International Seminar

Nuclear Nonproliferation and Disarmament - The Future of the NPT

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Full audio transcription *

Quotes in Spanish, Portuguese, and German translated into English

Panel 4: Impacts of Nonprolifreration Initiatives involving Fissile Materials
October 30, 2009

Leonam dos Santos Guimarães: -Good morning, it is a pleasure to be here on the second day of our Seminar. This panel begins with the topic: "Impacts of nonproliferation initiatives involving fissile materials". That issue is much related, I believe, with significant initiatives in the sector and in this area there are several proposals, various ways of internationalizing the nuclear fuel cycle and also a Cut Off Treaty on Fissile materials. They are the two main initiatives in this direction. So today we are here with us this table. Finally, I would like to apologize with the organizers. I'm making a great effort, I know that I am not capable but I will try to represent Eng. Othon [Pinheiro da Silva]. He unfortunately had an emergency call today at the Ministry of Mines and Energy and is not be able to appear. I am here trying to represent him at first without success.

We have here at the table as panelists: Dr. Rolf Mützenich, Dr. Álvaro Bermudez, Yury Yudin and Ms. Annalisa? [with humor] and the representative of Ms. Annalisa Gianella. So initially, each speaker will have 15 minutes to expose their ideas up for discussion. If gentlemen wouldn't mind I would like to present some ideas at the end as well and then finally have a Q&A session with the audience.

Well, so we don't waste more time, I would, I would like to invite Dr. Rolf Mützenich, who is the Representative of Cologne as a Member of the German Bundestag for the Social Democratic Party since 2002. He has written extensively on the regional security framework and the role of regional powers like Syria and Iran, nuclear proliferation and Iran's nuclear ambitions, the Israeli- Palestinian peace process, and the role of the German Armed Forces in Lebanon. Mr. Mützenich serves as a full member of the Foreign Affairs Committee and the Subcommittee on Disarmament and Arms Control. He is an alternate member on the Committee for Work and Social Security. Since 2004, he has served as the speaker on disarmament for the SPD caucus. I would like to ask Dr. Mützenich to be the first to present his considerations. Dr. Mützenich will make his presentation in German, actually I think the vast majority, except those who are brave enough to know the language of Goethe will follow his presentation through the translation. Please Dr. Mützenich.

Rolf Mützenich: -Mr. Chairman, thank you very much. I'm sorry, I will speak in German. I've just arrived yesterday and I have to leave again, because we have a parliamentary session in Germany. So I'm a little bit confused with all the languages and it's a privilege for me, of course, to speak in German and I hope you allow me to do so.

Ladies and gentlemen, I would like to thank you very much for the invitation to come Rio and I know about the significance of the Conference and about the importance of international collaboration. I think that the topic that we are discussing this morning is a topic with future. We have the possibility to solve existing conflicts, like for instance, to solve the Iranian nuclear crisis peacefully.

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As I already said, we know that the nuclear threat not only persists but it is increasing. There are still over 20,000 nuclear warheads somewhere in the world, in missile silos and warehouses strictly shielded. The number of states with conditions and available technology to build nuclear weapons is growing. Each event triggers the danger of a regional arms race. International terrorist organizations are also trying to get weapons of mass destruction and nuclear material.

Conflicts in the case of the nuclear programs of Iran and North Korea have demonstrated how narrow the edge between civil and military use of nuclear technology is and have raised doubts among some of the states parties to the NPT as to whether the NPT regime will be able to prevent the emergence of other nuclear weapons states in the long term. The exception of the rules of the Nuclear Suppliers Group in favor of India, which for the first time allows a nuclear weapon state outside the NPT to trade with nuclear materials without being imposed disarmament commitments in return, has broken with a fundamental principle of the NPT. Among some members of the Treaty, this was seen is setting international double standards for access and civilian use of nuclear technology. Many might wonder if it is still worthwhile to behave according to the treaty.

That's why the states parties to the NPT will have to find an answer to the problem of reduced control over the security of civilian nuclear programs, as well as to the difficulty of bringing closer to the regime those nuclear states with are not part of the NPT (India, Pakistan, Israel). In this regard, efforts for the multilateralization of the nuclear fuel cycle are a central starting point for a solution and must be promoted in both, its diplomatic face and its financial one.

The prolonged crisis of nuclear disarmament, the neglect of disarmament commitments of the nuclear weapon states under article 6 of the NPT, which instead have boosted in recent years the modernization of its nuclear potential, the Comprehensive Nuclear Test Ban Treaty (CTBT), with 14 years later has not yet entered into force, and the absence of a Fissile Material Cut-off Treaty (FMCT) have dented the credibility of the NPT. The statement by the US President Barack Obama that he would submit the CTBT to the US. Senate for ratification, and the joint announcement with the Russian President Dmitri Medvedev that they would try to achieve by the end of the year a treaty to replace the START, are important signals for disarmament policy, that should initiate a change in the times of nuclear disarmament.

Uranium enrichment is a classic way to produce nuclear fuel. But this expensive technology is the key to nuclear weapons. Therefore it is necessary to find ways so that each state can use nuclear energy without limitations, yet without this allowing it to access the atomic bomb. The Nonproliferation Treaty so far does not emphasize this problem. It prohibits all states parties -except the five established nuclear powers- to manufacture, possess, and acquire nuclear weapons, but it gives them the right to research, develop and use nuclear energy peacefully. We must acknowledge that there are an increasing number of countries which are thinking about having their own enrichment activities. If we want to prevent these sensitive enrichment technologies from being used to build nuclear weapons, then it is inevitable to think of a multilateralization.

Nonetheless, the interest in a secure energy supply is legitimate - even when the Social Democratic Party would prefer another way. There are reasons worth considering for the use of atomic energy: more independence from the supply chain in view of energy resources dwindling, but also the need for climate protection.

However, we all know that raw materials are also finite and the question of the disposal and storage of waste is far less solved than the CO2 problem. In addition, the technology to produce nuclear fuel also paves the way for the bomb.

We can consider ourselves happy to be able to resort simultaneously to two structures whose value at times we still underestimate:

1. The IAEA. It has a record of 50 successful years. It has outstanding achievements in the field of safeguards and non-proliferation.
2. The Non-Proliferation Treaty. It is nearly universal, and until now it was able to effectively curb the spread of nuclear weapons

What can we do with these structures to organize a cost-effective, politically safe nuclear fuel supply? And at the same time, what can we do with them to strengthen non-proliferation? This can only be achieved with a cooperative and multilateral initiative.

Efforts to divide the world into states with or without the fuel cycle are doomed to failure. With technical solutions we can not rollback the spirits of the spread of atomic weapons. We rather need political and institutional initiatives for their solution. This is an ongoing discussion. There are many proposals on the table.

As a result, the EU has developed a list of criteria for evaluating the various proposals. According to it, the new concepts will be:

1. Not create new risks of proliferation
2. Ensure security of supply
3. Not restrict rights and
4. Be in accordance to the market

In other words, this means that the proposed solutions in nuclear energy should not be subsidized. And it is recognized that countries only renounce voluntarily to the conformation of fuel cycles if a reliable supply is granted in exchange.

Two years ago, Foreign Minister Steinmeier presented a deep proposal to solve the problem. An international enrichment center would be built under the exclusive control of the IAEA. A plant of this characteristics would be an alternative to the construction of national enrichment plants - would be economically profitable and at the same time, it would prevent proliferation. This proposal has attracted interest from some states and it was considered balanced in general. The objection was raised with skepticism given that due to the complexity of its requirements, it would be difficult to implement. There are still required legal proposals and advice. But what is applied to the German plan it is also applicable to all proposals that have been presented so far. The reservoirs and the proposed warranty statements also raise complex legal issues at the time of deployment

At least the crises over the Iranian and North Korean nuclear program have made it clear that we urgently need new projects to prevent improper military use of nuclear energy. The amount of states that are trying to close the fuel cycle is increasing. Nevertheless, the problem persists: who is able to enrich uranium or reprocess plutonium has a short way ahead to reach the atomic bomb. We must minimize these risks by limiting the proliferation of sensitive technology and controlling it in a verifiable manner

Allow me to do a brief critical comment about the Brazilian nuclear program: Brazil supports the nonproliferation of sensitive technology since the 90s. In 1994 it signed the Treaty of Tlatelolco regarding a nuclear-free zone in Latin America and brought into force the IAEA Safeguards Agreement. In 1997 it signed the Treaty on Non-Proliferation of Nuclear Weapons (NPT) and the Nuclear Test Ban Treaty. Meanwhile, Brazil still refuses to ratify the Additional Protocol of the NPT, which allows unannounced visits by inspectors from the International Atomic Energy Authority (IAEA).

In reiterated opportunities, inspectors have been denied to possibility to take a look at the central parts of the Resende facility. From my point of view, a necessary and important signal would be to give unrestricted access to IAEA inspectors to all facilities.

The attraction of these multilateral initiatives to control the fuel cycle increases if the nuclear weapon states renounce forever to the production of weapons-grade fissile materials. That's why the Fissile Material Cut-off Treaty would be a clear signal that the era of nuclear arms has reached its end. Hence, it is very promising that negotiations on a "Cut Off" of this kind has been taken up again in the Conference on Disarmament in Geneva, without preconditions, after decades of stagnation

US has already submitted to the Conference on Disarmament in Geneva in May 2006 a new proposal to stop production of fissile materials. At the same time, it refused to install a system to verify compliance with the halting of production.

The "International Panel on Fissile Material", directed by the atomic physicist Frank von Hippel of Princeton University, published a report in early 2006 that outlined a solution to the problems in negotiations. According to this report, a graduation in the treaty should be included, so its reach could be gradually expanded and verification grows to be more solid.

Thus - for example – at first, nuclear weapon states would only register their facilities and materials in the IAEA for control and only allow verification of the halting of production in the military area in a posterior stage. In addition, materials for atomic weapons and naval reactors should be declared, and later all materials in both military and civilian facilities should be included, as well as stocks. So, binding commitments must be formulated according to which it is banned to do transfers from the civil to the military arena. Military and civilian stocks should be reduced gradually. Consequently, a mere halt of the production could be expanded over a longer period to form a larger control system of fissile materials.

Israel has clearly positioned against a prohibition on the production.

India, which has not signed the Treaty on Non-Proliferation of Nuclear Weapons, supports a verifiable treaty. The halting of the production in India would be a major limitation of its nuclear weapons program, which momentarily is not subject to control. The much discussed nuclear cooperation agreement between the US and India does not affect the military program.

France, Russia, US and the United Kingdom are already serving a moratorium on the reduction with military purposes, China probably is too.

The proposals of the US President Barack Obama opened the opportunity to re-enter a phase of substantial progress in the field of disarmament and arms control. Even though today we can only anticipate -with limitations- how a global security architecture should be developed in the future, in order to someday move forward towards a total nuclear disarmament, I am firmly convinced that the intermediate steps aimed at achieving this goal also means a substantial increase in security. In order to avoid a conventional arms race, in place of the abandonment of nuclear potential it would be appropriate to link future agreements on disarmament and arms control in the nuclear and conventional field. Thank you very much for your attention.

Leonam dos Santos Guimarães: - Thank you very much for your words Dr. Rolf Mützenich, you have even criticized the Brazilian position. I believe this topic deserves a more deep discussion. I hope that in the future debates people can have that discussion. I would like to invite Eng. Alvaro Bermudez, who is the Former Director of Energy and Nuclear Technology for Uruguay. Member of the Nuclear Energy Commission created to study the implantation of the nuclear option in Uruguay. He was Uruguay's representative to the IAEA's Annual International Conference. Published author and international

consultant, he has experience in the field of electric energy plants in Irak, Argentina; industrial installations at the Petrochemical Pole of Bahia Blanca, at the aluminum facilities of Tajikistan and petroleum engineer in Schlumberger, among several other countries. Mr. Bermudez, please.

Álvaro Bermudez: -First of all, I would like to thank very much the presentation and the invitation. I felt really comfortable these days with all the personalities I've had the pleasure to meet and see others I've already met under different circumstances. I simply intend to contribute with a vision, quite particular, but that ultimately represents the one of many non-nuclear countries that at that time are seriously considering the possibility to develop a nuclear program. I think that somehow the case of my country, Uruguay, is a case that can be replicated in many different regions of the world. That is why I began to state a "Fresh View", as a somewhat lateral view of a very trite subject as the NPT.

To contextualize, for a relatively small country like mine, and in general for any country wishing to enter the arena from the point of view of the demand (except in special cases as our representatives of Colombia or Chile), the topics are usually handled from behind the counter. So, I will try to give you an idea of the challenges we face. First, to public opinion that has not been educated on the subject. While we do possess nuclear technology, -we can have in Uruguay and in other countries thousands of nuclear sources, applications that save our lives every day, that help us develop the industry, protect the environment, enable us to develop skills in other areas, such as the production of primary materials, we are great producers of food, and nuclear technology has much to do with it-, the general public does not have a clear idea of nuclear technology and even less in countries like ours, about its application to energy.

It also occurs that it is very difficult to pursue the study of these programs and therefore, one always faces problems of budgets. These limited budgets may sound ridiculous from the standpoint of central countries that are developing programs of billions of dollars. Having difficulties to develop a nuclear program with minimal funds can sound a bit ridiculous but it is true- true, I repeat. I have discussed this with other countries in the same situation.

We also have to face the international opposition that is, almost, professional in doing that. They have a lot of power and means, are devoted exclusively to that, and sometimes there is a strong smell of oil behind that.

Another important issue is knowledge. Knowledge is a central point, knowledge of technology, knowledge in general, managerial development. That is something that a country that enters the nuclear arena is bound to develop. However, we should not go to extremes. Some people think that to develop a technology, thousands and thousands of specialists in the field are required, thus, they put the future beyond what is possible. Imagine if in the XIX Century, when we received the technology of the steam, if we would have though in that way, we would still be riding wagons.

Moreover, an important aspect is the consensus of a long-term political support. That is yet another difficulty that the central powers have to reflect upon. Sometimes, it is very hard to achieve a political consensus. In our country we have it. In fact, I am part of a committee that has been formed by the current president. Before, when he was opposition, at first he shared a very negative position on nuclear energy, therefore there is now a near total support in all political parties. But it took a long time, a lot of effort, and hard work in the media. You know that the relationship between politicians and technicians is often a dialogue that can operate very well at times, but in others, it seems that we are on different paths and it is very difficult to make progress. I put forward all these points because I think that the main powers often forget the difficulties that we have when we somehow want to develop a new technology. We support the development of our countries, but sometimes we ask for things that are not naturally

understood from the side of the main powers. I understand that, it is an entirely different picture for them. That's how the issue of the fuel cycle is presented from the other side of the table.

As you can see, this often generates lots of questions from the audience to us and to everyone who speaks in favor of nuclear power development. It alarms, it generates lots of questions, especially from an uninformed, uneducated public. That is what one permanently has to be able to respond, and must respond with facts. Within the issue of fissile material, it is very important to have an immediate response, because they usually go to the last part which is the waste storage, but we assume that we will have fuel available in a timely manner.

In Uruguay, a major argument for going nuclear is undoubtedly having an independent option of energy. A country like Uruguay between two large countries like Argentina and Brazil has the same position of our Chilean friend, who was very graphic, when talking of elephants and mice. While we have a reality in which our fellow Argentines and Brazilians have helped us and we have helped each other mutually throughout history, we have necessarily to entrench between the initiatives we applaud, as the initiative discussed yesterday about the management of fissile material that Argentina and Brazil are carrying out. But we should also get into this like a wedge, to be part of possible regional agreements, in order to really make this a resource for the energy matrix of my country, a valid and accurate long-term resource.

Other important point is the low cost of energy. For a developing country, having a roof in its energy resource means having a roof in its industrial development. Not only industrial, but it also affects the primary products. Therefore, one can be as short or as tall as the availability of energy, especially in countries like ours, which are still working out some of the first industrial developments that have already been conquered in other countries, but we depend on the primary production. So, the low cost, the security of supply, are key issues for the true development of nuclear energy, which obviously is taking place right now.

Another question is, why not, the possibility of developing our own nuclear technology in any field, once we dominate nuclear technology in general. It may be in the area of services, in high quality production of some type of components. Small countries such as Uruguay can not compete in quantity, but can compete in quality. It takes me back to the topic of education. It is very important to develop education on the topic, knowledge. On the other hand, we could eventually have reservoirs of uranium, and thorium, so we are also interested in having at our disposal all the technological know-how that the main powers can offer.

We necessarily aim to small and medium power reactors. Hence, we are closer to three out of the twelve proposed options on fissile materials we discussed yesterday, which I am going to list later on.

In other order of ideas, we are going to be without a doubt enthusiastic about regional arrangements. I believe we have points in common with Chile, Peru, El Salvador, and many others who have expressed their will to develop a nuclear program, and of course, with our two big brothers, Argentina and Brazil. The rest of the world has one big brother, we have two.

From what I previously mentioned, we have some items that are central. I want to clarify that I'm always talking in my personal capacity, but I believe I can interpret the thoughts of many of those who are part of the Committee for development of nuclear energy in Uruguay, and other countries that are in our same position.

Within these central points, the first one is the availability of an open market for nuclear fuel, with the lowest possible cost. All that will facilitate the renaissance of the nuclear theme in the world. I also think the renaissance is going to be very positive for the Treaty. The treaty will have greater importance and

probably be much more defended as more countries that use nuclear energy for peaceful purposes – and especially within the energetic sphere- will adhere to it.

Of course we all know that the companies that are working right now and can provide fuel are a very limited list. I'll mention some of them: Tenex 50%, Russia; Areva, a much lower percentage, Urenco Ltd., I think in the United States it is something like 17%, something like that. So, we have very few options. They are not bad but we always prefer to have more options and a market as open as possible. In this sense, I will list the three initiatives that are probably more acceptable for countries like ours, as the creation of the Fuel Bank of the IAEA; we are interested in deepening into the possibility of Angarsk in Russia; the International Uranium Enrichment Centre, that's an interesting idea because, even if it holds the technology in a black box, it allows the integration of countries into a board of management of a quantity of fuel that could be a very interesting proposal. And finally, the German proposal, the Multilateral Enrichment Project, which is theoretically very very interesting. We do not know until what phase it is possible to carry out a project of this level, but we would be very interested in learning more about it and to see where we can somehow help in its development.

Another very important issue for all of us, above all I would take it as generational, is the free access to technology, especially for countries that comply with the Treaty. I think we should get the advantage of having the technology openly available for us, if we are meeting all the steps that the Treaty calls. In principle, you're innocent until proved otherwise. I can not tell future generations of Uruguayans not to study any particular subject, or to deviate from studying a specific theme, whatever it is, because there is a generational obligation not to do so. This leads to a constraint rather difficult, when dealing with the proposals that are in vogue today.

On the other hand, we are of course completely convinced that the Agency has to be the facilitator, the guarantee, the instrument which ultimately satisfies the fundamental role of watchdog of the Treaty. But it is also our nexus with the rest of the countries, and evidently we will defend the Agency in any case.

On the other hand we are very interested in the CTBTO, which we consider as a mechanism that assures non nuclear countries, in particular. It provides a mechanism for immediate intervention that allows us to know which are the important events related to weapons. That is the key. Not so much about the knowledge of uranium enrichment but I would focus more on weapons. I believe we, non nuclear countries, can make a major contribution, because ultimately we can be very good inspectors. I have done the inspectorate course of the CTBTO, and I think that compared to countries that have nuclear weapons, the presence of inspectors from countries which don't have nuclear weapons or advanced nuclear knowledge is of far greater confidence. On the other hand, I believe that the best defense of the NPT is that those who participate in a correct manner should have benefits from the demand side ,and therefore have assured fuel supply for long periods.

Finally, I will insist on the transfer of know-how, which is essential for any country that wants to enter the nuclear energy arena from the big door. I appreciate the opportunity of being able to have this conversation with you. I hope you find this useful, fundamentally for students who are always looking for new paths and new possibilities. Thank you.

Leonam dos Santos Guimarães: -Thank you Dr. Alvaro Bermudez. Once more I want to clarify that we are not the "big brother", I believe that we are a "good brother". Last year we received here in Brazil a similar commission to the Uruguayan, but from Chile. We had the opportunity to have a long discussion on the possibilities of implementing a nuclear program for nuclear power generation in Chile and we are open to Uruguay in the same way. It will be a great pleasure for us to share that experience with you.

I would like to invite Mr. Yury Yudin for their intervention. Yury Yudin, he is a Senior Researcher at UNIDIR, and project manager on multilateral approaches to nuclear fuel cycle. Previously he was director of a Russian NGO, the Analytical Center for Nonproliferation, and Senior Researcher at the Russian Federal Nuclear Center, All-Russian Research Institute of Experimental Physics in Sarov. Sarov is the temple of Russian nuclear technology. He graduated from the Institute of Engineering and Physics in Moscow as a nuclear physicist, has a doctorate in nuclear engineering, and he is a specialist in nuclear engineeringt, nuclear nonproliferation and disarmament. Please Dr. Yury, the word.

Yury Yudin: -Thank you very much Mr. Chairman. First I would like to express my gratitude to the organizers of this conference, the CEBRI and the NPSGlobal Foundation for providing me this opportunity to be here and to speak about the multilateral projects to the nuclear fuel cycle. You already heard about these approaches yesterday and today, and we are now witnessing actually a new turn of the international community to the idea of the internationalization of the nuclear fuel cycle, and this is not for the first time actually.

The first time was in 1946 and just at the dawn of the nuclear age when the so called Acheson-Lilienthal Report goaled for the creation of a UN authority which would own all uranium deposits and all fissile materials in the world. And the second time was in 1970s, when there were expectations of a very rapid rise of nuclear energy worldwide, and dissemination of plutonium separation technologies and separated plutonium all over the world, and the number of proposals where put forward then. But none of these proposals were realized actually partly because of political tensions and different political agendas of different countries, but partly because those expectations for the rapid growth of nuclear energy just didn't materialized then.

So why now? Why again? The reason is partly that, the same as in 1970s, again we see an anticipated increase in global energy demand, which will drive a potential expansion in the use of nuclear energy. This expected revival or renaissance of nuclear energy is driven to a large part by nuclear power programs in the countries that now go ahead for establish nuclear industries. And this renaissance, this expansion potentially could result in worldwide dissemination of sensitive fuel cycle technologies, like uranium and enrichment or spent fuel reprocessing. These technologies present of course a risk, an obvious risk of proliferation as they are capable of providing states with materials that are directly used in nuclear weapons, or in nuclear explosive devices. But there are also other reasons like some recent developments, such as for example, appearance of non state suppliers of nuclear technologies or nuclear materials like the AQ Khan network, the wide dissemination of nuclear knowledge which erodes the technological barriers for developing and creating nuclear weapons, revelation that some NPT members carried out clandestine nuclear weapon related programs. All these developments raise concerns that the current system of the IAEA safeguards could be not completely adequate to timely discover the violations and react on those violations.

So the idea was to have some additional institutional mechanisms. This is where this idea of multi-lateralization of the nuclear fuel cycle came out, and these multilateral projects are institutional mechanisms, which is not technical in nature. Generally they aim to rationalize certain fuel cycle activities by placing decisions on the operational nuclear facilities as well on the disposition of their products in the hands of a number of nations and international organizations rather than individual states.

Recently, the IAEA Director General Mohammed ElBaradei said that both measures, including assurance of nuclear fuel supply and multi-nationalizing the sensitive part of the nuclear fuel cycle, are to enlarge the contribution of atomic energy to peace, health and prosperity throughout the world, while curving the proliferation of nuclear weapons and eliminating them altogether. So, recently, the Director General proposed a three stage process in the development of a new multilateral mechanism.

The first step would be to establish a system for assuring supply of fuel for nuclear power reactors. So, this step would include the creation of some supplemental instruments, which will support the existing nuclear market by providing additional assurance for supply to customers, that their supplies wouldn't be disrupted for any reasons, except for nonproliferation reasons, for example. The second step would be to have all new enrichment and reprocessing activities in the future put exclusively under multilateral control. The third step would be to convert all existent enrichment and reprocessing facilities from national to multilateral operations. This is the idea of IAEA Director General.

A number of proposals were put forward by states, groups of states, and the nuclear industry itself, and by a non governmental organization, the Nuclear Threat Initiative (NTI). In June 2007, these proposals were catalogued in a report by the Director General which was presented to the IAEA Board of Governors. This report, these 12 proposals, which are listed here in chronological order -I must say that this list doesn't include all proposals. For example, in October 2007, the Gulf Cooperation Council, an organization that includes Bahrain, Kuwait, Saudi Arabia, Oman, Qatar and United Arab Emirates, put forward an initiative that invited all interested states in the Middle East could participate at the establishment of the uranium enrichment international consortium that would be based in a neutral country outside the region. All states in the region could thus, secure their supply of nuclear fuel for their power plants, but they wouldn't have access to enrichment technology. I think it's an unfortunate thing that this idea was not included in this list because actually, I think it's very important because the idea actually was put forward by the customers side, while all these 12 proposals were actually put forward by the suppliers side of the nuclear fuel market.

So, these are the twelve proposals. First, the United States proposed to down-blend 17.4 metric tons of highly enriched uranium into low enriched uranium, to create there a reserve of low enriched uranium. But the United States does not intend to transfer any right on this material to the IAEA or any other international organization. So it's going to be a nationally controlled reserve.

Then, the then Russian President, Vladimir Putin, put forward a proposal to create a global nuclear power infrastructure that would give all interested countries equal access to nuclear energy, including the creation of a system of international centers providing nuclear fuel cycle services on a non discriminatory bases, and under the control of the IAEA.

Then, United States' GNEP -Global Nuclear Energy Partnership- which was initially thought over a global supplying mechanism that would unite existing suppliers of nuclear fuel cycle technologies that would provide all the spectrum of services, both the front end and the back end of the nuclear fuel cycle, which is the enrichment and reprocessing and waste management. But right now, it seems like the new US administration is going to reconsider the idea of GNEP, maybe to rename the program itself, so now it is unclear what is going on, how it will look in the future.

Then World Nuclear Association, which is an organization that unites the main nuclear industry players, put forward a proposal to create a three level mechanism to ensure uranium enrichment services. The first level will be basic supply security provided by the existing market. The second level would be collective guarantees by enrichment companies supported by governmental and IAEA commitments, which means that if one of the enrichers cannot fulfill its contractual obligations for some reason, others will step up and provide the enrichment services.

Then six countries, six uranium enrichment supplier states, put forward a proposal which is also a multilevel support, a three level mechanism to ensure uranium enrichment services, which is very much similar to the WNA proposal.

Also Japan proposed to establish an information system managed by the IAEA to help prevent interruptions in nuclear fuel supplies.

Nuclear Threat Initiative offered to contribute US$ 50 millions to the IAEA to create a fuel bank, which is actually an LEU bank. It's a resource of low enriched uranium, not of manufacture of fuel assemblies.

The United Kingdom proposed a so called bonding principle that would guarantee that national enrichment providers wouldn't be prevented from supplying enrichment services, which means that export licenses will be issued in advance, and wouldn't be called back by governments for political reasons.

Germany proposed the creation of a new fully multilateral enrichment facility in an extraterritorial site, and you already heard about this proposal from Mr. Mützenich.

Austria proposed to finally convert all fuel cycle activities, including reprocessing and enrichment, into a multilateral enterprise and the EU, proposed, actually not a long mechanism but a set of criteria to asses existing proposals.

There are a few points of agreements between all these schemes or arrangements. First, any multilateral mechanism shouldn't disturb the international market. So they should serve mainly as a supplementary or in depth guarantee mechanisms. Then, the establishment of multilateral fuel cycle arrangements should be implemented step by step. The majority of the current proposals are restricted to the front end of the nuclear fuel cycle, which is the uranium enrichment. There would be no uniform approach. So, a possibility is needed and for many of the proposals different mechanisms are needed.

These proposals are different on their scope and their objectives, goals. First, there are three far-reaching visions. This is Russian global nuclear power infrastructure, GNEP, and Austrian proposal. They are envisioning some global system of international suppliers, providing a complete set of fuel cycle services, and using new technologies and all these things, but they are not very detailed, so it's a vision. However, a lot should be done on these proposals to give substance in them.

Then, more specific proposals. These actually can be grouped into several categories. This back up arrangements in addition to the existing commercial uranium market and we see these four proposals that are… Then, establishment of nationally controlled or IAEA controlled reserves of low enriched uranium (LEU). This is Russian guaranteed reserve of LEU in Angarsk. It seems that I skip a word in one of the Russian proposals, sorry. As a development of Putin's initiative of the creation of this global power infrastructure, Russia proposed to establish, and actually established, an international enrichment center in Angarsk, and this center now has three participants: Russia, Kazajstan, and Armenia. Ukraine is in the process of joining the center. In addition to this, Russia proposed to establish a guaranteed reserve of LEU in Angarsk. 120,000 tons of low enriched uranium will be provided, safeguarded, secured, maintained by Russia, and Russia would release this material by the request of the Director General of the IAEA.

Nuclear Threat Initiative and US reserve of LEU. These two proposals also include these nationally controlled stocks of LEU as a last resort option. This creation of an International Enrichment Center, is Russian centered, and it is based on an existing enrichment facility in Angarsk, and German proposal, creation of a new multilateral IAEA controlled, supervised the enrichment facility.

Implementation policies: some of these proposals can actually rely to a great extent on national policies and existent infrastructure. They can move forward, and some of them actually are moving forward now.

Like US, it will finish down blending its HEU in 2010. Russian International Enrichment Center in Angarsk is working, and the Russia is ready to provide the uranium for this guaranteed reserve of uranium. United Kingdom is actively developing its proposal of this enrichment once, and maybe it will present this proposal to the IAEA Board of Governors in November, will see this year. Japan also wants to develop its proposal further.

Then, these two proposals are more multilateral and would require more efforts to create the necessary political, legal, financial, physical conditions. In any case, NTI Fuel Bank is a simpler proposal and already reached an important milestone for securing 150 million dollars for its Bank. Now IAEA Board of Governors should decide where this bank will be located, how it would be secured, maintained, fuel pricing, all these statistical things. German proposal is more complex.

So, in terms of the timeframe required for their realization: short term, mid term and long term proposals. Some thoughts about all these proposals: I think that these proposals respond to the entire motivation of the customer states, in terms of their participation, ownership, management, operation, decision making, profit sharing, perhaps would be more attractive than just back up supply mechanisms for the existing market, because the existing market looks pretty well, so maybe it wouldn't be much desire to use all these new mechanisms. Then, proposals to the input back-end services perhaps would create stronger incentives to rely on international mechanisms, because any country will have to face problems with spent fuel and the nuclear waste, sooner or later.

Then, as I said, diversity of proposals is needed. The IAEA and its member states should support many of these proposals. This is very important: multilateral nuclear fuel cycle mechanisms shouldn't deprive customer safe states of their rights, under the NPT or IAEA, because otherwise they are doomed for failure, and they wouldn't met any kind of enthusiasm by the customers side on these proposals. In stead, this problem should be addressed in terms of opportunity and not in terms of denial. Of course, without international agreements between different countries, it is unrealistic to expect that some of these schemes can be realized. So, first of all, what is needed is trust between the supplier side and the customer side. Thank you.

Leonam dos Santos Guimarães: - Thank you very much Dr. Yudin, I think you gave us a broad vision of all the proposals and the discussion of the international multilateralization of the nuclear fuel cycle. It's a very curious and disturbing fact that all this proposals stated by Dr. Yudin where made from countries on the side of the offer, participants of the safe market of nuclear fuel but they are on the side of the offer, there's a terrible lack of concrete proposals from countries on the demand side. This is a topic to think about. The second point is to think about, and there's a very representative joke here in Brazil that says that a camel is a horse designed by a commission of experts, for which we have to be extremely careful to create a horse and not a camel, when it comes to the international multilateralization of the fuel cycle.

Our next guest is Dr. Annalisa Giannella, which is the Personal Representative on Nonproliferation for the European Union. Unfortunately she could not be present during our seminar but she has sent a speech that will be read by Dr. Christian Burgsmüller, First Secretary, Head of the political and economical information sector of the European Commission Delegation in Brazil. Please, Dr. Burgsmüller.

Christian Burgsmüller: -Thank you very much; I am the reincarnation of Ms. Annalisa Giannella. It will probably be a better idea for you to close your eyes and think that my German accent is actually an Italian accent, therefore I'm going to try to move my hands a little bit to give the speech a more Italian feeling. [with humor] The speech is in English so we can relax.

Excellencies, ladies and gentlemen, preserving the integrity and effectiveness of the Nuclear Nonproliferation Treaty remains a key priority of the EU. To achieve a successful NPT Review Conference in 2010, attention will have to be paid to carry out a balanced review of the NPT, taking into account its three pillars, and giving equal weight to each. Efforts aimed at working towards a better equilibrium within the three pillars of the NPT are crucial in order to avoid the traditional conflict of non proliferation and disarmament. Since interest in nuclear energy has been growing over the past several years, particular focus should be given to the development of the peaceful uses dimension. We need to look at the issue of peaceful uses of nuclear energy with attention and free of dogma.

The first point (there are only three points, there's no reason to worry), first point: development of the dimension of peaceful uses of nuclear energy. A growing number of countries have manifested the intention to resort to the development of nuclear energy generation programs. This is in accordance with the arrive as enshrined in article 4 of the NPT, and it is our duty and in our interest to cooperate with them in order to ensure that they develop civilian nuclear energy programs in accordance with the higher standards of safety, security, and non proliferation. The EU, and several EU member states, which have developed advanced nuclear technology, are well placed to provide far-reaching assistance in this area.

The production of nuclear fuel is a costly and complex activity. In Europe, precisely for these reasons, fuel is produced by a multinational nuclear industry, since it is unreasonable for practical and economic point of view, for each and every country developing a civilian nuclear program to build its own nuclear fuel cycle. A nuclear fuel cycle makes economic sense once the country has built a sizable numbers of nuclear reactors. Multilateral nuclear fuel supply schemes can be an effective answer in this context. The development of multilateral nuclear fuel supply schemes offers a viable alternative to national fuel cycles. There are a number of proposals on the table. We have to continue to examine them carefully.

The EU has defined some criteria to asses those proposals: proliferation resistance, assurance of supplying, consistency with equal rights and obligations, market neutrality, as well as safety and security. I am not suggesting that everybody should adopt the same criteria, but this criteria show that our assessment will be made in the most objective way possible. In any case it is clear that the various proposals are not necessarily mutually exclusive, and can fit different circumstances.

The EU Council of Ministers, in December of last year, decided on the principal of a financial contribution of up to 25 millions euros, for the establishment of a nuclear fuel bank under the control of the IAEA in order to make a first tangible step in this area. Now further work, including its potential beneficially countries, would be necessary in order to address meaningfully existing concerns about the fuel bank and to present and defend the merits of this initiative in economic and security terms.

However, a nuclear fuel bank managed by the IAEA only represents a mechanism of last resort, complementing more far-reaching solutions, but which are either at an early state of implementation or are expected to emerge from discussions with recipient states. In the long term, through a combination of various multilateral nuclear approaches, it will be possible to provide an even higher level of confidence to recipient countries interested in receiving credible long term assurances regarding the supply of nuclear fuel. The setting up of the IAEA nuclear fuel bank will be a starting point for this endeavor.

We are well aware that multilateral nuclear fuel supplies schemes are perceived with some concern, surprisingly also by countries which could be potential beneficiaries of such schemes. These concerns have been repeatedly raised, including in the framework of the IAEA Board of Governors. At this stage, the primary objective should be to enter into discussions, and how these concerns could be addressed in order to permit progress in the elaboration of different proposals.

Second point on addressing actively the issue of the situation in the Middle East: in the framework of the NPT Review Conference, the issue of the Middle East will continue to require particular attention. We need to prove in a tangible way that we attach a sufficient level of importance and already to take practical steps towards the implementation of the 1995 Resolution on the Middle East. The Barcelona Declaration which sets up an overall framework of cooperation between the EU and the Mediterranean countries identifies the objective of establishing a zone free of weapons of mass destruction and their means of delivery in the Middle East as the key objective. As one preliminary step, the EU plans to organize a follow up event to the EU seminar on Middle East security, weapons of mass destruction nonproliferation and disarmament, which was held in June 2008 in Paris. This event tentatively scheduled to take place in Spring of 2010, before the Review Conference in May 2010. [Just a very personal remark: it seems to be a great business working in nonproliferation, conferences in Rio and Paris, so I should really try to get into this business.]

We certainly need to see creatively what additional steps and initiatives can developed together in this field, with the view to achieving the objective of a zone free of weapons of mass destruction and their means of delivery in the Middle East. While is it difficult to imagine that the establishment of such a zone in the Middle East could take place independently from a comprehensive peace settlement, we should not resign ourselves to the idea that even starting to talk about such a zone on a very preliminary bases, and at least a technical level, cannot take place before such a settlement. Such preliminary discussions could even make a useful contribution to the other process.

Third, and last point: strengthening nonproliferation and disarmament. The EU remains convinced that the credibility of the multilateral treaty system can only be ensured through robust verification and compliance mechanisms. Accordingly the EU contributes significantly to strengthen the verification systems of the CTBT through financial assistance aimed at the enhancing verification and monitoring capabilities. Similarly, the EU has been cooperating with the IAEA to ensure the full application of safeguard agreements and the promotion of the Additional Protocol. These projects have a common denominator which is the EU's willingness to enforce the role, credibility and competence of the IAEA.

The nuclear nonproliferation regime can only function adequately if the IAEA is adequately equipped. The existing and potential challenges, host to the non proliferation regime, are a clear signal that the Agency needs further support to live up to the ambitions that underpin its creation. In the past, dissatisfaction with the disarmament process has let many to believe that nonproliferation is simply a concern of nuclear weapon states or more wildly of developed countries. Recent progress in the EU and Russia talks on a post START agreement will have to change this perception and to improve the overall atmosphere.

The CTBT is not yet enforced, but we have some positive momentum due to the US readiness to work towards ratification. Some of those who have not ratified use a tactic of subordinating their ratification to the ratification of others. This is a recipe for failure. The CTBT is a very significant step and a strong symbolic step on the way to disarmament. In the same vein, more effort should be undertaken in order to advance in the negotiations on a very viable FMCT at the beginning of next year. Not all nuclear weapon states have an official moratorium in place on fissile material production, and those states who have developed nuclear military capabilities outside the NPT, do not even envisage one. Efforts to promote a general moratorium on production of fissile materials for military purposes should be redoubled.

Overall, we are underestimating the achievements of a non proliferation regime, and we run the risk of not doing enough to reinforce these achievements. Again, it is in the interest of all countries to have a strong and effective nuclear non proliferation regime, not least in order to meet the serious challenges posed by existent regional proliferation crisis. This is why the 2010 NPT Review Conference is an

important event. The opportunity to turn it into a success must not be missed to the advantage of all countries, benefiting for a healthy and lively nuclear non proliferation regime. Thank you very much.

Leonam dos Santos Guimarães: - I want to thank Dr. Christian Burgsmüller for reading Dr. Annalisa Giannella's speech, and well, in order to finish, and before starting the debate I would like to make a contribution, since in time I've become involved in the analysis of this topic. In 2006, during the General Assembly of the International Atomic Energy Agency there was a parallel event on which they discussed the special topic of assurances of supply for the nuclear fuel.

Therefore I'm going to share some of the ideas that we exposed there, because there are two key elements we should reflect on. Is there really historical experience of a political denial of fuel supply from a central country to a depending country? Yes, there is, at least one and we have it in Brazil. The United States of America refused to supply us with the fuel elements for Angra I at the beginning of the operation, they refused for political reasons. At the time, the problem was solved by the German supply of the fuel elements by the agreement between Brazil and Germany. So, this fact, this problem exists, that possibility and the countries on the demand side should be protected somehow.

The second key issue, we should reflect on the proposals involving an international fuel bank or the direct role of the International Agency as a supplier, are a matter of concern, because the previous experience of an UN international organization as commercial agent for any political reason has the antecedent the of the program "Food for Oil" in Irak, before the war in Irak and with all that came after. The program "Food for Oil", during that program the UN set itself to be a commercial agent capable to intermediate in a commercial activity for a matter of international politics. Without judging the merits, or if it was right or not, the truth is that the program was an enormous scandal of corruption, international financial scandal, and then we have to be careful enough to consider all the options when we think of an international agency as a commercial player. This is another concern topic, two topics.

But within the same concept, beside what we had opportunity to present to the Agency in 2006, we had also the opportunity to participate in a very interesting work group organized by the National American Academy and the Russian Academy of Sciences; they made a study on the globalization of the nuclear fuel cycle. It is a very deep study. I had the privilege of being invited to participate of a workshop they organized with the countries of the demand side, so we had the opportunity to place some ideas that I would like to share with you….. When we consider this issue from the Brazilian side we can visualize the problem, and the fact is that Brazil has one of the greater reservoirs of uranium in the world. It is as known fact. Brazil has probably the first or second largest reservoir in the world with Australia, and Brazil has the unique characteristic, shared only with Russia and the United States, of a country with huge uranium reserves and a complete technological dominance of all the stages of the nuclear fuel cycle, even if in Brazil does not exist the industrial capacity in all those stages, that the two main nuclear powers have. And that technological dominance is a confirmed fact.

Then with Russia and the United States, we are the only three countries that gather these three characteristics, meaning Brazil has a very important role to play in this context or any other future context in the internationalization of the nuclear fuel cycle.

Brazil has to expand its industry in the nuclear fuel cycle, initially to gain self sufficiency. As you know we have to nuclear reactors in operation Angra I and Angra II, generating up to 2,000 MWes of energy, there is also Angra III which is under construction and will generate up to 2015 plus 1,405 MWe installed, in the 2030 energy plan we estimate to generate another 8,000 MWe adding up to the total number of 12,000/11,500 MWe of nuclear energy for 2030. Therefore the first challenge for Brazil is self sufficiency but considering this point that Brazil has those two items: big reserves and technological capacity, Brazil

has a serious interest to participate in the arrangements of multilateralization, certainly exists a possibility for Brazill, once achieved a self-sufficiency, of integrating its nuclear industry, and to be a part of other countries' the fuel cycle, such as our own brothers from Mercosur, Uruguay, Argentina, Paraguay, and recently Chile, and most recently Venezuela, and the rest of Latin America in a broader expansion. Brazil would have the conditions to guarantee a regional supply, as a uranium supplier, the raw material, and also, as a supplier of services, and integrated supplier of services of an open fuel cycle.

Evidently we are not talking about reprocessing cycle or closing the nuclear fuel cycle; all this is under ample safeguards. The other key point and I want you to reflect on a phrase stated by Director General El Baradei we should abandon that unworkable notion that its morally reprehensible for some countries to possess weapons of mass destruction while its morally acceptable for some to rely on them for safety and continue to refine they're capacities and plan their use, that phrase is quite significant. Meaning, to top the paradox, Brazil has done an irreprehensible job on the topic of nonproliferation, the Brazilian Constitution proscribes all non-peaceful uses of nuclear energy, the only other country to have that prohibition is New Zealand, no other country in the world has got it.

We are members of the NPT and the Tlatelolco Treaty. All Brazilian facilities are safeguarded, this comes from multilateral arrangements from the 1990's to the creation of the Brazilian-Argentine Agency for Accountability and Control of nuclear materials (ABACC) a very interesting example for the entire world when met problems like Iran and North Korea. The role of such a regional control agency should bring a great deal of analysis on how something can be applied, and in 1997 the adherence to the NPT.

Brazil has a very important history of more than 25 years, let's say 30 years, of nuclear development without any technical detour or suspicious event, that is really remarkable and the polemic over the Additional Protocol, okay, it exists, but we should look at that simultaneously. I mean, just like Japan, Germany and Netherlands, Brazil has two nuclear reactors working, another one fully safeguarded. The program of development of isotopic enrichment in Brazil, it was never suspected to be proliferating, no funded suspicion has been lifted on proliferation, and never there was any suspicion of participation of Brazil on the black market of proliferating technology. This is a point to highlight.

And it is, in fact, a very interesting point: Brazil is the only case that produces batches of uranium 235 enriched to the 20% under complete international safeguards of the International Agency. This is a unique case because that uranium to the 20% that is used in investigation reactors all over the world is produced in countries that are not submitted to the NPT safeguards regime, excluded facilities, of the nuclear weapon central countries. Then the fact that this enrichment is made here in Brazil, I think is very relevant, it shows that it can be done.

Therefore I leave two topics open for discussion: first, any solution that seeks to limit the access of some countries to technology would mean to accept the failure of the nonproliferation regime, because the nonproliferation regime is fundamentally based on that access. Then, to assume that anything that disagrees with that is defying the regime and assuming that it has failed, which is a pity because in a strictly technical basis theory it can work pretty well. The Brazilian case is a clear example that it can work.

Last, we stand that by having great reservoirs of uranium, technology, industrial facilities completely safeguarded in all stages of the open nuclear fuel cycle excluding reprocessing, Brazil can certainly take a major role in any fuel supply assurance settlement, any guarantee mechanism of the IAEA, because Brazil is now on the demand side, but in a relative short period it will be on the supplier side, as a producer, and it could become a regional supply center for South America, South of Africa, South Africa, or perhaps any geographical arrange.

Therefore I would like to thank you very quickly, I don't want to get carried away because I shouldn't be talking but I leave that to be discussed. Then, my friends, I think we should have some time for questions. We are a bit late but I would like to open the panel for questions.

Member of the public: -Good morning to all of you, my name is Andres, from the Getulio Vargas Foundation. I would like to ask two questions regarding the topic discussed recently. Yesterday we talked about countries' sovereignty and I would like to know: what is the Agency's position on the possibility of building atomic plants for energy generation, energy matrix…clean energy, with Brazil as a supplier for other countries, and preserving countries' sovereignty? I mean that you can use the technology to generate clean energy, for peaceful uses. The other question was discussed by my friend standing beside me, is sovereignty in relation to risk of…the possibility of a country to sustain itself, you talked a lot about the situation of Irak, there are two issues: North Korea and Middle East. Recently, I mean, there was a suspect that Iran would be using atomic generation for military purposes, and it has been linked in the international media to the possibility of an Israeli attack if there was or not nuclear weapons in Iran. So these are the two main issues, what is the Agency's position relating those two, lets say, extreme topics? A country could defend itself, and other that wants to use energy for peaceful uses using their own energetic matrix? Thank you

Leonam dos Santos Guimarães: I think you put forward a question that is a bit difficult to answer, you are asking about the position of the Agency. The only representative of the Agency… I'm looking for her name, Dr. Gianella who is a delegate. Oh no, European Union, excuse me! So we really do not have here a direct representative on the Board of the Agency that can speak on behalf of the Agency. I think this question is a bit difficult to answer in that context you mentioned. I do not know if Dr. Yury...I do not know if he would like to answer or post a comment about your question. Please.

Yury Yudin: - I am not sure I totally understood the question. What do you mean by "preserve the sovereignty"…can you explain it?

Member of the public (Andres): - What is the right of countries that want to use nuclear energy for peaceful ends…

Leonam dos Santos Guimarães: If that is the question I think the answer is easy. The NPT is based precisely on that right; the right is full, in the text of the NPT, in article four, article six, not sorry, article four.

Member of the public (Andres): You mentioned about commercialization restrictions, …

Leonam dos Santos Guimarães: No, the Agency does not impose restrictions on that kind to commercialization.

Member of the public (Andres): So any country in South America or developing countries can trade with Brazil, Brazil as an exporter or producing and installing plants?

Leonam dos Santos Guimarães: If they are adhered to the NPT, if their facilities are under safeguards, then there is no impediment to that.

Yury Yudin: Right now there is no plan to somehow to restrict or infringe these rights at least by these multilateral approaches. The idea is to provide to customer states an attractive alternative to building their own fuel cycle facilities and going into expense and potential problems with developing their own technologies. There is not any restriction of rights or requirements to forego any domestic fuel cycle

facilities or whatever, in this current proposals at least those that are developing actively right now like the NTI fuel bank, Russian enrichment centre in Angarsk, Russian reserve for LEU or German proposal for creating this multilateral enrichment facility.

Leonam dos Santos Guimarães: Do we have another question?

Member of the public II: -Good morning everyone, I want to congratulate the table for the level of their presentations. I am Ricardo Motta, Logistic operator of Correios. My question is very objective. I've seen all the presentations so far, making reference to the initiatives, to the natural tendency of global centers and up to nuclear fuel banks, the question is: It has already -I believe that yes- but I would like to confirm it, the definition of the profiles of legitimate operators that transport fissile material, the matter related, for obvious reasons to security, not only by the diversion of this fuel in the transportation process, but also the question of probable natural accidents in the transportation process between different points of the planet. Perhaps Dr. Yudin may...

Leonam dos Santos Guimarães: -To address your question, I'll say that these logistics operators are already established in the world. In the world today you have a pretty significant flow, a fairly significant amount of transit of radioactive materials in the different fuel cycle stages. Here in Brazil, for example we have a supply chain that transports from mines in Bahia, in the interior of Bahia, to the port of Salvador. The maritime operator goes from Salvador to Canada for a second conversion stage, the logistics operator there in Canada carrying the cargo by railway. Then it comes back, it goes through Europe to return here in Brazil, to disembark at the port of Rio de Janeiro, to take to Resende the enriched uranium to produce fuel elements there. Then the logistics operator goes down the mountain and reaches the plants. So as you can see, this is something that is fairly established, established in the world.

Member of the public II (Ricardo Motta): -Are they well-known global operators?

Leonam dos Santos Guimarães: There are some specialized operators. There are a number of international norms that regulate the transport of radioactive material. So the logistic operator must be qualified according to those standards, and obviously not all operators are qualified. But the qualification in the case of maritime transport is not of the operator, it is the vessel and its support structure. So there are skilled players who are in charge of this transport. I am not able to tell you right now the name of the maritime transport company that does this here. I owe you the name. Can anyone help me? I do not know the name of the company that does that directly, but it exists and it is well established in the world.

Member of the public II (Ricardo Motta): -Thank you.

B. S. Prakash: -My name is Prakash, I'm the Indian Ambassador in Brazil, my question really I think can be addressed best by Mr. Yury Yudin. We have the very interesting case of Iran right now. Hypothetically for a case like this, what kind of a proposal of the many you sketched out, what will be the proposal which comes closest to addressing, shall we say Iran's case satisfactorily, Iran's aspirations satisfactorily, and as supplement to that, now the Iranian example is already showing us that they are trying to tailor a specific solution. For example the country could say, yes we would like the uranium taken to Russia and not to France, or whatever…So, even if you have a multilateral arrangement, should you have flexibility to answer each situation?

Yury Yudin: -I wish I knew the answer to this question. You know, regarding Iran, it's difficult to say what proposal can satisfy them, because actually a number of proposals were initially developed as proposals for Iran, or like keeping Iran in mind. For example, this proposal of the Gulf Cooperation Council was actually developed to resolve the problem of the Iranian enrichment program and the Russian enrichment center in Angarsk initially was in envisaged as their joint venture between Russia

and Iran to enrich uranium in Russian territory, but Iran finally refused to accept this proposal. So, I don't know. I just can't answer to this question, because it depends on the real aspirations of Iran, what they really want from their enrichment program. Because all these proposals, they cannot be the final answer. If for example, they want to develop something, some technology, some capability, I don't know, on nuclear weapons, it's very difficult to stop it, no multilateral scheme can do this.

B. S. Prakash: -This is an important conference, I disagree in an important issue, and we have a number of proposals which Mr. Yury Yudin outlined. So the larger issue, I don't want to speak about Iran, but the larger issue is that if you have this entire matrix of proposals, would it be that for each situation we would have to tailor a new solution or can be really multilateralized?

Leonam Dos Santos Guimarães: -If you permit to me an iconoclastic proposal, why not Israeli-Arab countries agency of control and accountability of materials like we have in Brazil or Argentina, it is a question, isn't it? Sounds iconoclastic, but why not? We never thought about, never talked about this possibility. I believe that is a possibility, why not discuss this?

Rolf Mützenich: -May I take the opportunity to answer? I would like you to prepare, if it is possible, again the translation because we have the translator there, and it would be much easier for me to answer in German, if you don't mind. I think that, actually, your question has to do with the fact that there is only one answer to the multilateralization of the international fuel cycle. We need an international organization to be unsuspicious to clients but, above all, to suppliers. We see how Iran mistrusts, in current time, especially France, which is in the second step within the solution of the IAEA. And this is evident: France has not always showed security before Iran. It is also obvious that it can only be possible if the IAEA would be in the future the ceiling for the multilateralization of the fuel cycle.

I have great respect for Brazilian activities, which are also unsuspicious. In the last twenty-five years, this has not been a question at all, but still there are important political personalities that agree with the militarization of the nuclear energy in Brazil. I don't want to criticize it here, because we have in Germany reprehensible points. But I might say that we only learned about it. By having learned about it, my Party is convinced that we will have to think of long terms in this world, (…). This is our conclusion, although we accept other conclusions. I just say that if I was in Iran and I spoke with politicians, I would find interesting the question about what happens with a secure storage of fuel, for instance, in Iran. In each case, my plea is to have an unsuspicious doer for the multilateralization of the fuel cycle. And this is the IAEA.

Camilo Reyes: -I am Camilo Reyes, from the University of El Rosario, in Bogota, a very short question. I would like to know if the table could answer: having in mind that there is a common feeling of the need to the multilaterization of the fuel cycle, where do you thing it's the right forum, or the right agency, or organization, and the way in which the proposals must be analyzed, and the launching of a negotiation for the creation of the needed mechanism, or organization has to be done? Which is the way to get closer to the process? Thank you.

Yury Yudin: -Thank you for this question. I think the IAEA is the most obvious answer, but of course it shouldn't be the only one. So, because, you know, in June in the Board of Governors when ElBaradei put forward three of these proposals and they were objected, seems like now this issue is very much politicized than the IAEA. So maybe we have to think about some other international fora as well in addition to the IAEA. But of course the IAEA should be involved very actively in this process because they are fuel officers, and all these proposals are going through the IAEA. But any international forum is a good place to discuss this issue, why not? This conference, this conference is a good place to start the

discussion too. Latin America is a good place for some regional arrangement actually, starting maybe from Brazil, Argentina, Mexico, and then, I don't know, Chile, Uruguay, other countries joining.

Leonam dos Santos Guimarães: -One last question please. You were so upset when I did not get to the issue, we can not let this setback.

Member of the public III: -I was not upset; it is a clarification I think we were missing out. My name is Silvio de Almeida. I am accounting officer at ABACC. I graduated from the QUINEI. I have been working for more than 30 years in this area. I just want to make a clarification concerning what was said by Dr. Rolf on inspections at the facilities of Brazil, taking in account the refusal to sign the Additional Protocol. I think this should be clear.

ABACC was created to manage as Dr. Odilon quoted yesterday in his presentation, exactly to manage the implementation of a common system of accounting and control of nuclear materials. With the implementation of this common system, Brazil through inspections of facilities made by Brazilian professionals in the Argentine facilities and vice versa, it was granted that both countries were developing nuclear energy on the path of peaceful ends. But that gives a guarantee to Brazil and Argentina. Brazil to Argentina and Argentina to Brazil. So, the Quadripartite Agreement appears, so called Quadripartite as it was signed by Brazil, Argentina, ABACC -already established with its common system that manages these mutual inspections- and the International Atomic Energy Agency

Leonam dos Santos Guimarães: -Silvio, please be a little more brief.

Member of the public III (Silvio de Almeida): - So, what happens is that ABACC and the Agency make joint inspections in Brazilian and Argentine facilities, very well. The inspections done by ABACC in Argentina or Brazil following the common system of accounting and control is done over declared facilities and materials. Well, in relation to what was said that there were no inspections on behalf of the Additional Protocol which seeks precisely undeclared materials and undeclared sites, ABACC in conjunction with the Agency goes beyond what was initially made, which is to only use standard procedures. ABACC and the Agency go even further, not only inspecting facilities but also applying measures such as environmental sampling in enrichment facilities in Brazil. Unannounced inspections are applied to those facilities and other types of inspections as "short Notice", "random inspections" where the inspector has two hours to reach the installation. He comes and nobody knows anything and he accessed in two hours to the facility, so he goes a little further. So indeed there are inspections at those facilities in the way they claim.

Leonam dos Santos Guimarães: - Exactly, it is that what Silvio showed what makes Brazil not a suspicious country. That is what allows us to affirm that 25 years have passed without suspicion

Member of the public III (Silvio de Almeida): -It seems to me that the non-proliferation regime is not so failed, that is to say, there are some things to be done.

Leonam dos Santos Guimarães: -Thank you. I apologize for the extension of the time limit. Thank you very much.

Applause