

TABLE OF CONTENTS
MULTILATERAL.....2
European Union.....3
COUNTRIES.....4
Nuclear.....4
Biological.....5
Chemical.....5
Delivery Systems...5
CRISES & TRAFFICS..6
MISCELLANEOUS..6
PUBLICATIONS.....7
CONFERENCES.....8
Agenda.....8

EDITORIAL

Why We Should Optimize the IAEA Safeguards System. How to Do It

By Bernard Sitt, CESIM Director

During the first part of the year, the CESIM conducted a study on the optimization of the IAEA nuclear safeguards system with the support of the Swiss Federal Department of Foreign Affairs (FDFA). This study led to a report (see: http://www.cesim.fr/fichiers/Optimizing_the_IAEA_Safeguards_System_rapport_CESIM.pdf) and to a workshop that took place in Vienna on September 20 on the margins of the IAEA General Conference.

When it comes to verifying nonproliferation, the Additional Protocol to the agreements between the states and the IAEA for the application of safeguards, adopted in 1997, is the technical and legal instrument of reference and the desirable norm: only this instrument can guarantee that no nuclear activity in a non-nuclear-weapon state is diverted to military uses.

However, today, only 110 states parties to the Nuclear Nonproliferation Treaty have an Additional Protocol in force. Moreover, Action 28 of the Final Document of the May 2010 NPT Review Conference “encourages all states parties which have not yet done so to conclude and to bring into force additional protocols as soon as possible and to implement them provisionally pending their entry into force.”

As a matter of fact, beyond the political opposition of a very limited number of states (such as Argentina, Brazil, and Egypt), hurdles to progress toward the universalization of the Additional Protocol are to be seen in the context of a cost/benefit, technical, and budgetary analysis. Several states that have an Additional Protocol in force do not always appreciate its benefits quickly. The goal, therefore, is to make it attractive by optimizing the safeguards system in order to improve its effectiveness as well as the sharing (and global reduction) of costs and constraints between the IAEA and the inspected state. Such an optimization should be based on two principles:

1. Focus verification operations mainly on activities and facilities likely to present proliferation risks.
2. Redefine the implementation of safeguards and their assessment in a “differentiation without discrimination” approach.

On this basis, several avenues should be explored, among which are notably:

- Increased flexibility in the implementation of safeguards *vis-à-vis* each state enables increased selectivity and, as a consequence, a better resource allocation.
- Flexibility is first and foremost the result of policies of openness and transparency conducted by the inspected state. Such policies result from “effective and efficient” measures consisting in particular in avoiding duplications between the State System of Accounting and Control (SSAC) and the Regional System of Accounting and Control (RSAC), as well as to accelerate the implementation process of integrated safeguards (comprehensive safeguards agreements plus Additional Protocol).
- The optimization of safeguards has to do with IAEA institutional practices. The Agency should reinforce the clarity of its missions and the independence of its analytical capacities, conduct a review of its internal processes and rethink the role of its regional offices.

Beyond recommendations on the work to improve the IAEA’s and Member States’ best practices, the political problem of a few states unwilling to adhere to the Additional Protocol will remain. The Additional Protocol is also a security instrument that has both a regional and a global reach and is in their interests. It will be a priority to convince them of that reality.

MULTILATERAL

55th IAEA General Conference

On September 23, 2011, the 55th General Conference of the IAEA came to an end. After the Fukushima accident, the event was intended to restore confidence in the safe use of nuclear energy. Nonproliferation issues also raised important questions: the conference planned for 2012 on a zone free of weapons of mass destruction in the Middle East, the implementation of safeguards, and nuclear security.



In his opening speech, the Director-General Amano gave an overview of the progress made in these various areas. He notably stressed the actions undertaken to reinforce the safety regime. Moreover, with the perspective of the 2012 conference, all states were pleased by the announcement of a forum that will take place in Vienna on November 21-22 to share experiences on NWFZ.

After a week of discussions, consensus was reached on several texts. The Conference approved the action plan on safety adopted a few days earlier by the Board of Governors, although some delegations insisted that it should be completed by additional legally-binding commitments.

With regard to nonproliferation, the resolution on North Korea takes note of the preamble of the latest report of the Director-General, which described using open sources the construction of a new enrichment facility and a light-water reactor. The adopted text also condemns violations to safeguards and encourages the resumption of the Six-Party Talks.

With regard to nuclear security, the mention of the 2010 Washington summit and the upcoming 2012 summit was again subject to debate. However, a compromise language that takes note of the events and stresses the need to include as many states as possible in the discussions on security made the adoption of the text possible.

The question of Israel's nuclear capabilities was also on the agenda, but the League of Arab States and the NAM states chose not to sponsor a resolution. A different decision would have largely endangered the participation of Israel in the 2012 conference. A more general text on the implementation of safeguards in the Middle East was however voted.

These successes, however, were counterbalanced by the inability of the Conference to agree on the safeguards regime. The main points of contention included the mention of disarmament and its verification, the universalization of the Additional Protocol, or the reference to a safeguards regime "based on information." Although it did not adopt a text, the Conference requested that the Director-General issue a report on the implementation of last year's resolution in the next session.

By Sonia Drobysz, CESIM Research Affiliate

The Global Nuclear Market and the Fuel Bank Projects: Current Debates

Has the accident that took place at the nuclear plant of Fukushima Daiichi in Japan in March 2011 reversed the idea in vogue over the past few years that there will be a "renaissance" of nuclear energy in the world? There have been several contradictory signs to this question since then. On the one hand, the main possessors of nuclear power plants along with the states that have recently launched development programs have not abandoned them. On the other hand, there are a few exceptions. The case of Germany is the most obvious example, but, most importantly, the debate on nuclear safety and security and on waste management (at least in the main democracies) may be weakening the relative consensus that has so far existed on the benefits of nuclear energy, precisely because the accident of March 2011 took place in a very developed country: moratorium on new programs (Switzerland), strong increase in anti-nuclear positions in the opinion polls of numerous democracies (United States, France, Italy, Switzerland, Sweden, and Japan), political will to reduce the dependency of the state on nuclear energy (Japan, positions of French left-wing parties in the run-up to the 2012 presidential election). Of course, there is nothing to show that the countries which today express the need to acquire power reactors, in Asia and in the Middle East, notably, are receptive to the ongoing debate in the West on energy policy.

However, by and large, it seems that the notion of "nuclear renaissance" remains a medium-term projection more than a reality. As of today, 14 countries are developing nuclear power reactors. As of May 15, 2011, the IAEA countered 64 reactors "under construction," i.e. 9 more than at the end of 2009. This is a significantly weaker growth than in the 1970s and 1980s, which, in addition, includes many uncertainties: 12 of them have been under construction for over 20 years; 36 of them are yet to have an official launch date; most of them have suffered and suffer from significant construction delays; finally, 3/4 of them are located in four countries: China, South Korea, India, Russia, none of which are new entrants to the nuclear energy market.

These data, which admittedly are very general and do not take into account the recent decisions taken by some states to develop programs, are important as background information for the ongoing debate on fuel supply to future nuclear states, in a nonproliferation perspective. *[Continues on Page 4]*

EUROPEAN UNION

The 2003 Strategy: The Six-Monthly Progress Report on Implementation

The 15th six-monthly progress report on implementation of the EU Strategy on WMD proliferation was adopted on July 18, 2011 by the Foreign Affairs Council. It is the first report since the European External Action Service (EEAS) was established. It is a short document reporting on a six-monthly period without specific action, even though the scope of the EU action remains as wide and the institutional activity very intense.

The support to international organizations and to the universalization of the main nonproliferation instruments remains at the heart of the EU Action.

Thus, the main initiative is the implementation of Council decision 2010/585/CFSP of September 27, 2010 on the support to IAEA nuclear security and verification activities. With a budget of nearly €10 million over 24 months, this decision is meant to reinforce national legislative and regulatory capacities to implement the adopted safeguards agreements and additional protocols, strengthen the security and control of nuclear and radioactive materials as well as the national detection and response capabilities to illicit traffics. The EU thus confirms its holistic approach to nuclear questions at the IAEA.

The report also stresses the EU diplomatic support for the entry into force of the CTBT, the launch of negotiations for an FMCT at the CD, the future role of the OPCW (in particular its gradual reorientation as a support organization to the nonproliferation of chemical weapons), and the preparation for the 7th BTWC Review Conference in December 2011.

The document also takes note of the launch of the EU Nonproliferation Consortium, which had its first meeting in Brussels in May 2011 and was entrusted with the organization of a workshop this July on the goal of the establishment of a zone free of weapons of mass destruction in the Middle East, a commitment made during the 8th NPT Review Conference of May 2010. To this day, the Consortium gathers more than 30 European research centers and will organize a first international conference in February 2012.

Not surprisingly, the section devoted to responses to regional nuclear proliferation crises is short: the report underlines the lack of success of European diplomatic initiatives that have been conducted so far to convince the Iranian regime to initiate steps to restore confidence with the international community. In these conditions, it is the strengthening of the European regime of sanctions against the Iranian nuclear program that is the focal point of concern of EU activities. Similarly, the document indicates that the implementation of UN Security Council Resolutions 1718 and 1874 against North Korea has been reinforced.

Finally, the document makes a point of stressing the strengthening of the European regime of export control of dual-use goods and technologies (see article below).

Website of the EU Nonproliferation Consortium: www.nonproliferation.eu

A Green Paper on the EU Dual-Use Export Control System

With the adoption of Council Regulation No. 428/2009 of May 2009, the Community regime for the control of dual-use exports was reformed (see *NPM No. 43*). In addition to taking into account the changes to the control lists adopted by the various multilateral export control regimes, the scope of the regime was extended to brokering, transfer, and transit activities and efforts have been made to harmonize and make more coherent the implementation of the regulation among Member States.



A review process of the new regime is included in the document (article 25). This process was initiated by the publication by the Commission on June 30, 2011 of a Green Paper entitled “Ensuring Security and Competitiveness in a Changing World,” which is meant to begin consultation with all the actors involved in export controls. Amendment proposals will be made in 2013-2014.

The Green Paper insists that two challenges need to be overcome. First, it is necessary to reach a balance between the need for security and the need to ensure the competitiveness of European companies on the global market: approximately 5,000 European companies are concerned with dual-use exports, which account for nearly 10% of European exports on an increasingly competitive market. Second, it is necessary to guarantee a harmonious implementation of controls between Member States, which currently represents the main problem for the Community regime because disparities remain very important, both with regard to control procedures and the sanctions envisaged by the states. The question of the “catch-all” clause is a focus of the ongoing discussions: the document already mentions the idea of mandatory procedures: “In the future, Member States could be subject to a mandatory exchange of information about imposed catch-all controls and the reasons behind their decisions. Moreover, consideration could be given to the concept of creating an EU-wide catch-all control.”

A first report on the results of the Green Paper is expected in January 2012.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0393:FIN:EN:PDF>

COUNTRIES: NUCLEAR

[Continued from Page 2] Moreover, according to the latest IAEA data, approximately 440 power reactors are currently operating in the world, 60 new states consider opting the nuclear option in the future, among which between 10 and 25 could acquire their first reactor by 2030. It is clear that these prospects are such that a country-per-country approach is still largely possible for such a horizon. That being said, it seems that the debate on new secure approaches to the fuel cycle is rarely raised on these terms.

In 2007, Mohamed ElBaradei noted that the world would very soon include “another 10 or 20 virtual weapons states.” What is a virtual nuclear-weapon state? Using the data of the 2010 IPFM, Olli Heinonen indicates that the 14 states that control enrichment technologies and the 10 states that have reprocessing facilities on their territory have produced, to this day, enough fissile materials for more than 200,000 nuclear bombs (*Bulletin of the Atomic Scientists*, 2011). Where are they? In sum, the debate on the safe and secure supply of fuel to future states willing to diversify their energy policy using nuclear technology—a vigorous debate in the Western world since 2004 which, in fact, date back to the 1970s—is mainly based on a quantitative approach to the problem: the capability to have weapon-grade fissile material. It is perfectly understandable and, in fact, the military nuclear threshold is sometimes lowered, notably in the Israeli literature, to a certain quantity of material available for a given country.

Most recent initiatives on secure nuclear fuel cycle management grow out of this context: approximately 12 initiatives have been set up, be they of national nature (United States in 2005, Russia in 2010, United Kingdom between 2007 and 2011) or of multilateral nature (IAEA low-enriched uranium bank). All these initiatives guarantee fuel supply in order to prevent, by contract or incentive, the acquisition by new states of enrichment and reprocessing technologies—the so-called sensitive nuclear technologies. In general, the approach is collaborative. It is likely to be attractive to some states that will effectively seek to acquire nuclear power reactors by 2030. In the meantime, the approach is likely to exacerbate existing divisions between states within the global nuclear nonproliferation regime, known to be under serious stress since the beginning of the decade, adding to the division between NWS and NNWS a division between developed states and developing states. The argument can be criticized, but it was put forward by the NAM states at the 2005 NPT Review Conference. *De facto*, the risk is that a new division takes shape between NPT states parties, as was clearly witnessed at the 2010 NPT Review Conference.

In these conditions, it seems essential to continue to complement current supply-side non-proliferation approaches (materials, goods, technologies, and know-how) with demand-side analyses on a case-by-case basis. In any event, it is likely that the current global supply be sufficient for a long time to meet the demand of the nuclear industry with regard to goods and services pertaining to the fuel cycle without a need for a collective supply source. This was already the finding of a 2006 report from the World Nuclear Association.

India: The Problem of Sensitive Nuclear Technologies

Has last June’s rephrasing of paragraphs 6 and 7 of the NSG Guidelines affected the trade of sensitive nuclear technologies with India? The question has been heavily debated since this summer.

The former version of article 6 required NSG Member States to exercise restraint in exports of sensitive technologies. The new version adds that the importing country must be an NPT state party and in compliance with its obligations. Moreover, according to a communiqué published at the end of the latest meeting of the Group, the NSG is committed to fully respect the exemption agreement adopted with India in 2008. This agreement is an IAEA document dating September 19, 2008 (INFCIRC/734). According to the document, “Participating governments may transfer trigger list items and/or related technology to India for peaceful purposes and for use in IAEA safeguarded civil nuclear facilities, provided that the transfer satisfies all other provisions of INFCIRC/254/Part 1, as revised and provided that the transfers of sensitive export remain subject to paragraphs 6 and 7 of the guidelines.” Thus, the exemption does not necessarily guarantee to India the possibility to obtain on the international market enrichment and reprocessing technologies, although it does not prohibit it either. The political question (not the legal question) is now the following: should the 2008 exemption agreement be amended to take into account the new restrictions made to the Guidelines and, again, exempt India? Conversely, is the former or new version of article 6 relevant with regard to the aforementioned agreement?

In India, a statement dated August 10, 2011 is very clear: the September 2008 agreement continues to exempt India in the same terms. According to a European diplomat interviewed by *Arms Control Today* at the end of June, India can no longer have access to the market of sensitive nuclear technologies with the new guidelines. The US position is to state that regardless of the rephrasing of paragraphs 6 and 7, the United States has never been prepared to supply India with sensitive nuclear technologies: “Efforts in the NSG to strengthen controls on the transfers of ENR are consistent with long-standing US policy that pre-dates the Civil Nuclear Agreement and have been reaffirmed on an annual basis by the G8 for years.”

Moreover, the question of the adherence of India to the NSG was debated at last June’s meeting, but the positions of Member States have not been revealed.

COUNTRIES: BIOLOGICAL, CHEMICAL, DELIVERY SYSTEMS

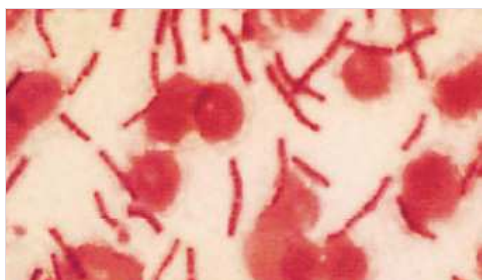
Universalization of the BTWC: The Case of the African Continent

The Biological and Toxin Weapons Convention of 1972 (BTWC) currently includes 164 states parties and 13 signatories; Mozambique is the most recent state to have adhered to the Convention, on March 29, 2011. The Convention requires that each state party adopt all the necessary measures to prohibit and prevent the development, production, storage, acquisition, and retention of biological weapons on its territory.

The universalization of the Convention will likely be discussed during the Seventh BTWC Review Conference, which will take place on December 5-22, 2011 in Geneva. As of today, nearly all the African states are member states of the Chemical Weapons Convention (1993) and the Nuclear Nonproliferation Treaty (1968). With regard to the BTWC, 16 African states (8 signatories and 8 holdouts), including 9 French-speaking countries, not are states parties. What explains such a delay on the African continent?

There are several causes delaying the BTWC ratification process in Africa. For starters, the complexity of national administrative procedures necessary to ratify international conventions, made more difficult by political instability in several countries, explain why any consideration of multilateral commitments is not treated as a priority in political agendas, unlike development issues, for example. Moreover, many states of the continent do not share the urgency to ratify the BTWC because many of them "do not have biological weapons and do not intend to develop or produce them."

Very often, the advantages offered by the BTWC are unknown. Some actions to implement the BTWC can contribute to strengthening the national systems of prevention, detection, and response to any epidemic of natural diseases affecting human, animal, and plant life. For instance, the development of landmark national laboratories conform to international norms would make it possible to make a rapid diagnosis of infectious diseases (notably of endemic diseases) and to adopt effective response and containment measures which would help to prevent epidemics. Moreover, the adequate and effective implementation of BTWC obligations shows that governments are committed to biological nonproliferation and security. In particular, a robust system of biological security and safety encourages investments in biological and biotechnology research.



With regard to biological security, the implementation of the BTWC enables to improve response mechanisms to a potential use of biological weapons on the national territory, to reduce the risk of proliferation of dual-use goods and technology, and to reduce the risks of biological terrorism. At the regional level, biological security is reinforced by a commitment of neighboring states to biological disarmament and nonproliferation and by the adoption of similar implementation measures.

The adherence to and ratification of the BTWC and its implementation also enables to honor the biological obligations enshrined in UN Security Council Resolution 1540 (2004). The Resolution requires all UN member states to adopt appropriate and effective legislation prohibiting any non-state actor to develop, acquire, manufacture, possess, transport, transfer, or use biological weapons. Resolution 1540 also requires all UN member states to adopt and implement appropriate and effective measures to prevent the proliferation of related elements.

The lack of national resources to implement the BTWC should not be an argument not to adhere to the prohibition regime of biological weapons. There are free assistance programs aiming to help the states to ratify the Convention and implement it. Thus, any state party can benefit from training programs and programs to reinforce its national capabilities. The entities providing assistance can help in any domain by developing solutions in cooperation with the interested government.

We therefore encourage any non-state parties to the BTWC to consider adhering to / ratifying the Convention before the Seventh Review Conference in order to show their firm commitment to biological disarmament and, in particular, to reinforce global security.

For more information on assistance to ratify the BTWC, the three depositaries of the Convention (Russia, the United Kingdom, and the United States) can be contacted, along with the Implementation Support Unit (ISU). With regard to implementation, the ISU and the 1540 Committee of the UN Security Council are bodies intended to facilitate the provision of assistance. Finally, the NGO VERTIC, which is dedicated to the adoption of legislative measures to implement the biological and chemical conventions, can also provide information on the topic.

UNSCR 1540 Committee: <http://www.un.org/sc/1540/assistance.shtml>

VERTIC: <http://www.vertic.org/>

By Rocío Escauriaza Leal, Lawyer, VERTIC

CRISES & TRAFFICS, MISCELLANEOUS

Proliferation: The Case of PPG Industries

In December 2010, in the context of a procedure initiated by the Bureau of Industry and Security (BIS, US Department of Commerce), the US company PPG Industries headquartered in Pittsburgh, PA, United States was directed by a US court to pay a \$3.75 million following revelations of proliferation activities conducted by one of its Chinese branches, the PPG Paints Trading (PPG PT) of Shanghai. Leaving aside the fact that it represents the highest fine ever imposed in the United States for such activities, it illustrates one of the most opaque and dangerous aspects of proliferation activities: industrial traffic. Indeed, PPG is one of the world's largest companies of paint production, notably used in the nuclear and aeronautic industries. In 2006, its Chinese branch, PPG PT, committed to supplying the China Nuclear Engineering Huaxing Construction Co. Ltd (involved in the construction of the Chasma reactor in Pakistan) special paints for inside the Chasma reactor. Following the request made by PPG Industries to the BIS and the latter's refusal in view of US law prohibiting the trade of nuclear-related items to Pakistan, one of the PPG PT managers, Xun Wang reportedly organized, with the support of Huaxing Construction and Zhongyuan Engineering (project manager of the former organization), an operation that consisted in issuing fake end-user certificates to import paints from the United States before re-exporting them to Pakistan. The two Chinese companies reportedly made certificates indicating that PPG PT imported them for the Dalian plant (China) before re-exporting them to Pakistan.

The arguments put forward by Xun Wang during the lawsuit (July 2011) seem to indicate that industrial pressures justified the decision to circumvent US laws. On the one hand, PPG Industries made an initial delivery of paints without requesting an export license from the BIS and knowing fully that they would not be used by the Chinese nuclear industry. On the other hand, PPG Industries made the next deliveries to the branch, not to Dalian, as the procedure would have required. The sale was arranged by one of the US company's regional vendors in exchange for bribes. In this context, after PPG PT requested an export license to the BIS and that it was turned it down, PPG PT found itself in an untenable position because it had committed, following the contract concluded by the mother company, to supply the paints to the China Nuclear Engineering Huaxing Construction. Thus, an "arrangement" was found with the Chinese companies to make fake end-user certificates and proceed with the exports.

This case is quite illustrative of the numerous avenues that a proliferator can use to reach its goals. Beyond the obvious problems of procedures that this case reveals with PPG Industries, it raises a serious question. The point is not to find out whether Chinese authorities are directly involved in these operations or whether they are once again the victims of unscrupulous industrial practices, but rather to establish why these Chinese nuclear companies took the risk of importing items from the United States for a construction site as strategic as Chasma's. The real reasons will probably never be uncovered but it remains that from an industrial standpoint, for the Chinese branch of a Western multinational company, the organization of proliferation activities with the United States seems less binding than breaching a contract with the Chinese nuclear sector. This reality probably contributes to explaining why Western industries remain one of the main targets of proliferators.

See <http://isis-online.org/uploads/isis-reports/documents/Indictment.pdf>

Burma: Indirect Confirmation of a Nuclear Program?

While Burma has been suspected for years to pursue a nuclear program in cooperation with North Korea, the new Burmese government (which was elected in November 2010) has continued a policy of dialogue, with the Vice-President stating that the Burmese civil nuclear research program was terminated. According to a statement made during a visit of a US delegation on June 2, 2011 (and reiterated word for word during the September 2011 IAEA General Conference), the cessation of activities is linked to international pressures and misunderstandings that this program has raised in the international community. Curiously enough, the statement does not indicate that Burma does not want to develop or use nuclear weapons, but that it is "unable to do so" given the poor state of its economy.



This "u-turn" has to be understood in the context of the publication in May 2010 of a report by the NGO *Democratic Voice of Burma* (DVB), which offers an analysis of the various pictures of the Burmese research facilities taken by dissidents. The report describes the presence of laser isotope separation systems and reduction tanks that could make possible the production of UF6 or uranium metal as well as various items for industrial purposes. Located in isolated sites and seemingly not compatible with a civil and academic research program, the existence of these various elements had raised further suspicions about Burma. Some analysts, however, had stressed that while these elements may indicate the existence of a uranium program, they were not, as such, evidence of the existence of a military program. The Burmese decision to abandon its research activities, however, appears as a confession of guilt because up until recently, the extent of the problem was based solely on a juxtaposition of allegations and rumors.

See <http://www.dvb.no/burmas-nuclear-ambitions/burmas-nuclear-ambitions-nuclear/expert-analysis/9297>

RESEARCH: PUBLICATIONS AND ONLINE RESOURCES

Joshua Pollack, "North Korea's Shrinking Role in the Global Missile Market," *38 North*, July 29, 2011

In this post published on the blog *38 North*, Joshua Pollack analyzes the role of North Korea on the ballistic-missile market that goes against the conventional wisdom. Although the interception of weapons exported by Pyongyang have increased considerably since the adoption of UN Security Council Resolution 1874 in June 2009 that authorizes any state to inspect suspicious cargo coming from this country, no interception of ballistic missile has been done. Using open sources, notably the annual reports on arms trade published by the US Congressional Research Service, Pollack identified North Korea's missile exports in their entirety.

Since it entered the market in 1987, North Korea was one of the main exporters of ballistic missiles, before Russia and China. Seven countries have been identified as clients: Iran, Syria, Egypt, Libya, Yemen, UAE, and Pakistan. Eighty percent of exports of finished systems were made before 1994. North Korea's activity, however, continued, although at a reduced pace. It included the sale of components, materials, and elements of production to five main clients: Iran, Syria, Egypt, Libya, and Pakistan. These states have indeed developed their own production capabilities.

At the turn of the century, it seemed that North Korea's activity decreased considerably to include only cooperation with Iran and Syria, whose ballistic programs are particularly active.

One exception to this trend is Burma. According to a document provided by the Burmese opposition quoted by Pollack, General Thura Shwe Mann, the Commander-in-Chief of the Burmese army, went to North Korea on October 26, 2008 and signed with his North Korean counterpart an agreement on the modernization of military equipment before visiting a production site of Scud missiles. In 2009, the Japanese authorities arrested individuals involved in the exports of sophisticated machines and tools that could notably be used to produce guidance systems. Finally, in May 2011, a ship chartered by North Korea going to Burma and suspected to transport missile components was intercepted by the US Navy before returning to its port of departure.

The Burmese case, however, seems to be the exception of a general trend that points to the decline of the North Korean activity on the ballistic-missile market. The main reason for this trend could be that North Korea has succeeded as a proliferator: a certain number of Pyongyang's clients have developed their own design and production capabilities and have begun to propose their missiles on the market. It is notably the case of Iran and Syria. The arrival of these new suppliers on the market means that their number now exceeds the number of buyers, which should reduce the activity of North Korea.

Marina Voronova-Abrams, "Biosecurity 2.0: Enduring Threats in the Former Soviet Union," *Bulletin of the Atomic Scientists*, vol. 67, no. 4, July-August 2011, pp. 78-90

In this article, Marina Voronova-Abrams presents the situation of biological security in the former Soviet republics of Central Asia and stresses that the international community should pay greater attention to the problem in this region. Considerable progress have been made over the past twenty years, in particular to secure facilities and to redirect scientists formerly involved in defense activities toward civilian jobs, thanks to steady investments (\$1 billion between 1993 and 2011). International cooperation, in particular the initiatives of the US Defense Threat Reduction Agency, have played an essential role to eliminate the threat posed by the remains of the Soviet biological weapon program.

Today, the main risks are different: they are transnational. The first one is an epidemiological risk. Several serious infectious diseases (hemorrhagic fevers or plague) are endemic in the region and require constant surveillance because epidemics break out every year. The other main risk in Central Asia is linked to the rise of radical Islamism. Today, most of the existing organizations from the Caucasus to Tajikistan are not very likely to use pathogenic agents against civilian populations. But the threat comes from organizations like Al Qaeda, which have a clear interest in weapons of mass destruction and could use these local movements as intermediaries to get hold of these weapons.

With these considerations in mind, Voronova-Abrams stresses that the international cooperation should focus on three main areas:

- First, it should focus on training and education in the fields dealing with public health (epidemiology and virology in particular). Indeed, the generation of scientists trained at the time of the Soviet Union is now retiring, which will lead to a lack of expertise and thus increase the risks of accident.
- Second, it is imperative to re-examine the policies dealing with staff reliability. The official and informal monitoring mechanisms of the Soviet era are no longer in place and have not been replaced. Including the Central Asian states to the work conducted in the United States and in Europe on the problems linked to internal threats could contribute to reducing this risk.
- Finally, intergovernmental transparency and communication have to be reinforced. Russia increasingly restricts its cooperation with other states, which has led to tensions within the Biological and Toxin Weapons Convention (BTWC). Similarly, the Central Asian Republics do not have protocols in place to exchange epidemiological information, which limits the effectiveness of the responses deployed by each state in the case of an epidemic.

RESEARCH: CONFERENCES & WORKSHOPS

PONI Fall Conference

On September 8-9, 2011, the CSIS organized the PONI (Project on Nuclear Issues) Fall Conference at the Lawrence Livermore National Laboratory (LLNL). The event concluded PONI's conference cycle for the year 2011.

The event followed the traditional PONI methodology: seven roundtables dealt with the various aspects of strategic nuclear issues and a few established experts gave presentations to give complementary perspectives. The conference, however, was focused on technical topics. Indeed, the participants included numerous scientists and engineers mainly from the national laboratories of the US nuclear complex.

Of particular interest was the presentation of the progress made in the domain of mass spectrometry. Mass spectrometry is an essential element of nuclear forensics, which is, in addition to the maintenance of the US nuclear arsenal, one of the core missions of the laboratories of the nuclear complex. A team of Livermore presented the preliminary results of the work it conducted on mass spectrometry based on resonance ionization, a laser-based technique, which is believed to be faster and more reliable than the other tools currently available.

In addition, the conference participants visited some facilities of Livermore: the National Ignition Facility (a laser-based inertial confinement fusion research facility), the super-calculators, and the Center for Accelerator Mass Spectrometry. The first two are key elements of the US Stockpile Stewardship and Management Program.

Understanding Sino-Indian Nuclear Dynamics

On July 28, 2011, the Carnegie Endowment for International Peace organized a conference on Sino-Indian nuclear dynamics. Lora Saalman noted that China's and India's nuclear postures share similarities: no-first use (even though the Chinese discourse on the issue is received with skepticism in India) and minimum deterrence are the most obvious similarities. Saalman also noted that there are issues on which Beijing and New Delhi would benefit from a strengthened strategic dialogue: India's ballistic missile defense, whose increased range of interception now covers some of China's strategic forces, and the peaceful uses of nuclear technology, where both countries have similar ambitions and could develop technical cooperation agreements.

Ashley Tellis, a specialist of strategic issues in Asia at the Carnegie Endowment, noted that the strategic relation between India and China is asymmetrical. According to him, India is thus not a primary concern for Beijing, with China sometimes confining it for contempt. In New Delhi, however, China is a major strategic concern.

Saalman concluded by stressing that there are similarities between the Chinese and Indian positions on nuclear issues, which present a great potential to develop a strategic dialogue. According to Tellis, however, the uncertainties and asymmetry of this relation make it imperative for the United States to maintain strong nuclear capabilities. The notion of minimum deterrence is very flexible in both countries and their arsenals are likely to increase very rapidly if the Sino-Indian relation deteriorated.

AGENDA

CONFERENCES

10/18–21/2011: 17th Issue of MILIPOL Paris, Worldwide Exhibition of Internal State Security. Information: <http://www.milipol.com/>

10/20–22/2011: 2nd Annual China International Nuclear Symposium (CINS-2), Honk Kong. Information: <http://www.wna-symposium.org/china/index.html>

11/07/2011: *Security & Defence Day: Rethinking Europe's Security Priorities*, Crowne Plaza Europa Hotel, Brussels. Information: <http://www.secdef.eu/2011/>

EVENTS

11/03/10–01/11/2011: 66th Session of the First Committee of the UN General Assembly, New York

11/07–08/2011: *The Tenth ROK-UN Joint Conference on Disarmament and Nonproliferation Issues*, Jeju, Republic of Korea

11/17–18/2011: IAEA Board of Governors Meeting, Vienna

12/28/11–02/2011: 16th Session of the Conference of State Parties to the OPCW, The Hague

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Bernard Sitt, Director; Benjamin Hauteouverture, Research Fellow (Editor-in-Chief); Stéphane Delory, Research Fellow (Editing); Timothée Germain, Research Fellow (Editing); David Santoro (Translation). Contact: observatoire@cesim.fr