

**CONVERSATION: INTELLIGENCE AND SECURITY PERSPECTIVES ON AGRICULTURE**

October 15, 2009 – 10:00 – 11:00 a.m.

**Ambassador Kenneth Quinn** – President, the World Food Prize Foundation

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This is the first time that we've ever endeavored to do this, to bring the perspective of the world of intelligence to look at the issues of global food security. Last year, in a meeting with Secretary of State Condoleezza Rice and Secretary of Defense Bob Gates, they said these are the issues that are becoming matters of national security.

Our moderator today was to be Joel Brinkley, the former Pulitzer Prize winning *New York Times* columnist and now a professor at Stanford. Joel called me a couple of days ago, and his father-in-law is seriously ill and near death, and he said he had to stay with his family. And I said, "You've got your priorities right."

But we have three marvelous members of this panel who are here and are going to carry on. I'm meeting them all for the first time today, but I feel that I know them. Mathew Burrows is at the National Intelligence Council with Admiral Blair. And a dear friend of mine, Tom Fingar, was there; Tom and I worked together at the State Department 15 years ago on prospects of looking ahead. And we wanted to do this, so I called Tom up, who's out at Stanford – everybody's gone to Stanford – and I said, "Tell me – who's the one person in the U.S. government to come and talk about looking ahead, trying to predict the issues of volatility, security?" And he said, "You've got to have Matt Burrows, because he's the one who has done the study, *Looking Ahead to 2025*. So I said, "I'm going to make the call."

And then I went over and looked at the Center for Naval Analysis, and I called Beth Jones who had been ambassador and assistant secretary. And they had this terrific panel of retired generals and admirals that had been headed by Tony Zinni, General Tony Zinni. And I called up and said, "Who can I have that can come and talk about this from that group?" And they gave me the name of Vice Admiral Dennis McGinn, and I called him late at night, and he said he's willing to come.

And then I called Dick Solomon, for whom I worked at the State Department [and] now is the president of the United States Institute of Peace, and I said, "I've got to have somebody who can talk about this." And he said, "The guy you want is Raymond Gilpin." So I called him and invited him, and they are here.

And I'm going to turn it over to Matt Burrows, and thank you all for being here, and the floor is yours.

**Mathew Burrows** – Counselor, National Intelligence Council

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Thank you very much for inviting me, and I'm sure all of us on this panel really are looking forward to sharing some of our ideas. I realize that this is kind of a hard – we're in a bad position, having to follow what is your real centerpiece, and I hope everybody will abide with us a little bit. We're going to be probably a lot less flashy, as most, at least on my side, government bureaucrats try to be, particularly in the intelligence world.

But we do want to share with you some of the perspective that Ambassador Quinn was just talking about, about how what we call the resource issues – and food is obviously one of the biggest ones – are now rising up to the top of the national priorities. And that has been, I think, a function partly of events; I mean, we can look at the 2008 food crisis. But also about our thinking and trying to think, at least at what we have done over the past eight years or so in the National Intelligence Council, try to cast our analytic vision out 15-20

years, in order to begin to think about those problems. You know, we're often called pessimists on this, but this isn't the real purpose of it – it's so that we can begin to tackle those problems early on.

We heard some talk in the first panel about problems that had lain around for 30 years without people doing much about it. Our hope, anyway, is when we identify these problems, is that policymakers will turn their attention to it and will take action now.

I thought we would begin by just three of us talking about specifically our work, and I'll turn first to Dr. Gilpin, who is, as Ambassador Quinn mentioned, the associate vice president and the director on the Sustainable Economic Centers of Innovation program at the U.S. Institute of Peace. Dr. Gilpin.

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**Raymond Gilpin** – Associate Vice President, U.S. Institute of Peace

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Thank you very much, and I'd like to add my voice to yours in thanking the World Food Prize Foundation for organizing what I hope, and we all hope, would be a landmark event in not just our understanding of hunger and how it affects security and global stability but also in our appreciation of the need for more investment into technology, into infrastructure, into capacity building, that will allow us to achieve these goals in very short order.

I work for the U.S. Institute of Peace, and since 1984 when we were founded, we have a very straightforward charter: we try to identify ways to resolve conflict and promote peace worldwide. And we look at peace and conflict resolution across the conflict spectrum, and so it involves a number of cross-cutting issues like food security.

These days when we think about food security, we are dazzled by the numbers. When I was growing up, a hundred was a big number; these days we think about trillions in terms of budget deficits, many billions in terms of bailouts, and billions in terms of world poverty and hunger. In some ways, that kind of desensitizes us to the human-security dimension of global hunger. And this hunger has implications, not just for human security but also for national and global security.

What I do in examining sustainable economic issues at the U.S. Institute of Peace hovers around a number of questions. But for the purposes of this particular meeting, there's two questions I'd like to focus on.

The first is: Could we realistically hope for world peace if a significant proportion of mankind is hungry and continues to go hungry?

And the second question is: How could we expect to understand and resolve conflict if we are unable to have initiatives and interventions that prevent violent competition for access to food and the means of production, particularly land and water?

These two questions speak to an underlying tension between food production and hunger on the one side and conflict prevention and peacemaking on the other. Many would ask, "Is there a strong causal relationship between the two?" I believe that the many international accolades that were bestowed upon, and continue to be bestowed upon, Norman Borlaug speak to this close causal relationship.

There are many things that we could learn from the recent and ongoing food crisis. I would like to speak very briefly about how our work illuminates two of those. The first is the impact of the crisis on households. The second is, how do governments and non-governmental organizations respond to the crisis? And to what extent have these responses sown the seeds for future conflict?

We're all familiar with the numbers, and we know how the food crisis led to higher food prices, but we don't really take time to understand how those higher food prices ratcheted up domestic spending, particularly among the poor, and led not just to income poverty in rural areas, but asset poverty. The asset poverty made

it impossible for most of the households to remain in the rural areas and led to mass migration out of the breadbaskets of most countries.

This not only accentuated poverty but also made it a lot more difficult for these countries to have prospects for being able to feed themselves in the outer years. Aligned with this migration is the fact that displacement of population in itself constitutes a human-security challenge. So these are issues directly related to food prices and hunger that countries need to be able to deal with in order to address their human- and national-security challenges.

A second dimension of the domestic crisis – how food prices themselves led to riots. We know that last year the number of riots; in many countries people lost their lives. But it was quite interesting how it was easy, relatively easy for most governments to quell these riots, because they blamed it on a global phenomenon: rising commodity prices. This will be a lot more difficult in the outer years, when the seeds of the bad policy responses that some countries adopted come back to roost. Because then it will become a real national problem and will have a lot more tension – and, we hope not, but more likely there will be violence associated with the competition for these resources, and which will take political coloring. And for those reasons, the household implications of the food crisis are important.

But what did governments do? Some governments adopted postures that were protectionist, which cut global supplies and caused prices to spike. Others had domestic responses that are costly, like subsidies and tax and income policies that would probably in outer years become significant fiscal burdens. These issues are also things that really need to be addressed if the national security that I mentioned, the food security, is going to be resolved.

But just quickly, pointing to some non-governmental responses. From a nongovernmental response, we see that a number of commercial investors turned their attention to large-scale food production, large-scale agricultural production, which lent itself to what a lot of literature is now calling “land grabbing.” And this land grabbing could result in a lot of smallholders being dispossessed, being crowded out of the markets, and being displaced. That in itself is another potential seed of conflict and violence in the outer years.

For these reasons, I think it is our work at the institute, and I think our focus here, should be on ways to be a lot more conflict-sensitive in our approaches to global hunger, such that in responding to events we don’t create more problem for the outer years than we have right now.

### **Mathew Burrows**

Could I just follow up – before turning to Admiral McGinn on his study – just ask you there: you pointed out governments taking these ill-advised moves; how do we prevent that? Is there some sort of, you know, country-by-country trying to educate leaders on the longer-term consequences of these measures? Or is there some broader global policy move that we should be taking in order to avoid this?

I mean, certainly we talk about the food crisis in ’08, [but] from our analysis we see that happening out, you know, because of some longer-term trends that are going to continue to put pressure on prices. So it’s not as if this is going to be a one-off event, in any case; actually, to try to prevent that in the future is a very important goal.

### **Raymond Gilpin**

I absolutely agree. As I mentioned earlier, this is an ongoing crisis; it is not a one-off. Addressing it requires a coordinated and comprehensive approach. I know those terms are a little hackneyed, but they are really appropriate. And that is because the problems of global hunger are very complex. They’re linked to political, they’re linked to social, they’re linked to technological and economic issues.

Knee-jerk fiscal responses might grant you a very, very temporary reprieve. But if we don't have an initiative that not only provides some temporary reprieve but that starts laying the foundation for sustainable increases in productivity, improving market access, improving affordability and making sure that the infrastructure that is necessary to connect production to market is available and functioning – we're going to see the kind of problems that I mentioned.

But also in the globalized trading environment in which we all operate, there's a role for the international community, a very strong role for the international community. I know Frances Stewart said we've had many opportunities in the past, but I like to see the glass as being half-full. And I think that this is a unique opportunity where we could hold the G8 to account.

L'Aquila is a very bold step; the \$20-22 billion that has been pledged is important. But as Bill Gates rightly pointed out, we need to ask them – How much of that is new money? When is it going to be disbursed? Where will it be targeted? And how effective will it be? And how could we, as private citizens, measure that progress? And I think that bringing them into the picture is good, but it has to be a participatory and inclusive process to ensure that we do reach the end stage that we desire.

### **Mathew Burrows**

Well, thank you. Now I'm going to turn to Admiral McGinn and ask him about his work at the Center for Naval Analysis. It's actually a place that the National Intelligence Council works very closely with on a lot of these resource issues, so we know certainly about your excellent work, but I hope that you could share a little bit with the audience about what you do.

### **Vice Admiral Dennis McGinn – United States Navy (retired)**

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Thank you. I'd like to add my sense of honor and privilege to be part of this Borlaug Dialogue and this wonderful forum called the World Food Prize. I want to eventually, in this conversation, get to what I would describe as a very, very significant opportunity for all of us as an international community. But in order to get there, we have to unwrap that gift of opportunity with a couple of daunting challenges.

I am part of the Military Advisory Board of CNA, a nonprofit analysis group in Washington that put out two reports: one in 2007 called, "National Security and the Threat of Climate Change," and another in May of this year called, "Powering America's Defense: Energy and the Risks to National Security." And I would extend it – for this group, especially; while we talked about it in the context of U.S. national security, effectively you could substitute the phrase "international security."

The Military Advisory Board is a group of about 12 retired three- and four-star officers from all of the U.S. military services. We came together from different backgrounds, different specialties, different opinions and senses, based on our experience, of what climate change really was. We recognized early on that we were not climate scientists, nor did we want particularly to engage in the debates that are ongoing. So we took the approach to try to remain above the fray – especially at that time in 2006 and 2007 – that, with regards to climate change, we never have 100 percent certainty. If you wait for 100 percent certainty on the battlefield, something bad is going to happen. So let's look at indicators, warnings, and trends.

And it became clear, over the course of the study, that the trends and indicators and warnings were quite clear – that something was happening significant to our climate. And since that report came out in April 2007, additional studies have reinforced the notion that not only is climate change happening but, increasingly, the evidence is there that the economic activity of mankind is contributing significantly to that, and we need to do something about it.

The key conclusions from the 2007 report, "National Security and the Threat of Climate Change," was that the effects of climate change – be they prolonged drought; too much water in the form of torrential rains or

typhoons, hurricanes in this hemisphere; the disease factors; loss of shelter; loss of food production capability due to the effects of the weather; perhaps significant rising sea level; certainly rising temperatures, not only of the air and land but of water as well, the earth's ocean – the effects of those were going to act as a threat multiplier on instability in critical regions of the world.

Now, “threat multiplier” is a military type of phrase, and what it means to me is simply, if you take a look around the world today as we know it, there exist longstanding – I'll describe them as fault lines. Fault lines, tension along political, ethnic, religious, economic lines that exist and in some cases have ongoing conflict. We don't have to look very far around the world to find competition, conflict, and significant human suffering as a result of these fault lines.

If you take the effects of climate change and you put that magnifying glass on there, you can anticipate that the intensity of these fault lines, the duration, the frequency, are all going to increase. It will place pressure on social structures and governments that will cause, in many cases, fragile governments with this additional pressure to become failed governments. Into this vacuum of power that failed governments represent will rush people with extreme ideas about what the solutions should be. And you have a recipe for internal and external mischief in the form of, for example, terrorism.

Another key conclusion from the April 2007 report was that climate change, energy, and national or international security are inextricably linked – and that you really can't develop viable, sustainable solutions to any one of those without carefully considering, in a comprehensive way, the effects on those other factors.

So in May of this year we produced that second report, “Powering America's Defense: Energy and the Risks to National Security,” and the key conclusions from that study were that our energy posture – in the United States certainly, and for the most part around the world – constitutes a serious and urgent threat to national security militarily, diplomatically, and economically.

And the evidence is there. 2008, for example – we talked about the world food shortages and riots that ensued; in the energy world, it was tremendously volatile prices pressuring up, in U.S. terms, the price of a barrel of oil, for example, over the past year at a high of \$140 a barrel to a low of about \$40; it's somewhere around \$70 to \$75 today.

The fact [is] that we cannot continue for the foreseeable future relying on not just – for the United States – imported oil but all oil, and not just oil but all fossil fuels to provide us the energy security that will provide the necessary means to continue economic growth and sustaining and improving of quality of life for people around the world.

So these are daunting challenges. They constitute scenarios – I'll give you a couple that we discussed. One, for example, would be the effect of not enough water in critical regions of the world. Right now, in the Middle East, [there's] about 6 percent of the world's population, 2 percent of potable water. And there are mechanisms in place now that allow a fairly decent inter-government management of this critical water supply. But if you add the effects of drought, the long drought, or in some cases overlaying on significant political factors and religious factors, you have a recipe for some very, very significant instability in an area that is known for strife and conflict over really the millennia.

In South Asia, for example, and it was mentioned this morning, we have a country called Bangladesh that has been ravaged over the years by typhoons coming from the Bay of Bengal. These have the effect of inundating coastal croplands and coastal fisheries with surges from the typhoons and have knocked out at least one growing season's worth of food supply.

In 1991, right after the first Gulf War, the U.S. military was called upon to conduct a massive humanitarian-assistance/disaster-relief operation called “Sea Angel” to literally feed and provide water and provide essential medical attention to tens of thousands, perhaps hundreds of thousands, of people who were left devastated by one of these typhoons.

If you project into the future, because of the effects of climate change and global warming, you can imagine that the typhoons would be greater. There could be an effect of the sea-level rise; I personally don't worry as much about that in the near term as I do the increase in temperature of the oceans. Increased temperature of the ocean equals much more intense and much more frequent storms. And in the case of Bangladesh, these storms could wipe out not just one growing season worth of food supply but for, literally, years.

You would then have tremendous pressure – not just on the world community, the international community, to respond in humanitarian-assistance/disaster-relief operation – but, recognizing that with millions of people affected over a period of months, perhaps years, there's going to be tremendous pressure for mass migration, probably to the northwest towards India. And the lines of tension that exist there today would be greatly exacerbated. The scale of human suffering, the scale of potential for greater instability, would be enormous.

Also in South Asia, in the Hindu Kush, we are seeing a retreat of glaciers, as we are literally in every continent of the world. In North America, the U.S. Geological Survey just put out a 50-year study on the shrinkage of glaciers in North America, including Alaska. It's happening in the Andes in South America. It's happening in Europe in the Alps. And it is happening in the Himalayas. The Himalayas and their glaciers act as a huge water reservoir. They have a very, very beneficial effect on capturing a lot of the water that falls in that part of the world, and storing it, so that you don't have torrential floods rushing down four key rivers – the Ganges, the Indus, the Yellow and Yangtze on the China side of the Himalayas. They act as a buffer, in fact. And additionally, as the temperatures increase and the glacier, snow and ice melt, they provide a relatively reliable source of critical water for agriculture in all of those nations.

With predictions of climate change and shrinkage of the Himalayan glaciers, you can get a scenario in which the water in the rivers becomes seasonal. Imagine what this will do to the ability to produce reliable crops, to use water for all of the human needs of literally tens of millions of people in that critical area of the world – which, oh, by the way, like many areas of the world, has a history of existing tensions. Once again, a magnifying effect, a threat magnifier for instability in a very, very critical area of the world.

So the energy aspect of this has twofold dimensions. One is that our use of energy, primarily based on fossil fuel across the globe, and growing demand will create more greenhouse gases and accelerate the effects and magnify the effects of climate change. On the other end of it, if we continue to rely exclusively on non-sustainable, fossil-fuel-based sources of energy, we will have greatly increased competition, which will eventually lead to conflict over these critical and dwindling supplies.

So there are the daunting challenges. The opportunity lies in the fact that global climate change is affecting the commons of our Earth, and we have a common enemy. And when you have a common enemy, it tends to bring people together, bring nations together – or it certainly can, if it's managed well, do that.

And we have the opportunity to cooperate in ways in which we can prevent, mitigate, and adapt to the effects of climate change – which will create relationships and create processes by which we can address other challenges that, perhaps, haven't had those relationships and those policies, because of looking backwards in time and thinking about the causes of problems in the past, rather than the fact that [now] we look to the future, we have daunting challenges that we have the ability to do something about as a global community.

### **Mathew Burrows**

Thanks. I wanted to follow up just on the issue of national security, which I think all of us were in agreement about, that food, the food crisis, other resource issues are now center-stage in national-security thinking. How is that beginning to change the military in their actions and their thinking? Perhaps you can say a few words about that.

### **Dennis McGinn**

Just yesterday I spoke at what was called the Naval Energy Forum in Washington. This was convened by the secretary of the Navy, the chief of naval operations, and the commandant of the Marine Corps – the two services that constitute the Department of the Navy – to take a look at what the energy challenges and energy opportunities were for the Department of the Navy in a climate-change, carbon-constrained world.

They took the approach that you can't look at just one aspect, energy security, without considering climate change and its effects on international stability.

In August, the commandant of the Marine Corps held an energy summit – first ever in Washington – for the Marine Corps. Basically the focus was, how can we lighten the expeditionary load for our marines and soldiers in places like Afghanistan, so that we don't have to be as reliant on the long and vulnerable fuel convoys that we paid such a dear price for in real money terms but more importantly, in lives and wounded soldiers, sailors, airmen, and marines? And he caused an energy-audit team to be deployed to the combat zone in Afghanistan and make recommendations about how the U.S. military, the U.S. Marine Corps, can go about its mission in a different way.

At the very top national strategic level, the Department of Defense and the Central Intelligence Agency are very, very credible, conservative organizations that have established core organizations that are addressing climate change and the potential solutions to deal with this in the context of energy security as well.

So let me give you a future scenario. As the U.S. military changes its focus and reliance on fossil fuel – and this will take decades, literally, but it is already starting – and we start relying more and more on sustainable energy – for example, solar, wind, hydropower, biomass, other means of meeting the needs of energy – not just in bases and stations and installations here in the United States but in areas in which we operate, we are going to create an opportunity to bring electricity, in the form of renewable energy, in places where there isn't any or there isn't much.

As the operations conclude and the military goals are met, working with nongovernmental organizations, working with the governments of the nations in which the military would operate in cooperation, we'd be able to leave behind a footprint of electricity that would improve the preservation of medicine, the preservation of food, and, in my view, most importantly, would allow the production of water either from wells or the production and purification of existing water – using this sustainable, renewable energy that is left behind, this means of producing energy.

And where you have electricity you have, in these days, knowledge, through access to the Web. And where you have electricity, you can have water. And [where] you have water, you have agriculture. It can literally make a huge contribution – just, in the military sense, working in a civic way – to addressing some of the problems of poverty and starvation that we see around the world.

## **Mathew Burrows**

I'll use my prerogative here and talk a little bit about what I think maybe you may not realize. I mean, I think it's no happenstance that you have an intelligence person, myself, flanked by two people from what we would call the think-tank world in Washington. Particularly on this issue – and this gets to some of the points that were talked about earlier today, about a public-private partnership – in the intelligence world, I mean, we are trying to ramp up our focus on the resource issues. And one of the reasons for doing the study that Ambassador Quinn mentioned at the very beginning that NIC does every four years – the global trends work; it's on the Web; you can look it up under the DNI, it's unclassified – is to actually engage with the expert community.

The reason for doing it unclassified is not only that but also because, increasingly, our flow of information and intelligence comes from think tanks, from engaging ourselves with experts overseas. I mean, there is nothing particularly secretive about a lot of these issues that we're talking about; we don't collect a lot of secrets, per se, on most of them, particularly when we're looking out 15-20 years.

But establishing this web, which would include about everybody here, in thinking about these problems and trying to think out, as Admiral McGinn was just saying, about different scenarios, which we put a lot of effort into – that really depends upon the public-private partnership.

I want to turn back to Dr. Gilpin and ask him what he sees as the... If you had the President's ear... – sometimes in the intelligence community, if you're going on an elevator, a fairly fast-speed elevator up and you have about 30 seconds to tell the President something – what would it be on this issue of the food crisis? What does he need to really focus on? What steps does the government really need to focus on?

### **Raymond Gilpin**

Elevator speech would be two things: productivity and market access. Those are two critical things, I believe, when you're thinking about world hunger.

But before I talk about that, I'd just like to comment on – you're a little provocative. The Admiral mentioned climate change as a “common enemy.” And having taught at the National Defense University for three and a half years, I'm not really good but reasonably comfortable with a lot of the military-strategy talk. But I think that it's a misnomer because, for many people, I don't think we've thought deeply enough about how or whether or not climate change is a common enemy. Because for the farmer in Southeast Asia who has to feed his or her family, cutting down trees to plant food is a survival issue, but then is a climate-change issue. For a small producer in a village in Africa, wanting to generate some electricity for his or her crop, his or her farm, to do some processing, running a polluting generator is a survival issue, not necessarily a climate-change issue.

My point is that, while we focus on a lot of the negative impacts of climate change, I think it's also important to be able to contextualize it in a manner that provides alternatives for people. So when we remove the polluting technology, we should make it a lot more affordable and easier for less-polluting technology to be available at the farm-gate level. And ditto, deforestation and other aspects of global warming. Because I think that quite often, as I mentioned earlier – because we usually think of these things in aggregated terms – we lose sense of what's happening at the household and the personal level.

Another thing that Bill Gates said was that the small farmer is not a problem; he's part of the solution. Last year, I spent a while in the Ambassador's country, the Democratic Republic of Congo, doing a survey of 1,000 small businesses in the northeast and the south. And it's amazing to see how adaptable they have become in very trying circumstances. I think the same could be said for food farmers worldwide; that, granted the opportunity, granted the access to technology, and granted the possibility of free and fair trade in the global environment, they're able to rise to the challenge.

And so my two points to the President would be, one, let's have sustained and targeted engagement; and secondly, let's make sure that the trade aspect is corrected. Because there's a lot that we could do at the global level to make it easier for countries to trade. We generally think about assistance being dropped in, but if we are able to empower a lot of the communities and individuals, they would be able to feed themselves. I don't think it's so much about “millions fed,” but it's about millions being able to feed themselves. That's what we really want to do.

### **Mathew Burrows**

Dennis, did you want to talk a little bit about climate change, not only as a challenge but maybe an opportunity?

### **Dennis McGinn**

Yes. In terms of climate change representing a common enemy, I'm reminded of another time in this nation's history when we were surrounded by a daunting challenge and tried to seize opportunity from it. And one of

our great leaders, Benjamin Franklin, said, “We must hang together; for if we don’t, surely we will hang separately.”

And Mother Nature doesn’t care about politics, doesn’t care about public-private partnerships. Mother Nature is going to do what Mother Nature is going to do. It is up to us that care more about what Mother Nature does and how we can create an environment in which, really, sustainability is the organizing principle. And sustainability not just at the supra-government level but, as Dr. Gilpin says, right down to the individual farmer, or individual in a large urban setting.

We need to use large organizations and rich governments to help provide the tools to do that. But we need to break this paradigm that we’ve been living with since 1854 in this country, when oil was discovered in Pennsylvania, that the only way that you can get economic growth and improve your quality of life is through using fossil fuel. We cannot sustain that.

So what can we do? We can move – with new tools and new processes, new cultural outlooks – to a higher quality of life, eradication of hunger and poverty, using a different approach that focuses on that key word, sustainability: sustainable energy production, sustainable farming.

A couple of examples of this would be that, if we were to go back to the end of the Cold War, and the Eastern Europe to the West and the Warsaw Pact, those countries wanted to have a world-class telecommunications capability. What they could have done is what had been done in Western Europe and in the United States and other places in the developed world and simply strung lots of telephone poles and copper wire and gotten this wonderful world-class telecommunications capability just the way that we did. But they didn’t, because there were better technological tools available, called “wireless.” They achieved in a very, very short period of time a world-class ability to communicate with all the benefits, with the productivity and quality of life, that accrued from that.

And I think the same thing can be done by providing the right kind of technology for sustainable energy and all of the benefits that accrue from having affordable, sustainable, clean, renewable energy that I mentioned before in the context of water and food production.

So we do need to appreciate, at the very, very bottom structure of our societies, what the effect will be in these large changes. How can our solutions not just affect what we traditionally call international security, but how can they affect in every positive way possible, government-to-government, public-private sector engagement, working with NGOs, military-to-military?

And militaries of the nations of our world have a couple of very, very key characteristics. They tend to be fairly well organized; they can be directed in very short periods of time for good or not so good; and they have the capacity to do things that take longer to do with other types of organizations. We can use those attributes in working military-to-military in positive ways, in working with NGOs, in working at the political level to create the kinds of technological tools, processes, and relationships that can, in fact, turn what is a common set of challenges into real cooperation across a whole host of issues.

## **Mathew Burrows**

I want to open up the questioning to the audience. So I’ll make one last comment and also invite some statements, further statements on this issue. I think this is actually a quite critical issue. Whether it’s climate change is a challenge or opportunity, or will turn out to be a challenge or opportunity, I am not as sanguine in our study on getting technology in place as fast as we need it. So that will be one problem.

The other, which Dr. Gilpin alluded to at the very beginning, is that the tendency is – particularly on issues like food, water and other vital resource issues – to put up a protection of barriers, in an effort to get through the short term, even though that oftentimes undermines your position over the longer run. So what we could

face is much more a world of competition over resources, a very ugly one, and we have to realize that in order to avoid it.

So that would be my – if I were going up in the elevator with the President – my pitch. I think I saw a questioner there.

### **Question**

Good morning, Peg Armstrong-Gustafson. My company is Amson Technology, and I work in greenhouse gases, United Nations clean development mechanism, and agriculture. First, a comment to Vice Admiral McGinn. I've read both of your documents – 2009 was insightful and provocative, but I believe 2007 was both courageous and transformational, given the administration's attitude towards climate change. So thank you very much.

To the panel: If we believe that climate change has an implication, and food security has an implication, to national and international security, what would each of you say to the negotiators for the United States at the upcoming meeting of the COP15, in Copenhagen? What should they go there hoping to accomplish as getting agreement done? What should they acquiesce to? And then what should they walk away from the table on?

### **Dennis McGinn**

I would start before we get to Copenhagen with the U.S. Congress and say, "Pass legislation that puts a price on carbon." Let's get on with it. And it will accelerate the change; it will accelerate the transformation to a new energy economy, with all of the benefits that accrue, with a tremendous ability to, in some way, at least mitigate the effects of climate change that are already underway.

At Copenhagen, my advice would be, let's be a true international leader and an international partner at the same time, in the same way that President Obama talked about climate change when he addressed the UN General Assembly several weeks ago. We need to lead as the world's largest economy and the world's largest user of fossil fuel. But we need to lead with the sense that it must be a cooperative effort.

And I think as important as Copenhagen is, we're not going to get all the answers, we're not going to come away with an international agreement there. But we've got to set a much, much better and positive framework across key national lines – especially the world's largest greenhouse-gas producers with, oh, by the way, the largest economies, that can in fact address this.

### **Raymond Gilpin**

What I would say is that – I would echo the point about being a true international partner, and that is difficult because foreign assistance is a political instrument in itself. But what we should do is recognize our shared interest and our shared humanity, because climate change affects us all; it's going to have indications for both rich and poor countries. But it's going to cost the poorer countries, who are the largest polluters, a lot more to come up to speed than the richer countries. So in terms of acquiescing, I think there should be some acquiescing as far as some accommodation for the poorer and more fragile countries to have assistance to increase the uptake of cleaner technology, and also to be able to make the transition away from the most harmful paths.

And what should we walk away with? I agree that we're not going to walk away with a water-tight agreement, but we should walk away with a commitment and an end-state insight, an end-state where we understand it's going to take time, but we are very mindful of the steps that we all need to take along the way, and the commitment to follow through on those steps.

## **Mathew Burrows**

I just emphasize the point about transfer of technology to poor and developing states. I mean, I think that will be key. I think this is something that in the developed world, which the United States is a part of, is going to be hard for us to get over that concept, in part because this means changing IPR and other issues to allow this effect of transfer.

## **Dennis McGinn**

I'd like to just say in follow up: as humans, I guess we're fearful or apprehensive about change. That's part of who we are as people. But I think we need to start thinking more about not the costs, if you will, of transforming our economies from fossil-fuel dependent to a much cleaner and sustainable type of economy, in positive ways that aren't as fearful.

There was a quote that has been attributed to a former minister of oil in Saudi Arabia who said, "The Stone Age ended before we ran out of stones." And the implication there is the age of fossil fuel should end before we run out of fossil fuel. We can manage that transformation by the right kinds of national and international regimens and policies that will incentivize people and nations to transform to a more sustainable type of economy and the energy forms and the energy efficiency that is so necessary to do that.

## **Mathew Burrows**

Why don't we go on to the next question?

## **Question**

Yes. Admiral, my name is Lang Deng. You mentioned the Himalaya Mountains, the water flooding and the shortage. To me the Himalaya Mountains is the water tower of Asia. It feeds, from Bangladesh, India, Pakistan to China, close to 3 billion people. And you mentioned, because of global warming, under the meltdown of the glaciers, some rivers are becoming seasonal. This really happened – the second-longest river, the Yellow River, in China in 1997 [for] over 226 days stopped running.

So with the economy developing quickly in India, in China, water demand is increasing, but with global warming, the supply is decreasing. Does the U.S. Navy have any assessment or data about the impact to the Himalaya Mountain watershed area in the world in the future?

## **Dennis McGinn**

I don't have any particular insight about the detailed impacts, just that I think you've outlined the problem very, very well. And I think that in a prevention way, we've got to try to stop global warming to the extent, the earliest possible time, that we can without completely ruining the continued progress of economies and quality of life.

In the mitigation sense and adaptation sense, we need to consider ways in which we can use the water that is supplied by these key international rivers in a most effective and efficient way and also develop ways of, perhaps, rain capture or other means of water production to meet those needs. So that if it is inevitable that these will become seasonal rivers, or torrential floods after rainy seasons, that we can accommodate them through civil-works projects and other means of managing water resources.

## **Mathew Burrows**

Thanks. I want to take the two gentlemen behind you. Why don't you, since we're running out of time, just state your, or tell us your question quickly and we'll answer them collectively.

### **Question**

Just wondering if the competition between narcotic crops and food crops is an issue that we should be concerned about in Central Asia, the Horn of Africa, and Latin America.

### **Mathew Burrows**

Okay, and the gentleman behind you.

### **Question**

Yes. Admiral McGinn mentioned the extensive, advanced research that's being done in the Defense Department through DARPA through distributed renewable-energy systems. I'd like to know what he thinks we need to do to make sure that the technologies that result from that research are not subject to export and licensing restrictions as a national-security technology, but as a technology that would be rapidly made available for the developing world.

### **Mathew Burrows**

Okay. Dr. Gilpin, do you want to take a stab at either of those questions, or both of them?

### **Raymond Gilpin**

Just a quick stab at the first question since we are out of time: yes, not just narcotics but also biofuels. Everything that detracts from food production is something we should be concerned about – not fearful of, but we should have strategies in place to ensure that food production is not adversely affected.

And just as a quick wrap-up before I yield the microphone, I think that this year's Borlaug Dialogue is really unique, and I hope that it sets the stage for moving the food debate away from what I call the "CNN effect" – you see it on CNN and you forget it tomorrow. It requires a sustained effort.

Between 1980 and 2007, [in] overseas development assistance to poor countries, the proportion that went to agriculture fell from 17 percent to less than 4 percent by 2007. We need to ramp that up again, and we need to get more sustained effort and more meaningful engagement across the globe.

### **Mathew Burrows**

Well said. Admiral, just quickly on the second question that we had there.

### **Dennis McGinn**

The question was on Department of Defense-developed technology – how can we get it out there, distribute it, without being fettered by some of the international trade regulations?

DARPA – the Defense Advance Research Projects Agency – developed the Internet and developed global positioning system. Think about what those two inventions have done, those two bits of technology, to literally transform the way we operate as individuals, as businesses, as nations.

We need to have, for any type of sustainable energy or energy-efficiency technologies that are developed by any part of the government – DOE or Defense or other parts – we need to get that type of impact. But we need to do it not in many, many decades, as it took the Internet or GPS, but much, much more quickly, and remove the barriers to doing that. Because it is in all of our interest to have these types of tools in hands of people where it will do the most good.

**Mathew Burrows**

Well, thanks to the panel. And for myself, I mean, this has been a very stimulating discussion, and I thank you again for the opportunity of talking about how government and think tanks are trying to deal with the issue and make sure that it does remain right up there and not become prey to the CNN effect.

**Kenneth Quinn**

Well, thank you. Join with me in thanking the panel. I didn't realize that coming after Bill Gates, what a difficult assignment this was going to be. But this was very, very thoughtful and a little scary, I have to say.

Dr. Burrows, when you were talking about the elevator memos reminded me of my time in the government. I worked at the NSC, and we had the PDB – the President's daily brief. Are we to the point now where there may be some intelligence items and summaries coming from the intelligence community or going over to the SecDef or to the chief of naval operations about these kinds of issues?

**Mathew Burrows**

Yeah, just underlying that point, I mean, there's a lot of interest by this administration in these issues. I, along with Tom Fingar, briefed the President on our report, which we, as I said, put a lot of emphasis on this as a needed priority for government. And we continue to do a lot of other assessments and shorter pieces on the various interconnections between food, water, climate, and energy.

**Kenneth Quinn**

Well, this is a unique moment when we have a Secretary of Defense who was head of the CIA but also president of Texas A&M University, where Dr. Borlaug taught for 23 years and where Bob Gates, one of his proud accomplishments was putting the security around Dr. Borlaug's parking space at Kyle Field so that he had access to get up to watch all the A&M football games.

Join me in thanking once again our panel.