Steven B.: Good morning. So, today I have the privilege of telling you a bit of a story about Grand Challenges. What is Grand Challenges? How we measure our progress, or lack thereof, and what's exciting in our future.

[00:00:30] But I was asked actually to tell you a little bit about my personal story of how I got here to begin, and so what seems like yesterday, but I increasingly am aware was quite a long time ago, I was a physicist in Southern California, bouncing back and forth between the private sector and the academic sector. Working on an array of really wonderful and fascinating problems. In 96, I was given the opportunity to join the State Department as the Science and Technology Officer for South Asia, and there I was involved with a run

[00:01:00] up to the Kyoto climate change protocol, and was involved with the response to India's first nuclear test.

In 97, I joined [DARPA 00:01:04], and started a set of programs asking questions about how we could better understand the threat posed by weapons of mass destruction and the terrorism that could be associated with it. At that time, the archetype problem that we thought about was actually North Korea.

[00:01:30] In 2003, I went from DARPA to the Department of Homeland Security with the idea of trying to bring the magic that was received at DARPA to Homeland Security's problems, starting the Homeland Security's advanced projects agency with a cohort of others.

And then in late 2004, I was given the tremendous opportunity to join the Gates Foundation and take what I'd learned at DARPA, the mission-directed approach to sourcing innovated, to help inequity problems. And it's an interesting reflection on the conversation that started today that I've always actually seen those problems as

[00:02:00] intimately linked, and, perhaps to borrow a phrase, I see the work that we do trying to decrease the inequity in health challenges in the developing world as draining the swamp that drives the terrorism challenge that we face.

I was thinking this morning when I was coming to speak here about the two sides of that leisure, and when I joined DARPA in 97, North Korea was our archetype problem, and it seems at least reading the news that it is no less so today.

[00:02:30] But it's interesting to think on the health side of the agenda. When the millennium development goals were launched, 11 million children a year died before the age of five, and today it's under five million. So in the health and development side, the progress has really been quite extraordinary. And it's interesting to reflect on those two sides of the agenda.

[00:03:00] So let me turn now to Grand Challenges, but I want to start by saying something about innovation. For me, I have a very simple working definition of innovation. It is a new tool or a new approach to do something that I can't do today that I really want to be able to do, but equally it's a new tool or a new approach to do something I can do today but I'd like to be able to do better, cheaper, or faster.

So, I just do a quick thought experiment of what does that mean. I can think of the US

[00:03:30] government, which spends something on the order of $15 billion a year related to AIDS prevention and therapeutics, both domestically and overseas, and spends about a billion a year on research. And being an optimist, I see that billion a year ultimately leading to an HIV vaccine. And so imagine what you'll be able to do with an effective HIV vaccine in achieving more public good, but also how it might also release the $15 billion that's spent on therapeutics today for other purposes. So, for me, that's actually innovation.

[00:04:00] So, what is Grand Challenges? And this isn't working. Grand Challenges is a family of initiatives, and a network of partners, that seeks to engage ... One back, if you could. That seeks to engage the world's most creative minds to support high risk, high reward innovations, and to work to bring them to scale.

[00:04:30] But what is Grand Challenges really? And I guess I need next slide. It's really innovators and innovations. It's things like [Scott O'Neal's 00:04:42] eliminate Dengue project that is working on a transformational approach to vector control, and is in the late stages of demonstrating a new approach to actually limit the transmission of vector-borne diseases such as Dengue but also Zika. It's the ZanaAfrica Project that's creating a

[00:05:00] sustainable industry in Africa for menstrual hygiene products. It's things like [Clare Elwell's 00:05:05] project creating a new approach to measuring cognitive development in children, and it's things like the Odon device supported under saving lives at birth that's creating a new tool for assisting birth in low resource settings.

But Grand Challenges is also a network of partners, and this is a really interesting and exciting part of the story. It's the program at the Gates Foundation, but it's also the

[00:05:30] USAID's global development grand challenge. It's Grand Challenges Canada. It's Grand Challenges India, South Africa, Africa, Israel, Peru, and others. And what's really interesting and exciting about those programs is they're bringing a local lens to what are the right problems to solve, local resources, identifying local innovators, and creating local paths to impact.

So, let me pause for a second and take a step back from the perspective of actually

[00:06:00] having started at DARPA, tried to create a DARPA at Homeland Security, worked on Grand Challenges both at the Gates Foundation and other places, and asked, "What does it actually take for an organization to be good at this business?" And so it's an appetite for risk, and a tolerance for failure. It's patience. It's being involved in a network related to the problems that you care about, not just to understand the

[00:06:30] opportunity space of solutions, but, perhaps even more important, to better understand what are the problems that you really want to solve?

We found that a trusted brand is incredibly valuable, not only to attract new talent, but to create new sorts of partnerships that create new ways to solve problems. Engagement downstream is valuable, but often overlooked is actually the human capital in your organization. It's the program officer that brings, actually, a unique combination of strategic insight, commitment, and humility that can actually drive these programs,

[00:07:00] and then the resources and operational flexibility to be effective.

So, how do we score Grand Challenges at the Gates Foundation? When we first started asking ourselves that question, we came to what is sort of the obvious answer. It's lives

[00:07:30] saved, lives improved. When we thought about that a little bit more, we recognized that, in some ways, that would let us off the hook. That's such a long time frame that we wouldn't be held account. And so what we gravitated to was actually asking the question did an innovation that we identified and nurtured end up either in clinical development or otherwise on a path to scale with somebody else's resources? Either in terms of the foundation or other partners. And we thought this was a great metric in the sense that somebody else had decided that this new innovation was as good or better an opportunity they had.

[00:08:00] It's also important to note that there are a number of secondary benefits, or incidental benefits, that in the big picture, the long time frame, are probably equally important, and it's around learning and landscaping, scientific knowledge, capacity development, good ideas funded by others, awareness of our issues, and this partner network. And I can tell you we've done a fair bit of this scoring, and it's not always perfect, but largely we're pretty excited about what we've learned.

[00:08:30] So, what does the future hold? Well, we'll continue to nurture the innovations in our portfolio. We'll continue to work with and celebrate the set of partners that we have. We continue to see new challenge opportunities where this approach to solving problems is relevant, and we'll be launching new challenges in the future.

[00:09:00] But on a particular note, the Grand Challenges explorations program is celebrating its 10th birthday this year. And in that program alone, we've looked at 60,000 applications and funded about 1300 awards. And so over the next year, we're actually going to be taking a step back, taking stock of that program, and one of the things that I'm really excited for the coming year is coming back and reporting on the progress under that program.

Thank you very much.