

THE PAKISTANI NUCLEAR WEAPONS PROGRAM

Presentation of Pervez Hoodbhoy on 14 July 2009, at a meeting in New York City sponsored by the Lawyers Committee on Nuclear Policy and *The Nation*.

PETER WEISS: My name is Peter Weiss and I am President of the Lawyers Committee on Nuclear Policy. I welcome you to what is sure to be a highly informative and challenging presentation about an extremely important topic.

Pervez and I had a mutual friend, Eqbal Ahmad. He was one of the great mentors for several generations in the last century. He was a professor and writer and activist until he died ten years ago. We all miss him greatly. We have with us today his widow Julie and Dora, his daughter, welcome Dora. This is the kind of meeting that Eqbal would have loved. I want to recognize my colleague, John Burroughs, the Director of the Lawyers Committee on Nuclear Policy. We have some people here from the *Nation*, which is co-sponsoring this meeting with the Lawyers Committee on Nuclear Policy. I also want to recognize Iqbal Riza, former Chief of Staff to the Secretary General of the United Nations, Ann Lakhdhir, of the NGO Committee on Disarmament, Peace and Security; another distinguished scientist from Princeton, Zia Mian; Jim Paul, who insists that the Security Council take note of the existence of civil society. And Randy Rydell, from across the street with the disarmament section of the UN Secretariat.

This a very important time to talk about ridding the world of nuclear weapons because so much has happened in the last two years to make people think that maybe it is not a totally hopeless task. It is not totally hopeless, but it is an extremely difficult task.

In his introduction to a recently published book, *Toward a Nuclear Weapons Free World*, Manpreet Sethi, the Director of the Indian Centre for Air Power Studies, said: “The journey towards a world free of nuclear weapons is in its initial stage, and it is obvious that it will entail passing through dense forests of mistrust, dark tunnels of cynicism, and the frosty waters of frustration.” In case you didn’t know.

Our speaker today is a very distinguished scientist. He is one of those rare people in the age of specialization whose professional work is quite divorced from his activity as a political analyst and activist. Having started out as a nuclear physicist he is now basically a theoretical physicist. The two things that he is pursuing in his work are space and time. And by way of introduction, without mentioning any of the degrees he has accumulated and all the awards he has won, I thought I would do something a little shorter, and a little different, and give you some of the titles of pieces he has written, or that have been written about him.

One is called “It’s yet Another Pakistani Nuclear Anniversary Today.” Another is called “What Pakistan’s Bomb Could Not Buy”. Another is titled “Reforms, What Reforms?” The last is called “The Wages of Obedience.” I think this will give you a general idea of what to expect from Pervez Hoodbhoy.

PERVEZ HOODBHOY: Thanks very much for the introduction. I am grateful to the Nation and the Lawyers Committee for the invitation to be here and pleased to meet all of you.

It has been over twenty five years since I first began thinking and arguing against nuclear weapons in Pakistan. But for the last year or two, I have thought very little about them. Perhaps the last time that I was seriously alarmed was eight months ago, immediately after the attack on Mumbai. I was on Pakistani television with a retired army general, formerly the Minister of Defense, General Hamid Nawaz, who said “We shouldn’t wait for India to attack us. We should attack right away and nuke them if they appear to be readying for an attack”. We had a thoroughly unpleasant time tangling on the screen.

The reason that I don’t think too much about nukes is – because where I am – other problems have become so incredibly pressing. The meteoric rise of fundamentalism, the ascendancy of the Taliban, the fact that they are almost at the gates, the fact that living in Islamabad (where I teach) is now so different from before. These developments tend to drive other issues away from your mind.

But having said that, nuclear weapons are just as dangerous as they have always been. Getting rid of them is no easier, and also no less urgent. I would like to spend some time talking about Pakistan’s nuclear program. In particular, how it came into being and recount key events over the thirty five years since it started. This may help us understand the issue in greater depth so that we conceive of ways to ultimately do away with nukes.

I would like to divide Pakistan’s nuclear development into three phases.

Phase I: 1972-1987. I’d call this the development phase. Earlier, one could argue that General Ayub Khan, who took over as the chief martial law administrator – and then became the President of Pakistan in 1962 – had toyed with the idea of Pakistan making nukes. But this did not amount to anything even remotely serious until 1972.

Why 1972? Well, in 1971 there was a civil war in Pakistan that ultimately led to the Indian invasion of East Pakistan and the subsequent creation of Bangladesh. It was a major trauma for Pakistan. Zulfikar Ali Bhutto (Benazir Bhutto’s father) was then Prime Minister of Pakistan. He felt very strongly that Pakistan needed nuclear weapons to protect the remainder of Pakistan from India. So in 1972 he called a major meeting in the city of Multan. Lots of Pakistani scientists were assembled there, including several that I know. In a highly emotional speech he challenged them: “I want you to make the bomb. How long will it take?” The chief of the Pakistani Atomic Energy Commission, said “Oh it is not an easy thing. It will take us fifteen years, maybe twenty.” Bhutto said “You are fired.” So that man was out, and Munir Ahmad Khan was given his job. I contend that although Indians justify their test two years later by saying that Pakistan had started its nuclear development in 1972, in fact there was nothing like that. Pakistan began seriously after May 1974, which was when India tested.

The May 1974 test set off shock waves in Pakistan, leading to its own Manhattan Project. Pakistan initially set about going in the same direction that India had set, which meant extracting waste materials from the nuclear reactor supplied by Canada, located in Karachi and known as the Karachi Nuclear Power Plant (KANUPP). The hope was to reprocess wastes into bomb-grade plutonium. So Pakistan ordered a reprocessing plant from France, which was perfectly

happy to sell one. But the Americans got wise. Why do you want a reprocessing plant? It did not make economic sense.

So that deal was stopped. For a while it seemed that Pakistan was not going to succeed in getting nuclear weapons. But then there was a man you've probably heard of, Dr. A.Q. Khan, who was working in Belgium and Holland in the early 1970's. He was employed by URENCO, which is a European company that specializes in enriching uranium for reactors using ultra-centrifuges. Basically the idea is to mine uranium ore from the ground, convert it to gas, and then spin it around in a centrifuge. This is a glorified spin dryer, but spins around much much faster. Then you take off the enriched uranium by stages. That way you get the material for a bomb. It is not the highest of technologies but it is not easy because these motors spin at super speed and so you need very strong steels. A.Q. Khan was a metallurgist specializing in strong steels. He was also a fervent nationalist and strong India-hater, and wanted revenge for 1971. So he stole designs and centrifuge parts, and then went to Pakistan where he began a program to reverse engineer the technology he had chanced upon in Europe.

By 1986 Pakistan probably had nuclear weapons, and most certainly had a complete one by 1987. They were not immediately deliverable at that time. Certainly they had been "cold-tested", but presumably they were big heavy things. To convert them into something that is deliverable by aircraft or missile took more time.

Around that time there was very little understanding of operational matters. Even the army had very little understanding of what nukes were about. I can say this with confidence because I would occasionally have visits from army officers taking war college courses. They were incredibly naïve at that time. They came because I had just written about how dangerous nukes are, why we shouldn't have them, how accidental war is possible, permissive action links, etc. The officers heard about these issues for perhaps the first time. That was the age of "nuclear innocence" which ended slowly, but definitely. By the mid-90's, these visits stopped.

Second Phase: 1987-2001: During this phase of Pakistan's nuclear development, stockpiling of weapons began and they entered the phase of becoming actually usable. So, on the one hand, the production of bomb-grade uranium 235 became an industrial scale process. Various departments connected with weapon-making were created. Some concentrated on the neutron trigger, some upon metallization of uranium hexafluoride, and on the precise machining of the uranium cores, and so forth. Electronics, explosives, case manufacture,...the complex process was compartmentalized and systematized. Specialized personnel were trained for those particular tasks.

This was also when the nuclear doctrine was internally debated, together with the ways in which the nuclear weapons would be stored, put together, and readied for use. All this was confined to the army. What the political leaders of Pakistan have thought about nuclear issues hasn't mattered very much in Pakistan's history. With a full-fledged and still growing nuclear arsenal, the army became more sophisticated. It started thinking of what these weapons could do beyond a boring standoff with India.

Soon the Pakistan army began to see new possibilities, new potentialities. Now India's much bigger conventional force could be balanced off. So it was no longer to be a Pakistani nuke for an Indian nuke. The notion of a nuclear shield became popular. It would allow Pakistan to pursue its foreign policy in ways that would otherwise be impossible. Militant mujahideen groups, left over from the Afghan war, were brought in for training in camps within Pakistan. The goal was to "bleed India with a thousand cuts" in the hope that India would find the occupation of Kashmir much too expensive and then effectively withdraw from Kashmir.

As a consequence of this way of thinking, Pakistan has had a very unusual relation with nuclear weapons. Normally you might think that nuclear weapons assure stability and prevent war between states, but not here. In fact, Pakistan and India have had four major nuclear crises. Let me recount them.

1987: This crisis coincided with an Indian military exercise known as "Operation Brass Tacks", initiated at a time when the temperature in Kashmir was getting high. Elections in the Indian controlled Kashmir had been rigged by the Indian authorities, setting off widespread protests by Kashmiri Muslims. Indian authorities began a bloody crackdown, and India held Pakistani provocateurs responsible. India held Pakistan to be responsible for this but my personal opinion is that this was untrue. Indian General K.S. Sundarji's military exercise was designed to provoke. A large number of Indian tanks moving towards the Pakistan border – much along the same pattern as had been seen in the 1971 war – set off alarms in Pakistan. Reportedly, Pakistan conveyed to India via US intermediaries "you can't come that close to the border, we've got nukes". Was the threat actually conveyed? Perhaps. Generals on both sides deny it. But newspapers on both sides certainly rattled the nuclear saber. So, one may properly call this Pakistan and India's first nuclear crisis.

1990. Much the same thing happened in May of 1990. Again, Kashmir was at the root. The lore is that American satellites picked up images of nuclear weapons being moved out of Kahuta, the uranium enrichment plant and supposed repository of nuclear weapons. The weapons were supposedly headed towards Chaklala air base, and loaded onto the F-16s waiting on the tarmac. Robert Gates of the National Security Council says he communicated this to the Indians and defused a possible nuclear war.

1999: This crisis started around January 1999 and ended in July 2000. General Musharraf's belief that nukes had made Pakistan impregnable led him to start the incursions into the Kargil area of Kashmir. He calculated that this would make Kashmir too expensive for Indian occupation. And so initially hundreds, and then thousands of mujahideen, as well as regular soldiers disguised as mujahideen, were sent across the Line of Control. They occupied the high mountains and, using artillery, created havoc on the Indian forces below. India responded but took heavy losses. Two Indian aircraft were shot down and crashed on the Pakistani side. The potential for a full scale war grew. Then, on the 4th of July, 1999, the prime minister of Pakistan came to Washington in an agitated state and essentially agreed to American demands to back out. It is said that President Clinton asked him: do you know that your forces have readied nuclear weapons and you could even have a nuclear war? Apparently that was the tipping point, and Nawaz Sharif agreed to an unconditional withdrawal. It was an enormous setback for Pakistan, which had denied that its troops were involved in the invasion.

2001: The attack on the Indian parliament on the 13th of December, 2001 triggered a tense crisis. Carried out by a jihadist group, Jaish-e-Mohammed, based in Pakistan, the attack left 13 dead including all five attackers. It could have led to a much greater disaster if parliamentarians had actually been killed. Subsequently, a standoff developed between the two forces that lasted for many months. The Indians brought up their army onto the border with Pakistan in a threatening posture. There was fist shaking on both sides, nuclear threats were freely hurled. Then India realized that going further was impossible. With nukes on the other side, there is not much you can do. And so, after many months, it had to back off. Pakistan claimed this as a victory, although I don't know why we claim it as a victory because it certainly did us no good.

More or less the same thing happened at the time of the Mumbai massacre. This was a group that was indeed based in Pakistan, but the Pakistani government almost certainly did not know that this group was to attack. Yet, exhibiting plain political stupidity, it initially went through a period of denial. I had a debate on television with an army general. The anchor asked him, who do you think was responsible? He said the Indians of course – they just want to make us look bad. Or if it is not the Indians it has got to be the Americans or the Jews. We had a rather unpleasant session.

Once it became clear that it was a Pakistani group, the rhetoric heated up. The Indians were very angry. The Pakistanis, seeing that the Indians were angry, got even angrier. The fact that India did not attack Pakistan is commonly held, even today, as proof that deterrence works. Hey, look, these are guys four times bigger than us but they did not dare to attack. It shows we have got to keep our nuclear weapons.

So in fact, whenever I speak against nuclear weapons, I am reminded of this. Weren't they going to attack us? And didn't our nukes stop them? What can you say to that?

What I do say is that without nukes we would not have supported murderous jihadist groups. Without a nuclear shield this option simply would not exist. The fact that we have nuclear weapons has given Pakistan temporary protection. Maybe we will get through the next crisis as well, and the one after that. But how long can we keep playing with fire? This isn't giving us peace. This isn't giving us security. In fact these nuclear weapons make us more vulnerable because they create fantasies in the minds of our generals. The sooner we do away with nukes the better. What have these nukes done for us? They haven't given us scientific greatness. They haven't made Pakistan a great power. Nor have they brought economic well being to the country. These are all of the arguments why we should not have nuclear weapons.

Third Phase: 2001-present: Then comes a brand new phase that follows Pakistan's post 9/11 U-turn. Earlier, Pakistan had not just supported the Taliban, it had actually created them. There are at least two Pakistani political leaders who claim to have fathered the Taliban and have a bit of a squabble on the parentage issue: Naseerullah Babar who was the interior minister for Benazir Bhutto, and the other is the head of a religious political party, Maulana Fazal-ur-Rahman. Pakistan's deep involvement simply cannot be denied. General Musharraf gave two reasons for the drastic action of dumping old friends: that Pakistan would lose Kashmir, and we would lose our "crown jewels". This, in fact, is how the army refers to its nuclear weapons. Of course, it's quite ironical that protection of nuclear weapons – which were supposed to have

made Pakistan so totally secure – became a principal reason for selling out on a supposedly important strategic asset.

I would call the period from 2001 to the present time, the protective phase. The primary thought in the establishment's mind is to protect the nukes. Protect against whom? Well, first of all, the Americans who, if they could, would walk in and take away Pakistani nukes. They fear that some radical Islamic group will gain access to them, or Pakistan may share them with a country hostile to Israel.

Incidentally, when I give a talk in Pakistan which has nothing to do with nukes, but about the Taliban, and how we are under threat from them, and how things have gotten from bad to worse, and what we should do, there are inevitably hostile questions from the audience. "Professor, don't you think our problems are because of the Americans? They want to create instability in Pakistan to have an excuse for taking away our nukes". This makes as much sense to me as saying that the Jews orchestrated 9/11.

On the other hand, there is no denying that the US would like to get its hands on the nukes. This is why it puts in a lot of time, money and effort in locating them. But seizing Pakistani nukes is simply not an option. I would imagine that the utmost precautions have been taken in securing and hiding them. Suppose that the US knows where 60 of Pakistan's 100 nukes are located and captures or destroys them in a crisis. But that still leaves 40 left over, an enormous number. Even 4 is huge.

Of course, it is not just the Americans but also internal forces that have to be kept out. Pakistan's nuclear establishment has now been attacked repeatedly by the Taliban or by people whose identity is unknown. The ISI (Inter-Services Intelligence) now lives in mortal fear of its own creation after its headquarters in Rawalpindi and Lahore were attacked, and its officers killed in numerous other suicide attacks. Now this is a worry in everyone's mind: if the inner core of the Pakistani establishment is being attacked by the Taliban and by Al Qaeda, what does this imply for the safety and security of Pakistan's nuclear weapons? There is no doubt that they would like to get their hands on nuclear materials and nuclear weapons. So how to make them secure against this kind of threat, especially one that could come from sympathetic officers within the army or nuclear establishment? Well, there is no good answer to that. Certainly a lot of money has been spent. The Bush Administration gave something like 100 million dollars to the Strategic Plans Division, which is the organization that handles the nukes, for installing all kinds of electronic locks and other preventive measures.

Then, there is protection needed against more proliferation episodes of the Dr. A.Q. Khan variety. As you all know in 2004, Khan publicly admitted on television to having freely spread nuclear technology. Centrifuges, uranium hexafluoride, various nuclear parts, and even a complete bomb design found their way to Libya, Iran, and North Korea. He claimed that he, and he alone, was responsible. But this was clearly a lie – which he later admitted – and a part of the deal under which he could keep his ill-gotten earnings and stay out of jail. Everybody knows that you can't take so much as a match box out of Kahuta, the nuclear enrichment facility, without being intercepted by the security. How could half-ton centrifuges be quietly smuggled out? The

fact that Pakistani air force planes were used to ferry this material to Africa was certainly something that could not have happened without official complicity.

Immediately after 2004, the walls on the nuclear establishments across the country became several times higher. In the seventies and even the eighties I would often go to these nuclear facilities, sometimes to give talks, sometimes to use the library, or to meet people. Many of my department's students are employed there. It used to be a relatively open sort of place. This all changed. Presumably the nuclear trafficking has stopped. But it is also certain that not all the networks have been disrupted since an inflow of materials and technology is needed to keep the nuclear weapons fabrication going. But the outflow is said to have stopped. It's hard to say what the truth is.

To summarize the safety and security aspect: all the things that can be done – at least on paper – have been done. So I suppose that we should be glad that nuclear weapons are safe. I stress that there is no evidence to the contrary. On the other hand, that worry should not disappear. The fact is that the Pakistan army, since the time of General Zia-ul-Haq, has been recruiting officers and men on the basis of faithfulness to Islam. In the recruiting camps large banners proclaimed “jihad fi-sabilillah” (jihad for Allah). A fairly secular army was gradually converted into fighters for Islam. Even though the trend has been reversed, this is now a different army from that of 30-40 years ago. And nuclear weapons are only as safe as the people who handle them. One can think of nightmare scenarios, of collaboration between those in the army and those within the strategic plans division and extremist elements outside. There is no solid proof of danger. Contrarily there is no proof that a takeover by radical elements is impossible. This is going to remain a multi-billion dollar question for a long time to come.

Finally, I want to guess the future of nukes on the subcontinent. Currently, India and Pakistan are making as many nuclear weapons as they can, improving their delivery systems, building more and better missiles, etc. With its new-found economic strength, India is moving ahead much faster than Pakistan. The US-India nuclear deal has given India the possibility of having much more fissile material than it had access to in the past. As you know, India is strapped for uranium reserves. If it uses all of its domestically mined uranium in its nuclear reactors, I don't think it will have more than ten years of fuel left. Among other things, the US-India nuclear deal permits India to purchase nuclear fuel and thereby frees up its local stock for weapons production. This is absolutely unconscionable because it enormously speeds up the arms race.

Frankly, I find myself alarmed by the rate at which India is arming. It has just bought/leased a 12,000 ton nuclear submarine from Russia. This is going to make India one of perhaps four countries to have nuclear submarines. Its defense budget has shot up to 28 billion dollars a year, and the defense minister says it will go to \$40 billion next year. Compare that with Pakistan which sends between 6 and 7 billion dollars annually.

That is making it harder and harder for people like me who argue against nukes in Pakistan. When you talk to Indians they say, oh you Pakistanis should not worry, we are not even thinking of you, we are thinking much bigger – of the Chinese and then maybe beyond. Indian nationalism is going wild. They are not just making more nukes, but also thermonuclear nukes.

The one that they tested in 1998 may or may have worked well, but a thermonuclear bomb puts them miles ahead of Pakistan.

Given this situation it makes it pretty much impossible for the Pakistani government to cut down its nukes until India does. Alright, so what is it that might induce India to move towards nuclear disarmament?

In this context, I would say that the global trends are encouraging. The fact that there is this talk between the United States and Russia to limit the number of nuclear weapons and go beyond SALT and START is very good. If the Comprehensive Test Ban Treaty is ratified, and progress can be made on the Fissile Material Cutoff Treaty, it would amount to enormous progress also for the India-Pakistan situation. India would have a very hard time fighting a global consensus against nukes.

Pakistan badly needs a fig leaf in order to stop its program. I have talked to some important people involved in making nukes. There I sense the beginnings of a realization that nuclear weapons are not making us more secure. This may not be the view of the common man in the Punjab where the nuke rhetoric is still strong. But Sindh and Baluchistan are far less enthusiastic.

The hope of global nuclear disarmament is looking a little brighter with President Obama. If we can get progress here in the US, that progress will be reflected elsewhere as well. I think I have pretty much said all that I want to and would like to take your questions.

PETER WEISS: Thank you for your presentation. I was fascinated because when we developed nuclear weapons in this country, they were supposed to serve a psychological purpose. Some people still believe in deterrence. You painted a picture of nuclear weapons in Pakistan being intimately related to foreign policy goals. The floor is now open for questions.

The Nation: How possible is it for jihadists to get their hands on material for nuclear materials?

PERVEZ HOODBHOY: That's the billion dollar question. We are given to believe that Pakistan's and India's nuclear weapons are disassembled, which means a weapon is in at least two pieces. One would be the uranium or the plutonium core. The main body of the weapon is stored separately, probably close to either an air field or a missile site. So it is very unlikely that a complete weapon could be stolen and hijacked. Let us say that a complete weapon was hijacked. If we believe what we are told – that electronic locks and permissive action links have been installed on weapons – then the weapon would be useless unless it went through certain environmental changes. So, suppose you have a bomb designed to be dropped by an aircraft. The bomb could only be activated if it goes through free fall. Similarly, if it is to be launched by a missile, the bomb plus missile has to go up for a while before the weapon can be activated.

The long and short of this is that if an extremist group hijacks a nuclear weapon, then it is unlikely that they would get much benefit. On the other hand, what if they can get the core? That's lethal stuff because it is useable elsewhere. The core of a uranium weapon is about 20 to 25 kilograms of highly enriched uranium. Now suppose they could steal three or four such cores. I am not saying that would be easy, but perhaps they are located close to each other. Or what if I

could steal some highly enriched uranium material from a storage facility? Over time if I could get 90 to 100 kilograms of HEU then I could make a crude bomb rather easily. Basically that just requires two pieces of uranium big enough to come together and stay together long enough for a chain reaction to develop.

If you ask me what the chances for this kind of theft are, I'd say they are very small. But, given the consequences, this is not something that one can neglect. Of course there is a lot of uranium 235 around. There are stockpiles that exist in ex-Soviet Union countries. Some of the Russian fissile material has been bought by the US under the Nunn-Lugar bill but a lot remains. There is also uranium around in other places. As long as this stuff exists there is a danger for all of us. In Pakistan I think the dangers are greater than elsewhere of material being stolen, but the material is all over.

RANDY RYDELL, UN Office for Disarmament Affairs: You mentioned your satisfaction with some current trends, more favorable views, the atmosphere and talk of the desirability of a nuclear free world. Do you see a counter attack on these views? Commentaries have come out challenging this view. You see over and over again the argument that nuclear weapons are needed as a way of providing extended deterrence. We provide security so that they do not have to have nuclear weapons for themselves.

Then there is the argument that nuclear weapons are useful for deterring conventional war, for crisis stability.

The third argument is that whatever the US and Russia sign, it will not affect the decisions made by other nuclear powers.

If you look at these three arguments, the value of extended deterrence, crisis stability and the irrelevance of US and Russian actions for others, what the best way of countering these arguments?

PERVEZ HOODBHOY: Well, the Old Guard is hard at work. I don't think that the expectations of European countries today are the same as in earlier years during the Cold War. Nuclear weapons are quite un-useable and irrelevant to fighting wars and providing protection. Conventional weapons are the weapons that are actually being used, as you well know. So supposed you ask countries that are ostensibly protected by the US nuclear umbrella – Germany or Japan or countries in Europe and Asia – the following question: do you want the US to have its nuclear weapons knowing that its possession of nuclear weapons will continue to fuel the pursuit of nuclear weapons by the rest of the world? The answer from those countries would probably be a resounding no. So one refutation of the Old Guard's argument is people don't want nuclear weapons protecting them.

The second question was about deterring conventional war – crisis stability. It is true that crisis stability exists between Pakistan and India or rather that Pakistan's nuclear weapons have deterred Indian attack. But there is no theorem that it would continue to do so. It could fail the 9th time or the 10th time and the consequences of that are just catastrophic. It is true that there was no hot war during the Cold War, but had the Cold War continued longer, would we be safe for

the next 200 years? We don't know, and I quite doubt that we could have averted catastrophe. But that is just matter of endless speculation.

Your third point is that the way that countries look at nuclear weapons is irrelevant to what the five nuclear weapon states do. Of course every country looks to its own security, but the fact that nuclear weapons have become a kind of currency in the world has certainly given a kind of legitimacy to countries like Pakistan, India and Israel – and now even to North Korea and Iran. Take away this legitimacy and no country will dare to have nuclear weapons because it will become the object of international sanctions. But those sanctions cannot be morally applied as long as others say that they must have nuclear weapons. Yes, it is true that North Korea will be obsessed with South Korea – even if the US were to disappear from the face of the map, it would still feel insecure. So would Pakistan be obsessed by India. But I feel that neither should have the option of having nuclear weapons. That option can only be taken away if there is a global ban on nuclear weapons, where it becomes taboo for any country to possess these awful weapons.

ELIZABETH SHAFER: How can a global ban be achieved?

PERVEZ HOODBHOY: Certainly one thing is that we have got to get the whole world involved in this. One cannot have a bilateral or trilateral agreement because this is a truly international issue. Defective as the NPT was, at least it did hold back the nuclear tide. Now it has become virtually irrelevant because it has been violated so badly. One should look beyond it. I think that the CTBT and the FMCT are both promising in this regard. They have teeth. You don't really need a test ban if you want to test fission weapons. I must qualify that – normal fission weapons, not the fiendish ones that are so small as to be actually useable. But the bigger ones, hydrogen bombs, do need testing. They aren't much good unless tested. So the CTBT would prevent the next stage.

The Fissile Material Cutoff Treaty would be important because it would limit the number of weapons that countries could make. And other countries would not be able to make them. I see these two treaties as very important, along with the Chemical Weapons Convention. It also brings in the question of verifiability, to make sure there is no cheating.

JIM PAUL: I am wondering since so many nuclear weapon powers have built so many nuclear weapons under civilian auspices ostensibly, how would you see the role of the army in Pakistan?

PERVEZ HOODBHOY: So your question is on the effect of nuclear weapons on domestic politics?

JIM PAUL: The other way around.

PERVEZ HOODBHOY: The dominance of the army in Pakistan is not directly connected with nuclear weapons. The reason the army has become so strong over the decades goes back to the history of Pakistan and the siege mentality that followed. It was created with a single idea, that Muslims cannot live with Hindus, and therefore they need a separate state, Jinnah's two nation theory. The assumption was Muslims would always live comfortably with each other. So Pakistan was not a very well thought out idea and when it came into being, basically it was

looking for what it was all about. Between 1947 and in 1971 you had political leaders who didn't really have an answer to that question. In 1971 we saw the breakup of Pakistan, Bangladesh separated itself out. And then if you look at the time since 1971, something like half that time Pakistan has been under military rule.

Why military rule? A mature political establishment did not exist. Quality of leadership, and a clear vision of what Pakistan was all about, simply did not (and does not) exist. The military, as a powerful organized group intervened repeatedly, and each intervention made the political leadership still weaker. I'm afraid we still haven't gotten out of that kind of cycle. You need extended periods of democratic rule – rule that is forward-looking and not too corrupt. So we are locked into a cycle where the military intervenes when the political establishment fails. Then the military makes a hash of it and the politicians come back. Maybe we can break the cycle at some point.

But nuclear weapons are not directly relevant here. The army has enormous power, making them the determiners of foreign policy. How should we relate to India or the United States? If the keys are in the hands of the military, as with the keys for the control of nuclear weapons, then that puts limits on what the political leadership can do. What we need is a strong, popular, and manifestly uncorrupt leader. No political leader in Pakistan so far has even attempted to take that power back from the army. Benazir Bhutto said in her memoirs that she wanted to go to Kahuta where the enrichment takes place, and she wasn't allowed to. Very recently President Asif Ali Zardari made the statement that Pakistan would not use nuclear weapons first. And that simply did not get anywhere. India has declared a no first use policy and Zardari, as President of Pakistan, tried to match that, but nobody took it seriously. I don't believe he has retracted it, but the fact that he said that is perfectly irrelevant and everybody knows that.

IQBAL RIZA: May I just make one specific point, following up on the question and response. Two critical decisions in this whole nuclear story were taken by civilians. Bhutto is the one who decided that we were going to build nuclear weapons. And that was certainly not under pressure from the army. He had the army in back of him at that time. He came into power and decided. We know his sayings. Without going into detail I think that decision was inevitable. When you have that deep an antagonism between India and Pakistan it was inevitable, just as it was inevitable that the Soviet Union would develop nuclear weapons.

The second was the decision taken by Nawaz Sharif to withdraw from Kargil. He was passionately opposed to that decision. But that decision again was taken by a civilian political leader, by Nawaz, so while the army has played a major role in this, these two decisions were taken by civilians.

PERVEZ HOODBHOY: I absolutely agree with you that Bhutto initiated the nuclear program and he said he was to be hanged by Henry Kissinger because he had set out on this path. And you are also right that there is a consensus within the Pakistani political establishment about nuclear weapons. But what I was talking about – the power to make decisions on nuclear matters – is not something that the political establishment ever had. And it knows this well. So everyone was astonished when Asif Ali Zardari declared: oh, we are going to go for the No-First-Use policy.

ANN LAKHDHIR: How much do you feel that the appeal of the Taliban is not just based on Islamic fundamentalism but also is a reflection of the parts of Pakistan that are still basically feudal, so that there is an economic aspect to this when the Taliban has toppled land lords. And if the political authorities are not the ones determining policy, including domestic policy, what role does the army play in this?

PERVEZ HOODBHOY: So the question is: what made the Taliban ascend in Pakistan? And is their appeal based on social and economic issues? Indeed there is a view that fundamentalism, radicalism, extremism, arise because people lose hope of justice from within the system. They are poor, they are uneducated, things are bad in an undemocratic society etc. and so there is no recourse but to go for violence or extremism. Whatever we see in Pakistan is a response to social injustice. Well, that is one point of view and has a certain amount of merit. But I think that there's much more in reality than just this. While poverty, deprivation, and injustice create a fertile ground for such forces, the fact is that poverty is nothing new. Similarly the system of justice has been appallingly bad for as long as anyone can remember and has been made worse by the fact that the population has grown immensely. Education: It is hard to make a case on that, because about 50% of the Pakistani population is said to be literate today whereas only about 28% was literate about 20 years ago.

Most people fail in Pakistan still fail to recognize that extremism is being propagated deliberately and with international support. Al Qaeda is an import; Saudi ideology is an import. It did not exist 30 years ago. American help for the fight against the Soviets brought these to Pakistan. The Mujahedin were created to fight the Soviets, as were the madrassas which are now a curse to Pakistan. Remember that the CIA's line was that Islam was in danger and it arranged to distribute Korans all over the tribal areas and Afghanistan. A massive hate-communism book project was taken up by the University of Nebraska, a fact that it should be thoroughly ashamed of.

The extremist must be confronted directly. At present the approach is something that I think is ineffective. Fine, you make more roads, dig more wells, have more schools – until they are taken over by the Taliban. You can have more doctors, better health facilities, etc., but that won't take away the strength of the Taliban. They are the product of a poisonous ideology, and that ideology must be countered directly. In fact, I think the situation is not really as dangerous in the tribal areas of Pakistan as it is in the cities.

The way to confront this has to address poverty and education and justice, of course. But one has to take away the weapons, and monitor what goes in mosques and madrassas. The government has done absolutely nothing about this. It seems to lack will. You have heard of the Red Mosque. One of the two leaders of the Red Mosque who survived, Maulana Abdul Aziz, was briefly in prison but has been released and is back in Islamabad. Two years ago he had waged a pitched battle with government forces, as a result of which about 150 people were killed. Today, jihadist literature is being sold in the same place. It is about two miles away from my university. This is the sort of signal that the government is giving. You can fight the Taliban in Waziristan or in Swat, but here the authorities are allowing them to propagate and propagandize freely. It's the same mistake which was made two years ago.

PETER WEISS: Pakistan is the area where a nuclear engagement is most likely to break out. And in India there is a certain hypocrisy. India has been in the forefront of arguing for nuclear total nuclear abolition internationally, and beyond that for general and complete disarmament. And at the same time, as you pointed out, they are going full steam, increasing the diversity and number of their nuclear weapons and acquiring new technologies, whereas in Pakistan you have almost the opposite. You have the veneration of nuclear weapons in India. Wouldn't it be nice if Pakistan called India's bluff, and said, neighbor, you want to abolish nuclear weapons worldwide? Let us Pakistan and India, take the initiative, together. And we will say to the rest of the world, we two at the edge of the nuclear holocaust, are taking the initiative to call on the rest of the world to eliminate nuclear weapons altogether. When you go back to Pakistan will you suggest that?

PERVEZ HOODBHOY: Actually, Pakistan has suggested a nuclear weapon free zone. It has made suggestions. And India has rejected them and says we are not thinking of you, we are thinking of China. And yes, what you say is exactly what some of us have been saying for years.

PETER WEISS: Yes, China, the US, Israel...but I am not suggesting just a nuclear weapon free zone, but Pakistan and India take the initiative to do what unfortunately Obama is not yet ready to do, that would go beyond START, beyond CTBT, beyond fissile materials cut off for an international conference that would begin the serious work of bringing about a world free of nuclear weapons.

Thank you very much, Pervez Hoodbhoy, for your fascinating presentation, and all of you for coming and contributing to the discussion.