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Report- In-House Meeting

“The Challenges of Global Nuclear Weapons and Fissile Material Stockpile and Production”

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Pictures of the Event





The Institute of Strategic Studies Islamabad (ISSI) held an interactive In-House Discussion with Dr. Zia Mian on February 13, 2017 on “*The Challenges of Global Nuclear Weapon and Fissile Material Stockpile and Production*”. Dr. Mian is Co-Director, Programme on Science and Global Security, Princeton University, US and also Co-chair of the International Panel on Fissile Materials (IPFM).

The meeting was attended by a distinguished panel of nuclear experts from academia, think tanks and organizations in Islamabad.

The Chairman ISSI, Ambassador Khalid Mahmood welcomed the distinguished speaker and thanks the esteemed guests for participating in the event. He said that nuclear weapons and materials have multiple dimensions – there is the question of their production; the threat it poses to the environment; safety and security issues; its peaceful uses; and issues of non-proliferation and disarmament. He said that since such a distinguished person like Dr. Zia Mian is the speaker, it would be a pleasure to listen to his views on the topic.

Dr. Mian spoke on two main issues that he said would be instrumental in shaping the non-proliferation landscape for some time to come. One was the Resolution L.41 passed in the United Nations General Assembly in October 2016 in order to convene a United Nations conference in 2017 to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination. The resolution was motivated by concern about the catastrophic humanitarian consequences of any use of nuclear weapons and concern also about the risks related to the existence of nuclear weapons. He said that the resolution was passed with overwhelming vote despite influential States’ efforts to block its passage or sway the votes. He said that this momentous resolution will cast an important light on non-proliferation debates and decisions in the coming years.

He said that this development was important for a number of reasons. There will be a treaty banning nuclear weapons without any doubt. He raised a question on what would this mean for the relationship between the international system of treaties, international institutions, nuclear weapons states and non-nuclear weapon states, and their ability to deal with each other. He also underlined the split within the nuclear weapon states vis a vis the vote on this resolution whereby US, Russia, France and UK voted against the resolution while India, Pakistan and China abstained.

The second was also support for a resolution for an expert preparatory group to negotiate a ban on Fissile Material production. This is important because a step by step informal negotiating process being put in place towards a Fissile Material Cut-off Treaty (FMCT). Previously, what was in place was a working group. The preparatory group this is about recommendations on what could be elements of an FMCT. He said that the preparatory group is expected to produce a report that would lay the basis for what an FMCT would look like.

Third resolution that was passed was Resolution L.57 pertaining to nuclear disarmament verification. He highlighted that this is the first substantial effort to address the issue of nuclear disarmament verification collectively.

The last thing that he emphasized as important is the preparatory meeting for the 2020 Non (NPT) Review Conference. He said that it is important because it would be the 50th anniversary of the NPT. It is likely that by 2020 a nuclear weapons ban treaty may be in place and the question that would confront the NPT states is what it means for their obligations. Once a nuclear weapon ban treaty is in place, an important question would arise whether the NPT stands or falls.

He highlighted a number of challenges and issues confronting a prospective nuclear weapons ban treaty. He also talked about how there has been a revolution in nuclear weapons technology. Nuclear weapons have been miniaturized. However, it took a country like the US hundreds of tests to achieve that miniaturization. Today, that same miniaturization can be achieved with just a few tests. This has implications for what kind of restrictions must be put in place in a nuclear weapons ban treaty.

Another issue that he pointed out was the enormous significance of a small country like North Korea that broke out of NPT, and in a short span of time it developed a small arsenal with limited means. He said that any future nuclear weapons ban treaty would have to anticipate cases like this and put mechanisms in place to prevent this.

He also talked about how the number of global nuclear weapons have fallen dramatically from the Cold War numbers of over 60,000 to about 15,000, of which less than 1000 weapons are actually possessed outside of Russia and the US. So the problem of elimination of nuclear weapons is easier now than it would have been in the Cold War period.

Another challenge for a prospective nuclear weapons ban treaty would be the modernization programmes of countries like US, Russia and China and nuclear development programmes of countries like India, Pakistan and North Korea.

He also talked about the politics of highly enriched uranium and plutonium and pointed towards emerging trends and studies that make it possible to move away from using highly enriched uranium (HEU). He said that it was possible to run both civilian and military reactors on low enriched uranium. This could eventually lead down the road to restraint on the production of HEU. A nuclear weapons ban treaty would have to factor this in.

He pointed out that any nuclear weapons ban treaty, as well as FMCT would have to deal with the existing stockpile of fissile material - both plutonium and uranium. Thus, verification measures would have to factor in how to eliminate existing stockpiles in a transparent way. The costs of elimination of stockpiles would also have to be factored in. Talking about verification measures, he said that very little thinking has been done on it outside of the US-Russia treaties verification structure. There are gaps in thinking about what the verification structure would look like. He also said that there is a growing interest around the world on how to deal with this issue. There is onus on the NWS to show how verification of disarmament would be like. He said that it is a challenge for NWS how to dismantle their weapons and have verification measure in place. States must begin to think of these dismantlement and verification issues now.

Question/Answer/Discussion

- Q:** What would be the value of a treaty on prohibiting nuclear weapon if the world's major Nuclear Weapons States (NWS) powers do not become a part of it?
- Q:** What would be the role of the US' extended nuclear umbrella under such treaty?
- Q:** How this treaty will address the issue of existing fissile material stockpiles?
- Q:** What are the alternatives to Highly Enriched Uranium (HEU) and can these alternatives be used for nuclear weapons production?
- Q:** There are blind spots in nuclear diplomacy, which means the motives for a state for going nuclear are not considered by the international community. In this regard, will this treaty on prohibiting nuclear weapons consider these blind spots?
- Q:** Under this treaty, how states are going to reduce their nuclear arsenals. If the numbers are reduced to 1000 or even 100, how NWS are going to completely eliminate them? What is the global position on technical capacity to verify the disarmament measures carried out by a state and what is the economics of shifting from HEU to Low Enriched Uranium (LEU)?
- Q:** Who is driving this emerging trend of nuclear disarmament and who is going to take benefit out of it?
- Q:** Will this treaty prohibiting nuclear weapons treat equally all small and advanced NWS, or it is going to expect more from advanced NWS, and who would be responsible to implement this treaty?

Response by Dr. Mian:

At the resolution passing stage many NWS has voted against it, but they failed to block the resolution at the UN. US failed to stop it, China, and Pakistan and India abstained, but despite this, the resolution went through. However, Chinese premier in his speech has strongly favored nuclear disarmament which is an interesting development. Several Chinese experts believe that China should have supported this resolution and it should actively participate in the negotiating process of such treaty.

One of the major goals of this treaty is based on a recognition that there are many situations where NWS are vulnerable. In a post Trump phase, questions have been raised on the US extended nuclear umbrella and states under this umbrella are posed with a question that one should come out now and decided.

With reference to Fissile Material Cut-off Treaty (FMCT), the treaty prohibiting nuclear weapons is at an early stage. The issue of including past fissile material stock has yet to be decided.

States are analyzing to find alternatives to the HEU. Major NWS are looking into the alternative source for their naval propulsion requirements. States are looking at to use LEU, between 5 per cent to 20 per cent enrichment levels, as a fuel for naval purposes as some states like France do not have enough uranium reserves. However, using LEU requires refueling after 10 years as compared to HEU which give 40 years of life to naval propulsion. States, including US, are working on these alternatives and hopefully, within a short time they will come up with an economical alternative.

The LEU is economically viable and states are building new LEU production facilities. Technology is becoming cheaper. However, there are concerns about India's HEU programme. There is a possibility that when Russia would be able to convert its HEU into LEU, then India will also learn from it.

The international community will continue to make progress on the treaty banning nuclear weapons even without looking into these blind spots of nuclear diplomacy. At the time of the NPT, China and France did not sign the treaty and the world moved ahead. The international community has made progress in all fields and it will become less possible for states to withstand any international pressure and for a long time stay out of such instruments.

The nuclear weapons ban treaty will take into account two major aspects. First of all, it would be legally binding for all the states parties to it. Secondly, the elimination of all nuclear stocks would be managed through negotiating the treaty. At the moment, things are not addressed in a comprehensive manner.

The treaty needs resources to implement its decisions and its verification. When the deliberations starts, it would then be decided how to go about certain mechanism of this treaty.

Most countries are transparent and democratic and some are close. At the time of the NPT negotiation process, industrial bases of states were not strong enough. Now, even states like North Korea can export a nuclear reactor to the world. The world is changing now, states are concerned about humanitarian issues and there is an underlying sense to control nuclear weapons.

Weapon modernization programs of NWS are not new, but these programmes are ensuring life of nuclear weapons for another 100 years. However, modernization programs are facing troubles and even developed states need more resources to run these programmes.

- Q:** What is the general perception about this scenario of India-Pakistan using 50 nuclear weapons each in a war?
- Q:** There seems a battle between realists and idealists. Under the nuclear non-proliferation regime, major powers benefitted a lot as they have advantages in other areas. Is there a

possibility that major states are developing more advanced weapons and want to maintain their monopoly by controlling nuclear weapons?

- Q:** There are recent reports that India is developing a nuclear city what is your take on this, and why international community, particularly the US, view with great concerns reports about expansion in Pakistan's nuclear weapon programme rather than reports of India's nuclear ambitions and expansions?
- Q:** How India views this emerging trend of nuclear disarmament? How Europe is going to view this and what kind of impact this nuclear ban treaty will have on US nuclear umbrella?
- C:** After Kargil, India came up with its Cold Start doctrine and limited war perceptions. India adopted No First Use (NFU) posture because it wanted to show confidence in its conventional capability. Similarly, Pakistan retained the option of First Use (FU) to deny India its conventional edge. Nuclear reduction is important because destroying the world five times over is not going to serve any purpose. States have remained outside the international system and they gained benefits.
- Q:** Under one's own security dynamics, each state will try to defend itself. India is producing large quantities of plutonium through its Fast Breeder Reactor (FBR) programme and also expanding its uranium reserves. Why there is a contradiction that states who supports ban on nuclear weapons, but at the Conference on Disarmament they do not support issue of past and existing stocks of fissile material?
- Q:** North Korea broke out from the NPT, will the nuclear weapon ban treaty have any implication for a break-out state?
- Q:** How states would give up their nuclear weapon programmes and how it would be verified and who will verify that a states has complied with the nuclear ban treaty?

Response by Dr. Mian:

There is a difference between theoretical perspectives and actual state behavior. Leadership plays a limited role. India's FBR programme over all these years was not working well. India wanted to see progress in this filed, but Indian FBR programme has become an institutional legacy. As a result of institutional politics its programme will continue until it faces a total failure.

I am not a non-proliferation activists, I am a nuclear disarmament supporter. A whole part of this globe would be empowered through a nuclear ban treaty. It is a collective political project and people around the globe have considered this treaty a good idea. Pakistan has to figure it out that where it would be standing. The treaty is still in an early stage.

All fears about India's growing nuclear capabilities have been known already. India has the capacity and ability build itself, but it never did. The report on Indian nuclear city is a

known thing and IPFM has already talked about it years, ago. The only addition is the construction of a second uranium enrichment plant. With reports about India building a hydrogen bomb, it does not need any additional HEU plant.

The IPFM do reports on every state. The Indian nuclear programme is more open and transparent and its nuclear reactors are working at lower rates, around 60 per cent capacity factor. Whereas regarding Pakistan, IPFM has no certainty.

Ambassador Khalid Mahmood, Chairman ISSI thanked Dr. Zia Mian for an interesting and insightful discussion. He said that during the discussion, the fundamental issue was the blind spot of nuclear diplomacy. In this globalized world where the international community is moving in the direction of nuclear global zero, one has also to look into the motives of states going nuclear. To achieve the purpose of treaty on prohibiting nuclear weapons, resolution of deep-rooted disputes between states is also necessary. Ambassador Mahmood thanked all the participants for their presence and for their valuable contribution to the discussion.