

Transcript of Interview with Roland Timerbaev
Conducted by Rich Hooper and Jenni Rissanen
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Jenni: Hello, my name is Jenni Rissanen. I am an independent analyst and writer of international arms control and disarmament negotiations. I am also a former IAEA External Relations officer, in Geneva.

Rich: My name is Rich Hooper. I have a long involvement in this business with considerable experience at the Agency, that included extensive experience in Iraq, with DPRK, and South Africa. I was program manager of Programme 93+2, Director of the Division of Concepts and Planning, and since leaving the Agency I've been involved in safeguards in Japan and have continued to work with the Agency under the auspices of the UK and US support program.

Jenni: In this part of the interview series we look at the first steps toward international control of nuclear energy and how those steps were further developed in the negotiation of Article 3 of the Nuclear Nonproliferation Treaty. To learn more about those developments we have the honor to speak with someone who was closely associated with those processes. He has had a long and distinguished career in representing his country in numerous international arms control negotiations, including the NPT. As member of the Soviet delegation at that time he was also instrumental in the development and formulation of safeguards, both before and after the NPT. It is my pleasure to welcome our guest, Ambassador Roland Timerbaev.

Roland: Thank you very much. I am happy to join you for this interview.

Jenni: Roland, could you start by telling us about the early days of your career. How did you get involved in this work?

Roland: When I finished my studies at the university I was invited by the Foreign Ministry to join the United Nations desk. It was late 1940s. And since all disarmament aspects within the competence of the United Nations, there was the United Nations Atomic Energy Commission. Since the 1940s I was involved very much so I took part in the negotiation of the various arms control agreements, like the NPT, ABM Treaty, CTBT, and so on. And I spent 45 years in the foreign service and I'm now mostly teaching and writing for my students who I want to know more about that. It's a very important issue, the nuclear factor. Something which is terribly important. And I want my students in various countries to know more about that.

Rich: Roland, you've been involved in this business of safeguards longer and at a higher level than anybody I know. Take us back and tell us how and why this whole business developed.

Roland: Safeguards, international safeguards, have a very long history. And in all probability they will have a long future. The whole thing started even before the nuclear

weapons were created, were manufactured. In about 1943, before the first nuclear test in Alamogordo, Neils Bohr was the first, a very famous Danish scientist, physicist. Neils Bohr was the first to introduce the concept of international control of nuclear energy. And he started very actively to promote this idea in his discussions. It was so important. He met Winston Churchill of Great Britain. And he met President Franklin Delano Roosevelt in Washington. And he wrote so many people like administrators of the Manhattan Project. His view was that since scientists are responsible for the discovery of nuclear energy, and since scientists manufactured nuclear weapons, they must be responsible for any action that would be needed in order to control the terribly destructive weapon. So he introduced this concept of international control of atomic energy and very happily it was supported by many of his colleagues, many of his colleagues. In Los Alamos, in Chicago, in Hanford, and later on in Russia. People like Peter Kapitza (sp), or Andrei Sakharov (sp), or Liev (unknown name), who were making Russian nuclear weapons. They also supported the idea of international control. And eventually, after WWII, the United Nations government set up a commission headed by Dean Acheson, who was at the time Undersecretary of State, and David Lilienthal, who became the first Chairman of the US Atomic Energy Commission, went to work on a plan to control nuclear energy. They invited a group of scientists. People like Robert Oppenheimer, Ernest Lawrence and a few others, and they wrote this report. According to Edward Teller, who I knew personally, he was sure that the report was written mostly by Robert Oppenheimer. And he gave me a paper in which he gave facts about that.

So this report was presented to the government and after that the Commission for Atomic Energy was set out by the United Nations. And the United States was the first to present its plan to the international community, to the UN Atomic Energy Commission. Unfortunately, though, the man that was appointed by Harry Truman, then President of the United States, he put some changes into the original report. One of them was the atomic development authority that was to be established by the United Nations wouldn't be under the aegis of the Security Council right of veto. And secondly he also wanted this authority to be able to punish any violators of the agreement. So with these two additions made by Bernard Baruch, who wasn't an expert, who was a financier and banker, they actually doomed the whole idea to failure. The Russians too, the Soviets rather, presented their plan. A rather simple one that asked the United States to dismantle their nuclear weapons, and without any verification, any control. This was also a plan that was doomed to failure. That's how it happened.

So the Commission went forth 2 or 3 years and then was disbanded. But the plan, this original plan, which was proposed by scientists and was under the aegis of the Acheson-Lilienthal report, is still a very important document. It is 60 years old but if humankind ever comes to a point when it will decide that nuclear weapons must be finished with, then I think and I believe that this plan may be used as a basis for future actions leading toward a world free of nuclear weapons. Or at least to a world with much less nuclear weapons than we have today.

Rich: And the safeguards business, how did that develop?

Roland: The safeguards business was in this plan. But I wonder whether the world in the future will take up the specifics of this. For instance, uranium mines, which would be owned by the international atomic authority. On the basis of property it would be easy. I'm wondering whether it's possible today but of course will have to be done in the future to control uranium mines. The same was applied to production, to enrichment, to reprocessing, to all of that. Because by that time, by 1946 when the Acheson-Lilienthal report was presented, by that time the United States had all this infrastructure. Maybe not in as such modern and high tech form as today, but still the United States knew all the intricacies of this and they produced several weapons. One was tested in Alamogordo, two were dropped on Japan, and they had a few more left. Not many according to experts. In 1946 the United States had something less than 10 devices. And some of them didn't have even nuclear initiators. I think only 2 pieces had nuclear initiators. So it was not a big deal to do away with that. And by the way, Gromyko, who was the Soviet delegate of the Atomic Energy Commission of the United Nations, he wrote - his son wrote, was scribbling down what his father was telling him - Gromyko thought that in 1946 this question could be solved. But later on he changed his mind, because by the time Stalin was of course launching a huge atomic energy program, which led to the first Soviet nuclear weapon test in mid-1949.

Rich: In the international realm, the key event of this was Eisenhower's Atoms for Peace speech.

Roland: Yes, that's right. It happened in such a way that the first use of nuclear energy was in the military field. And you know the reason why, because those scientists had assembled in the United States - people like Hans Beth, Leo Szilard, or many others - they thought that Hitler was already involved in a nuclear weapons program. And he had excellent scientists, like Werner Heisenberg or Karl Fredrick von Heidezecker, or Otto Hahn, and many others. So the United States was interested in nuclear - before Hitler could do this - so you can't blame them for that. Surely you can't blame them for that. But the most reasonable way to use nuclear weapons - nuclear energy - is by producing electricity, giving energy to people and so on. So after the war, soon after the war - the late 40s and early 50s - both United States and Soviet Union, and Britain as well, started producing reactors that would generate electric power. And the industries both in the United States and in Russia were very much interested because they were the only knowledgeable entities who could produce civilian nuclear power plants.

Jenni: There was business to be made.

Roland: There was of course business to be made. For the United States it was mostly business. As far as Russia is concerned - and the Soviet Union then - of course it was not so much business, it was mostly a way of expanding its influence, over its allies, and over its friendly and neutral and non-aligned countries. So it was both business and politics. So United States companies, like Westinghouse and other and Russian companies, they were building nuclear power plants and they were supplying the recipient countries and of course the idea of safeguards as such received further development during this period because to do away with nuclear weapons you need safeguards. But that was a far away

project at that time because the nuclear arms race started. The supply of power reactors, civilian power reactors, was important for business and political reasons. And then the United States decided to establish this so-called bilateral safeguards. So whenever the United States provided country A or country B with a research reactor or a power reactor, it demanded some safeguards on a bilateral basis. As far Russia, or the Soviet Union then, is concerned, Soviets did not ask for safeguards, being kind of afraid of the Baruch Plan ideas about establishing very intrusive safeguards. So the Russians had chosen another way. First of all they wanted very strong commitments on the part of recipient countries that they would not use this for any prohibited purposes. And also the Russian wanted the return of spent fuel back to Russia. That was the condition of supply. And it was expanding very quickly, very quickly expanding. Dozens of agreements were signed either by the United States or Soviet Union – and many reactors, research reactors and so on, were supplied. And at that point President Dwight Eisenhower, according to information I possess, personally thought of an idea to introduce his Atoms for Peace plan. It was in December of 1953. He spoke at the United Nations in New York with his plan and it was well received, including by Moscow. It was well received by Moscow. But still there were many complex aspects of this plan that needed to be negotiated. And negotiations took less than three years, because in the autumn of 1956, a conference in New York adopted the Statute of the IAEA, with safeguards provisions. These provisions are not mandatory it's a very detailed – Article 12 – article. Many procedural and paragraph, but it is not mandatory. It is mandatory for safeguards only in one case.

Jenni: What was the view of the Soviet Union at that time?

Roland: The Soviet Union was kind of unhappy about these detailed procedures. But the Soviet Union didn't object very much. The Soviet Union was mostly supporting non-nuclear weapon states that were vehemently against this – India, Egypt, Mexico and many other countries. Because at that time so many of them started to think about military options. And it's a well-known fact that in 1963 when President John Kennedy asked the Pentagon to prepare a list of countries that might become owners of nuclear weapons or manufacture them, the list was big and long. Countries like Sweden, Switzerland, Australia, Germany of course, Japan – about 2 dozen of them altogether. Mostly developed countries – they wanted to have military nuclear programs. So they were against these provisions and the Soviet Union supported them – during the negotiation of this Statute. Later when the Agency was established in 1957, July 1957, soon after that, the Board of Governor started to develop detailed procedures for safeguards. And the Soviets were not very much happy about that and especially some agencies within the Soviet Union. Foreign Ministry was more sympathetic while some other agencies in the government, especially Minatom, they were against it – they proposed to stop working out detailed procedures. We have Article 12, period. Nothing more, but how can you actually safeguard, without detailed procedures about the rights of inspectors, periodicity of inspection, and report, containment surveillance and all that. But the Foreign Ministry was against that and Gromyko said no, so we participated in a not very active way but then by 1963 and '64 when Germany – West Germany then- was in the midst of a very active campaign to build not only power plants for civilian use, but they wanted enrichment facilities, reprocessing facilities, and so on, the nuclear program

in Germany was developing very fast, very fast in the late '50s and early '60s. After the war Germany agreed under the Paris Agreements of 1954 agreed to prohibit, to ban manufacture of weapons of mass destruction, including nuclear weapons, on its territory. Which of course was a loophole for them to move out and in those years many German scientist went somewhere else – outside German territory - to Brazil, to South Africa. And in 1957, France, which was not yet a nuclear weapons state – because the first French explosion test explosion, took place in 1960 – the French, German, and French defense secretaries signed a secret agreement for building a uranium enrichment facility on the territory of France. And even on the manufacture of nuclear weapons, on the territory of France. France was interested in the German technology. Germany was very proficient in the enrichment area – very proficient - even today. We are facing this today for instance in Iran because the cascades in Iran are of German origin, as you know. So France was interested. And this agreement was signed – this secret agreement – very few people knew about it. But then in 1958, the next year, DeGaulle came to power and he found out and he said no, the agreement was finished. So Moscow knew all about it then, through its carious channels, but the papers – declassified, and not all of them are declassified – in 1998 or 1990 – and there's a book about which I read about this, in French – a book about this history of this tripartite act between France, Germany and Italy. So about 1963-1964, Russia became more Catholic than the Pope of Rome, in terms of safeguards. Sometime made proposals in the Board of Governors, which Germany didn't like, Japan didn't like, but was fortunately supported by the United States. At that time cooperation between the United States and the Soviet Union became very active, very constructive.

Jenni: Did the overcoming of the Cuban Missile Crisis also have an impact?

Roland: It had an impact because Cuban Missile Crisis had an impact in many areas, including this one. Yes, there was a discussion between historians as to which factor was most important, in the Russian change of position vis-à-vis safeguards. Whether détente which started after the Cuban Missile Crisis, or Germany, or Japan. A combination of factors. But my own view is that the most important factor was Germany. It was only less than 20 years after WWII so you know mindset of Russians – and mindset of many others, like Israelis and others, about Germany. Of course now this has become fortunately a thing of the past. But in that time it was very important.

Jenni: What about China, was that a consideration at all.

Roland: Let me come back to this point. You see the realization of the need for nonproliferation came a bit late. Only in 1958, 13 years after the first nuclear test, Ireland proposed the so-called Irish resolution. It took a few years to negotiate the text, which would be acceptable to everybody. It was in 1961 that this Resolution was unanimously adopted by the United Nations General Assembly. Which gave an impetus to negotiating the Treaty. But again there was another obstacle that came out at that time – the so-called Multilateral Nuclear Force. This was the baby of the State Department. It was not, for instance, Admiral (unknown), the father of the United States submarine fleet, he was against it. And he came to see John Kennedy about it. How can I let the Germans

or whoever into Nautilus or other nuclear submarine with all this secrets and so on. So Britain was no happy about the Multilateral Nuclear Force, France was against the Multilateral Nuclear Force. It took 5 years for the United States to put it aside. And I think who was most instrumental; I think it was the White House. It was President Lyndon Johnson and I studied his document in his library in Austin, Texas. He and his staff understood that no way for Multilateral Nuclear Force and this idea was abandoned and it was in 1966 that negotiations began in earnest on the Nuclear Nonproliferation Treaty.

Jenni: How did the Soviet Union feel about the idea of such a Treaty?

Roland: We were very happy about that. The discussions began in 1965 in the 18-nation disarmament committee in Geneva. The United States made its own proposal, a draft Treaty. And the Soviet Union also presented its version of a draft Treaty. And the major difference the other nuances, which I shall not speak about to save time, but the major difference was, at that time, 1965, the United States was still married to the Multilateral Nuclear Force. And the major commitment was phrased in such a way that nuclear weapons cannot be transferred - or control over nuclear weapons - on a national level - to a country. But it could be transferred to a group of countries, a military group or some other grouping. While the Russians insisted that there should be a prohibition of transfers to anyone including - which was set in the draft - governments, or groups of governments, military blocs, or whatever. So this was the thing that was discussed in the ENDC - so it was not actually negotiation. Actual negotiations started in 1966 when, as someone said, Dean Rusk, who was supportive of the Multilateral Nuclear Force, who was earlier part of the problem, he became part of the decision. So we pretty easily discussed the general outline of two articles, 1 & 2, and then a group of people, I think 3 from each side - 3 American and 3 Russians - negotiated the actual text of Articles 1 & 2 and they are, they have stayed ever since then. It was done sometime in '66 - was it October or November I don't recall - but so the first article hasn't changes since then.

Jenni: The first text on safeguards appeared in the US draft treaty in 1965. The text rather modestly envisaged cooperation between states parties to facilitate the implementation of IAEA or equivalent safeguards. The first Soviet draft in September 1965 included no provisions on safeguards. According to one author this was due to a sort of wait and see approach, more than a lack of interest in safeguards. Could you tell us a little bit about he thinking at that time.

Roland: I mentioned the nuances, but it was not actual a nuance. You see, the US draft of August 1965 did not provide mandatory safeguards. And this was a very, very big nuance, because the Russians wanted to have safeguards in West Germany. And also in Japan. I believe that the United States proposal was drafted in such a hazy way because of Germany. They were discussing the multilateral nuclear force and they seemed to politically what may have seemed to them more palatable to the German to have the language this way. Russians were fighting like hell against the multilateral nuclear force because they were afraid that the Germans might get access to a nuclear weapon. But for some tactical reasons, the Russians decided not to overturn the table on that point because

the major problem was to ban transfer to military bloc and so on. That was the Russian's first goal -

Rich: Which was accomplished by Article 1 –

Roland: Which was accomplished later on, a year later –

Rich: The phrase that Jenni just quoted, using these words “equivalent safeguards,” the reference must have been to Euratom.

Roland: Yes indeed. The United States was very helpful to Euratom safeguards. In some respects I think it was based on the United States vision of safeguards. Because at that time United States implemented safeguards under bilateral agreements. The United States didn't want to hurt Germany and didn't want to hurt their idea of the multilateral nuclear force. So and Euratom, the United States was very helpful with the creation of Euratom as I said. So that's why I'm sure it was discussed between the United States and Germany and may have coined this phrase “equivalent.” But I'm afraid that it was done not on a very high level because I have seen papers in the Lyndon Johnson library in which some of the important members of the national Security Council wrote to Lyndon Johnson that the whole idea is no good because the Russian would create SovAtom, and the Arabs Arabatom. These would be “equivalent” safeguards. But Germany stood put and it continued for one year. We started drafting Article 3 sometime in November or December 1966 in New York. And it took maybe more than a year. I think it was finalized in January '68. And the major brunt of this difficult exercise was taken up by United States and they sent lost of people to Bonne, including Vice President Hubert Humphrey, and many other people - William Foster, US chief delegate, and (unknown) – and the Germans sent very important ambassadors to Geneva when negotiation took place. So this whole thing was going on and on and on.

Rich: In the conversation with George Bunn he makes reference to the very important formal working arrangements between the US and the Soviet sides. He makes reference to what he calls the ‘walk in the woods.’

Roland: Of course the walk in the woods led to later efforts by later delegations to later negotiations on the alter arms control issues. So it was not so much a walk in the woods as it was a hike in the mountains perhaps. Or yachting. We took a yacht. And we were yachting. It was not done by the chief delegates; it was done by the number twos. I was number two and there was number three with me. And George Bunn was number two and Karl von Gleichstein (sp) was number three and we were discussing various ad referendum ideas. Without any instructions from government. And that was the first time in Soviet-America arms control that we were able to discuss ad referendum and sometime the agreed formula was presented for approval to Washington as the Soviet formula, and it was presented to Moscow as an American formula. There were some hitches in this respect sometimes because when Gromyko and US Secretary of State met and said, there is a Soviet formula (?), no it's an American formula. But somehow this was all settled, somehow. The two sides were very much interested in Treaty.

Jenni: Going back to the earlier drafts, according to one negotiation participant, under that very first American text the nuclear weapon states might have come under international safeguards. However, it soon became clear to the United States that the Soviet Union would not accept international safeguards on its own territory. And the Americans began to favor the application of safeguards only in non-nuclear weapon states. Would you agree with that assertion?

Roland: Yes, I think I would accept that. It was the accepting of safeguards for civilian nuclear energy, not military nuclear energy. No one, neither the United States nor Russian would accept safeguards on its military nuclear programs. Of course for the non-nuclear weapon states that it was a demand, a strong demand, that we should under safeguards - eventually it came to the voluntary offer – but it was done much later in the 70s and 80s.

Jenni: How important was that voluntary offer by the US and by the UK, to move along those negotiations?

Roland: Looking retrospectively, I don't think it was very important. I don't think so. Of course politically at the point I think for the first time it President Lyndon Johnson that announced in 1967 that the United States was prepared. But the actual agreements – voluntary offer agreements – were signed in the late 70s. And in the 80s. The last one was China in 1989. And now under these VOAs there are only about 10 facilities under safeguards. Only 10. And the Agency is not very much interest in this – it costs a lot. And the Americans type Westinghouse reactors are all over the world and you can go and see how it works. At some point in time the Agency was interested in the Russian fast breeder reactor safeguards but when they started the whole they decided, we don't know how to safeguard a fast breeder reactor, and we don't want to spend money. And the IAEA budget is very modest – it's a mediocre budget. Why should we send people to Beloyarsk in the Ural Mountains to see how safeguards for a fast breeder reactor work? Now as you know Russia is building an international enrichment center at Angarsk in Siberia. It will be under safeguards. But for the safeguards department of the IAEA, this is not of much interest.

Rich: It's my sense that the Secretariat is increasingly reluctant to implement safeguards in weapons states.

Roland: I've talked to many people that say there is not much interest – in terms of money. The IAEA doesn't have much money for that. We would welcome very much, we want Angarsk placed under safeguards. And there was a group of people that came to Angarsk – it's very far away in Siberia, very far away. And we hope it will be done because we want it to be a really international center.

Jenni: At the time of the negotiations there must have been some criticism by the non-nuclear weapons states of the so-called unequal treatment between non-nuclear weapon states and nuclear weapons states. How did you deal with those criticisms?

Roland: Some said it was a discriminatory Treaty, a Treaty based on inequality. And that is the essence of the Treaty. It's a Treaty for nonproliferation, not for prohibition. So the Treaty accepts 5 nuclear weapon states. So it has been a problem and is the problem at this very moment. At this very moment the Ambassador from Iran is making long speeches about this problem, at this very moment, downstairs. So this will ever be the case. This is why the non-nuclear weapon states included Article 6, this was their proposal. It was not the proposal of the United States or Russia, Article 6, which provides for negotiating of arms control and nuclear disarmament. Negotiating, nothing more than that. And only 2 of the nuclear weapon states accepted this and negotiated a number of agreements, while 3 other nuclear weapon states – Britain, France and China – didn't negotiate any.

Rich: By the time negotiation of the Treaty was complete and comprehensive safeguards was in the offing, the Preamble and also Article 3 established several safeguarding principles that were later incorporated into the model safeguards agreement, for comprehensive safeguards. In the Preamble there is reference to the principle of safeguarding the flow of nuclear material at strategic points. That's had a tremendous effect over the years on the implementation of safeguards. It has in other conversations, this has been attributed to what was referred to as the Carls Reuben doctrine. In turn through the work of Professor Hayfelee (sp). Do you remember?

Roland: Yes. I met him, I met him several times, Professor Hayfelee. Germany, West Germany then, didn't want safeguards for facilities. And the agreed Article 3 doesn't mention facilities. It covers activities, not facilities. It was a compromise of course, a formulation but the strategic points meant in the Preamble. The Preamble is not an operative part; there is some difference in terms of its strength of the language between the Preamble and the operative part of the Treaty. But that was the compromise, because both the United States and the Soviet Union wanted a Germany very much in the Treaty. The Treaty was aimed –let's put it bluntly – was aimed at Germany and Japan. So we had to – and Germany was growing becoming stronger, it was an important country, and we had to find ways, but it took one year, to find this language. So I think the language of Paragraph 1 about application of safeguards on all source and special fissionable material – not just the flow – in all peaceful nuclear activities within the territory and so on, and carried out under its control anywhere. So it's a good language I think. So finally Germany agreed and everybody agreed, I don't think there was too much problem. But the main burden was taken up by the United States, they negotiated with Germany. And they were of course informing the Soviet delegation about the progress, but it took one year.

Rich: This idea of strategic points, which of course as time went along has become the source of a lot of criticism of the effectiveness of Agency safeguards, where inspectors access is limited to the predefined points in facilities. And the safeguards agreement, which of course includes subsidiary arrangements, and also facility attachments, it's in these attachments that these specific points of access are identified. The original idea behind this idea of safeguarding the flow at strategic points was based on the idea that

inspectors would never enter facilities, that this was the black box safeguards, that inspectors would actually sit at the periphery, and verify. So there was some movement from that idea to this idea of strategic points. Over time the definition of a strategic point became a functional definition as any point where accountancy data is generated. And so the inspectors have under that concept sufficient access to verify the correctness of a state's declaration. But certainly not sufficient access to go beyond that to address whether those declarations are complete. And of course that was the whole focus of strengthened safeguards. As the safeguards committee negotiated the model safeguards agreement that the Treaty required –

Roland: 153

Rich: Exactly. And of course this idea of strategic points became part of that. But there were other principles in the Treaty that found their way into this model agreement. And they're very, very important. The efficacy of safeguards depends upon it to this day. And this is this idea of independent verification. The concept of independent verification that provided that the Agency, unilaterally, is to ascertain that there has been no diversion of nuclear material, and at the same time make full use of whatever exists in the way of national safeguards and facility-level accountancy, which of course was the basis of establishing State Systems of Accounting for and Control of Nuclear Material. But all of those ideas were very important and they apparently came – although they're not very explicit in the language of the Treaty itself – came to the fore during the negotiation. I don't know who actually tabled it but there is reference to what were called the 3 principles of independent verification that is part of the negotiating record, not in the Treaty itself.

Roland: That's a good point that you made, which indeed this is something that is the result of these long negotiations. But in general when you look at the picture today - we can't discuss the future at this point – maybe eventually have to have additional protocol II, and additional protocol III, who knows. But at this point in time if a country accepts fully and puts in force an additional protocol, we would be pretty well set. But so far not many of them have accepted – there is a whole list of countries with significant nuclear activity, which haven't joined the additional protocol. In the future we might, depending on the state of affairs in the world, because you see any legal document reflects the situation which exists today – any legal document. Take Article 4, discussions about enrichment, whether enrichment is prohibited or is it allowed or what. This is a very important thing, but according to agreement reached during the NPT negotiation, enrichment, or reprocessing, was not prohibited. There were official statements. For instance, during ratification in the US Senate Ambassador Foster said neither uranium enrichment nor stockpiling material in connection with a peaceful program would violate Article 2. So long as these activities were safeguarded under Article 3. This is the essence. And usually, I want to make it clear, whenever a Soviet delegate or an American delegate said something for the interpretation or clarification of the text, it was usually agreed in advance so what was said by Amb. Foster in the Senate was – after the Treaty was concluded – it was the result of discussions that we had in Geneva beforehand. At that time, in '68, only 5 nuclear weapon states could enrich. Who might

think that Brazil would be enriching? No, by the way, at that time Japan and Germany were already thinking about that. And very soon after in 1970 an agreement was signed by Great Britain, Germany, and the Netherlands, to establish the Urenco enrichment facility on the territory of the Netherlands, not on the German territory.

Rich: That came later.

Roland: That came later. So this is an important – the whole thing is based on some kind of what I call a grand bargain. Somewhere nuclear weapon states had to (unknown word, microphone covered; leave?) certain things, or we wouldn't have a Treaty. And we are facing these issues and these problems ever since and we shall be facing it ever in future.

Jenni: So will their bargain be realized?

Roland: I have no prescription. This is the fact of life. Because nuclear energy will be developing and we will be developing mostly in the East and not in the West I think. At least now it's developing in South Korea and Japan and Indonesia. Malaysia, Burma. And Russia seems to have agreed to that. I don't know why, it was not my decision.

Jenni: Roland, how had the NPT served mankind?

Roland: Well I think it served pretty well. Of course we have been facing all of these challenges and threats all over the entire world. Now we have important problems facing us today. We had this problem before and we'll have them in future. Take one case. Suppose Iran goes on, and then Saudi Arabia may also wish to do so. But overall I don't accept a statement that the NPT is in crisis or it is collapsed. No, it provides a solid legal basis, but this basis must be supported by active action of governments, of influential governments, because any legal norm without the support of governments will be very shaky. So there's a need for combination, cohesion, synergy, between the legal norm and the practical actions of the government – that's the only way to go along. So I think –

Another important thing. Since 1945 nuclear weapons have never been used. And this is among other things thanks to the existence of the NPT. New nuclear weapons have not been used. And you can't imagine that they would be used. Maybe by accident. There is a saying: if something may explode, it will explode. It's a human factor. It's important. The human factor is the most important thing because this time when we are discussing this, many officers and military personnel are sitting in near those buttons. This is the human factor. Of course the sanction must be given by Presidents or Prime Ministers but still – there's a need for further strengthened effort to come down in terms of number of weapons and I applauded the initiative by four important American politicians – Henry Kissinger, George Shultz, Bill Perry, and Sam Nunn – in January of this year because this is aimed at excluding the very big importance of a human factor. They have proposed to cut down substantially – that's what we should do. And this is something which is – this Treaty – provides a good legal basis for.

Rich: As we begin to wind down our conversation, I would be interested in your views of Article 10.

Roland: Article 10 was introduced into the Treaty. It was taken up from another Treaty that was concluded years earlier in 1963, the Partial Test Ban Treaty. The original idea came from the United States because in 1963 it was clear to everybody that China would soon make a test explosion. And the United States proposed that if some other country – not the negotiating parties – because Britain was also a negotiating party – it would be a treaty that was negotiated by the three nuclear weapon states – Great Britain, the United States and the Soviet Union – if some other party not member to the Treaty makes and explosion, then the participants of this Treaty have the right to withdraw from it. The whole idea seemed to the Russian delegation – I was not present at that negotiation – the idea was interesting in the view of the Russian delegation. But Russia, which was at very tense relations with China, didn't want to point directly at China. So during the negotiations by the chief US delegate, Emeril Herman, and chief Soviet delegate, Minster (unknown name), they finally agreed on the language about it. In case the supreme interests of each negotiating party are jeopardized, they had the right to withdraw. This was the language agreed upon and it was taken for inclusion then in the NPT. But during the NPT discussions it was agreed that a country which might wish to withdraw should give notice of such withdrawal to other parties and to the United Nations Security Council – the main body of the United Nations that takes care of any threats to international peace and security – they act. It hasn't acted though in the case of North Korea.

Rich: Not very strongly.

Roland: Not very strongly. But United Nations Security Council may act even by the use of force.

Jenni: Roland, what do you see as the current biggest threats to the NPT regime?

Roland: What is current I wonder? I mean we have some current threat from Iran and this has been discussed by the Security Council and the Board of Governors and so on but actually there is one thing which needs more attention, whether is possible to solve it or not. Because you cannot draw a line between peaceful and military use of nuclear energy. This is the peculiarity – you cannot draw a line.

Rich: The inherent dual use character.

Roland: Inherent. Whether you enrich it to 4-5% U235 or you enrich it to 99%. How can you draw this line? In the original report written by Robert Oppenheimer in 1946 it was suggested that you can denature U235 or you can denature plutonium, meaning you can make it un-useable for military purposes. But this idea came out as the wrong idea. And since then no one else could produce any solution to this problem. Whether it's possible or not – I'm not a scientist. But this is something we share with (muffled). This is the

peculiarity of the nuclear energy. It's something which we are facing all of us, and which we all collectively continue thinking about.

Rich: Huge benefits on one side and huge risks on the other.

Jenni: Roland this has been a very interesting discussion and glimpse into the history. Thank you so much for agreeing to this interview.

Roland: The pleasure was mine. I want to share my failing memory, failing knowledge of all these events.

Rich: We all each have such a fading memory. Roland thanks very much.