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8th Joint INMM/ESARDA Workshop: Building International Capacity

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I. Introduction

Our world has changed greatly in the last 30 years – not just politically, with the end of the Cold War, strengthening of IAEA verification, but in the way we see the world – in our security perceptions – cyber attacks for instance; in the information available to us – Twitter, Facebook, cell phones, high resolution commercially available satellite imagery.

To keep up with ever-changing demands on our security needs, we need to move with the times to ensure the stability of these pillars of international peace and security: non-proliferation, arms control, disarmament and verification.

Key to the sustainability of such efforts is education and training, with a view to fostering global understanding of, and increasing capacity in, these areas, for without that, we run the risk of forgetting the lessons learned from the past.

Fifteen years ago, in 2000, the UNGA adopted resolution [resolution 55/33 E] entitled "United Nations study on disarmament and non-proliferation education". In that resolution, the Secretary-General, with the assistance of a group of governmental experts, was requested to prepare a study on disarmament and non-proliferation with the objectives of:

- Defining contemporary forms of disarmament and non-proliferation education and training; and
- Assessing the current situation of such education and training in all regions of the world.

The study, submitted to the General Assembly's 1st Committee in October 2002, built upon, and sought to revitalize, the earlier efforts at disarmament education, tackling new elements, such as the growth in the significance of non-proliferation of weapons of mass destruction, as well as gender perspectives on security issues.

Its main contribution was the 34 recommendations for immediate and long-term action to be undertaken by governments, regional organizations, the UN and other international organizations, NGOs, and municipal and religious leaders. It also sought to establish close collaboration between the experts and civil society, including educators and academic institutions.

Noting the overall objective of such education and training of imparting knowledge and skills to individuals to empower them to make their contribution to the achievement of concrete disarmament and non-proliferation measures, the report observed that different groups required different pedagogic approaches and methods. What a school-age child in a refugee camp needed to know about disarmament, it said, was not the same as what was required for a border guard, let alone for a political official or a high school teacher.

The experts also found that additional educational and enrichment materials were needed, in particular at the university and postgraduate level, concluding that, since most such material was in English, translation into other languages was an essential first step.

IOs, NGOs and Member States were encouraged to report biennially on the implementation of these recommendations.

Last year, 7 IOs, including all 3 verification bodies (IAEA, CTBTO and OPCW) submitted reports. Sadly, only 10 Member States submitted such reports in 2014 (Argentina, Austria, Cuba, El Salvador, Germany, Iraq, Japan, Mexico, Panama and Portugal).

Putting Member States to shame, 20 NGOs, including the Vienna Center for Disarmament and Non-Proliferation (VCDNP), submitted reports.

This raises at least two questions:

- Is there an opportunity for ESARDA and INMM to submit such a report?
- What is the VCDNP?

We can perhaps discuss the first question later this week. As regards the second question, you are probably not alone in your uncertainty, since the VCDNP has only been in existence for a little over 4 years. One of its key missions is to contribute to international capacity building – or as I prefer to refer it: “talent development”.

The VCDNP

The Vienna Center for Disarmament and Non-Proliferation (VCDNP) is a small international NGO established in 2011 at the initiative of the Austrian Foreign Ministry. It is situated in Vienna, with its offices located just outside of the Vienna International Centre.

The setting up of an international NGO in Vienna with a focus on disarmament and non-proliferation was not only a logical step – as a locus with a critical mass of nuclear expertise – but a necessary step in a city that is home to a number of international organizations dedicated to these issues, including the IAEA, the CTBTO, the OSCE, UNODA and others.

The VCDNP, operated by the Center for Nonproliferation Studies (CNS) at the Middlebury Institute of International Studies in Monterey, was established as a dedicated non-governmental platform for independent debate, research, outreach, and education and training on these issues. The Center was also envisioned as a go-to place for results-oriented discussion among the many stakeholders: national governments, international organizations, academia and civil society.

It is funded largely through the generous donations of foundations, principally the Carnegie Corporation of New York, as well as the MacArthur and Stanley Foundations, and most recently the Skoll Foundation. But it also receives grants from States and other NGOs interested in pursuing projects for which the VCDNP is uniquely situated, either in terms of specialized expertise, proximity to practitioners and/or logistical ease of access.

The core activities of the Center are programs aimed at building capacity in disarmament and non-proliferation issues at all levels of society: students, practitioners, diplomats, journalists, and the public at large. At its opening ceremony of the Center in 2011, IAEA Director General Amano – himself a member of the “Monterey Mafia” – welcomed the establishment of the VCDNP, and stressed the importance of education in fighting the nuclear threat.

Many of the VCDNP’s activities are directly relevant to the densely structured and comprehensive programme of the four Working Groups in which we will participate this week.

Among these are:

- *Our intensive one-week short courses on Nuclear Non-Proliferation and Disarmament*, held twice a year, for diplomats, with priority given to developing countries (over 80% of the participants represent developing countries from Africa, Asia, and Latin America). The courses combine in-class instruction with discussions and participatory role-playing exercises, such as simulations, with an online pre-course module.

The VCDNP offered its first course in September 2011, three months after opening its doors, and we just completed our ninth course last week. This training program is guided by the conviction that the effectiveness of efforts of states, particularly developing countries, is often limited by the scarcity of experts (both within and outside national governments) with sufficient training in the legal, political, military, and technical aspects of nuclear arms control and disarmament. Insufficient expertise can hinder active participation in debates and negotiations, as well as the development and promotion of concrete initiatives, including more practical and technical proposals for implementing short- and long-term disarmament goals.

- *We also host a monthly seminar series*, at which the Center features some of

the top experts on nuclear nonproliferation, disarmament, and international security, including such high profile figures as: Dr. Thomas Schelling, Nobel Prize Winner and one of the best known theorists in deterrence and strategic control; Dr. William Perry, former US Secretary of Defense and member of the group of four senior statesmen who initiated the re-launching of nuclear arms control and disarmament debates with a Wall Street Journal op-ed in 2007; and a panel discussion on Iraq I, featuring Hans Blix, Jacques Baute, Gudrun Harrar and myself.

Most recently, we hosted one of the EU participants in the Iran negotiations, Stephen Klement, in a presentation on the JCPOA from the EU perspective

On October 20, Dr Nic von Wielligh, the former official responsible for the disarmament of South Africa's nuclear weapons program, led a panel discussion at the VCDNP on the occasion of the publication of his seminal book *The Bomb: South Africa's Nuclear Weapons Programme*. On the panel were former IAEA inspector Dimitri Perricos and two former South African officials, Neville Whiting (also a former IAEA inspector) and Jean du Preez.

- Collaboration with VERTIC on promoting the IAEA's role in disarmament verification (see the Shea/Rockwood publication IAEA Verification of Fissile Material in Support of Nuclear Disarmament http://belfercenter.ksg.harvard.edu/publication/25288/iaea_verification_of_fissile_material_in_support_of_nuclear_disarmament.html?breadcrumb=%2Fexperts%2F3010%2Flaura_rockwood) and VERTIC's survey of Member States of the IAEA
- The VCDNP has also been tasked by the IAEA with developing training courses in the area of safeguards and nuclear security, with a focus on developing capacity in developing and new-comer countries to try to increase the number of qualified candidates for positions in the IAEA.

We also have two other planned nuclear security related projects with the IAEA– one is hosting a high level event to promote the entry into force of the amendment to the CPPPNM – which lacks 13 or 14 States' ratification – depending on who's doing the counting.

The other is focused on combining forces with other interested experts to identify ways to promote the role of the IAEA in nuclear security after the security summit process is over – and hopefully provide recommendations to the IAEA's Ministerial meeting in December 2016.

The importance of nuclear security cannot be underestimated. As Bertrand Russell, renowned British philosopher said in connection with nuclear war: "You may reasonably expect a man to walk a tightrope safely for ten minutes; it would be unreasonable to do so without accident for two hundred years"

- In addition to these public seminars, the Center hosts expert workshops, Track 1.5 and Track 2 meetings and international conferences, where we create a safe haven for open and frank off-the-record discussions and contacts among government officials, academics and other experts.

We have also been engaged in practical and academic research in a variety of exciting areas that are relevant to the subjects to be discussed this week at our workshop.

Allow me to highlight a couple of them briefly – just to whet your appetite for further information on those projects.

In December last year, the VCDNP, in cooperation with the IAEA, held a 2-day workshop, funded by the UK Foreign and Commonwealth Office and the Carnegie Cooperation of New York, at which we brought together a diverse group of experts from academia, industry, government and 3 IOs (IAEA, CTBTO, and OPCW) to explore innovative information and geospatial technologies and approaches potentially useful for non-proliferation and disarmament verification.

The VCDNP, in cooperation with the CNS at Monterey, is pioneering the use of open source information and computer modeling to revolutionize non-proliferation and disarmament research and education. The creative use of satellite imagery, geospatial data, 3D modeling, virtual reality environments and social media platforms provides exciting new opportunities for NGOs working on non-proliferation issues. Among the relevant projects are:

- Using thermal imaging data from commercial satellites and software for analyzing images, we have: located, identified and analyzed WMD-related facilities around the world.
- The VCDNP participated in a study for the US Department of State that identified methods for societal verification, including data mining, crowdsourcing, gaming, problem solving and societal engagement.
- VCDNP researchers are developing a different virtual reality environment: using free and open software programme, they built a 3D nuclear weapons dismantlement site, complete with guard towers, inspection team workrooms, and technical equipment.
- And this fall, CNS is offering for the world's first graduate course based on a simulation of nuclear weapons dismantlement using all of these new tools!

I wanted to save the best example for last: CNS and VCDNP have been able use new media to find and determine the purpose of two previously unknown facilities that North Korea used to build transporter-erector-launchers [TELs], which was previewed by Bryan Lee at the 2014 INMM conference, “Societal Verification 2.0: Online Technologies and Inspection by the People”. By way of recapping Bryan’s presentation, the following

summarizes the successes achieved as a result of that effort (much of this is taken, with the permission of Bryan Lee, directly or synthesized from Bryan's presentation):

In April of 2012, North Korea revealed a new type of Road Mobile ICBM called the KN-08 during a military parade in Pyongyang. Analysts immediately focused on the transporter-erector-launcher (TEL) vehicle, because it appeared to be of Chinese origin. Chinese officials later admitted that the TEL chassis had indeed come from China, but they were normal heavy truck chassis and North Korea had falsified documentation by claiming they were intended for typical civilian uses.

The analysis in this instance began with published UN interviews that confirmed the source company, Wanshan Special Vehicle Company, and the fact that heavy truck chassis had been delivered to North Korea. A search of the Wanshan website produced a photo of a truck called the WSS1200, and a comparison with parade photos of the KN-08 TEL showed the matching eight-wheel structure and distinctive "V" cut in the cab. The research team compared photos of both, and used that information, together with dimensions from the company website, to build a three dimensional computer model using free software from the Trimble Company called SketchUp.

Publicly available information from another source gave the team the next clue. In 2013, North Korea posted a propaganda video to YouTube showing its leader, Kim Jong Il, touring a variety of military facilities. Interestingly, the video shows a few seconds of Kim inspecting TEL assembly facilities for Nodong and KN-08 missiles. In each case, the building interiors are similar and unusual: a long row of high windows along one side and a cupola structure near the center. Returning to the SketchUp software and using the video as a guide, the team created three-dimensional drawings of what these buildings might look like from the outside. The result was a building with rather distinctive structures.

Now that the team knew what to look for, the next question was where? Again, new media tools provided a solution. Prior to the Internet explosion, defector accounts and memoirs were mostly the provenance of intelligence debriefing teams. Today, people are eager to share their stories, and they do so online. A Korean-speaking member of the team began searching social media sites for mention of missile assembly facilities, and these pointed her to several defector memoirs. Accounts differed, but there was a consensus that the Chagang Province in the north of the country was the center of North Korea's missile industry.

The Chagang Province was still a large area to search for a small building, so the team used the power of the crowd to narrow the focus. Crowd-based mapping sites, such as North Korea Uncovered, frequently identify surface-to-air missile sites. Working with the assumption that a missile facility was

likely to be protected, the team began the search in an area of Chagang Province that appeared unusually well defended. It turned out that a publicly available Google Earth satellite image revealed a building matching the team's model less than one kilometer from one such air-defense site.

Looking at the image, it was possible to see a shed-like structure along one entire side, which accounted for only one set of windows being visible in the video. In addition, the cupola structure revealed itself to be fan-shaped. This was enough to encourage the team to purchase additional imagery from Astrium, a firm that sells satellite imagery for commercial purposes, such as property surveys or mineral exploration. Using the additional shots provided, the team was able to recreate an accurate model of the building and come to the conclusion (based on historical satellite images) that North Korea had *remodeled* the building to add the cupola structure. Placing the original TEL model constructed earlier inside the building showed its function--the fan allowed the missile to be raised to the launch position inside the maintenance facility.

While the evidence was not conclusive, it seemed to corroborate the Chinese version of events and lent credence to the notion that North Korea had modified commercial Chinese truck chassis.

As I count it, they used at least 10 different types of information tools.

As noted in Brian's presentation, while this example clearly shows the power of the information, it also highlights the importance of expertise. While all of the information identified is available to anyone, coming to reliable conclusions still requires a high degree of expertise.

In summary, our global educational, technical, legal and policy communities are confronted with rapidly developing challenges in the area of arms control, disarmament and non-proliferation – but we also have at our fingertips novel solutions with which to face those challenges.

Critical to that effort is for Governments, academia, industry, IOs and NGOs to recognize the power and promise of education to achieve a world without nuclear weapons, to reinforce a culture of peace, to build bridges through dialogue and to form an alliance of civilizations as a basis for peace and a sustainable future.

To quote two very famous gentlemen, Nelson Mandela and Confucius:

“Education is the most powerful weapon which you can use to change the world.”
– Nelson Mandela

“Education breeds confidence. Confidence breeds hope. Hope breeds peace.” –
Confucius