your country. It's all about how do all of these different roles and players from our states—all the way up to the world—work together on some of these problems? One of the things that was key in my position at the State Department was that we worked with a lot of the other agencies. We were the State Department with the foreign policy agency, but we worked with the Environmental Protection Agency, we worked with the National Institute of Health, we worked with the United States Department of Agriculture – because they have a lot more technical expertise and they are also dealing with a lot of these issues domestically as well as internationally. So all of that has to be synthesized. It is fascinating and it's challenging and it's all important.

In a recent bilateral summit with China and in the United States, there was sort of an agreement to try to cap or lower carbon emissions over the next 20 to 30 years. Do you think that sets a good momentum for the talks in Lima? What are your thoughts on this?

I think it is very important. Everyone has high aspirations, hoping that in Paris, which is the next meeting, there will be an agreement. China and the US have said, "We are going to try to put down some markers. We are going to work together on this." I think that is very positive because I think it makes a statement. It says that we are serious about this. Not only each country separately but that we are going to work together, and I think that is really positive. I think it was very well received in Lima. I think that, going forward, there is some optimism that there can be an agreement reached in Paris. As I mentioned yesterday, the agreement is only one part of all of this. There are a whole lot of other engagements and regional efforts and programs. I think we have a lot of momentum on the issues and a lot of attention. I think that, more and more across the United States, Americans want to see something be done about it.

Do you think that international cooperation on climate change will happen in large overarching treaties or will it be a lot more individualized, sectionalized, or a lot more piecemeal?

I don't think it's either/or. I think it is going to be everything. The nature of the problem is multidimensional in terms of what is causing it as well as where the impact is going to be. The U.S. has been working bilaterally, regionally, in small groups of countries, and in the large, multilateral setting at the UN framework convention on climate change and the Paris meeting that will happen at the end of this year. I think that it takes all of those and, I think, increasingly a lot of countries feel that way. [Climate change] is huge. No one treaty will be signed and that makes everything okay. It takes a lot of political will and programs and working at it trying new things and trying to understand it because we have to deal with both mitigation reduction of greenhouse gases and we have to deal with adaptation because we are seeing some of the effects of climate change already. So we have to deal with both of those.

What's your experience talking to people from developing countries or governments from developing countries who argue: "we need these carbon emissions to develop" or aruge it is unfair that they must follow more stringent rules than they would particularly like? How do you talk to them – are you against or with them?

I think that it is a discussion that is underway and will go on for a while. I think it is just the recognition that the countries that are members of the UN cover a spectrum of different levels of development. I think that it is true that developed countries have been out there doing things for a while

and they have learned from their mistakes, hopefully. We have learned that certain things are not good and the developing world has seen that as well in their past—wherever they are—but I think that the discussion has gotten much more positive. I think that the thinking is that countries can do what they can, based on where their development is. There is also a lot of effort to help work with developing countries to look at development plans that move in a low-emissions pathway. There are also going to be some funds out there. Funding is a big deal. There was a lot of talk about that at Lima —I think it was the Green Climate Fund or one of the nature funds that has been capitalized very well. I do think that it is being addressed and that it is always going to be a part of the negotiation.

What, in your eyes, from the United State's point of view, perhaps, is the most under-rated issue that the U.S. could be dealing with, and perhaps isn't spending enough attention on?

That is hard to say. I lived in the State Department where we really had the agenda that was on the international agenda, and I think what really becomes obvious is that all of these problems are very important in their own right and how do you spend time. How do you find the time and the energy and the resources to work on all of them? Clearly, all of the problems related to climate are connected and require attention. I don't really rate what we should be working on or what we shouldn't be working on, but really try to pay attention to where the stresses were seeming most obvious and where we could really have the most impact.

Climate is definitely one where there has been a lot of progress. We worked on things like mercury, which was very important. I think the constant work that we have been doing on the oceans is very important. But that is not to say that we were not paying attention to some of the wildlife issues and other topics. I think it is difficult to sort of pick-and-choose. What is clear is that climate is an overarching problem that affects so many things. As you work on many things, they feed into climate and vice-versa. As you work on climate, you could be helping a lot of other things as well.

I would also like to talk a little about government bureaucracy as a whole in relation to the scientific community. How do you see the relationship – having one foot in each, and can it be straightened out?

I think that there is a good relationship between the scientific community, if you will, generally speaking, (and how you define the "scientific community" is a question in and of itself) and the U.S. government. There

has been an effort, over the last several years, and certainly in the Obama Administration, to have a lot of scientists appointed to positions that require technical expertise and background. There are always in many agencies and advisory boards – special roles for scientists to come in and say, "here is what our wisdom and experience with these topics tell us." There is a lot of connectivity. I think there is always room for more because there are so many issues that need information from science. I also think it is good to have exchanges where scientists can come in and be in government for a while and see how it works. Likewise, sometimes government officials can take a break and have a sabbatical someplace at an institution. One thing is that, when you sit in Washington, you do see a lot of scientists coming in and out – coming into meetings and coming into different conferences. You see a lot of input into the policy process – into the negotiation process – from academics, which is very good.

I know that there have been concerns that there are less and less members of Congress that have been part of the scientific community. Do you share this concern?

Well, I think that there has never been an enormous number of scientists in our Congress, but I think we did have a few more in the past. That is something that constantly needs to be brought up to the hill: the importance of science. Typically, science has been a bipartisan issue, for example, support of NIH and of NSF. Science, as it relates to other topics such as climate, can be very controversial. A lot of folks in Congress "get" how important science is to the U.S. I think it is mostly looked at in terms of work-force development and our ability to be economically competitive and innovative. And so I think that is generally positive. I think it gets a little more strained when you look at science in particular policy issues.

Were there certain policy issues that you dealt with where science became not just an objective source of information but more so a tool in political fights?

I always think of science as objective information. Now whether or not that objective information gets caught up in a fight that becomes partisan—that's just the nature of it. That happens with a lot of things. It doesn't mean that the science is politicized—it means the argument is politicized. Sometimes you see that, and the most common place you see that is around climate.

There has been some criticism recently, about scientific press in terms of the nature of the

large scientific journals – and certain retractions recently. There have been a few articles published recently around the normal press and media about the method for published papers, suggesting that the rush for publishing has lead to a lot of retractions and falsified results. How do you think major scientific journals can prove their credibility and restore science's credibility in the eyes of the public?

I don't know if the general public thinks about science so much that they really have noticed these retractions. I think that it has been bigger in the scientific community. I read in *Science*, recently, an article about trying to put in place a better review process so they can avoid this. Sometimes it is just a shoddy look at the data: It wasn't reviewed thoroughly. In other cases, it is falsification, and those are different kinds of problems. But I think there is an effort to be more thorough in all of their processes, which is important. I think that it happens and I think it is good that it is called out. Scientists can be like everybody else. They can be sloppy when they are rushed or you can have people who maybe want to take shortcuts and not have the data be completely solid. I think that it is what it is and I think the journals are trying to pay attention to it. I think, also, that scientists need to sort of think about this themselves and make sure they are being very thorough and that the whole culture within the community is one of being precise and looking at itself and doing a lot of self-evaluation.

Do you think it is an institutional issue in terms of the way that we have set up the so-called "prestige journals" and a rush for grants and other things or do you think it is just an issue of certain bad eggs within the pot?

I think what typically happens is that when the pressure gets worse, you see more bad eggs. But that is just how the system is evolving. Everything is on a faster cycle. And so I think what we are seeing is that the system is adapting to this faster cycle. There is pressure. There is competition for funding. That is a reality. And so I think people at the journals will have to pay more attention and so will the academic institutions as they think about how their faculty are submitting thing. Do they have time for it? There is a whole systemic question about how much pressure is on the system.

I also wanted to ask you a little bit about space. The rise of space access, such as Virgin Galactic, has really kind of transformed the way we look at space. What are your views on space and how do you see space evolving as a commercial, diplomatic, or even military frontier in the next 20 or 30 years?

There are a tremendous number of policy questions about space. In

my portfolio, when I was back at the State Department, we certainly looked at space. We worked closely with NASA. We worked with the UN on several of the treaties that looked at the peaceful uses of outer space. We already are trying to deal with all of the debris in space—who is tracking it, who is responsible, and what happens in the event of collision or damage. But then when you move to the commercial piece, I do think that this is a whole new industry that is coming up. I think that NASA and our Department of Commerce (as well as others around the world) have to begin to think about this. I think they are beginning to think about it, but I think it is a whole new field. In terms of military, I think that has always been an issue where everyone has worked to avoid an arms race in space. I think that will continue to be done.

Are you worried about the fact that perhaps a nascent China or a nascent Indian space program might disturb the equilibrium that we have in space? How does their entry into what we might consider a new space race affect our own space policy?

It doesn't particularly worry me. It is just that the world gets more complicated as more and more countries begin to look at space as a place they want to be—for various reasons. But I believe that the international community has dealt with this sort of thing before and that it is just a question of giving it the time and attention that it needs to negotiate possible approaches or guidelines in sharing information in very positive, productive ways—and having mechanisms for challenging issues if there should be any kind of controversies or conflicts that come up as to what is good and what is the right thing to do and what is the wrong thing to do. There will need to be a way to address those.

Do you think that the recent tensions between the United States and Russia have affected our ability to cooperate in space?

I don't think they have affected our ability to cooperate in space. I think that what you are seeing, this is my opinion, the tension that we may see in some of the issues about a space program or a space collaboration with Russia has to do with the bigger problem related to the Ukraine. And so it is not so much a space problem as it is bilateral relationship problem because of some aggression that is fairly serious. I think that this will, hopefully, sort itself out as other situations begin to solve themselves.

So how do you think the "Ukraine situation" has affected our ability to cooperate with the Russians on issues of space? How is it affecting it and how will it do so in the future?

What has happened is that, clearly, the United States has put some

sanctions on Russia, as have other countries. We have made our positions very, very clear about what we think about this aggression to another sovereign nation and I think that, because of that, there are repercussions that affect other parts of the relationship. I think that is not surprising, given how concerning the situation in the Ukraine is. Hopefully, the sanctions and the pressure from the world community will change Russia's behavior somewhat and things will heal themselves and get back to a more positive space—but this is the nature of what happens when a country behaves this way toward another nation. The rest of the world reacts to say, "Wait a minute. This is not how things should be done. This is not appropriate." So it is not necessarily a space problem, it is a bilateral problem.

For a final, wrap-up question, what advice would you have for collegiate undergraduates who are curious about working for the State Department or going into science – perhaps do both? What would you tell them?

I think that I have been amazingly lucky and it is really exciting. When I started, I never expected that it would turn out to be so interesting and that I would be involved in important issues. So what would my advice be to undergraduates? Well, I think a couple of things. One is that I think you should really follow your curiosity. Really follow it, because you don't know where it is going to end up and I think Dartmouth is a fantastic place to do that. I have been able to meet and talk with students and they are enthusiastic and they have all kinds of opportunities and possibilities before them, in terms of programs or internships, and what not. So I would follow your curiosity. Enjoy what you are doing. Experiment. And if you are in the sciences, I think you should really look at your science from a lot of different perspectives. Not only the depth of the science, the particular discipline that you are in, and what you love about that, but also how it plays in the world and how it plays in your community.

I do think that, in our country, we need science to be more universal. Everywhere. We need science to be talked about so it is not seen as too hard, or only "over here," or that only certain people can understand it and certain people can't. I would say to follow your curiosity, have a lot of exciting adventures, experiment with what you like and don't like, and engage in the community and in the broader world. I think that a lot of Dartmouth students do that already – from what I have seen. I think that it must be a very exciting place to be and I think they are probably going to have a great time.

What's next? Where are you headed and what are you going to be up to in a year; 5 years; 10 years?

I left my position a few months ago and I took some time off to sort of re-balance my life because I was working extraordinarily long hours! Right now, I am just beginning. This is one of the first activities that I have done, where I have come out and begun to talk about what I had been doing before and look at it. What I have told my friends and what I will certainly tell you is that I am just beginning to look for what my next adventure will be. That is exactly how I think about it.