

## Conference Call with Dr. Olli Heinonen Transcript

**David Harris:** Welcome ladies and gentlemen. I'm absolutely delighted that The Israel Project is hosting Dr. Olli Heinonen for this conference call on the very day the International Atomic Energy Agency begins its latest round of talks with Iran in Vienna. In order to get a handle on this, the twelfth round of talks between the parties, and of course the upcoming P5+1 negotiations with Iran, we've invited Dr. Heinonen to offer his thoughts. Dr. Heinonen worked at the IAEA for 27 years, becoming the organization's deputy director general and he's now senior fellow at the Kennedy School of Government's Belfer Center for Science and International Affairs. First, we'll hear from Dr. Heinonen and then he'll answer some of the many questions you've submitted – Dr. Heinonen

**Dr. Heinonen:** Thank you very much and good morning or good afternoon to the listeners. Yes, I think that this is one of the important weeks in this Iran-IAEA dossier as well as Iran-P5+1 dossier because as we speak the IAEA is sitting together with Iran and looking at the new proposal which Iran has brought to IAEA to solve or resolve some of the questions which are related to the so-called alleged studies or military dimension of Iran's nuclear program. And what I hear and see from Mr. Araqchi, deputy foreign minister of Iran, that he's now coming with a new approach – which might be good because we have had about eleven rounds of discussions with no real outcome.

And later this week the P5+1, the technical people get together with Iran and start to look at the proposal made by Iran for them, which is much broader in context. So I think that this is an important week and I'm ready for any questions or remarks which you want to hear from me.

**David Harris:** Lots of questions – we'll start with this one. In November of 2011, the IAEA reported the agency is “becoming increasingly concerned about the possible existence in Iran of undisclosed nuclear related activities involving military related organizations, including activities related to the development of a nuclear payload for a missile about which the agency has regularly received new information.” Tell me, Dr. Heinonen, what are the chances that Iran will provide the IAEA with satisfactory evidence regarding the true nature of its nuclear program?

**Dr. Heinonen:** Well, this has been a long road until now as you know. The IAEA has started to raise these questions about the military nature - possible military nature - of Iran's nuclear program already in spring 2004. And if you go to the IAEA reports, you find there some questions. Then came the thing with which was called physics research center in Lavizan, Tehran, a big complex which was erased and IAEA had at that point of time quite a few questions, but some of them were left unanswered. And then, since then in 2004, 2005, the

amount of information has gradually increased and then the first time the agency wrote in more detail of this military dimension was in spring 2008. It got quite a lot of attention. But then, in 2011, November, as you mentioned, the agency put practically all the detail in the annex. Then, since then, there has been this eleven rounds of discussions with no real outcome.

Is it different today? I hope so – and at least the language of the Iranian government is different, and they are forward-looking, and I think that they have realized that they don't get away from this situation until they answer properly the questions raised by the IAEA and concerns raised by the international community. So I'm a certain degree hopeful, but we have to make sure that everything is covered because the structured approach which IAEA put out after November 2011 – it doesn't actually address all the questions the IAEA asks. It's mainly concentrating on the so-called military dimension of the Iranian's nuclear program. But there are also questions related to the civilian part of the program. So all this should be addressed together, and I hope that Mr. Araqchi came with a comprehensive plan and not just a piecemeal approach.

**David Harris:** Iran has installed thousands of new generation centrifuges. What are the implications, and what does this mean specifically in terms of Iran's ability to reach critical capability without being detected?

**Dr. Heinonen:** This has two aspects. One is reaching the capability, and one is what you say critical capability without being detected. I think the IAEA inspection regime is fairly robust. So if Iran tries now to renege from its obligations under the NPT, at these declared facilities which are Natanz and Qom, the IAEA would be able to blow the whistle early enough in one or two weeks' time. Certainly then it's a different thing how quickly the international community can react to that, which I mean the IAEA board of governors and the U.N. Security Council, because two weeks in international diplomacy is a very short time unit.

But I think that the concerns are really a little bit somewhere else at this point in time, and they also go to the civilian nature of the program, which I mentioned. Because quite some time Iran was developing its centrifuges without reporting to the IAEA. And even when this all became public in 2002 – Iran agreed in 2003 on suspension of its nuclear program – and addressed these fears related to the history of the enrichment program. It didn't start very well because Iran didn't fully disclose what it had. So-called P2 program became public – which is a more advanced centrifuge – in spring 2004. And then later, in 2009, we are facing the new installation which Iran had been constructing in secrecy – namely, Qom. So the question: is everything now on the table? Has Iran declared everything or is there still something which the international community doesn't know? And therefore, until this part of the program is fully understood, I think the concerns will not go away.

And then there is the other part, which is using of the existing centrifuges. Because there are 19,000 IR-1's – this is the old type of centrifuge – and those 3,000 IR-2's which are going to be installed. The radical iritis, the so-called breakout time, you have to have seen the report of ISIS from David Albright last week which now speaks that this breakout time can be one month. And I believe that if certain arrangements are done, it can even go down to two weeks. So there are a lot of concerns out there which hopefully Iran addresses in this new phase, both with the P5+1 and with the IAEA.

**David Harris:** Given everything you've just said – and I'm paraphrasing somebody's question here – given everything that you've just said, are we now past the point of no return?

**Dr. Heinonen:** Yea, in a certain way. But we have to remember what are the capabilities of Iran. You can look at breakouts, people use slightly different definitions here. What I used here as a breakout capability is to produce highly enriched uranium which is weapons grade and it will be in the form of uranium hexafluoride gas after enrichment, but you still don't have a nuclear weapon. You need to turn it into nuclear weapons components, which will take a month or two assuming that someone has all the knowledge. And then, if you want to have a nuclear weapon which you deliver, for example with a missile, that part of the program probably is far away, maybe a year from now. But this is all risk assessment and goes to the behavior of Iran. What kind of changes in the behavior might come, for example, if Iran owns and has the capability to produce fairly quickly highly enriched uranium in the form of uranium hexafluoride gas.

**David Harris:** Let me try, if I can, given the time, not at all technical, to ask you two questions in one of a technical nature. Prime Minister Netanyahu of Israel yesterday was saying that the Iranians are talking over and over about 20% enrichment and taking attention away from this idea of a 3.5% low-enriched uranium directly up to 90%. If you could explain a little bit of the technicalities but in laymen's terms or layperson's terms. And then also, the other part of the question is what level of centrifuges and low-enriched uranium could Iran retain without posing any threat of breakout?

**Dr. Heinonen:** Yes, all this if we start from the last part of your question, what Iran can maintain, I think we should look at it from the point of risk assessments. There are things which we know, like a number of centrifuges which they say they have installed. But there are numbers which we don't know, for example, if there are some additional centrifuges somewhere ready to be installed or already have been installed, so this goes to the uncertainties. Same is with the nuclear material inventories because you need, in addition to centrifuges, you need nuclear material as a feed, whether it's a 3.5% or a 20% enriched, the consequences and implications are somewhat different. So when we look at this risk, we need to look at these three factors together: how much enrichment capability, how much uranium enriched is in Iran and which type, and the third area is which are the unknowns? And then you set up your scheme. And then we look – lets

look just purely at 20% enriched uranium and 3.5% enriched uranium. Once you produce weapons grade uranium and you already have 20% enriched uranium, actually you have done 90% of your work. Very often, I hear scholars talking about medium-enriched uranium when they talk about 20% enriched uranium. It's not really the case, because this is not the cup half full or the cup half empty, it's a cup 90% full because you need only to do that tiny small additional 10% away for it to produce highly enriched uranium.

And, unfortunately with the low-enriched uranium, it feels a little bit the same, and that's why I understand the concerns of Prime Minister Netanyahu. Because once you have produced 3.5% or 5% uranium, which is typically used in light-water reactors and which Iran has now quite a bit stock over there, almost 7 metric tons of that material. Actually you have done something like 60% of the effort you need to do in order to produce weapons-grade uranium. So, even this one is already a little bit more than a cup half full. And then you combine these inventories which are there with the number of centrifuges, and here I refer to this report made by ISIS and David Albright. With a current inventory, with a current 20% enriched uranium, uranium hexafluoride which Iran has, assuming that they don't need to do any major changes to their process – for the enrichment process, which I believe is true, they can turn it into one equivalent of nuclear weapon feed material in one month time. That's a fact. Then, if they start with the 3.5% enriched uranium, it will be a bit longer, maybe two months at this point of time, or even slightly more. However, now we come to our however. Iran is producing all the time additional centrifuges and is installing them. In the last few months, the rate has been about 600 new centrifuges per month. Which means that if it continues like this, by next summer, all these timelines which I mentioned will get cut by one-third. So, we are going in the wrong direction and there's now certain capability, but tomorrow it will be very different.

**David Harris:** With your permission, just a couple more questions, ladies and gentlemen, we're moving away from uranium and I'm going to use for the first time in this conversation the "p" word, plutonium. Are you concerned that there isn't enough international focus on the plutonium track and is there a possibility that Iran might start up the Arak heavy water reactor without advanced notice?

**Dr. Heinonen:** Well, I think it is very difficult to start up without advanced notice because the IAEA is fairly frequent with that place and has been following also the manufacturing of fuel for that reactor. So from those facts if there are no other sources, which I think are very unlikely, Iran won't be ready to start that reactor before next spring. But once it starts, then it starts immediately to produce plutonium, and this is certainly is a matter of concern because there is no real use for this type of reactor in the nuclear program of Iran. If you look for the production of medical isotopes, the reactors which are less powerful and using low-enriched uranium fuel are better adapted and safer for this sort of purpose. So it's a little bit baffling why Iran pushes ahead with this heavy water reactor and it appears to be an alternative, at least for a rainy day, to have

fissionable material, which could be, for example used for nuclear weapons if they decide to do so. But, this problem, as soon as the reactor starts, the plutonium will be there, but before Iran can separate plutonium from spent fuel, that will take quite some time, because they have to build a reprocessing plant, the reactor has to operate for one year at least and then the fuel needs to be cooled down, so I would say that that part of the separation problem, or really separating plutonium, that is somewhere in 2016. But having said that, we have to remember that plutonium doesn't disappear. As soon as the reactor starts to produce it, it will stay in the spent fuel.

**David Harris:** And finally, some people talk of an interim agreement between Iran and the international community. Do you think that's a good idea?

**Dr. Heinonen:** Well it depends which are the elements of the interim agreement, but I have seen little things written in public. But there is one thing that I really encourage the P5+1, and I have also told to my Iranian friends what they should do and start the transparency from day one. Go beyond the legal requirements to explain and demonstrate that the nuclear program is entirely for peaceful uses, which means that Iran should implement the so-called Additional Protocol to its safeguards agreement from the very beginning and let the IAEA in to verify those declarations. It should go beyond the legal requirements and tell more about the history of the nuclear program, R &D related to the advanced centrifuges, have a better access to uranium mining and uranium conversion than what IAEA would have in normal cases. And by this way Iran can build the confidence about its nuclear program. And it probably also should come up with a nuclear energy plan to tell why it wants to have this type of nuclear reactors, why it needs to have enrichment, what is the real justification because at least when you look at it from our side there isn't a lot of economical justification to some of those. If those are started at a later date, I think it will be very difficult for many governments to agree on any relaxation of sanctions and we will end up with the same problem that we have had before that Iran and the P5, they agree on things, but they all come too little and too late.

**David Harris:** That's been a fascinating twenty minutes. That's been very illuminating. Ladies and gentleman thanks for listening. Of course a big thanks to Dr. Olli Heinonen of the the Harvard Kennedy School of Government's Belfer Center for Science and International Affairs and former IAEA director general. Thank you so much for your time.

**Dr. Heinonen:** Thank you for the questions. It was a pleasure to be with you