INSTITUTE FOR ENERGY AND ENVIRONMENTAL RESEARCH

6935 Laurel Avenue, Suite 201
Takoma Park, MD 20912

Phone: (301) 270-5500
FAX: (301) 270-3029
e-mail: ieer@ieer.org
http://www.ieer.org

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Questions and Answers: CTBT & ABM Treaties

April 25, 2000

Question: This is a question for Chris. As far as you know, there are 51 votes in favor of CTBT ratification and against 48.

Chris Paine: 48 were in favor.

Question: Just two or three missed?

Chris Paine: No, under our system of government, a treaty requires ratification by two-thirds plus one (67 members) of the Senate.

Question: You said that the Administration failed to properly educate the Senators, to provide them with clear information. My question is, did the Administration properly educate those 48 Senators?

Chris Paine: No, they didn't even educate the advocates of the Treaty. They just didn't do anything for four years.

Question: Does this mean that NGOs and research think tanks did not pay attention to educating these Senators in favor [of the CTBT]? It is necessary to redo completely the verification and stewardship program and then educate the Senators.

Chris Paine: NGOs were trying to educate the Senate. The Senate is now a very hostile place, controlled by not just Republicans but a small right wing contingent of Republicans, who are especially hostile to the goals of the CTBT and indeed almost all arms control treaties. It's a different discussion, but there has been a gradual loss of contact between the NGO community and the Senate that has evolved over a period of years, and between the Senate and the Administration, so that actually we in the NGO community were not very well apprised of what was going on. It turned out that the Republicans had been rounding up votes against the CTBT beginning in May of 1999. They had a systematic effort to line up votes against the Treaty, a secret effort in order to entrap the Administration. In other words, the Democrats through their

posturing found themselves in the situation where they had a treaty on the floor that they supported but were not prepared to adequately defend, and the opposition already had the votes to kill it. That's the worst possible scenario that you could ever want to be in.

Question: I would like to know, if a ballistic missile defense hit a nuclear warhead over land, what would be the consequences and the fallout from that explosion over land?

David Wright: The way the system is supposed to work is that the interceptor would hit the warhead at very very high speeds, 15,000-20,000 miles an hour, and basically obliterate it so you would not get a nuclear explosion, but you would presumably have some level of fallout from the nuclear material. If it were very high above the atmosphere, which is where these intercepts are supposed to take place, that material would presumably be distributed very widely in the atmosphere. Arjun can tell you better than I what the health effects of that would be, but I would expect they would be small.

Question: Jets are damaging the ozone layer. What would this do to the ozone layer?

David Wright: There would be no effect simply because it's too high. The altitude at which the intercepts would occur would be much higher than the ozone layer.

Arjun Makhijani: There are a lot of real environmental and health problems from real explosions and real dangers of explosions, and real threats to the ozone layer. I think that David is quite right in that this is not an issue with respect to the kinds of systems that are proposed. There is a fair amount of plutonium burden that would be added, several kilograms. The existing burden of plutonium in the soil is already quite great. It would add marginally to that, but I don't think the environmental issues associated with ballistic missile defense system are really the most important. We can raise them, and they are issues, but we're not talking ozone layer destruction or nuclear explosions, so it is important to be accurate.

Question: My question is with the issue of threat. Why is there a recognition that the threat comes from the delivery of a weapon through a missile? If we want to talk about weapons of mass destruction, there are so many ways that they can be delivered at a minimal cost and minimal utilization of technology. Why then do we focus on the delivery of a system through a very difficult thing of a guided missile with all its components?

David Wright: I don't think there is a good answer to that because I think you are making a very good point. And in fact, one of the heads of the U.S. intelligence community recently made exactly that point - that the threat of an attack by a long-range missile is one of the least likely types of delivery he would expect. I think what you put your finger on is that much of this debate has to do with perceptions and political posturing and not about real threats, or trying to assess what the real threats are. Even if you limit yourself to missile threats, the largest potential missile threat to the U.S. still comes from an accidental or unauthorized launch from Russia. From that point of view, the best thing you could do to try to reduce that risk would be to reduce Russian and US arsenals as much as possible, as quickly as possible. But it appears that building a national missile defense system will hinder deep cuts and reduce Russian incentive to take its weapons off high alert, so it makes it more difficult to reduce this threat.

Question: I thought that Chris Paine's analysis of the CTBT situation was excellent. I don't believe that we were getting that kind of message out as effectively as we should have before the test ban vote. My organization at the time was part of this debate, so we have to rethink the way that we talk about the test ban in the future. Hisham has raised a very interesting issue. It's not clear to me how relevant it is in the larger scheme of things right at the moment, given the situation with the CTBT, but it is interesting how it applies to laser fusion explosions. I don't think we have a full picture yet of what the negotiations were like regarding it.

So far as I understand, the P-5 perhaps had some discussions among themselves about what would be prohibited by the treaty and then they told the other countries involved in the negotiations, who would occasionally ask whether this applies to laboratory scale explosions. The P-5 would say, "don't go there, we don't want to discuss that question." That's my impression of how it proceeded. Then when the State Department submitted the CTBT to the Senate, they sent along a fairly elaborate analysis of what would be permitted and what would not be permitted. Contained fusion explosions would be permitted but other kinds of fusion explosions, which are not contained, are of a certain size and are generated using other technologies, would be prohibited. I would be interested in comments from Hisham and Chris about where you think the US government position was coming from and the kinds of distinctions it was making, and whether you think there is the potential for re-opening these issues in the United States.

Chris Paine: I think the US government did say the kinds of things that you have heard, but it wasn't just the US government. It was the Australian government, the Japanese government, the German government, all states with fusion programs had a stake in not extending the reach of the CTB into those programs. There was a wide measure of agreement among weapon and non-weapon states with advanced nuclear programs, "not to go there," as you said. At NRDC, early on in the negotiations, we developed criteria for the government that are quite simple - very technical definitions but simple - of what would be prohibited and what would not. We even provided those to some other countries, but the interest of all the parties at the time was to accelerate completion of the Treaty, not get bogged down in a detailed technical discussion of what constitutes a nuclear explosion. There was a pretty broad consensus. The majority of parties did not want to go in the direction of having an extended discussion on what constitutes a nuclear explosion. If it looks like a duck and talks like a duck, it's probably a duck, was the theory that undergirded the negotiations.

Hisham Zerriffi: Let me add a couple things on the question of the relevance. The reason we put this in is because this is a conference on the Rule of Law, nuclear disarmament and the NPT. We recognize that there were other treaties and other issues involved, so we talked about the CTBT and the ABM treaty. The reason this is in here is because, to me at least, it is an issue of having a treaty that is very clear and very explicit that no nuclear explosions allowed and having a situation where it is pretty clear that there are nuclear explosions are being planned. How do you deal with that in this treaty, whether or not there was a deal that was struck in Geneva? As for what happened in Geneva, Chris is right, it wasn't simply the U.S. Japan has a good amount of research going on - and Germany - but the number of countries that have research in this area are fairly small. I think that a lot of the other countries that were involved in those negotiations were not necessarily aware of the technical aspects of these programs. When they decided "not to go there," in terms of laboratory experiments, they didn't necessarily understand that where

"there" was. There were explosions - they just thought they were laboratory experiments, I think. Now, I wasn't there....my hunch is that is the situation. There was an agreement among a few states and they convinced the others to go along. But the Treaty itself is what we need to look at, and the Treaty itself is pretty clear.

Question: I believe this question is for David. Looking for a philosophical assumption behind shooting down bullets with bullets, I go back to the original SDI (Star Wars) coupled with the Civil Defense programs of crisis relocation and bomb shelters. At that time, I think it got verbalized that, behind this idea that you can defend against nuclear missiles, is the assumption that we can fight and win a nuclear war.

David Wright: To some people I think that is an assumption. I think one of the biggest things driving the current missile defense debate is this year's election. With the economy doing well, the Clinton Administration has been hard to attack on economic grounds, which is a traditional Republican issue, and so the Republicans have turned to foreign affairs. The national missile defense issue is seen by some people as a good issue to differentiate the two parties this fall.

Question: First, just a comment on the NIF illegality argument. We've heard a lot about U.S.-French and U.S.-British collaboration with respect to NIF. It is my understanding that the Lawrence Livermore Lab has quite an extensive memorandum of agreement with Germany on initial confinement fusion and the German Felix laser. I note that Germany did enter an exception or reservation when it ratified the CTBT. I just want to point out that I think that this has implications for the utility of this particular technology for nuclear weapons research and development because nuclear-potential countries like Germany and Japan have been extremely clear that they do not want that technology to be banned by the CTBT. So I think that speaks to the utility of that technology for nuclear weapons R&D.

Also, there appears to be a connection between stockpile stewardship and NIF in particular and the ballistic missile defense organization. David mentioned that this is a hit-to-kill system and not a nuclear system, but we have documents indicating that research is at least planned for nuclear-tipped interceptors utilizing the NIF. The investigation of low-yield nuclear interceptor lethality, which talks about how the limited effectiveness of the interceptors being developed by the U.S. against the threat of biological-chemical agents from other countries, can be expected to generate increased interest in evaluating the lethality of low-yield nuclear interception option against this threat. Then it says the NIF provides large fluences of both fusion and fission neutrons with the very short pulse widths characteristic of low-yield nuclear intercepts, which can be used to establish lethal criteria for chemical-biological agents and nuclear warhead targets. In a later document, we have a discussion of NIF having a special modified hydrologic lifter to allow a 15 ton object to be placed in a target chamber for weapons effects testing and the illustration is very suggestive of a missile. So I'm just wondering if you and the other panelists might comment on that technology overlap and speculate on implications for the future.

Hisham Zerriffi: On the question of Germany and Japan, whatever you believe about their ideas of having a nuclear weapons arsenal at some point in time, they are also very clearly interested in fusion as an energy source. Look at why Japan, for example, continued to spend a significant chunk of money on cold fusion research after every other country had basically written off cold

fusion. It was because they have an interest in pursuing a variety of energy sources and a lot of that has been nuclear. That puts them in a very funny position, because on one hand they would like to see some development of this technology "for peaceful purposes," and on the other hand, they've got to be worried that the U.S. program is a weapons program and what that is going to mean for the perception at least of their programs, if nothing else. You are correct, this does raise a lot of questions about what is going on in Germany and Japan.

Chris Paine: I am perhaps much more skeptical than Hisham about whether the NIF will actually achieve ignition or anything constructive. We've done quite a bit of work on NIF at NRDC over many years. We think it is going to fail. We think the physics is underdetermined at this point. Grossly. This falls very neatly in a long line of Livermore facilities that are built on an inadequate scientific basis and where elaborate and rather ambitious claims are made for their performance that are never achieved. This is just very consistent with the pattern: price goes up, performance goes down, the facility gets built, the basis is laid for the next generation machine and the whole process is repeated. A very sophisticated form of scientific porkbarrelling...one almost dignifies it too much by worrying about this facility violating the CTBT.

The discipline of plasma physics and inertial confinement fusion enables countries in effect to have a hedge capability for breakdown of the NPT. Certainly, there is no question that the countries that are involved in this have that in the back of their minds. It's not the front line justification for the program, but it certainly makes it very easy for national security establishments or national scientific research establishments to get it funded, as opposed to other research, because it has the ancillary benefit of creating a cadre of physicists who could do nuclear weapons work in the future if we need them.

Hisham Zerriffi: I think I agree with Chris that it's probably not going to work. I hope it's not going to work. But we made a decision at IEER to focus on these issues, simply because, at the time we made the decision, it wasn't clear if would or would not work. Also, to some degree it didn't matter whether it worked or did not work. It was what NIF was being designed to do in the context of U.S. obligations under these treaties. That was of crucial concern to us. Of course, there is also a cycle here and we don't necessarily want to wait for this machine to fail and for the next one to get funded and actually do what the NIF was supposed to do.

Question: The CTBT and ABM treaties are treaties but nobody goes beyond them when a country makes a treaty. Why did Russia recently build warheads? Who is responsible to make sure a treaty is a treaty? Or is it just open? How is it regulated? Or is it just politics?

Hisham Zerriffi: For the NPT, the International Atomic Energy Agency is responsible for verifying that the non-nuclear weapons states do not divert materials so that they can build nuclear weapons. Essentially, there is no enforcement agency involved for the obligations upon the nuclear weapons states, under Article VI to achieve disarmament. There has been a lot of discussion about the possibility of having some sort of Secretariat for the NPT, or some other type of governing body. For the CTBT, there is a CTBT Organization, which collects data from a variety of sources and analyzes that data. There is a procedure if it is believed a violation has occurred.

Question: I wanted to comment on the question of psychological illusion of security and invulnerability that the national missile defense gives us because I think it is very important to expose and to make the unconscious conscious. Robert Jay Lifton is a pioneer in this field. He's a psychiatrist and he did a lot of work on nuclear illusions. These are ways of mystifying us into thinking that things that are dangerous, are really good for us, and are going to protect us. There is an illusion of safety, an illusion that we can prepare, an illusion of stoicism.

I also have a colleague, Steven Kull, who wrote *Minds at War*. In the early 1980s, he interviewed high level officials on both sides. He said that nobody believed scientifically that Star Wars would work, but that Reagan loved the idea so much because it really appealed to the American viscera. We were feeling so vulnerable and we just wanted more than anything to feel invulnerable, that we had this imaginary shield protecting us. It's very seductive and it's a way of psychologically seducing us into that. I think that it is important to expose that. Steven Kull also said that, instead of calling it the Department of Defense, we should call it the Department of Defense Mechanisms. I think there is a kind of mega-mission creed that we have these things and have them in place. It is harder to get out of it the longer we're in it. People don't like to feel they are being deceived or duped and we should think of psychological interventions, ways of looking at this, in addition to the facts, to interpret the facts.

Chris Paine: I would like to pursue that a little bit because, actually, it's not just the problem that Steven Kull outlined. It's actually the psychological reasoning imbedded in our strategic theory. And it goes like this. The saner minds in the Pentagon and the Department of Energy know, for example, that this defense system would only be partially effective at best. They know that. They don't mind the fact that the public is being left with the impression that it would be effective because, of course, there is always a division between what the experts understand and what the public understands. It's ok to mislead the public if it's for a noble goal. The goal in this case in not defense of a nation. The goal is to lend what I can only describe as a swagger, a technological swagger, to U.S. defense policy such that American leaders won't feel self-deterred by the prospect of nuclear annihilation and therefore they won't act in a manner that reflects concern over that self-deterrence. In other words, acquisition of these systems is an expression of the fact that the U.S. is not going to be concerned by the normal, rationale criteria that otherwise would prevail when one discusses nuclear weapons, that we have a nuclear defense system and we believe in it because we want our leaders to act as thought they believe in it, so they won't back down in a crisis.

So this is an elaborate game of kind of psychological one-upsmanship. We have the resources. We have the technology. So what if it doesn't work. The other guy doesn't have anything. Those North Koreans don't have anything. So when we face them down, maybe they'll believe that they cannot land a single missile on our territory and they'll withdraw from whatever confrontation they are engaged in. I've encountered this reasoning time and time again. I've worked on this issue for 25 years in Washington. It was very apparent in the Reagan years. It goes beyond the generalized denial of nuclear conflict - this denial has a very specific functional role in the overall strategy that the U.S. pursues.

Question: I have just quick comment about laser research in Japan. I talked to some scientists involved in laser research in Japan and they say that they envy Livermore laser researchers

because they can talk about defense issues and then get all kinds of money to do their work. Whereas in Japan, when they wanted to have a large laser facility, they couldn't get enough budgeted. They are planning to go to Livermore and get the hands-on practice dealing with laser research there. So they are planning to be there, when or if it's built.

You mentioned the possibility of Navy Theaterwide defense missiles to be used in the future for NMD purposes. If Japan works with the United States and helps to develop this technology and uses it for NMD, what is the legal ramifications for Japan? Is Japan helping the U.S. to violate the ABM treaty?

David Wright: Very interesting question. I'm not sure you even have to wait that long to get into a similar set of questions though. For example, the U.S. has early warning radars in various places around the world. One is in Britain and one in Greenland. Part of the current NMD plan would be to upgrade those radars to allow them to do better tracking of missiles, in clear violation of the ABM treaty. So, one of the questions that has already come up - and this has become a big issue in Greenland, but is also surfacing in Britain - is whether or not to be part of that. It will be a very interesting debate to see what happens. Japan is going to have to confront something similar and, in fact, there have been researchers in China who have raised the question about whether Japanese involvement in the Navy Theaterwide program is a problem under the Missile Technology Control Regime. There are legal questions there, and it is not clear if people have thought about the implications.

Question: My question is for David. In your work on missile defense, do you hear anything about nuclear interceptors, especially in the context of biological or chemical submunitions and dealing with that threat?

David Wright: There are certainly people who raise the issue that, if you want an effective defense, you really ought to make it nuclear tipped. There are some people who said that the threat is real, we need to have a real defense and therefore we ought to have nuclear interceptors, but I have not heard any sort of authoritative discussion of that from people in the Department of Defense. In fact, I think from their point of view, they are worried enough about the public response to the idea of nuclear interceptors that they have tried very carefully to distance themselves from the talk about nuclear interceptors. Instead, you will hear people talk about boost phase defense, trying to hit a missile very early on, as way of dealing with chemical-biological weapons.

Question: What strategy would you propose for getting the public to understand in a simple way that missile defense is against our interest? Do you think there is any strategy that would be effective to get Clinton to not make a decision in favor of deployment, separate from the technical arguments?

David Wright: Regarding the public, I wish I knew the answer. We've been working on this issue for a number of years and until recently the press simply wasn't interested in covering it. So you can put things on your website, but it is very hard to actually reach people. One of the things we did when we wrote our report on countermeasures was to get a professional animator to work with us to make a four-minute video that basically illustrates the kind of countermeasures that

we're talking about. This was intended to give people a mental image of what's going on, but it was also intended to give the national news media footage that they could show when they talk about this issue. So when the next missile defense test comes around, if they're looking for images to show as part of their story, they will hopefully show some of the video and that may cause them to talk about how the system can be defeated. We are trying to reach out in a very complicated debate.

What we've seen in our work on the Hill is that there are a number of people in Congress who in the past have understood missile defense issues, and have understood what the potential security costs are and what the problems of building defenses are, but they have seen the strong political wave of support for this program and have not been willing to stand up and speak against it. We expected that our report would give some of these people the technical arguments that they could raise as part of the debate over the system.

Question: We're having this debate now in Canada regarding Ballistic Missile Defense and Canada's role. We haven't been officially invited by the U.S. but it is rather implicit that they want Canadian involvement, particularly in the context of NORAD. One of the debates in Canada is whether we really want to assist the U.S. in breaking its obligations to Russia with the ABM. Do you sense or do you think that the U.S. allies, particularly its NATO allies, would have any effect? I know France has made comments critical of BMD. Would isolation from their major allies effect any decision-makers in Washington? I know it doesn't usually.

David Wright: I think the answer to that question depends on whether the debate is delayed beyond the election this fall. I think that, prior to the election, this is such a politically charged issue that people in Washington will take the point of view that we know that these countries are going to be upset, but we're going to go ahead and do it anyway. They'll come along - they'll complain, but they'll fall into line. If the decision is postponed beyond the election, it's hard to tell. There is a lot of concern in Washington about allied reaction, especially since the systems needs the radars in Britain and Greenland for the system to work. Canada is in an awkward position because, if United States deploys the NMD, the plan is to feed the information that comes from the sensors through NORAD. I have heard that there has been behind the scenes arm-twisting, with the U.S. telling Canada that if it's not part of the NMD system, then maybe it won't be part of NORAD anymore.