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ARMS CONTROL IN THE

INFORMATION AGE

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Abstract:

In this Information Age, the U.S. has considered, as an idea, the possible application of science and technology to arms control and international security. After observing the successful implementation of the new START treaty that entered into force a year ago, they are now considering the next steps, the application of these new technologies to nuclear arms control and other types of weapons.

Keywords:

Arms Control, Information Age, non proliferation, new START Treaty.

In this information age, the U.S.[1] is considering as an idea the possible application of science and technology to arms control and international security. After observing the successful implementation of the new START treaty[2] that took effect a year ago, the U.S. is now considering the next steps, how the application of these new technologies to nuclear arms control and other types would be.

Diplomacy itself has changed its nature with the application of new technologies. These new technologies have shortened barriers and time in diplomatic negotiations. It has gone from the spot meetings and exchange from paper documents to videoconferencing and electronic documents. This has allowed progress in international negotiations of any treaty such as the negotiation of the new START Treaty.

Negotiators worked so hard to find new innovative mechanisms to assist in the verification of the new START Treaty and the results are already significant. The U.S. experience has proven the verification regime of the new START treaty work so far, and boosts to find new types of inspections. These inspections will be essential to any reduction of nuclear weapons plan in the future.

Nowadays, we face new challenges, such as monitoring the dwindling units, such as nuclear warheads, or items that are inherently dual use in chemistry or biology.

Today, the verification of compliance of the countries obligations under arms control treaties carries out a combination of information exchange, status weapons notifications, on-site inspections and National Technical Means. The NTM are big assets as observation satellites and radars that countries manage and control. These elements work together to achieve an effective verification regime.

The effective verification is defined, according to Ambassador Paul Nitze[3], "as if the other side moves beyond the limits of the treaty in any militarily significant way, we would be able to detect such violations in time to respond effectively and thereby deny the other side the

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[1] According to Rose Gottemoeller, Acting Under Secretary for Arms Control and International Security, Under Secretary of Arms Control, Verification and Compliance.

[2] The new Strategic Arms Reduction Talks (START) was signed by U.S. presidents, Barack Obama and Dmitry Medvedev on April 8, 2010 in Prague. It is a step in the reduction of strategic arsenals of the two great nuclear powers. The Treaty was part of a number of initiatives to promote nonproliferation in 2010, among which are the Nuclear Safety Summit and the Conference on Nuclear Nonproliferation.

[3] This definition comes from decades ago but still applies.

benefit of the violation."

This definition remains the benchmark to verify compliance. However, the world is changing, so is the nature of what needs to be monitored and verified.

So the question is whether we can incorporate open source and social networks to verification and monitoring arms control.

Open source information technologies can help us in two ways: as a way to generate new information or as a way to analyse it.

The Red Balloon Challenge, that the Agency DARPA (Defence Advanced Research Projects Agency) launched, is an example of this. To celebrate the 40th anniversary of the Internet, in 2009 the agency held a competition in which the first person to locate 10 red weather tied balloons fixed in conspicuous places throughout the continental territory of United States would win $40,000. More than 4,300 teams of about 2 million people in 25 countries participated. A team from Massachusetts Institute of Technology won the challenge, which took an amazing time of 8 hours and 52 minutes to identify all the balloons. Of course, to win in such a short time the MIT team did not "find" personally the balloons but used social networks. They used a unique structure that encouraged people to identify the location of a balloon, and encouraged them to recruit others to the team. This victory demonstrated the enormous potential of social networks and also showed that incentives can motivate large populations to work towards a common goal.

Could something like this be used in the arms control context? It would be a challenge for public verification. For example, if we look ways to design a verifiable treaty to regulate the number of non-nuclear strategic weapons, we have a problem that we have not tried to solve before: tactical weapons are small, easy to hide and difficult to make an inventory for an inspector, and what is worse, there is no common definition of a non-strategic weapon.

So to check the overall reduction of nuclear forces, we have to check all stages, from production, implementation, storage and, finally, dismantling. We must find new indicators that can measure and help to verify treaty obligations, without spreading confidential information that may compromise the mutual security and deterrence. In treaty matters, all obligations will be fully reciprocal.

While we advance towards an entire cycle of life of nuclear warheads nuclear watchdog, the dichotomy between the control of fissile materials and the strategic arms control disappears.

Previously, a group of experts could control strategic nuclear missiles, another could analyze only naval nuclear reactors, and a third group could analyze the fissile material. Over the years, we must combine the treatment of all these diverse areas. We also would need to find ways to extend the application of existing agreements. For example, we are exploring opportunities to capitalize the success of the verification regime of the Open Skies Treaty. This Treaty sets a no weapons aerial observation flights system on the territories of the signatory countries. This treaty is one of the largest international efforts in arms control to promote openness and transparency in military forces and activities.

Moreover, while the U.S. uses a lot of time focusing on nuclear weapons, other weapons of mass destruction - specifically biological weapons – set out even greater challenges for arms control policy, as they are intrinsically dual active use and therefore difficult to separate from the normal processes, whether industrial or commercial purposes.

Here too, we should creatively think about the way to facilitate transparency in the biotechnology sector without compromising confidential or proprietary information. Another problem of transparency of biotechnology is that the findings are potentially easy to misinterpret. There are legitimate reasons for the study of many pathogens. However, there is a difficulty in detecting the unequivocally offensive activity of BW (Biological Warfare) of the peaceful use of biotechnology.

There are similar concerns about chemical weapons while science, technology and the chemical industry advance. A modern chemical weapons production is very similar to a typical civilian facility of chemicals production. A country could use the same facilities, either legitimate or weapons purposes, changing simply the equipment. Unless you could suddenly detect wastewater during the process of a batch of chemical weapons, you may not know what is producing.

Given all this comes a question: could new tools and technologies be incorporated in the arms control verification and monitoring of all weapons of mass destruction? Specifically, we ask how you can use the amazing advances in information technology in recent decades, and how they can help in verifying treaties and arms control agreements.

We are facing a new reality in an interconnected world and this planet is getting smaller every day. A planet where the average citizen is connected with others in cyberspace a hundred times per day. We exchange and share ideas on a wide variety of topics, why not devote this great entity that solves problems to good use?

The information age continues showing a wide range of possibilities. At this time, any event anywhere, has the potential to be broadcast worldwide in seconds. The implications for control and verification arms are interesting. Now it is more difficult to hide things. The more difficult it is to hide things, the easier it is to be found out. For example, in applying these ideas to arms control, a country may be prepared for a verification challenge in a depth nuclear reduction environment.

Such a technique, "the public verification challenge", can be especially valuable as we move towards decreasing the number of nuclear weapons. In such cases, governments will be interested to demonstrate that they keep their reduction obligations and they can involve their public opinion to help argue the case in favour if they wish. So, it will be a global responsibility to ensure that the verification challenges designed can not be forged or manipulated.

Such a challenge would increase the nuclear declaration verifying of a country. But we must consider the possible and important limitations of citizens' freedoms of any specific country. The Information Age is also creating a reservoir of talent in individuals. Scientists, technologists, entrepreneurs and freak devices can reach a large and diverse market for their products and services. These private citizens can develop apps based on webs for any tactile communication device. This "crowdsourcing" allow people to solve their daily problems through their innovative ideas.

The United States Department of Defense (USDOD), also through Defense Advanced Research Projects Agency (DARPA), is using these innovative competitions for drone's development. This is an approach that might also work in arms control and verification of nonproliferation, both technologies and concepts.

The open source technology could be useful to inspectors. Applications for smartphones and tablets can be created with the purpose of assisting in the verification and monitoring process. For example, if all the verification sensors and safeguards of an inspected facility are wirelessly connected to an inspector's tablet, he could take note of anomalies and specific elements to expand inspections. He could also compare the readings real time and interpret them in its context.

Therefore, there is a Key Verification Assets Fund or V Fund Program[4]. Through this

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[4] More information on Office of Verification and Transparency Technologies (AVC / VTT), www.state.gov/t/avc/vtt/.

programme, ambitious, innovative and research proposals are invited to face the outlined requirements in an Unclassified Verification Technology Research and Development Needs Document. It is the first time this unclassified "requirements document" is available. Researchers and project managers are invited to present technical documents with ideas for the support, research, development, or technology acquisition related to agreements verification or arms control commitments, nonproliferation and disarmament both chemical and biological, nuclear and missile.

Only by combining the inside and outside government ideas, can better tools to mine, merge and analyze both classified and unclassified data be found, in order to compensate for situations where inspection in place and national technical means are not available or must be supplemented.

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