

Oslo 3 March 2005

Check against delivery

Managing Nuclear Material Today and Tomorrow”

By Hans Blix

Chairman of the international Weapons of Mass Destruction Commission (WMDC)

Former Executive Chairman of the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC)

Director General Emeritus of the IAEA

(Comments at conference on “Managing Nuclear Material Stockpiles in the 21st Century” – Oslo 3-4 March 2005)

First, thanks to the Norwegian Government for their contribution to the WMDC and the financial sponsoring of this conference, and to the Norwegian Institute of International Affairs and to Sverre Lodgaard at the institute.

I would like to say that although I have long dealt with nuclear matters, I am not an expert in the specialized field of the safe managing of nuclear material. Rather I and my colleagues from the WMD commission look forward to learning from this conference: more information and more ideas and assessment of the merits of different methods of managing nuclear material.

Anton Chekhov, the Russian writer, who also was a medical doctor is reported to have said ”when a lot of remedies are suggested for a disease, that means it cannot be cured”.

As the chairman of the independent Weapons of Mass Destruction Commission (WMDC), I have sometimes pondered these words.

The WMDC has a very broad mandate. We are to present proposals and recommendations on how to reduce the dangers posed by weapons of mass destruction, whether in the hands of states or non-state actors.

If we were to define the dangers arising from WMDs as a disease that is threatening humanity, then it is very clear that there is not only one remedy

proposed but many. Let us hope this does not mean that the disease is incurable. Indeed, there are prescriptions for multilateral, bilateral and unilateral medicines and several may be helpful and needed.

In the public discussion the very word ‘nuclear’ and even more the words ‘uranium’ – or even ‘depleted uranium’ and ‘plutonium’ almost automatically provokes waves of scares. We should not react as Pavlovian dogs to these words. In my professional career I have had the good fortune to learn not only about the “belligerent” atom also about the atom which is helpful to humanity for the fight against cancer, for the generation of power without greenhouse gases or for the development of new breeds of plants.

Arms controllers mostly do not look at nuclear from this side. Let me, however, start my comments by addressing our issue from a civilian perspective. After all, not only arms controllers but also those who use nuclear material for civilian purposes want to know where their material is and don’t want to lose it.

First, let me tell you that I see a number of reasons why there will be an increased global need for civilian nuclear power. The turmoil in the Middle East and steadily increasing demand for oil in China and other fast developing countries have sent the oil prices skyrocketing. Yet, the Western industrialized countries are doing little to reduce their dependence on oil and gas, which affects world economy and world security.

World energy use is going to increase very substantially and we know that even at the present level of use the wastes emissions from the use of fossil fuels, notably CO₂, is likely to lead to climate changes within a hundred years. Yet, some seem less worried about these effects than the possibility of leakages of plutonium from nuclear waste storages in deep geological sites many thousands of years from now.

In most advanced industrialized countries the energy policy debate is stalemated. Yet, at some point we shall need to decide on new power plants. I believe that many of the new plants will be nuclear. Accordingly there will also be more fuel, more enrichment and more waste

I concur with the elder statesman who said he had faith in the wisdom of governments: “when all other options have been exhausted”, he said, “they will do the right thing.”

A reduced dependence on imported oil and gas would in itself have obvious general positive security implications but measures must also be taken to secure us from the potential threat from the atom, military and terrorist.

The threat of terrorists or a “rogue state” getting hold of nuclear weapons is seen by many as the greatest threat to security today, and I certainly recognize the relevance of that threat. Although 9/11 was not carried out with WMD but by pilots who had barely learnt to fly, with box cutter knives and hijacked airplanes, it certainly showed the determination and ruthlessness of the terrorists.

But, I would also like to point to the fact that we can't focus only on terrorists and possible “rogue states” as risks. All nuclear weapons are dangerous. We need positive developments with regard to NPT article VI and the five recognised nuclear weapon states as well as the 3 states with nuclear weapons outside the treaty. Five and eight are not some magic number destined to last forever. It could go up but should go down.

Let me get back to the issue of terrorism.

The first point I would like to make is that terrorists do not live on clouds but must have their feet on the territory of states. It is important that the international community upholds the principle that each government is obliged to ensure that its territory is not used as a base for attacks or preparing attacks on other states. It is legally correct and practically and politically sound. If there is a failure in this duty, then the world will endorse forcible intervention – as it did with the Taliban government in Afghanistan.

You also need to reduce the grounds for terrorism – if you can.

Non-state actors will not be able to produce fissile material to make weapons on their own. They need someone to give them the material – and it is somewhat unlikely that this will happen – or they need to acquire by illicit means, stealing or buying it. Once they have the material they might produce a crude nuclear device, there are designs available although it is not that easy. If they had access to Highly Enriched Uranium they could make a gun type device.

The effect of the crude nuclear device would be uncertain. Would there be 1 kT effect, 10 kT or 25 kT? That would be hard for the terrorists to calculate but we can rest assured that there would be massive destruction, loss of lives and impressive mushroom smoke cloud if such a device was set off in a city.

A radiological weapon is different. After a detonation of a radiological weapon fewer people would be killed and injured than in comparison with a nuclear weapon. The effect would lie more in the fact that an area would be contaminated. The term WMD would then more reasonably be read as Weapons of Mass Disruption. Yet it would be most unwise to play down that threat.

Studies and government exercises has shown that the consequences arising from such an attack can be serious in themselves.

Against this background it is understood and agreed that we still must continue broad international efforts to ensure the safe keeping of fissile and other dangerous material and equipment everywhere in the world to reduce their being available to the wrong people.

How do we achieve that? Well, we should not listen Anton Chekhov! We should control material, control equipment. And many professionals might need to have security clearance.

If we start with the security of the material it self, there is a need to remove all HEU from research reactors in various locations in the world. HEU is the fissile material which is easiest to handle and to build a nuclear device of and thus of special concern. The research reactors which contains these materials do not always have sufficient security and thus are sensitive for theft or diversion by terrorist groups. A great many have already been done in this respect and it is nothing really new.

The work of removing potential bomb material from sensitive sites has been going on for more than 10 years now but it is still far from finished. Last week Presidents Bush and Putin agreed in Bratislava on the need to repatriate US and Russian origin fresh and spent HEU from research reactors around the world and to develop new low-enriched uranium for use as replacement fuel. This development is something I welcome.

Once the material has been secured at a storage site, we must ensure that this site is safe and secure from outside attacks and that no material disappears, at least not without setting off the alarms and thus increasing the chances of retrieving the material. In the Russian Federation a special Fissile Material Storage Facility is under construction in Mayak, although it still remains to be finalized and taken into operative service. I was there myself in 1996/97 so the work has gone on for a while. This will increase the security but more will need to be done.

According to estimates, there are today some 1000-1500 metric tons of HEU in the Russian Federation.

Through transparency and monitoring measures security and confidence can be substantially increased.

We need to get a fuller understanding of the problem facing the Russian Federation and other nuclear weapon states. Until now, neither Russian nor any

other nuclear weapons state has officially confirmed how many nuclear weapons or how much weapons material they have. It would facilitate cooperation if the relevant facilities were identified

By allowing outsiders, such as IAEA inspectors or other visitors, to examine the security systems, weak points can be identified. As an example the national accounting information on nuclear material provided to the IAEA also can help in identifying if accounts or methods of accounting need be improved and if some specific facilities need to strengthen its routines.

Finally, good accounting will allow us to identify a theft and act or conversely to get confidence that no theft has occurred.

In short, accurate accounting, transparency measures such as declarations, visits and inspections can have considerable importance to help to keep nuclear material suitable for weapons purposes out of the hands of those seeking to acquire it for weapons purposes.

There is also a lack of transparency with regards to tactical nuclear weapons. Although these are a separate category from what we will discuss at this conference, some problems are similar and some remedies.

Tactical Nuclear Weapons are seen as something that a non-state actor could try to seek to acquire. They are easier to transport than strategic nuclear weapons and since they are meant to be used on or in directly connection with operations on the battle field, they are also easier to override the PAL or the electronic locks and then to set off. Furthermore they exist in large numbers – estimates are 3500-4000 in the Russian Federation and ca 1500 under US control (with some 480 located in Europe under NATO command). Since they are often located in the area or region where the military unit is based it means that they could be more vulnerable to attacks than a central storage facility would be. Thus there is a need to increase stockpile security.

They also need to be reprocessed every now and then to maintain their effectiveness - the suggested shelf life for a Russian TNW is 8-12 years, which means that there will be a constant flow of TNW passing from military units for exercises, to storage sites located in the theatre of operations, to the reprocessing plant and then back again. This situation makes it hard to maintain control of where the weapons are and where they may be sensitive to theft, especially during transport.

Measures have been taken to reduce the dangers, especially those that exist during transports, but the system with TNW in itself is inherently weaker with regard to proliferation than strategic nuclear weapons and thus remains a cause of some concern.

Tactical Nuclear Weapons consist in themselves a large mass of fissile material. Suppose that NATO in a future decision decides to remove tactical nuclear weapons from the European bases and that this confidence building measure encourages the Russians to formalize the 1991 and 1992 Presidential Nuclear Initiatives (PNI) and to agree on measures of transparency and reductions. A 50% reduction from the current figures to 1700-2000 weapons would mean that some 20 tons fissile material that can be used for weapons purposes would be added to the already existing stockpile.

Bomb dismantling of course generates fissile material. While this may be of concern, and especially for this conference, I just want to emphasise that bomb dismantling is something positive, sometimes this seems to be forgotten. I'd rather have the material as fissile material than as a fully usable bomb.

But the question still remains: What to do with all fissile material?

There are two basic remedies or answers. Destroy it and bury it in repositories or remake it to fuel and burn it in a reactor.

The destruction or vitrification of fissile material is not preferred by the Russians, who see some risk of possible re-usage of vitrified material for weapons purposes but above all see an economic interest in the material, especially in combination with plans on breeder reactors. Thus their favoured option is diluting HEU into Low Enriched Uranium for use in a power reactor and turning weapons grade Plutonium into MOX fuel. However, this is procedure with economic and, in some countries, political implications.

A clean up of the world's fissile material stockpiles needs to be complemented with a stop on new production of material, which could be used for weapons – a Fissile Material Cut Off Treaty. There is a mandate in the CD to negotiate a ban on production of fissile material for weapons purposes since almost 10 years back but it has not moved forward at all. Recently the US changing an earlier position declared that it no longer sought a FMCT with verification included. The FMCT, in the declared US view, was inherently unverifiable.

Perhaps the US position could change? There is a concern about weakening the already existing mandate and the idea of an arms control and disarmament treaty without some form of verification mechanism or control of compliance would go counter to the efforts of the last 20 years.

I'm not convinced by the claims that such a treaty is unverifiable. On the contrary I think it would be quite verifiable, not least because of the limited numbers of facilities - in comparison with for example facilities relevant under the Chemical Weapons Convention.

The late US President Ronald Reagan said "Trust, but verify". The present US administration seems to say: Neither trust, nor verify! In my view a negotiation of a FMCT without verification in any way would be an exercise not strengthening confidence that India, Pakistan, Israel and P5 have stopped producing weapons grade material.

The current mandate on the FMCT aims at fissile material produced for weapons purposes. This is in order since we're talking about a ban, but there is also need to have better control on the production on fissile material that can be used for weapons purposes, even though the material has been produced for civilian purposes – e.g. for research reactors or for use in naval power reactors. There are a number of proposals on the table, recently an IAEA expert group delivered a report on the issue and this will be addressed by the WMDC as well. At the same time, I would as a personal reflection, have some questions about the value of preventing, say countries such as Canada and Australia from developing an enrichment capacity. That would not solve the current situation with regard to Iran and the DPRK, where some sort of package deal probably will have to be negotiated.

From what I have said it emerges that there is a need for many activities aiming at securing fissile material that can be used for weapons purposes. There is also a need to assess priorities and the relative value of all these activities. Therefore, I look forward to the comments of the experts present at this conference.

The latest addition is the Global Partnership Against Weapons and Materials of Mass Destruction adopted by the G8 at the Kananskis in 2002 and the Sea Island in 2004. The G8 and countries outside the G8 have pledged financial support – 10+10 billion dollars over 10 years – to reduce the risks that WMD or WMD material might fall in the hands of states or non-state actors. Furthermore, in September last year the first meeting of the Global Threat Reduction Initiative (GTRI) was held in Vienna discussing issues such as the repatriation of uranium fuel and the conversion of research reactors to LEU fuel. Interesting with the GTRI is that it will not only focus on projects in Russia but also on other countries, such as Ukraine, Latvia, Vietnam Uzbekistan and Libya.

Taking care of fissile material to a large extent comes down to providing financial resources, amassing the necessary political support to get these resources, and being able to implement the projects.

The crucial first role in this aspect was played by US senators Sam Nunn and Richard Lugar. They identified the threat, got the necessary political support behind them and initiated up the Cooperative Threat Reduction program (CTR) financed by the Department of Defense. Although that was and still is a separate programme, CTR has now become synonymous with practical programs to reduce dangers of WMD.

From the outset of these programs, the US has been the leading outside provider of financial resources for elimination of weapons of mass destruction and non-proliferation activities in the Russian Federation and other NIS states. Of course one could argue that since the US, together with the Soviet Union, was the chief builder of nuclear weapons in the arms race during the Cold War it has a special responsibility and interest to contribute to the elimination of the threat that has arisen. However, I think the US deserves credit for its role in providing these resources.

The European Union and its member states have over the years had a mixed success in the area of "CTR". For a long time the EU was hampered by the fact that the Commission could not work on issues concerning non-proliferation and disarmament. This was seen as inside the Common Foreign and Security Policy (CFSP) and thus as within the mandate of the member states who got support for CFSP activities from the Council.

However, the EU economic resources stayed with the Commission and the Council had a small budget and thus limited possibilities to carry out projects in this field. That was in effect left to the EU member states which, when one sums it all up, actually put in quite an impressive amount of funding. A problem was that it was spent according to own national priorities, resulting in perhaps less coordination and cooperation than would have been hoped for.

This has now changed. The EU has a WMD strategy and the Commission may and does engage in non-proliferation and disarmament activities. It will actually get a budget item for those activities and the Council will get more substantive funding to engage in these activities.

However, the needs are still large. We need to put serious financial resources to work. We need to strengthen coordination and cooperation between all the actors and also to get more states involved. In this aspect the Global Partnership of the G8 may fill an important role.

Having said that, I still can't help comparing the estimated needs for the Global Partnership, the costs of getting rid of 34 ton of weapons grade Plutonium, of destroying 40 000 tons of chemical weapons and the costs for converting the HEU – all actions which would help make us more secure from dangers of WMD - with the costs spent on the war in Iraq, which was claimed to be fought to counter the threat of WMD. While the costs for the former are impressive indeed, they are minor in comparison with the costs for operations in Iraq. And this is of course only counting the financial costs, the human costs I leave aside for now.

Apart from the need by donor states to increase the funding and resources allocated, there is also a great need to increase the capacity on the Russian side to absorb the funding.

This to a large extent is a matter of strengthening the capacity of the Russian authorities, of the Russians being able to communicate with the project managers on the donor side on the managing of the project. It has happened that money available in donor countries for projects relating to elimination of WMD or securing WMD related material could not be allocated due to a lack of suitable projects or the absence of some formal agreement with the Russian authorities. However, also here there have been recent positive developments.

Finally on this issue, I would like to add that even if these efforts have so far focused on the needs in the Russian Federation, which is quite logical given the amounts of weapons and weapons material, these efforts should be broadened to include also other regions or states where there is a need. The Global Partnership should be global not only in funding but also with regard to operations, such as HEU replacement, if that is necessary to reduce the dangers.

Last, but not least I would like to briefly raise the issue of what to do with the fissile material which leaves the storage site for an address somewhere else in the world.

Here the states themselves have a primary responsibility. As an example, although that did not specifically involve fissile material but instead related technology, if the Pakistan government had exercised better control of its nuclear sector, Mr. Khan's shop for nuclear weapon designs and centrifuges would not have been in its dangerous business.

A resolution by the Security Council – Res. 1540 (2004) – urges more cooperation between states and more action by states to prevent proliferation of

WMDs. A new interesting feature is that it demands of states not only to take specific action but also to adopt legislation prohibiting non-state actors from acquiring or producing WMDs. Many states will need financial support, support with training and support with government infrastructure to correctly implement this resolution. The problem we face is lack of personnel that have the necessary expertise and which can help in develop the national legislation and the ordinances as well as personnel that can train the government agency. Interestingly, this situation is very similar to when the international community, states and organisations such as the World Customs Organisation, sought to strengthen states capacity to implement targeted sanctions and the implementation of Res. 1373 (2001) on international terrorism.

Thus our efforts in this aspect, to counter the proliferation of WMD, including fissile materials which could be used for nuclear weapons, is similar to the work to counter trans-national crimes such as drugs trafficking, trafficking in humans, arms embargo busting and other evasions of international sanctions. There is a need for intensified international cooperation in the day-to-day field work of the national intelligence, police and financial institutions of states to trace persons, resources, weapons and dangerous material.

Here a new feature has been added in the last two years, the Proliferation Security Initiative (PSI). Targeted at strengthening the cooperating states capacities to identify and seize shipments at sea or in the air of WMD related materials, the PSI has a role to play. There are still some legal hurdles that need to be overcome on the international level before the PSI can be fully effective, but the fact that states are increasingly cooperating in this field is positive. At the same time we need be aware that the PSI does not provide some kind of "silver bullet". Its effects are limited to very particular situations and will form a minor part of the nonproliferation effort.

In some respects the efforts in the nuclear field are less difficult than those in the B and C fields. Nuclear often leaves clear fingerprints. Before the Gulf War some persons returning from being held hostages and human shields in Iraq came to provide information about the Iraqi uranium enrichment program. To be more specific, the information was obtained through analysis of particles on their clothes.

Let me end by returning to Chekhov: you may need several medicines to cure a disease. But it is important to evaluate and assess the medicines and to distinguish between medicines providing real effects and those only providing placebo effects.