THE BROOKINGS INSTITUTION

DEVASTATION IN JAPAN:
THE AFTERMATH AND IMPLICATIONS OF
THE WORLD'S FIFTH LARGEST EARTHQUAKE

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P R O C E E D I N G S

MR. TALBOTT: Good afternoon, everybody. I'm Strobe Talbott and I'd like to welcome you all and thank you for being here this afternoon.

Like pretty much all of the gatherings that we have here in the Brookings auditorium, today's panel is intended to give us a chance to discuss a major event that's both in the headlines and of course very much on our minds, and also to discuss the challenges that this event poses to our political leaders, to their ingenuity, their fortitude and their wisdom.

But today's event actually goes beyond that. It gives everyone in this room and everyone who is watching on television or listening on the radio or following the proceedings on the web a chance to inform and intensify our compassion for the brave and grievously stricken people of Japan. The Japanese people and the Japanese government are very ably represented in the United States by Ambassador Ichiro Fujisaki. He is a very close friend of a number of us here in this room and that makes it all the more fitting that he should be representing a country that is a close friend and partner and ally of the United States.

I think that all of you can imagine what the last week has been like for Ambassador Fujisaki, for his wife and for their family. He has been working literally around the clock with numerous agencies of the

United States government to coordinate as much as possible the American and international support for the Japanese people. He is continuing that important work today and we are all very grateful to him for taking just a very minutes out of that very busy schedule in order to be with us to make a brief opening statement.

I want to stress that because of the urgent, onerous and important work that he doing, he can only be with us for a few minutes. So after he speaks I'm going to ask all of you please to keep in your seats. You have a very good panel to listen to after he leaves. And this message is directed particularly to our friends in the media in the back of the room. I don't want to see anybody do anything that will impede his departure given his busy program for this afternoon so I will accompany him out after we have a chance to hear from Ambassador Fujisaki. Mr. Ambassador, the lectern is yours.

AMBASSADOR FUJISAKI: Thank you very much, everyone, and thank you very much especially Strobe Talbott for offering me this opportunity.

Yes, this has been unprecedented and never experienced a natural disaster accident that we have experienced. There was an earthquake, tsunami and this nuclear accident as well. We are now engaged in search and rescue. We are now engaging in supplying basic human needs to people, food, water, shelter, blankets and all of those things which you need every day. We are trying to cope with this nuclear

reactor situation. I do not want to prejudge the situation now, but what I can say is we are trying our best and we are very grateful to the United States for the support you are giving to us. President Obama was in my embassy signing the condolence book and made a statement in the Rose Garden and he made a telephone call to Prime Minister Kan. He said the U.S. will do everything it can. The American people are sending us a lot of assistance through the Red Cross, NGOs and other channels and you are sending your sympathy, expressing your friendship to us.

Your forces in Japan and the Pacific Fleet are heroically engaging in rescue and transporting goods to the affected areas. Your experts are working with our nuclear experts as well. We are working as Strobe said in Washington as well as in Tokyo every hour to try to come to a better solution. It's not an easy situation but as President Obama and Prime Minister Kan said, we should overcome this situation and we will overcome this situation. Again we are grateful to the American people for your solidarity and being with us at this very difficult moment. I thank you very much.

MR. INDYK: Good afternoon, ladies and gentlemen and welcome to Brookings. I am Martin Indyk, the vice president and director of the Foreign Policy Program at Brookings. I want to add my words of sympathy and condolence to the Japanese people on this occasion of such horrendous disasters.

With me on the panel this afternoon are four Brookings

scholars, each of them with expertise in the issues that are on so many of our minds as we watch the horror show unfold on our television screens. To my right here is Richard Bush who is the Director of the Center for Northeast Asian Policy Studies in the Foreign Policy Program at Brookings. He has a distinguished career in government serving on the Hill and then as National Intelligence Officer for East Asia, then as the director of the American Institute in Taiwan which handles America's diplomatic relations with Taiwan, and then as the director of CNAPS as we call it. He is the author of many books on East Asia. His latest book which came out just a few months ago is called *The Perils of Proximity: China-Japan Security Relations*.

Next to him is Barry Bosworth, a senior fellow in the Economic Studies Program and the Global Economy and Development Program and the Robert V. Roosa Chair in International Economics here at Brookings. His research focuses on the determinants of economic growth in developing countries and he is the author of many studies in this area. He was the director of the President's Council on Wage and Price Stability back in the 1970s and has taught at Berkeley and at Harvard.

Next to him is Beth Ferris, the director of our Internally Displaced Project that focuses on humanitarian affairs and particularly the impact of natural disasters. Her latest book is *The Politics of Protection: The Limits of Humanitarian Action*. Finally, on the far right is Charlie Ebinger, the director of our Energy Security Initiative who is an expert in a

whole range of energy issues in South and East Asia, and in particular an expert on nuclear energy issues.

I wanted to start first by having a bit of a conversation between the panelists and then we'll go to your questions. I'm sure you have many questions. I thought I'd start first with Beth and ask you to give us a sense of the nature of the natural side of this disaster, that is of course the earthquake and the tsunami, what impact it has had on the Japanese people in particular the issue of displacement which seems to loom so large, and perhaps you can put it into some kind of comparative perspective for us so that we get a sense of just how much of a disaster this is.

MS. FERRIS: Thank you. I'm sure that many of you like all of us have been following the TV images relentlessly, the stories of the earthquake followed by the tsunami, the story of people forced to leave their homes, people killed or missing, a very brave and valiant rescue mission seeking to rescue people. The numbers are daunting. As of this morning there were about close to 7,000 confirmed dead and over 10,000 missing. We expect those figures to go higher. They always do. About 400,000 people have been displaced or evacuated living in 2,000+ evacuation centers. There are millions without water. Electricity is being restored, but there are still over a million people without electricity, a situation with serious humanitarian remaining even for a rich and competent government with very high capacity. In comparison, a country

like Haiti which experienced a less-severe earthquake in January of last year had 300,000 casualties and 3 million people who were directly affected.

Relief in Japan even with a strong government and strong civil-society capacity has been slow and complicated, complicated first by the number of aftershocks. Today there is a report that there have been 262 aftershocks in the past week of a Richter Scale 5 or higher. The terror that causes to people staying in shelters which are often dark, often cold, the weather, the snow, the cold weather has been an impediment, and damaged roads, ports and airports have hampered the delivery of relief supplies. The Japanese government and especially the military have done a terrific job is getting those up and operational to enable relief to be delivered.

Fuel shortages have been a major issue in complicating the delivery of relief items. Trucks and lorries need gasoline to be able to delivery supplies even when the roads have been repaired. The national response has been impressive. We study these things and look for indicators of good, strong government response, that you have a high level of interagency emergency teams and Japan has that within the Prime Minister's office. There were disaster response teams who were ready to go and who went out throughout the country. The Red Cross mobilized 134 response teams where to go, what kinds of services would be needed in a very impressive national response.

The international response has also been strong in this first initial phase particularly in the search-and-rescue mission which the Ambassador mentioned. The U.S. military has been active and foreign governments have provided assistance. Most of the NGOs who have worked so far have done so through local Japanese counterparts and that's the way it should work. The Japanese government has said they want to assess the needs to determine what is needed before allowing many international NGOs to come and set up operations and that's the way the system should work. We have in contrast in Haiti where tens of thousands of NGOs went in and set up operations without much coordination by the government or indeed with each other.

Another point that Japan's response indicates is that prevention pays off. Some of you may remember that in 1995 there was a serious earthquake in Kobe, Japan, where 7,000 people were killed. At the time there was criticism of building codes and regulations, and since then Japan has led the world in developing earthquake-resistant architectural structures, and not only inside Japan, but, indeed, has shared that expertise with countries around the world. A reporter a couple of days ago from the UN found that of the casualties in Japan, about 100 were the result of the earthquake, the rest came from the tsunami and the related damages, 100 from the earthquake.

Again, remember that figure, 300,000 dead in Haiti with an earthquake that measured 7.0. Japan has led the world in pushing for

disaster with reduction, which is certainly an amazing accomplishment.

Finally, I must say that the nuclear shadow is overshadowing everything else. This is a whole new ballgame for humanitarian actors. In the past, problems of humanitarian access have been the result of damaged infrastructure resulting from natural disaster, such as all that rubble in Haiti, or the result of armed attacks on workers, but never before have humanitarian agencies had to think about radioactivity, of how certain it is, what kind of danger status may be placed in when they're trying to carry out their humanitarian mission. An article in today's *New York Times* said that some 10,000 people have left their homes, not evacuated as a direct result of the natural disasters, but because of the fear of radiation. Those are internally displaced persons, something to watch for.

I mean one thing we've learned working with internally displaced persons for 20 years is that when people are frightened, when they're uncertain, particularly when they're uncertain about the information they're given, they seek safety elsewhere.

MR. INDYK: Just as a follow-up, Beth, you say roughly 400,000 have been displaced; where are they, what's happened to them?

MS. FERRIS: They're living in shelters, about 400,000 living in shelters, that would be schools, office buildings. The idea is that they will live there temporarily, until some kind of temporary or transitional housing can be built. But to put that in perspective, Japan's population is

over 120 million, so even though it's a large number of people at the percentage, it's far smaller than in places like the Pakistani floods or the Haitian earthquake.

MR. INDYK: How many displaced in Haiti?

MS. FERRIS: About 1.9 million who were displaced immediately afterwards out of a total of 3 million who either lost their homes or were otherwise effected, out of a population of 9 million.

MR. INDYK: Interesting. Charlie, let's talk about the nuclear disaster that's unfolding.

MR. EBINGER: Thank you, Martin.

MR. INDYK: Can you give us an update on where things are and your assessment, please, of just how much of a disaster this actually is?

MR. EBINGER: Thank you. I have some recent reports, meaning these were released at 5:00 p.m. Friday, Tokyo time. And you may have heard that the overall evaluation of the incident has been raised along the international atomic energy scale, one level towards one of the -- towards the Chernobyl disaster, but in reality, that should not be seen as a worsening situation, what that reflects is that we now have more information about what happened previously.

It looks as if the major problem is that number two reactor, where the primary containment vessel, unlike secondary and tertiary vessels, was apparently breached to some degree. But the radiation

levels, while high, just to place it in context, they were measured at a -- I won't bother you with the technical terms, but they were measured at levels that would be roughly 240 yards from the plant gate, roughly half the equivalent of receiving a CAT scan. And I don't mean to minimize this, because the situation can get very -- change very quickly, but it does appear that that's the major problem.

It looks as if, in several of the other reactors, we will have a major problem, that fuel rods and/or storage pools are not covered. It looks like there's still, on average, about five feet below where the water level needs to be in each of those.

The significance of that, of course, is, as it's uncovered, the heat builds up, eventually the zirconium cladding in the reactors, which is where the fuel is located, begins to melt, that takes up to 1,200 degrees Centigrade, and then if you get up to 2,400 degrees Centigrade, you begin to have a serious meltdown of the reactor core.

It does look like one of the neighboring utilities to Tokyo Electric in the region is bringing in a power line as rapidly as possible, it may even be up and running by tonight, Japanese time, I guess we're already at tonight Japanese time, and that will be significant because commercial power can then be brought in to restart the diesel pumps that were knocked out, of course, by the tsunami.

Let me just say one final thing on kind of the technical issues. I think it's very important, this may seem like an arcane point at

this horrific point in time, but I think it's very important, given a lot of the information that sadly is coming wrongly out of much of the international media, that, you know, the reactor technology has not failed.

It failed at Chernobyl, there's no question about that, granted, because some operators made errors, but the reactor technology closed down at the time of the earthquake, as it was expected to do, and the tragedy has arisen because then the tsunami came and knocked out the diesel pumps for backup water power.

Now, one can argue about the design of the plant, whether the diesel pumps should have been there, but it has not been a failure of nuclear technology, and I say that because around the world, we've got certain voices arguing that this is the end of nuclear power or we have to slow nuclear power, et cetera. Longer term, I think we need to start thinking about what the implications would be if we even slow the development of projected nuclear power. And this has really not gotten a lot of attention in the media, because the near-term impact, particularly in countries like China, India, South Korea, would be for much greater fossil fuel consumption, and those of us concerned about climate change, this would be devastating if the Chinese were, say, to reduce their (inaudible) even by a third in terms of the amount of coal that would be released in the atmosphere. And I think a lot of people have not rationally thought about what the overall implications of using this incident as the death knell for nuclear power might lead us to.

MR. INDYK: Well, we'll come back to that in a moment. But can you just give us an answer, maybe it's not a simple answer, but is the nuclear disaster under control at this point, in your judgment, or are we likely to see things get out of control, meltdown.

MR. EBINGER: I do not think it's under control, it's not under control in any way, shape or form. The numbers on the unit to primary containment say that may be 70 percent of the primary containment was knocked out. So if that leads to a major build up in pressure and a massive meltdown that could potentially effect the other plants in the region, we could, indeed, be looking at a catastrophe. But it does appear, at least, with the power being brought in, with more workers now able to be there, and these are the most courageous people in the entire world who are fighting this incident, it does appear that the situation right now is getting better than it might have been 24 hours ago.

As I said, it's not that something new has happened with the primary core being shown, it's just that we now know that's what we're fighting. And so I would hope that the situation will improve, but you cannot rule out a much more serious event.

MR. INDYK: And just one quick question about what we all saw on our television screens of these helicopters dumping water on the reactors, and my reaction to that was, that's surely a sign of desperation. Does that actually have any effect?

MR. EBINGER: It has effect. It's very difficult, particularly in

that part of Japan, where apparently the weather is very windy at the moment, so a lot of the water from the helicopters missed the sites. But the good news is, we had evidence that, from a lot of the steam that came up, that the water did, indeed, hit some of the plants and probably improved the situation. But if we're talking about water levels five feet below where they should be, you're not going to solve the problem with helicopters.

MR. INDYK: Barry, let's talk, if you will, about the economic implications, first of all for the Japanese economy, and then for the global economy. How's it likely to be affected?

MR. BOSWORTH: Well, I think the economic challenge is extremely manageable, that's really not the problem. They should be focusing on the human loss and the social cost of this. But this is a manageable economic problem. We've had a lot of historical experience with it happening before, it takes a while for things to get going, but Japan is probably the most experienced group of people in trying to deal with the economic effects of this.

For reference, the Colby disaster was estimated to be about a loss of about $100 billion. This one looks like it's going to be in the neighborhood of 200- to 300 billion, but those are pretty crude estimates, people are just guessing. But at that magnitude, you're talking something around four to five of the GDP, 1 or 2 percent of Japan's wealth, that's not a great, big number that you get. In the short run, the effects will be that

infrastructure has been disrupted, transportation, but it's being restored, within a few months most of that should be completed.

There was a huge loss of housing. They'll have to move these people somewhere in Japan, to find them at least temporary housing. But those are all solvable problems.

There will be a supply side disruption. It looks like the industries that were most effected is electronics. They were in the northern part. Most of Japanese industry it's in the south, the south side of Tokyo, therefore, largely unaffected.

So I think the overall -- the lesson is, this is not the big problem. In the short run, it will have a depressive effect on the Japanese economy, second quarter growth may be negative with all the disruptions that are occurring.

In the longer term, actually it gives a country that's in trouble on its economy a chance to show maybe it can do better. There will be a big stimulus. If there's one thing Japan can do, it's a very rich country, and it is easy for them to afford the rebuilding costs that they'll have to pay. In the short run, that will end up -- have a stimulus effect on the Japanese economy, or give them some energy over the next year or two. So I don't think the economic problems are substantial.

There's a couple of weird things going on. I think the strangest one that's got the international comment, who would have thought if a country had a disaster, that the demand for its currency would

rise and the exchange rate would appreciate. That does seem a little hard to understand, and I think economists are a little puzzled, as well.

There's a little bit of experience with Colby, the same thing happened, and the explanation back then was that the Japanese insurance companies had invested abroad, and they had to bring money back to try to get funds inside Japan to pay off.

Also, you should differentiate it from the stories you see in the newspaper about the Bank of Japan issuing lots of yen. That's just liquidity. The moment one of these things happen, if you thought about it happening here in the U.S., we'd all rush to the ATM when we want money, that's what happened in Japan. And so the Bank of Japan quite easily just accommodates that by pumping a lot of money into the domestic economy as evidence that it's working. You see no signs of rise of interest rates inside Japan, no shortage of funds.

And also, I think what's happened on the exchange rate is, they're thinking that this money is going to have to come back from abroad. I think it's exaggerated for a bunch of reasons.

If I was in Japan and I was running a Japanese company, I would not liquidate my overseas holdings in order to come back to rebuilt in Japan, just borrow it in Japan at a zero rate of interest.

So Japan does not have trouble as a country raising the funds they need to rebuild their industrial base, that's very easy for them to do. I think this is driven by speculators, and therefore, somebody says,

well, why do other countries intervene, I think Japan was concerned about it, and this is an easy gesture for the United States and the other allies to make, why not, it's painless to do, they intervene, I think it's a very thin market, as I said, I think driven by speculators, so it was pretty easy to overcome it. I would also argue that it's the right thing to do economically. So I don't think that's of much consequence either. I would think outside Japan, there will be some of these very isolated little supply shortages.

MR. INDYK: Are we going to be able to get our iPad IIs?

MR. BOSWORTH: Yeah, and then what was one I heard about? In China, there is a concern about baby formula, which comes from Japan, and babies get attached to a certain kind of formula. I think that's a solvable problem.

So I think the message still is that this is not a big economic crisis, this is manageable, and what people ought to focus on is just the tremendous loss of human life that's occurred in Japan.

MR. INDYK: What about debt levels? Is this going to add $300 billion to the debt, Japanese government debt? Is that a problem?

MR. BOSWORTH: Japanese debt differs in an important extent from American debt. The Japanese owe it to themselves. They can handle this either by issuing some more debt to their citizens or raising the taxes, and their citizens can easily afford to pay it in one way or another. It's not an international debt holding for Japan as the way the U.S. Most of our debt is held abroad and we worry about this but not in

the case of Japan. So, I think that's overcome. It does mean, I think, realistically, the Japanese will probably continue to enlarge budget deficits now for a couple of years, although if I were them, personally I would raise taxes to pay for this. I think the emphasis on trying to sustain large deficits as a stimulus to the Japanese economy is overdone, so it's about time, maybe, to be more restrictive on their fiscal policy.

MR. INDYK: Won't negative growth in Japan have a negative effect on the global economic growth --

MR. BOSWORTH: It's not going to be big enough to affect that. We're talking something that would probably be less than a half of a percentage point on the Japanese growth rate.

Japan has -- from an economists' perspective, Japan has lots of puzzling problems and the economy has not been doing well for years. This crisis in the short run adds to that, but in the long run, is largely a wash, some simulative effects of the economy providing job opportunities, the people that would go the other way, but I think we're still worried about Japan in a longer term sense, that the Japanese economy has lost a lot of its energy, but that's nothing to do with much of this crisis.

MR. INDYK: Thanks, Barry. Richard, tell us about the political fallout in Tokyo and the foreign policy implications of the disasters.

MR. BUSH: I'm a little bit more pessimistic about this situation than Barry is, sort of on the economic side, because I do think it represents a serious challenge to the Japanese political system.

Granted, everything that Barry said, I think we still have to be -- have to recognize that before last Friday's earthquake, the parameters governing Japan's future trajectory were not great. It has a declining working age population and a growing elderly population, and so their big questions over the long-term, how caring for the elderly is going to take place, and that's off of a base of gross national debt of 200 percent of GDP.

Moreover, we have rapid growth of Chinese power at a time when Japan's power has been relatively stagnant. That poses twin dilemmas. How is Japan going to maintain its economic competitiveness? How is it going to preserve security?

I think that over the long-term the recovery from the recent disaster will only make those problems more daunting for Japanese politicians.

It appears that the earthquake, the tsunami, the problems at the Fukushima Nuclear Plant, have already worsened Japan, the Japanese public's low confidence in their government. They're reminded over the last week of the weaknesses in terms of crisis management, the dysfunctional relationship between elected politicians and unelected bureaucrats, and economic entities like Tokyo Power, and there's the problem of lack of transparency.

It was this lack of confidence that led voters 18 months ago to throw out the Liberal Democratic Party which had ruled for 50 years and

vote in the untested Democratic Party of Japan. And so the political class is somewhat on trial here.

Now, I think that in the short term, the crisis actually encourages a certain amount of political stability. You know, 10 days ago Prime Minister Kan was viewed as a dead man. He was going to leave office within months. Now, he may get to 2011 -- or 2012. Last year -- last week there was little or no cooperation between the LDP on the one hand and the Democratic Party on the other, and the fate of the administration budget related bills in the Diet was grim. Now, I think, the opposition parties won't dare to oppose for the sake of opposition. But, you know, we still have to ask the question, how long is this cooperation going to last? The danger is that Japan's political class will go back to business and politics as usual. The opportunity that this crisis presents is that political leaders can use the crisis atmosphere to address more fundamental and longstanding issues -- national debt, where the workers are going to come from, over regulation, reengineering the national government to make it more responsive and effective. The question is, will the political class rise to the occasion?

On the foreign policy side, the near-term consequences have generally been good. Countries have reached out to Japan in its time of need. China's really interesting here because it probably has the worst relations with Japan of any country in the world but you have the Chinese Red Cross sending aid, you have different provinces sending aid

to their sister prefectures in Japan, sister cities helping each other, and such generosity may mute the strong negative feelings that Japanese have towards China.

The United States, of course, is a special case. Ambassador Fujisaki described the ways in which we are trying to help, and that's what a good alliance is all about. I am a little bit worried about these divergent assessments -- Japanese government on the one hand and the U.S. Government on the other -- about the severity of the crisis. That may lead to a certain amount of resentment in Japan, that we lack confidence in their institutional capacity.

I think if one looks beyond the immediate situation in a speculative way, and that's all political scientists do is speculate, we could ask, you know, to the extent that any country is going to be helping Japan, which one is it? I don't think it's the United States beyond what we're already doing because we don't have financial capacity. China, on the other hand, has resources. And China has a strategic interest in weaning Japan away from its reliance on the United States and encouraging Tokyo to be more accommodative to its interests.

The big question is whether China's leaders would have the political will to exploit the earthquake for strategic advantage and then there's the question of whether Japan would choose to go into that direction. My guess is that China's unwilling to play that game and Chinese nationalism is a factor, but the fact that this strategic opportunity

even exists should remind us that to an extent, we're on trial as well.

Thank you.

MR. INDYK: I just want to clarify one thing because there seemed to be a little tension between what Beth was saying about the efficiency of the Japanese government's response to the disaster and your own suggestion that the Japanese people have some question about the effectiveness. Is this in fact a question about the way in which they've handled the information flow rather than the way in which they've handled the actual disaster relief effort?

MR. BOSWORTH: I think it's partly that. I think it's also that Japan learned the lesson of the last earthquake crisis and, you know, they are certainly doing well on the shock. The tsunami appears to be something maybe they were less prepared for and then the nuclear problem is one that they have -- you get the impression that they really are scrambling and ad hoc-ing it and the information problem is particularly severe there.

MR. INDYK: Now, you know the Japanese quite well, I think. What's behind that concern about -- the sense that they're not being open with their own people about what's happening here?

MR. BOSWORTH: Well, my guess is that Tokyo Power is not being totally honest with the bureaucracies that regulate it and then the bureaucracies may not be totally forthcoming with the Kantei, the Prime Minister's office, and then you have certain cultural aversion to

being blunt about the reality. And, I mean, Japanese are a lot more skillful at interpreting vagueness than we are, but in certain instances you'd like for -- you appreciate clarity.

MR. INDYK: Charlie, let's go back to this question that you raised at the end about longer term role of nuclear energy in a country's energy mix, and let's start with Japan. Japan has, what, 30 percent --

MR. EBINGER: Thirty percent from reactors.

MR. INDYK: -- from these nuclear energy reactors.

MR. EBINGER: They've got about 50, 54, 55 plants in operation at the moment.

MR. INDYK: Do you expect that this will -- they'll shut down other plants now, that there will be a change in energy policy in Japan? Do you have any sense of that?

MR. EBINGER: I do not foresee any change in energy policy for the simple reason that Japan basically has to import all its fuel besides nuclear power. You know, it imports its liquefied natural gas, its oil, its coal, and so I think they are so concerned about energy security, when there's a somber moment to reflect, they may put in much greater, you know, redundancies and safety and new reactors -- these were very old reactors -- but I can't see the Japanese changing their view towards nuclear power. It's also, of course, a very important export industry for the country, so that would have a double whammy as well.

MR. INDYK: And in the United States? What conclusion are

we likely to draw about nuclear energy in our future energy mix?

MR. EBINGER: Well, all the people traditionally opposed to nuclear power have come out of the woodwork, some that haven't been heard from since Three Mile Island, but they're all back. I think it will have a negative impact in the United States, but I personally thought we were not going to have the great nuclear expansion even before this incident, largely because of the cost of nuclear power in the United States with a new plant costing nearly $10 billion, there are very few utilities, particularly now with the availability of natural gas in abundance, that would make that move, but I think that number, even if it's as low as I thought it would be, maybe, 6, 7 reactors over the next 15 years, that may be cut in half and you may see some moves in the Congress which have already been introduced, to cut back some of the proposed loan guarantees that were there for the next generation of plants and that would not be good for the domestic industry.

MR. INDYK: How many are we building now in the United States?

MR. BOSWORTH: Well, we have about 20 before the Nuclear Regulatory Commission for licensing, but we only have two that are actually under construction and they're as a result of the Energy Policy Act of 2005 which set loan guarantees for the next four reactors. They're being built by the Southern Company.

If I could just make one final point though. The resilience of

the Japanese people has been startling. You know, they were having rolling brown outs to try to deal with the crisis and they asked people to conserve. Almost overnight, Japan cut its electricity consumption by 25 percent just by everybody responding to the national charge to please help your fellow citizens. I think that's an extraordinary accomplishment. Can you imagine that happening in the United States, particularly during March Madness? It would not happen in any time in this country, so I think before -- you know, when we talk about the tension between the Japanese people and maybe their governmental leaders, clearly on that call for them to conserve, they rose to the occasion quite dramatically.

SPEAKER: If I could add to that. I had a note from a Japanese friend of mine and he sort of described this as the worst crisis that Japan had faced since World War II, which was a fundamental sort of threat to national survival, but he also expressed a sort of deep confidence in the resilience and perseverance of the Japanese people to meet a challenge like this. Maybe not as much confidence in the government, but I think that there's a feeling that this is a very strong society and it can overcome.

MR. INDYK: I just have to speak up on behalf of the American people, Charlie. I think you underestimate our willingness to sacrifice, but we have to be asked first by our political leadership. Sorry, Beth, did you want to come in?

MS. FERRIS: I was also struck by the lack of looting. When

you look at Katrina or Haiti or most natural disasters, that happens, but if I could ask a question to Charlie. You seem to assume that things are going to be basically okay in a few weeks, don't you? And if you don't -- I mean, if you change that -- if something terrible happens, wouldn't that indeed change the balance of support for nuclear power both in Japan and around the world?

MR. EBINGER: The only -- it could well, but the only problem I see is when you get -- when you realize the implications of foregoing nuclear power, it's about 14 percent of the world's electricity. The near-term answer is fossil fuels and if we hope to have anything come out of the climate change negotiations, it doesn't change U.S. policy. If China and India said we're going to not build nuclear and burn more coal, we might as well not worry about what we do on fossil fuel consumption because it won't make any difference. We will have climate change. And I don't think people realize or agree to which that you're not going to replace the nuclear plants with wind and solar in the near future, so you're talking about a fundamental change. You'd see upward pressure undoubtedly on petroleum prices, and this would not be good for the world economy.

MR. INDYK: Let's go to your questions please, and I'd appreciate it if you would wait for the microphone when I call on you, identify yourself, and ask your question with haste. Yes, right here in the middle here.

SPEAKER: Thank you. I was -- I'm Japanese -- on the deeds that Japanese mainly accuse the Japanese government for a lack of transparency, but it's really tasked to disclose all information in terms of nuclear facility stuff, so what do you think about the Japanese current policy addressing nuclear fossil issue? Do you think the Japanese government disclosed all information to the Japanese citizens or just little by little?

MR. INDYK: Richard, do you want to start and Charlie?

MR. EBINGER: Well, I would just say I think any government confronting a nuclear accident particularly should be as fully transparent as possible because there's enough reason for people to panic. A lot of it is misinformation or a lack of understanding of what really happens in radiation and different types of radiation. But for goodness sakes, you don't want any question that the utility involved is not being fully transparent, both with the government and with the Japanese people. It's a disaster.

MR. BUSH: I agree with that.

MR. INDYK: Yes, please, sir.

MR. TOGO: Thank you. My name is Togo. I'm a former Japanese diplomat, in fact, working at the embassy 20 years ago. I have a question to Richard.

MR. BUSH: Yes?

MR. TOGO: You mentioned that in terms of which country can contribute most to this incident, you argued United States or China and so forth. In the long run, maybe so, but in the short run I have no doubt that there's only one country and that is the United States. When the incident occurred, I was still in Japan, and I have immediately thought that this is a golden opportunity to show the fundamental nature of the alliance. Why? Because on the one hand there is a growing recognition in Japan about the importance of our alliance, given the right-of-China phenomenon, but at the same time, after Obama came into power, it's clear that the alliance has difficulty in relation to Okinawa, the marines there, and so forth. Now, this earthquake and tsunami clearly gives an opportunity that the marines in Okinawa have a totally different role to play, but the image I have then is a kind of massive flying of helicopters of the marines and supplying blankets, food, to all those refugee areas. As Ambassador Fujisaki rightly mentioned, there is a sense of gratitude in Japan. At the same time, I can't help wondering, is it the maximum extent of the assistance which your military can provide to us. I may be wrong. I may be wrong about my question, but at least in my view the extent of the assistance is not shown enough through the television screen in Japan. It has to have two sides, real assistance and the fact that it's been shown through the television screen that the marines can play a totally different role than being just the nuisance we know in Okinawa. My question, do you think that there is sufficient cooperation and whether, if there is

cooperation, do you think it is sufficiently shown in the Japanese media through their screen? Because Japanese people should get that gut instinct that the United States military can and does play a totally different role than the sort of creating difficulty in Okinawa.

MR. INDYK: Thank you.

MR. BUSH: Well, I have no question, Togo, that the United States is doing whatever it can to be helpful in this situation. I think we moved very quickly, and we have demonstrated again that we're the only country in the world that has this kind of capacity to move quickly in this kind of situation. I expect that the United States is not getting enough credit yet for our assistance and for our desire to assist. And that doesn't surprise me because I think that the Japanese people are most focused right now on the tragedy that's occurred and what's going to happen with the Fukushima plants. I hope that once the immediate crisis has passed that Japanese political leaders will remind the public that, although the Japanese people made the primary effort, that the United States helped out a lot.

I also agree with you that the United States is the most influential in the short term, but China does have opportunities in the medium term and the long term that we should be aware of.

MR. INDYK: The second part to the Ambassador's question was, as I understood it, are we doing enough to show our support? Is it visible enough?

MR. BUSH: I would rather the Japanese leaders be the ones to -- I expect that we're not doing enough, but I think that there's a media overload at this point, and we can take credit later, but I hope the Japanese leaders give us credit.

MR. INDYK: Beth, is there something else we should be doing that we're not doing?

MS. FERRIS: Well, there are DART teams there now that are assessing the needs and looking for the gaps that could be filled. I think that there's a possibility for an outpouring of support from American organizations, NGOs, et cetera, once it's clear what the needs are. Some of that might be in the area of shelter down the road. But just to remind people that some of the most desperate needs come later; they come six months down the road when the TV cameras have moved on to the next emergency. And sometimes that sustained support can have more impact than an immediate flashy media visible initiative.

MR. INDYK: Like what? Permanent shelter you're talking about?

MS. FERRIS: Yeah, transitional shelter, permanent shelter, help with kind of the long-term reconstruction might be more effective.

MR. INDYK: Barry, on the economic front, is there something the United States should be doing that it's not doing?

MR. BOSWORTH: No, I don't think so. I don't really think this intervention of the exchange rate is of any great significance, but I

understand why the U.S. did it. I think it's perfectly appropriate, but no, there's no big challenge on the economic side. The challenge is on the human side to deal with the people who have been displaced, so that's a completely separate matter.

MR. INDYK: Okay. Let's take another question. There in the back, please, the lady in -- right.

MS. RICHMOND TSANG: I'm Carol Richmond Tsang. I'm a historian of Japan, and I had a political question. There's been criticism of the Democratic Party of Japan for its handling, but it seems to me for there to be long-term implications with the Democratic Party of Japan and the government, a comparison needs to be made with the LDP. In other words, people are unhappy, but do they think the LDP would have done a better job?

MR. BUSH: I think it's --

MS. RICHMOND TSANG: It seems to me they would have to think the LDP would be better in order for the Democratic Party of Japan to lose out seriously.

MR. BUSH: Well, I think that the jury is not out on that question, is still out, I'm sorry. I think that Prime Minister Kan and his government have a tremendous opportunity to prove that they are, through their response to this crisis, that they are capable of being a ruling party that is as good or better than the LDP. If on the other hand they fail

to meet that challenge, then the sentiment grows that maybe the LDP is the only one we can rely on for whatever their faults.

MS. RICHMOND TSANG: I ask partly because I have a friend who is rather more of a supporter of the JDP in that I think she's comparing their reaction to the earthquake with the LDP's notably inadequate reaction to the Kobe earthquake for example. And I think she feels that they are at least trying to do better than the LDP in terms of getting the information, although they've been heavily criticized for that. Would you agree with that?

MR. BUSH: I'm not close enough to the situation to know, but I appreciate the difficulties of getting the information that's needed in this very complicated Fukushima situation.

MS. RICHMOND TSANG: Thank you.

MR. INDYK: Yes, please.

MR. WARREN: Rob Warren. I have a question for Mr. Bosworth. As I understood your comments, that you see this as a wash as far as the impact on the economy in the long term, perhaps a decline by a half of a percent or so during the short term. Could you address the broader problem and that is the resiliency and growth of the Japanese economy, the need for restructuring, greater competitiveness, and just a greater enthusiasm in the economy. What would be the impact there?

MR. BOSWORTH: I guess you might say this gives an opportunity a little bit to see if the government could try to come up with a

policy. If it works for this, it would build public confidence and you could maybe use that as a base for moving on. I think the problem in Japan is a deep one. It's not like the people sitting outside here in the United States who have lots of ideas about how to solve the Japanese economic difficulties. In fact, I think the concern here in the United States is growing that we're headed down the same road. We're facing a lot of the same stagnation problems after the financial crisis here that Japan had and adjusting to the one in the 1990s. But they do need some leadership. They need to develop some effective economic program about what to do, and there may be some stimulative effect that would come from this. But I think the bigger problem is sort of economic content. I have not heard anybody come forward with a real successful idea about how to get the Japanese economy growing again at a rapid pace. We're all sort of puzzled about what's the fundamental problem that holds growth back.

MR. INDYK: So there's no Bosworth Plan either?

MR. BOSWORTH: No, I don't think. I think the remarkable thing about Japan is that 25 years ago everybody pointed to Japan for this incredibly high rate of saving that they had. They now save less than American households, but the offset on the other side is Japan invests less than the United States does. In the last two years physical investment by the household sector has been negative, by the government sector has been negative, by the business sector has been negative. Households don't save anymore, but corporations do, and the

money just piles up in Japanese corporations. And they don't use it for purposes of reinvesting; they just hang on to it. And that's what people mean; there just doesn't seem to be any energy in the Japanese economy where there are people actively investing in new ideas. There's not a very strong spirit anymore of entrepreneurialship inside Japan. A lot of people are sort of stagnant in terms of new business ideas. How do you get that going again?

MR. INDYK: Richard? Is it possible that these disasters could stimulate that kind of energy in the Japanese people, a sense of rejuvenation and rebuilding?

MR. BUSH: Well, I think it's possible. I think leadership is required, good ideas are required, incentives are required. I hope that the political leadership will seize that opportunity, but I see the danger of just going back to business as usual.

MR. INDYK: I think there was a question on this side. Yes, please.

SPEAKER: Sir, in the context of the question I think that Mr. Togo had and the impact on the security alliance. Right now the same --

MR. INDYK: Could you identify yourself, please?

SPEAKER: I'm sorry, sir?

MR. INDYK: Identify yourself?

MR. FISHER: Oh, Clay Fisher. I'm up at the Pentagon. The impact that this will have potentially on the Defense Policy Realignment

Initiative right now and the restructuring of all the forces in the West Pacific, Okinawa, and the movement to Guam, the very same forces right now that are directly involved in the humanitarian disaster relief operations in the mainland with the current crisis. But it's also been very, very difficult to judge tangible progress from the government of Japan on this large Realignment Initiate. Do you anticipate that this crisis is a catalyst for the GOJ to re-approach the Secretary of Defense and the Secretary of State in the upcoming months or two, in the upcoming two plus two, to rewrite the Security Alliance and the current agreements and clean the slate and start all over? What's the impact to DPRI?

MR. EBINGER: It's a great question. I guess my fear would be that the Japanese government, both political leadership and bureaucrats, would be so focused on issues related to relief reconstruction and so on that they would not have time to face what is a politically controversial question in Japan.

We had the roadmap agreed to five years ago, basically, and very little progress has been made. There was a setback. Ambassador Togo referred to the use of assets on Okinawa and for the American contribution here, and that is probably not trivial. I hope that it improves the environment. I think Americans have also learned in the last couple of weeks that it's better not to say too much about Okinawa at all.

SPEAKER: Thank you.

MR. INDYK: Yes, please.

MR. SUK: Thank you very much. I noticed two things. The first one is that --

MR. INDYK: Would you identify yourself?

MR. SUK: The first one is --

MR. INDYK: Name.

MR. SUK: I came from China Embassy and my name Jin Suk. Yeah. The first thing is that President Obama nominated nuclear expert to the vice secretary of the DOE. Under the sentencing that -- after the nuclear crisis, the stock market of Europe drove to more than the stock market of USA. So, my question is that what (inaudible) will be to the energy policy of USA and Europe, respectfully.

And my colleague also wanted to ask you another question, that this crisis will have (inaudible) impact about U.S. economy?

Thank you very much.

MR. INDYK: Charlie, want to talk about energy policy?

MR. EBINGER: Well, I think in Europe it will have a profound impact. You have already seen Mrs. Merkel come out very strongly about not only inspecting a number of reactors but now she's gone further in saying that perhaps the whole German nuclear program should be phased out over time. You've seen negative responses in Sweden; in Italy where they were just beginning to reverse longstanding anti-nuclear policy and restart, so it's going to be in the Italian debate. I think the UK you will see continue their various vigorous program mainly

because they can't meet their climate change goals using wind alone. They have to use the nuclear and wind to further reduce their dependence on coal. France and Belgium I think you'll see continue with their nuclear programs. And as you move farther out in the former Soviet Union/East European states I think the combination of wanting to reduce their -- thinking the Baltic States, for example, and the Balkans -- they want to reduce their dependence on Russian gas, so -- and also get away from their dirty coal. So I think you'll see them continue to push slowly but for nuclear.

The United States I think, you know, we get about 20 percent of our electricity from nuclear power because of the slow growth. I mentioned that I already believed it was going to happen even before the accident. I think between retirements of aged facilities we'll be lucky to keep that 20 percent contribution 10, 15 years from now.

MR. INDYK: And natural gas, how much --

MR. EBINGER: Well, natural gas is also about 20 percent. A lot of people are now saying we could probably raise natural gas to 30, 35 percent of our electricity consumption and keep it there for a long time.

MR. INDYK: Barry, U.S. economy?

MR. BOSWORTH: Almost no impact whatsoever. Stock markets go up and down. They always overreact. I wouldn't pay any attention to them, and one way or the other --

MR. INDYK: That's sort of interesting. The only part that

makes sense is the Japanese stock market is the one that dropped the most, but it looks like its way over. If you took seriously their estimate of the cost to Japan, you'd claim that the wealth lost was almost a trillion dollars. And that's clearly not realistic at all. So, the stock market has dropped in value way too much.

I think one reason is the market's been kind of thin, and there's not much confidence in it, and in Europe there's also been a drop in the stock market, but I would have the same story. I don't see where there's easy to get much economic effect in Europe.

The U.S. stock market's been pretty resilient. Nothing much has really happened. Maybe it's unfortunate, but Japan is simply not a big market for the United States. We don't export much to anybody anymore, and in particular we don't export a lot to Japan. So, we worry about Japan probably as consumers about whether or not there will be any interruption to some of our electronic and automobile supplies, and I don't expect that to happen. But that's the sense in which I don't think what goes in Japan will have a big effect on the U.S. economy.

MR. INDYK: Okay, is there -- yes, sir.

MR. CHEN: Yeah, Chao Chen, freelance correspondent, Bethesda, Maryland.

There is not much talk about the radioactive effect on human beings. Should we have environment monitoring all radioactivity in the air and in the ocean, and also should we look about the food chain,

agricultural food chain, and fish are the food chain, for the radioactive material?

And also over the years there is a problem in Russia, in U.S., in France, in Argentina, and now in Japan. Should IAEA have oversight of the country in nuclear activity?

Thank you.

MR. INDYK: Charlie.

MR. EBINGER: In terms of radiation monitoring, we have a fairly sophisticated global system to register changes in radiation. Most of that was developed against the potential for atomic weapons, but it can pretty well pick up what's happening.

Within Japan, there is definitely concern about the food chain. If this incident gets worse, the first place it often hits is in dairy products.

MR. CHEN: It's (inaudible) just restricted to Japan. This is going all over the world.

MR. EBINGER: Right. Oh, I'm sorry. But radiation -- nearby a radiation event, the first concern is about dairy products in terms of the food chain. As this radiation goes over the world, the amounts that we're talking about, at least from what we think is going to happen right now, is infinitesimal by the time is reaches any other landmass other than Japan. But it could have a very serious impact on Japan were it to get noticeably worse.

We're not expecting -- there was an erroneous report the other day that it was going to hit Southern California and move toward Las Vegas. That report has now been shown not to have been issued by the organization that -- it was said to be coming out of a very prestigious organization in Australia. That was on the Internet. It was not released by that. It has been discredited by both the Australians and by the International Atomic Energy Agency.

The second part of your question -- you know, the IAEA -- I'm not sure I understood where you want to extend their authority. Of course we tried to get all nuclear plants from a proliferation standpoint under IAEA safeguards and with the additional protocol that we're trying to get all nations to sign, the right of the IAEA inspectors to make, you know, snap inspections without warning of any nuclear facility in a country. But in terms of saying that the IAEA should have authority over all radiation environments in local countries, I think the --

MR. CHEN: I mean, to make sure that countries do the right thing. And also in Japan case, I did not understand why there is no cooling tower there. Is Japan just getting water from ocean and then getting it back to the ocean? This particular one is about the fish in the --

MR. EBINGER: It's a very good question, but the IAEA has no authority over questions like that. They will send in teams to advise on safety, to advise on greater knowledge of radiation potential.

MR. CHEN: Yeah, that's the past.

MR. EBINGER: But they have no --

MR. CHEN: (inaudible)

MR. EBINGER: Yeah, they don't have -- what I'm saying is they do not have the authority. Whether they should have the authority I think is a very good question, but you'd have to go back and probably modify the IAEA Treaty to give them that enhanced authority and get the existing members to agree that they were willing to give up sovereignty in those areas. But it's a very interesting question.

MR. CHEN: (inaudible)

MR. INDYK: Okay, thank you. Let's go to another question here. Thank you.

MR. RICH: I'm Bob Rich with the American Chemical Society. I'm wondering if you could comment on either the engineering or perhaps shoddy engineering in some cases in terms of the nuclear facilities and also in terms of the preparedness at the nuclear plants from your observations. I know it's early yet.

MR. EBINGER: This was a very old set of reactors -- you know, generation, early developments of General Electric. Those boiling water reactors that are being built around the world today are very different, which -- much higher containment standards so you can't compare a boiling water reactor built today or five years ago from one of these plants.

I think you can certainly question -- I don't why I'd call it

shoddy -- you can certainly question the wisdom of having auxiliary pumping stations at a low elevation, that if there were a tsunami, as there was, get wiped out rather than having them on higher ground and, you know, water does tend to flow downwards if you direct it that way. So, I mean, that design we now know was challenged by people at the Atomic Energy Commission back in the 1970s as an unsafe design apparently at the time. Because it was a new fledgling industry, it was decided that it would be catastrophic to require the nuclear vendors to completely change their design because we were trying to get the industry taking off, so the warnings out of the AEC were not heeded. But I don't think in terms of safety that there's any country that has any better record. Maybe the United States, but Japan has an extremely fine record on paying attention to safety on evacuations. And obviously on earthquake protection, because the earthquake did not trigger the reactor accident.

So, I don't know. I mean, it's always to second guess. We may find down the road that there were mistakes made. But I think right now it's premature to suggest that we know that for sure.

MR. INDYK: So, let me just clarify. You're saying there was criticism at the time that these plants were built --

MR. EBINGER: Apparently back in the 19 -- several memos have surfaced by Howard Dettina, legend in the nuclear field, and John Ahearne, former NRC Commissioner, that they both warned that this design in a catastrophe could create big problems.

MR. INDYK: And what about location, Charlie? You know, this is located right on the coast. We've got a few --

MR. EBINGER: Well, you know --

MR. INDYK: We've got a few nuclear reactors located right on the coast.

MR. EBINGER: Right. I mean, in Japan the problem is there's not a lot of spare land. But we tried to put reactors on the coast, because, particularly if you're shipping components for their construction, it's easy to land on the coast and, you know, you're talking about big vessels and tubes. If you put them on the back of a flatbed truck, you know, you disrupt entire communities even if you can get them through. So, this is why we tend to build reactors predominantly near the coast. Likewise, it's easier to ship out. If we go to long-term nuclear waste storage in a geological repository somewhere, you can ship it out without having to transit the dangerous fuel through populated community. So, this is why we do it. But, obviously, maybe you don't want to do it where there's a history of Tsunamis and earthquakes.

MR. INDYK: Well, on that note, I think we might conclude this session. I want to thank the panelists for their very informative views in this regard, and again we wish the Japanese people all the best in coping with this horrendous disaster.

Thank you all very much for coming.

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