



## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

CUWS Outreach Journal 1252

17 February 2017

**Featured Item:** "US Strategic Nuclear Forces: Background, Developments, and Issues."  
Authored by Amy Woolf, February 2017.  
<https://fas.org/sgp/crs/nuke/RL33640.pdf>

This report focuses on the numbers and types of weapons in the U.S. strategic nuclear force structure. It does not address the broader question of why the United States chooses to deploy these numbers and types of weapons, or more generally, the role that U.S. nuclear weapons play in U.S. national security strategy. This question is addressed in other CRS reports. However, as the new Trump Administration reviews and possibly revises the plans for U.S. nuclear force structure, Congress could address broader questions about the relationship between these forces and the role of nuclear weapons.

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## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

Gallup – Washington, DC

### **Top US Foreign Policy Goals: Stem Terrorism, Nuclear Weapons**

By Justin McCarthy

February 16, 2017

*More than four in five Americans say both goals are very important*

*Defending U.S. allies' security has increased in importance*

*Two in three say defending U.S. allies' security is very important*

Preventing future acts of international terrorism (85%) and the spread of nuclear weapons (84%) remain Americans' top foreign policy goals in 2017, with more than four in five rating each of these as "very important." Nearly as many say securing adequate supplies of energy for the U.S. (80%) is a very important foreign policy goal.

Solid majorities also say promoting favorable trade policies (71%), defending our allies' security (66%) and working with organizations like the U.N. to bring about world cooperation (63%) are very important foreign policy goals.

A smaller majority rated promoting and defending human rights abroad (53%) as being very important. Meanwhile, less than three in 10 Americans said that helping other countries build democracies (29%) is very important.

These results are based on Gallup's annual World Affairs poll, conducted Feb. 1-5.

Gallup last asked Americans to rate these foreign policy goals in 2013, as President Barack Obama started his second term. Americans are a bit more likely now than they were in February 2013 (66% vs. 60%) to say that defending U.S. allies' security is a very important goal.

Not only is this percentage up slightly from 2013, but it is also the highest Gallup has recorded since first polling on the question in 2001. Since then, a majority of Americans have consistently said defending allies' security is a top priority, ranging between 57% and 62% until this year's 66%.

Americans now are also more inclined to value working with organizations like the U.N. to bring about world cooperation and promoting favorable trade policies for the U.S. in foreign markets -- each up five percentage points since 2013 to 63% and 71%, respectively. The latter was a central tenet of President Donald Trump's campaign.

Perceptions of the other five goals are generally the same as they were four years ago.

### **Bottom Line**

Americans have concerns about how the world views the U.S., and less than four in 10 approve of the way Trump is handling foreign affairs. With majorities of Americans viewing the security of our allies and world cooperation through organizations like the U.N. as very important, actions that threaten these goals could further undermine the trust Americans place in Trump to handle foreign policy.



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Trump broke with diplomatic norms while campaigning for president when he expressed hesitance about maintaining NATO, even calling it "obsolete." But Secretary of Defense James Mattis met with NATO officials this week to reaffirm America's commitment to the alliance.

Trump also previously criticized involvement with the U.N. as "wasteful" spending and sparred with the organization before taking office. The administration has drafted an executive order to audit and dramatically reduce U.S. contributions to international organizations, although Trump has not yet signed it.

At the same time, the president's focus on preventing international terrorism aligns with Americans' greatest priority, as does his commitment to renegotiating trade deals that are more favorable to the U.S. And while Trump has called for an arms race, his administration's measured response to North Korea's recent ballistic missile test could assuage fears of nuclear escalation.

<http://www.gallup.com/poll/204005/top-foreign-policy-goals-stem-terrorism-nuclear-weapons.aspx/>

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Albuquerque Journal – Albuquerque, NM

### **Report: US Nukes to Cost \$400B Over Next Decade**

By Mark Oswald

February 16, 2017

The cost over the next decade of operating, maintaining and modernizing the U.S. nuclear arsenal – including for work at national laboratories like Los Alamos and Sandia in New Mexico – is estimated to be \$400 billion, according to a new report by the Congressional Budget Office.

That's up from the last decade-long estimate of \$348 billion that the budget office made in December 2013 for the years 2014 to 2023.

The new report says the expected average of \$40 billion in nuclear weapons expenses per year through 2026 takes into account that programs are further along than when the previous estimate was made and some modernization efforts, particularly for a new bomber, have become better defined. Also, updates of intercontinental ballistic missiles and cruise missiles "have increased in scope or have been accelerated," says the CBO report.

The \$400 billion estimate for the decade includes \$87 billion for the national laboratories around the country, including costs related to "maintaining current and future stockpiles of nuclear weapons." In New Mexico, that work includes ramping up the production of plutonium "pits," the grapefruit-size cores of nuclear bombs that serve as triggers, at Los Alamos. No new pits have been made since 2011, but LANL is under a mandate to make as many as 80 by 2030.

The huge nuclear arsenal modernization plan now underway was part of President Barack Obama's deal with Congress over ratification of the New START Treaty on arms control that Obama signed in 2011.

Greg Mello of the local Los Alamos Study Group research and advocacy organization said the CBO's report leaves out some big-ticket items, such as cleanup for nuclear weapons work and

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disposing of old nuclear weapons buildings, which put the actual 10-year costs at more than \$500 billion.

“No one can tell what these huge, multi-decade programs will cost but, over the next 30 years, the total cost will certainly be above a trillion dollars,” said Mello. “These modernization plans conflict with other DoD (Department of Defense) acquisition plans. Nobody has any politically realistic idea of where all this money will come from.”

Other projected costs for the next 10 years include: \$189 billion for weapons delivery systems such as missiles, ballistic missile submarines and long-range bombers; \$9 billion for “tactical” nuclear weapons delivery systems, such as shorter-range aircraft; and \$58 billion for the DoD’s “command, control, communications and early warnings systems.

Another \$56 billion was included as coverage in the event that the cost of nuclear programs exceed “planned amounts at roughly the same rates that costs for similar programs have grown in the past.”

<https://www.abqjournal.com/950875/report-u-s-nuke-arsenal-will-cost-400-billion-over-next-decade.html>

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Herald-Tribune – Sarasota, FL

### **Sarasota World Affairs Council Takes on Nuclear Weapons Topic**

By Billy Cox

February 14, 2017

New College adjunct professor of International Studies Nat Colletta contends that Sarasota is second only to northern Virginia as a retirement mecca for foreign service officers. If that's true, then today's lecture presentation from the Sarasota World Affairs Council, or SWAC, will likely play to another full house, thanks to an assist from President Donald Trump.

The topic, "Nuclear Weapons: They're Back," gives the stage to Robert Gallucci, the former Assistant Secretary of State for Political-Military Affairs and former dean of Georgetown's School of Foreign Affairs. In 1994, Gallucci negotiated North Korea into freezing plutonium production, at least temporarily, and agreeing to inspections by the International Atomic Energy Agency.

During the presidential campaign, President Trump indicated he would support allies such as Saudi Arabia, Japan and South Korea in their efforts to acquire nuclear bombs. He also denounced America's current nuclear weapons agreements with Iran and Russia as bad deals.

How Trump's policies on arms control will play out is anyone's guess. The larger point is that the SWAC has, since its inception in 2014, been bringing big-picture perspectives to avid local audiences. Much of that speaks to connections forged by SWAC president Colletta, a ground-floor Peace Corps volunteer who went on to establish the Conflict Prevention/the Post-Conflict Reconstruction Unit at the World Bank, where he remains a consultant today.

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"It was the '60s and I was very idealistic, a real Kennedy type," says Colletta, whose high draft lottery number spared him the Vietnam War. But his doctorate in international studies would eventually steer him to Southeast Asia, to Indonesia, where his work with plantation economies and conflict management caught the attention of the World Bank.

"I spoke fluent Indonesian," says Colletta, 72. "So naturally they sent me to east Africa."

Colletta's globetrotting posts would produce voluminous articles and books with titles like "Privatizing Peace: From Conflict to Security," "Violent Conflict and the Transformation of Social Capital: Lessons from Cambodia, Rwanda, Guatemala and Somalia," "Security, Poverty Reduction and Sustainable Development," and "Case Studies in War-to-Peace Transition: The Demobilization and Reintegration of Ecombatants."

He made his mark in Uganda in 1984, where the military regime was consolidating its power following a civil war. When its cash-starved central government went shopping for loans from the World Bank to prop it up, Colletta drew the assignment. It didn't take long for him to size up the problem.

"They were highly militarized," he recalls. "Twenty-eight percent of their budget was spent on defense, and they were spending just 6 percent on health and education and other social programs."

Colletta reminded the leadership that the \$25 million sticker price of a single F-16 jet fighter could subsidize the demobilization of most of its 40,000-man army, which would include job retraining, counseling and other assistance for its veterans, not to mention broader access to credit and land.

Colletta's successful formula for transitioning the Ugandan economy into peacetime footing — known as "Security Sector Reform" — would become a model for developing nations across Africa and Asia.

Citing a longtime friendship with celebrated anthropologist Mary Elmendorf, whose husband, John, was president of New College from 1965-73, Colletta moved to Sarasota in 2004 after his formal retirement from the World Bank. He went on to join the New College staff and, in 2007, acquired a Gulf Coast Community Foundation grant to start a student peer-based conflict-resolution cooperative program between Venice High and New College.

Colletta, whose home in University Park is richly textured with mementos and Asian-influenced design from his eclectic missions, remains on call with the World Bank. He is preparing for yet another journey to the Philippines, where Muslim factions are cobbling out an agreement for control of the autonomous Mindanao region.

"It's gratifying work," he explains. "Especially when you realize the cost of war is always so much higher."

<http://www.heraldtribune.com/news/20170214/sarasota-world-affairs-council-takes-on-nuclear-weapons-topic>

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The Newsstand – Clemson, SC

### **New Biosensor Could Help Search for Nuclear Activity**

By Paul Alongi

February 16, 2017

Research aimed at creating a new biosensor that would help military investigators search for signs of nuclear activities, including weapons development, is moving forward under the leadership of a former naval officer who now is a Clemson University faculty member.

Nicole Martinez and her team are beginning to lay the groundwork for a biosensor that could help determine whether the radiation is natural or manmade and peaceful or weapons grade. It could help investigators search for labs amid concerns a nation or group could illicitly develop weapons of mass destruction.

“The unique aspect of the biosensor we envision is that it would give an indication of radiation exposure even after the radiation source is removed or relocated,” Martinez said. “Moreover, the proposed biosensor may distinguish between types of radiation, which would provide insight into its origin.”

The biosensor would be an improvement on current radiation-detection systems that are easily identified, must be placed close to the radiation source and report on radiation emitted only at the time the detection system is present.

Martinez, an assistant professor in the environmental engineering and Earth sciences department, is the principal investigator on the \$866,884 project. It lasts three years and could be eligible for a two-year extension, boosting the total to about \$1.5 million.

The team had its kickoff meeting this week.

The project is funded by the U.S. Defense Threat Reduction Agency. Mark Blenner, the Dean’s Assistant Professor of Chemical & Biomolecular Engineering is the co-principal investigator.

Exactly how the biosensor would be used and what it would look like has not been determined and would ultimately be up to the Department of Defense.

But if the biosensor functions as hoped, it could be the first based on how bacteria and yeast change DNA to RNA, a process called transcription.

Researchers will study how tritium, iron-55, plutonium-239 and neutron irradiation affect transcription in three types of bacteria and two kinds of yeast.

The effect of high doses of ionizing radiation on biological systems is well known, but much less is understood about the effect of low doses. Researchers expect to find distinctive responses at the sub-cellular level based on different types of radiation.

“The value of what we’re doing supports application but isn’t the application itself,” Martinez said. “Our research questions are along the lines of: ‘Do bacteria exhibit a unique response to radiation exposure compared to other environmental signals and stressors? If so, does that uniqueness extend to the type of radiation to which it was exposed? If so, can we identify that unique signature or pattern of gene regulation? Can we utilize this signature to our advantage and engineer a related biosensor of radiation type?’”

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The research will also involve measuring the effects of low-level radiation.

“We are looking at patterns of gene regulation that occur in response to exposure to low levels of radiation,” Martinez said.

The project came together after Blenner saw the need for alternative approaches to monitoring nuclear activities and had the idea to use microorganisms.

“He eventually linked up with me for the radiation expertise, and together we worked out what we thought the best experimental design would be,” Martinez said. “He chose the microorganisms, and I chose the isotopes. I planned exposures/dosimetry, and he planned the genomic/transcriptomic analysis.

“We decided on me being the principal investigator as we expect a lot of the work will be physically done at my lab and I have the more open schedule to dedicate to the management of the project. Intellectually, Dr. Blenner contributes as much or more than I do.”

Blenner said he looks forward to working with Martinez and that the research presents some promising opportunities to advance knowledge in an area important to defense.

“Microorganisms are ubiquitous in nature and their properties are often sensitive to their environment,” Blenner said. “It was a logical extension to suppose we could use them to detect and discriminate different radiation sources.

“This idea stems from my group’s work on using microbes as chemical factories and sensors in resource-poor settings. However, without Dr. Martinez and her expertise in radioecology, this project would not be possible.

“This study is our first step towards engineering systems that discriminate source and dose of radiation that could be autonomously deployed to report on nuclear weapons proliferation.”

Before going to graduate school, Martinez served as an instructor at the Nuclear Power School and later as a hospital-based radiation health officer. She went on to receive a master’s degree and doctorate, both in radiological health sciences from Colorado State University.

She joined Clemson in August 2014.

David Freedman, chair of environmental engineering and Earth sciences, congratulated Martinez on the grant.

“Dr. Martinez and her team are helping advance the science necessary to detecting weapons of mass destruction,” he said. “The award is well-deserved.”

Martinez said she finds radiation fascinating.

“Radioactivity occurs naturally and can also be induced. It can both cause and cure cancer,” she said. “It aids in diagnostic medicine. It gives insight into environmental processes. It can provide a source of clean energy. Yet for all this, it still has destructive potential.

“Radiation has so much to offer but needs educated respect and stewardship,” she said. “I’m motivated to do what I can to ensure the safe and effective use of radiation and radioactivity.”

<http://newsstand.clemson.edu/mediarelations/new-biosensor-could-help-search-for-nuclear-activity/>

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Global Biodefense – Seattle, WA

### **The Biotechnological Wild West: The Good, the Bad, and the Underknown of Synthetic Biology**

By Yong-Bee Lim

February 14, 2017

Amid the myriad panels and posters on Ebola and Zika, the 2017 American Society for Microbiology (ASM) Biothreats conference also featured a panel on emerging biotechnologies. A panel of three distinguished scientists and policy-makers provided an overview of the current state of synthetic biology, its applications in the health and defense domains, and the policy conundrums that need to be addressed.

#### **Synthetic Biology – The Good...**

The majority of the presentations focused on the current state of synthetic biology and the most promising applications of the technology in the fields of health, life sciences research, and national security. Dr. Christopher Voigt of the Synthetic Biology Center at MIT described synthetic biology as the application of engineering principles to biological systems. The end goal of this bioengineering framework is to leverage ever-increasing computer capabilities to simplify the designing and writing of genomic sequences. Further simplification of this process would then allow for the creation of more complex systems.

Dr. Chris Hassell, Deputy Assistant Secretary of Defense for Chemical and Biological Defense, and Dr. Diane DiEuliis, Senior Research fellow at National Defense University respectively, noted that applications of synthetic biology can be beneficial to many sectors. In his presentation, Dr. Hassell noted how governments can use synthetic biology to address bio-related issues facing both the military and civilian populations. Synthetic biology can be leveraged to address chem/bio threats through both external (including environmental detection, individual protection, collective protection, and decontamination) and internal (pre-treatments, diagnostics, therapeutics, and vaccines) mechanisms.

Dr. DiEuliis focused on how synthetic biology is a tool that allows for three major activities: discovery, the manufacture of products, and the fundamental alteration of organisms. Discoveries in basic research from academia allow for greater programmability, manipulation, and scalability of synthetic biology. As a society, we have already been reaping the benefits of synthetically-produced products from private industry; examples include soybean hulls used for surfactant manufacturing, synthetic spider silk used for clothing, and synthetically-derived artemisinin to address raw plant material shortages for malaria treatment. In addition, the military has also leveraged synthetic biology to create biosensors, next-generation medical countermeasures (MCMs) and enhance force health protection through changing the characteristics (and thus, the functionality) of microbes.

Dr. Christopher Voigt of the Synthetic Biology Center at MIT described a promising new development that has the potential to accelerate the achievement of the benefits outlined by his fellow panelists. A promising application of this framework is the software known as Cello. Requiring over a decade of work, Cello utilizes engineering principles to allow academic researchers to customize functionality for living cells. Cello then takes the cellular requirements and provides a logical design template for a genomic sequence. This template can then be sent to a gene synthesis company such as Addgene to be synthesized. Once the

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researcher has received the synthesized genomic sequence, introduction of the sequence into a cell will provide researchers with a fully tailored cell. While current capabilities are limited to *Escherichia coli*, future projects include expanding so that genomic sequence circuits will work in other bacteria and yeast cells.

### **Synthetic Biology – The Bad...**

While the benefits derived from synthetic biology are great, presenters noted that it suffers from the dual-use dilemma: the same information applied to beneficial uses could also be repurposed for nefarious purposes. Dr. Hassell noted that synthetic biology increases biologically-derived risks through three mechanisms. First, synthetic biology can be used to enhance existing microbial threats; synthetic biology allows actors to more easily manipulate the characteristics of microbes, including increasing environmental stability and introducing hypervirulence. Secondly, traditional methods of restricting access to biological select agents and toxins (BSATs) may be less effective in an age where synthetic biology can be used to construct microbes *de novo*. Finally, synthetic biology can be used to construct novel threats that are meant to subvert countermeasures.

Dr. DiEuliis noted that traditional threats may be revisited as synthetic biology allows actors to more easily engage in research that run contrary to the guidelines of the seminal 2004 Fink Report. However, DiEuliis also remarked that microbial manipulation and creation through synthetic biology may not only be used to inflict direct human casualties. The misuse of synthetic biology can be leveraged for strategic effect, such as economic damage due to industrial sabotage. Rather than the traditional paradigm of considering biological weapons as weapons of mass destruction, DiEuliis highlighted that synthetic biology may be leveraged as a weapon of mass disruption.

### **And the Underknown**

All three presenters offered salient insights into the current state of synthetic biology from academic, private industry, and governmental perspectives. However, there was no mention of how actors from nontraditional backgrounds are changing the risk-benefit analysis of the life sciences. Specifically, the erosion of technological and knowledge barriers to life sciences engagement have enabled greater participation from the civilian population to engage in life science research in a way that had been limited to traditional institutions such as the government, academia, and private industry. These civilian actors, often referred to as being part of the Do-It-Yourself (DIY) Biology movement, are characterized by their wide range of professions (from artists and retirees to life sciences students and professionals), widely varying motivations for engaging in DIY Biology projects (from curiosity to a desire to create useful tools and commercial products), and differing objectives (from manipulating yeast to developing new types of biofuels and biosensors).

DIY Biology practitioners have been heralded as a paradigm-challenging source of innovation and a welcome demonstration of the public's interest in the life sciences. They have also raised concerns for biosecurity experts and law enforcement officials as an underknown variable engaging in life sciences activities. As synthetic biology continues to become more powerful and available to a broader audience of actors, it is important to note the impact that nontraditional actors such as DIY Biology practitioners will have on contributing to the promise and perils of synthetic biology.



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Therefore, future discussions on synthetic biology and emerging biotechnologies should place a greater emphasis on not only the characterization and implications of the introduction of this new actor outside the traditional life sciences, but should also engage the DIY Biology community in helping navigate the biotechnological wild west.

<https://globalbiodefense.com/2017/02/14/biotechnological-wild-west-good-bad-underknown-synthetic-biology/>

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STRATFOR – Austin, TX

### **With Unconventional Weapons, Drones Hit Their Limits**

By Scott Stewart

February 16, 2017

Could terrorists or other criminals use off-the-shelf drones to launch chemical, biological or radiological attacks? That was the question on many readers' minds after last week's look at how the Islamic State has used drones in Iraq and Syria. At the time, I wrote that the hype surrounding the group's drone program would inspire jihadist sympathizers (and perhaps other criminals and terrorists) to use drones to try to conduct attacks in the West. I concluded, however, that the payload limits of commercially available drones, combined with a lack of access to military munitions, would limit the damage any drone attacks could wreak.

The public's interest in chemical, biological and radiological weapons is not surprising given the high profile (and somewhat exaggerated capabilities) ascribed to them by the media and Hollywood. Though the threat of an attack using such weapons could be grave in theory, there are practical constraints that would blunt its impact. By and large, these are the same constraints that would hamper any attempt to use biological, chemical or radiological weapons, regardless of how they are delivered.

#### **The Difficulties of Biological Weapons**

Of the three unconventional weapons, biological agents are the most capable of causing a true mass-casualty event. Though commercial drones are limited in the amount of weight they can carry — several kilograms at most — they could, at least in theory, convey enough of a biological agent to kill millions of people. But the nature of biological agents themselves curb their effectiveness as a drone-delivered weapon.

A single gram of weaponized anthrax, the amount included in letters mailed to U.S. Sens. Tom Daschle and Patrick Leahy in October 2001, can contain up to 1 trillion spores — enough to cause somewhere between 20 million and 100 million deaths if the disease were allowed to run its course. The volume of anthrax in the two letters, plus the five or so sent to major media outlets around the same time, was more than enough, if administered efficiently, to wipe out the entire U.S. population. Nevertheless, the attack infected only 27 people. Five died, and the rest recovered after receiving treatment.

The incident dominated the headlines, but it's a prime example of how tough it can actually be to cause mass casualties with even a highly potent, weaponized biological agent like

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anthrax. After all, if anthrax spores could be spread widely by a drone, infections could easily be treated with antibiotics. People exposed to the spores distributed in a highly obvious drone attack could start courses of antibiotics early, well before the spores have time to incubate, mitigating the impact of the attack.

Non-state actors have tried to develop biological weapons for decades but have struggled to concoct virulent agents. Consider the Japanese cult Aum Shinrikyo, which in the 1990s employed a team of trained scientists and spent tens of millions of dollars to develop sophisticated biological weapons research, production laboratories and other facilities. The group experimented with a variety of agents, including anthrax, botulism, cholera and Q fever. In the end, it couldn't produce a deadly biological agent. The cult shifted its laboratory's efforts toward making chemical weapons such as sarin and sodium cyanide, which it was able to use with some success. But its biological weapons ambitions led to one dead end after another, despite the money and years of effort it expended.

Techniques such as gene editing might someday make it possible for a person to develop and produce an extremely effective and virulent biological agent in a makeshift laboratory. But right now, the only actors capable of creating the types and quantities of weaponized biological agents required for a widespread attack are nation-states.

### **The Chemical Route**

Aum Shinrikyo used nerve agents and cyanide gas in its attack on the Tokyo subway system in 1995. Al Qaeda, moreover, has demonstrated that it possesses the rudimentary knowledge to make a device that generates hydrogen cyanide gas. At his 2001 trial in the "millennium bomb plot," Ahmed Ressam described training he had received at al Qaeda's Deronta facility in Afghanistan in how to build a cyanide-emitting device. Videos found by U.S. troops after the invasion of Afghanistan supported Ressam's testimony, as did confiscated al Qaeda training manuals that held recipes for biological toxins and chemical agents.

There have been other examples as well. In February 2002, Italian authorities arrested several Moroccan men who allegedly were planning to attack the U.S. Embassy in Rome. They were found with about 4 kilograms (9 pounds) of potassium ferrocyanide. Five years later, al Qaeda in Iraq used chlorine gas in vehicle bomb attacks, albeit to little effect. More recently, the Islamic State has used mustard gas and chlorine in Iraq and Syria. But these attacks' psychological impact has far outweighed their tactical significance on the battlefield.

Small quantities of cyanide or sarin could certainly kill many people, but it would not be easy for terrorists to deploy these chemicals in a way that would do so. There is a reason that military plans for chemical attacks include extensive barrages of artillery shells or rockets carrying large quantities of chemical agents to generate a thick, choking cloud. Smaller releases of chemical agents are far less effective, and as Aum Shinrikyo learned, it is difficult to administer a lethal dose of something like sarin, a volatile substance that decomposes and dissipates quickly.

Because a drone could deliver only a small amount of a chemical agent, whether dropped in a container that would break on the ground or in some sort of airburst, it probably couldn't create the type of heavy cloud needed to drive up the number of fatalities. By comparison, a crop-dusting plane — which could transport and spray hundreds of gallons of a chemical agent — would be a far more effective means of aerial delivery.



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### **The Radiological Danger**

Considering the relative ease with which radiological material can be gotten — and the spotlight the media has shined on dirty bombs — it's a little surprising that a dirty bomb or other type of radiological dispersal device hasn't been used in a terrorist attack in the West. Dispersing a radiological isotope with a drone would require aerosolizing, or finely powdering, the material. But unless large amounts of a highly radioactive material are used, its effects would be minimal. To be harmful, radiation exposure must occur either in a high dose over a short period of time or in smaller doses over a longer period of time. Though radiation can be dangerous, of course, limited exposure wouldn't necessarily cause any measurable harm. In fact, people who fly in airplanes or climb mountains are often exposed to more radiation than their peers on the ground, but those levels are manageable.

By their very nature, dirty bomb or radiological drone attacks are unlikely to be very effective in killing people, even if they draw the public's attention. To maximize the harmful effects of radiation, victims must be exposed to the highest possible concentration of a radioisotope. But with a conspicuous delivery method, the targets are given warning and can be evacuated from the affected area to be decontaminated and treated. This makes it difficult for perpetrators to administer a deadly dose of radiation with a drone attack, which would cause widespread panic but very little death or damage. Like dirty bombs, then, a radiological drone attack would be more a weapon of mass disruption than destruction.

Even in war zones, where military munitions are widely available and where groups such as the Islamic State have access to chemical agents and civilian sources of radioisotopes, conventional attacks are significantly more effective and less complicated than those using drones. Beyond war zones, where terrorists' capabilities are even more limited, jihadist operatives will not be able to inflict the kind of carnage with drones that they have been able to achieve with simple armed assaults or vehicular attacks. All in all, there are few drone attack scenarios — whether using conventional explosives or biological, chemical or radiological weapons — that couldn't be undertaken far more effectively with a much larger general aviation aircraft.

<https://www.stratfor.com/weekly/unconventional-weapons-drones-hit-their-limits>

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The Aviationist – Rome, Italy

### **Here Is How F-35 Pilots Would Dress In Case of Chemical and Biological War**

By David Cenciotti

February 15, 2017

*A suit designed to protect the pilot from chemical and biological agents has been recently tested by the U.S. Air Force.*

The 461st Flight Test Squadron at Edwards Air Force Base, California, has recently tested a flight suit capable to keep F-35 Joint Strike Fighter pilots alive in case of operations in a scenario contaminated by CB (Chemical Biological) agents.

The test came after a decade of planning and flight gear system design and build-up testing.

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According to the U.S. Air Force, “the chemical/biological ensemble consists of a special CB suit, a Joint Service Aircrew Mask used for the F-35, a pilot-mounted CB air filter, CB socks and gloves double taped at the wrists. The ensemble also features a filtered air blower that protects the pilot from CB contamination while walking to the jet. It provides both breathing air and demist air, which goes to the pilot’s mask and goggles. All components of the CB ensemble are in addition to the pilot’s sleeved flight jacket and G suit.”

The ensemble also includes a communication system that allows the pilot can speak to life support personnel while wearing the ensemble with helmet and mask.

“It is a conversational communication unit, which is a box that integrates with the communication system so that when he speaks into his mask it lets people hear the pilot talk... it makes him sound like Darth Vader,” said Darren Cole, 461st FLTS Human Systems Integration lead.

The suit is designed to keep the CB agents out when the 5th generation multi-role aircraft fights in Weapons of Mass Destruction-infested environment.

An F-35B on loan from Marine Corps Air Station Yuma, Arizona was used for the tests, that started on Jan. 6 with Marine Corps test pilots Maj. Aaron Frey and Maj. Douglas Rosenstock from the 461st FLTS who donned the CB ensemble for the first tests.

They opted for the STOVL (Short Take Off Vertical Landing) variant of the JSF because it’s the most complex: “We purposely chose the Marine [short takeoff, vertical landing] version of the F-35 because the equipment is more complicated and basically has more nooks and crannies for the contaminant to hide in. This aircraft also has full-up mission systems. These tests will demonstrate that the U.S. and partner nations can fly, fight, and win in a CB threat environment and then quickly decontaminate the aircraft and return it to normal operation.”

Here’s how the tests were conducted:

“The first pilot stepped to a clean jet in the CB ensemble and we contaminated it using a simulated agent. The engine run pulls in the simulant so we need to make sure the air is filtered before it gets to the pilot. First, the air goes through the [On-Board Oxygen Generation System] and then the pilot-mounted CB filter to remove any remaining contaminants. There is another filtered air supply blower that provides cooling and demist air to the pilot’s hood and goggles. We also used three air sampling devices to be sure all the air provided to the pilot was clean.”

“After the ground test, a second pilot came out to simulate stepping to a “dirty jet.” He conducted an engine startup and then took off on a flight. Both pilots wore passive absorption devices on their bodies that the simulated contaminant would stick to if it made it through the CB ensemble. Data was taken from both pilots to see if anything was different from the separate startup scenarios.”

According to the flying branch, this was the only time this specific flight gear was flown in the JSF and is the first ever simulated contaminated aircraft flown for this kind of data collection.

“Among the data we’re collecting is how much thermal stress is added to the pilot with the CB ensemble on and the impact the additional gear may have on flying the aircraft,” Cole said



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It would be interesting to know whether the flight suit for Chemical and Biological Warfare affects the pilot's ability to see the aerial threats surrounding him, especially considering that the out-of-cockpit visibility in the F-35 is less than other Air Force fighter aircraft because of the large head rest that impede rear visibility and the ability of the pilot to check the aircraft's 6 o'clock for incoming aerial or surface threats.

Actually, the F-35 pilots might not need to look around too thanks to the AN/AAQ-37 Distributed Aperture System (DAS) that combined to the AN/APG-81 active electronically scanned array (AESA) radar provide them a 360-degree, spherical situational awareness that seems to have been more than enough to take care of the Aggressors' 4th generation F-16s during the recent Red Flag exercise...

Anyway, NBC gear is usually cumbersome, difficult to dress and pretty uncomfortable. This Author has had the opportunity to take part in an NBC training with the Italian Air Force some years ago and what the drills highlighted is that operations with protective gear and gloves, with the body completely encapsulated and inherent communication difficulties, requires strict adherence with the procedures and much practice.

Otherwise, the risk is to be exposed to contamination.

<https://theaviationist.com/2017/02/15/here-is-how-f-35-pilots-would-dress-in-case-of-chemical-and-biological-war/>

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The National Interest – Washington, DC

### **The Pentagon's Missile Defense Agency Test-Fired its New, Larger SM-311A Interceptor Missile in Space**

By Kris Osborne

February 14, 2017

*The SM-3 IIA can hit bigger targets, such as incoming enemy ballistic missiles, at longer distances than previous SM-3 interceptor missiles.*

The Missile Defense Agency and Raytheon fired a new SM-3 missile variant into space and destroy an approaching enemy missile target - as a way to develop a new interceptor better able to detect and attack ballistic missile threats approaching the earth's atmosphere from space.

For the first time, the new SM-3 IIA missile intercepted a ballistic missile target firing from the USS John Paul Jones - a Navy destroyer.

"John Paul Jones detected and tracked the target missile with its onboard AN/SPY-1D(V) radar using the Aegis Baseline 9.C2 weapon system. Upon acquiring and tracking the target, the ship launched an SM-3 Block IIA guided missile which intercepted the target," a MDA statement said.

The new SM-3IIA missile is slated to fire from a land-based missile defense site planned by the Pentagon for Poland by 2018, a Missile Defense Agency spokesman, told Scout Warrior in a statement.

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The SM-3 Block IIA is being developed cooperatively by the United States and Japan to defeat medium- and intermediate-range ballistic missiles.

The SM-3 Block IIA interceptor operates as part of the Aegis Ballistic Missile Defense system and can be launched from Aegis-equipped ships or Aegis Ashore sites, MDA Spokesman Chris Johnson said in a written statement.

SM-3 missiles, first deployed on Navy ships, are exo-atmospheric interceptor missiles designed to destroy short and intermediate range incoming enemy ballistic missiles in above the earth's atmosphere. With the weapon, threats are destroyed in space during what's described as the mid-course phase of flight.

"The SM-3 Block IIA missile is a larger version of the SM-3 IB in terms of boosters and the kinetic warhead, which allows for increased operating time. The second and third stage boosters on the SM-IIA are 21" in diameter, allowing for longer flight times and engagements of threats higher in the exo-atmosphere," Missile Defense Agency spokesman Christopher Szkrybalo told Scout Warrior in a statement prior to this most recent test.

The objective of the test, off the coast of Hawaii, is to demonstrate an intercept of a medium-range ballistic missile target by an SM-3-IIA launched from a U.S. Aegis BMD configured ship at the Pacific Missile Range Facility, Szkrybalo added.

"Today's test demonstrates a critical milestone in the cooperative development of the SM-3 Block IIA missile," said MDA Director Vice Adm. Jim Syring, said in a written statement. "The missile, developed jointly by a Japanese and U.S. government and industry team, is vitally important to both our nations and will ultimately improve our ability to defend against increasing ballistic missile threats around the world."

The planned Poland 2018 deployment is a key part of what the Pentagon calls the Aegis Ashore program, an effort to leverage the ship-based Aegis Radar for land-fired missile defense technology. As of last year, Aegis Ashore locations are already operational in Romania as part of the Obama administration's European Phased Adaptive Approach program.

The concept with the program is to engineer a land-based missile defense envelope, by using already successful and operational Aegis Radar and SM-3 technology, to better protect the European continent from potential ballistic missile threats.

While not specifically identified for particular countries such as Iran, Russia or other potentially hostile Middle Eastern Countries, the sites are designed to protect Europe and NATO allies from the broadest possible range of missile threats to Europe. Land-based defensive intercept missiles in Romania and Poland, such as the SM-3 variants, could knock-out and destroy approaching missile threats aimed at European targets.

The SM-3 is a kinetic energy warhead able to travel more than 600 miles per hour; it carries no explosive but instead relies on the sheer force of impact and collision to destroy an enemy target.

The new SM-3IIA missile builds upon a smaller existing operational variant of the missile called the SM-3IB, Raytheon officials said.

"This is an extended capability of what we have for the SM-3 1B. Because of the larger missile this is a 21-inch air frame. we have a larger area of defended area coverage. we've also brought in some capability advancements into our kinetic warhead so now we have a





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higher sensitivity - so that is just better seeker,” Amy Cohen, Raytheon SM-3 Director, told Scout Warrior in an interview prior to this most recent test.

The SM-3 IIA weapon uses an improved seeker can better see approaching targets from longer distances compared to the SM-3 1B, she added.

Some of these improvements engineered into the missile are described as “sensitivity increases” which use a larger focal plane array for detection and more computer processing power.

The SM-3 Block IIA previously completed two very successful fly-out tests—with no target missile launched, Missile Defense Agency officials said.

In December of 2015, Raytheon received a \$543 million SM-3IIA production contract to build the missiles. Some of these missiles will be sent to Poland for the Aegis Ashore site planned for 2018, officials said.

Production of the missile involves a collaborative effort between the Raytheon in the U.S. and Japan. Both Japan and Raytheon produce 50-percent of the missile which is then integrated by Raytheon.

Meanwhile, Raytheon and the MDA are also upgrading the existing SM-3IB missile with improved software such that it can better detect and destroy new threats, Kenyon Hiser, Raytheon’s SM-3 Block IIA program manager, said in an interview with Scout Warrior last year.

Some of the technologies designed for the SM-3IIA are being retrofitted onto the SM-3IB, he added.

<http://nationalinterest.org/blog/the-buzz/the-pentagons-missile-defense-agency-test-fired-its-new-19329>

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The National Interest – Washington, DC

### **Russia's New RS-28 Sarmat ICBM: A US Missile Defense Killer?**

By Malcom Davis

February 15, 2017

Russian media recently claimed that the Federation’s new intercontinental ballistic missile will be able to penetrate even America’s most effective defense systems—but are they right? Russia claims the new RS-28 Sarmat heavy ICBM, being introduced as part of its nuclear modernization, can wipe out an area ‘the size of Texas or France’. They may be referring to the missile being able to deliver nuclear weapons via the South Pole rather than the traditional ‘over the north pole’ route. It may also be typical Russian grandstanding in an effort to intimidate. Whilst the RS-28 will certainly get US planners thinking about nuclear modernization, it seems unlikely that such hyperbole will have US leaders rushing for the nuclear bunkers.



For starters, the US missile early warning systems means it is not blind to its southern approaches, as it has radars on the east and west coasts that provide coverage out to 5,500 km along the southern approaches to North America. In addition, the US maintains effective space-based missile early warning systems which detect launches. There's no way the Russians would be able to attack with sufficient surprise to catch US nuclear forces on the ground or to decapitate the US political leadership. In any case, the US always keeps sufficient numbers of ballistic missile submarines at sea to ensure devastating retaliation.

The Russians claim their aim is to circumvent US missile defenses. Yet going the long-way round over the South Pole seems unnecessary given US national missile defense efforts are designed to respond to limited attacks from nuclear armed rogues like North Korea, and potentially in the future, Iran. The US national missile defense capability has just thirty US ground-based interceptors (GBI) deployed in Alaska and California and their effectiveness is very questionable. They could not prevent a large scale Russian nuclear attack. So building large, heavy ICBMs to get around almost non-existent missile defense systems—whichever way the warheads fly—seems a curious thing to do and it suggests the Russians themselves lack a clear rationale for deploying such a weapon. As my colleague, Rod Lyon, has noted, such a missile generates destabilizing dynamics that forces the Russians to fire first in a crisis.

The real significance of the RS-28 Sarmat is the effect it will generate on debates over US nuclear force modernization. It's likely to begin deployment next year when debate over replacing the aging US Minuteman III force will be gathering pace with the Trump Administration. In characteristic fashion President Trump has tweeted that the US must 'greatly strengthen and expand its nuclear capability', amid intense debate within US nuclear circles on issues such as the wisdom of maintaining a 'launch on warning' posture, and the continuing relevance of land-based ICBMs. It's not clear exactly what Trump's nuclear tweet may mean in the real world of US force structure planning, not to mention budgetary considerations, however Russian nuclear force modernization is directly relevant to US nuclear policy choices.

If the US decides to stick with the 'triad', that comprises land-based ICBMs, manned bombers and ballistic missile submarines (SSBNs) carrying ballistic missiles, the RS-28 deployment could force the US to take another look at mobile land-based missiles, last considered during the MX basing studies in the Reagan era, rather than continuing with the current vulnerable silo-based weapons. After all, it is the vulnerability of the silo-based ICBMs that mandates a rapid response 'launch on warning' posture to ensure a credible US deterrent. That increases the risk of inadvertent nuclear war, particularly if Russia's persistence with heavy MIRVed ICBMs accentuates escalatory pressures in a crisis.

Minimizing the risk of nuclear decapitation of one or two legs of the triad (the SSBNs are largely invulnerable), or against political leadership and nuclear command and control, must be a key consideration in this debate. Given this, it may be simpler to take this opportunity to break with the traditional structure of a triad, and go instead towards a 'dyad' of relatively invulnerable SSBNs and bombers, with the introduction of around 100 B-21 Raider bombers from the late 2020s. Getting rid of the land-based ICBMs reduces pressure for the US to maintain the risky 'launch-on-warning' posture because most of the US warheads will be safely tucked away on submarines at sea that are virtually impossible to find or track. Furthermore, the manned bombers could be dispersed reducing their vulnerability too. There are also measures the US could take to protect its political leadership, further reducing the RS-28's ability to deliver an effective first strike against the US.



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The end result may be that the big Russian ICBM will have few targets left to hit. So the RS-28 Sarmat may ironically force badly needed US nuclear posture change that strengthens US deterrence, and leaves the Russian nuclear forces less credible.

<http://nationalinterest.org/blog/the-buzz/russias-new-rs-28-sarmat-icbm-us-missile-defense-killer-19464>

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The Guardian – London, UK

### **Russia Deploys Missile in Violation of Arms Control Treaty, US Official Says**

Author Not Attributed

February 14, 2017

*Alleged violation of cold war-era arms control agreement complicates outlook for US-Russia relations amid turmoil on Donald Trump's national security team*

A Trump administration official says US intelligence agencies have concluded that Russia has deployed a cruise missile in violation of a cold war-era arms control treaty.

The alleged violation complicates the outlook for US-Russia relations amid turmoil on Donald Trump's national security team.

The Obama administration three years ago accused the Russians of violating the 1987 Intermediate-Range Nuclear Forces Treaty by developing and testing the cruise missile. Officials had anticipated that Moscow eventually would deploy it.

Russia denies it violated the INF Treaty. An administration official who was not authorized to discuss the matter publicly said intelligence agencies assessed that the missile became operational late last year.

The missile deployment was first reported by the New York Times.

The incident comes as it emerged that multiple Russian military aircraft came close to a US Navy destroyer in the Black Sea on 10 February, incidents considered "unsafe and unprofessional," a US official said on Tuesday.

The Russian Defense Ministry said no such incidents had occurred. But Captain Danny Hernandez, a spokesman for US European Command, cited three separate incidents involving Russian aircraft and the USS Porter.

"Such incidents are concerning because they can result in accident or miscalculation," he said.

<https://www.theguardian.com/world/2017/feb/14/russia-deploys-missile-arms-control-violation-trump-administration>

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The Diplomat – Tokyo, Japan

## Who Will Command China's New SSBN Fleet?

By David Logan

February 14, 2017

*How will China use its fledgling ballistic missile submarine fleet?*

China's ongoing nuclear modernization program is significantly altering the size and character of its nuclear arsenal. For decades following its first successful nuclear test in October 1964, China deployed only a few dozen nuclear weapons, most of which were affixed atop unsophisticated and vulnerable land-based missiles. Over the last decade, the country's nuclear modernization program has seen a significant expansion in the size of its deployed arsenal. Credible public estimates put China's deployed warheads at between 160 and 260.

The modernization program's qualitative changes have been more significant than its quantitative changes. China's arsenal has gradually shifted from unsophisticated liquid-fueled, silo-based missiles to road-mobile, solid-fueled ones. In 2015, the Pentagon assessed that, for the first time, China equipped some missiles with multiple independently-targetable reentry vehicles (MIRVs).

One of the most significant of these qualitative changes to China's nuclear arsenal is the development and deployment of the country's first credible ballistic missile submarine (SSBN) force, the Jin-class submarines. China's nascent sea-based deterrent will present new challenges to longstanding nuclear practices. Among these will be how to structure command and control for the new SSBN fleet to maintain an appropriate balance between positive control (the ability to always launch when desired) and negative control (to never launch when not desired). In a new report for the National Defense University, I analyze potential choices for Chinese command and control of its SSBN force and the implications for strategic stability with the United States.

### Current Command and Control

In the nuclear domain, China has traditionally prioritized strict political control over operational flexibility and historically maintained a comparatively restrained nuclear posture. Beijing reportedly keeps warheads unmated from delivery systems and stored in separate locations. The Central Military Commission, the highest military decision-making body in the country, is the only organization that can order a nuclear strike. The country has yet to develop a mature and dedicated early-warning system. Its SSBN force, however, could change these practices.

Public details on command and control of China's SSBNs are scarce but some American experts and Chinese observers have already predicted that China's SSBNs will come under the control of the recently formed PLA Rocket Force, the predecessor to the former Second Artillery. However, both official Chinese writings and the current command and control arrangements of the Rocket Force suggest this is unlikely.

First, as pointed out by one Chinese expert, references to the country's nuclear forces in official Chinese documents suggest command and control of the sea-based deterrent has traditionally been assigned to the PLA Navy. China's 2013 Defense White Paper attributed only the land-based Dongfeng ballistic missiles and Changjian cruise missiles to the then-Second Artillery. Reference to the country's Julang submarine-launched ballistic missiles

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(SLBMs) were conspicuously missing from the section. In addition, the 2013 edition of *The Science of Military Strategy*, a PLA textbook vetted by military leadership and believed to represent the strategic thinking of the Chinese military, explicitly directed the Navy to prepare the country's SSBN fleet.

Second, the Rocket Force appears to lack the organization and capabilities for commanding a fleet of nuclear submarines. While the recent spate of military reforms sought to increase "jointness" between the PLA Army, Navy, and Air Force, the command structures of the Rocket Force remain apart from both the other services and the newly formed Theater Commands. There is no evidence of Rocket Force curriculum or command tracks for sea-based platforms and there is no evidence of the service operating the requisite physical assets, such as very low frequency (VLF) radio stations for communicating with submerged vessels.

By contrast, there is an institutional logic to PLA Navy control of China's SSBNs. Though the previous generation Xia-class vessel never conducted a deterrent patrol, it did put out to sea, presumably with a PLA Navy crew. The Navy's submarine academy in Qingdao appears to have one-year majors associated with nuclear missile submarines and faculty at the academy regularly publish on SSBN-related issues. In short, Rocket Force control of SSBNs does not appear likely either in the past or in the near future.

### **Notional Command and Control Structures**

Nevertheless, China's leadership might see the introduction of the country's first credible sea-based nuclear deterrent as an opportunity to fundamentally restructure nuclear command and control arrangements. In general, China might pursue one of three notional command and control structures, each of which would allocate differing degrees of command authority to the Navy or to the Rocket Force. Each model also implies the need to establish new bureaucratic or technical capabilities within the services.

In the first structure, Chinese leadership might give the Navy full command and control of SSBNs. PLA Navy leadership might argue that their experience operating submarines — including the Xia — qualifies it to control the country's SSBNs. In this model, the Navy would staff and operate both the vessels and their missiles. This model would require the creation of new bureaucratic and technical capabilities within the Navy. For example, Navy control would require the creation of a personnel reliability program for that service, something which the PLA was slow to develop for its land-based nuclear forces. The PLA would also need to develop a mechanism for coordinating targeting between Navy and Rocket Force.

In the second command structure, Chinese SSBNs would be assigned exclusively to the Rocket Force. While the Rocket Force has no experience operating submarines, it is better prepared for the nuclear mission, including handling and safeguarding warheads and vetting key personnel. In this model, the Navy would exercise administrative control of the vessels and its crew but operational authority would be granted to the Rocket Force. This model might require the construction of Rocket Force VLF facilities and the establishment of structures to facilitate coordination between Rocket Force SSBNs and the Navy's other vessels.

In a third, hybrid model, command and control would be shared by both the Navy and the Rocket Force. A hybrid model could take several forms, for example by entrusting control of



the vessels to the Navy and the missiles to the Rocket Force or by instituting a dual-command authority for nuclear launches which would require assent of both the SSBN's Navy commander and specially assigned Rocket Force personnel. Though such a hybrid model would be unusual, there is a precedent for some level of joint or bifurcated control in the nuclear enterprises of other countries. On Soviet subs, the launch of a nuclear missile required the consent of both the operational commander and the political commissar. At the highest level, U.S. Strategic Command, which controls the country's nuclear weapons, is a formally joint command.

China's choices about SSBN command and control will be mediated by several operational, bureaucratic, and political considerations. Operationally, China's SSBNs, no matter what service controls them, will likely require substantial assistance from other Navy assets given the vessels' high acoustic signatures and China's distinctively unfavorable maritime geography. Experts have debated whether China would opt for a bastion or open sea deployment strategy. Each practice would require Navy escorts, either to protect SSBNs deployed close to home or to ferry them past dangerous choke points to the safety of the open ocean.

Bureaucratic forces, including inter-service rivalry, will also shape command and control choices. In an era of slower economic growth and similar slowdowns in military spending, the SSBN fleet may appear to be a valuable new source of funding and prestige. At the same time, China's historically restrained approach to nuclear weapons might suggest the nuclear domain is not a significant "growth opportunity." It is unclear to what extent the two services have institutional preferences for the conventional or nuclear mission set. Within the Rocket Force, a disproportionate number of senior leaders have come up through missile bases dominated by conventional units, while Chinese Navy leadership is comprised largely of surface warfare officers.

Finally, China's political and strategic emphasis on negative control of its nuclear weapons will guide command decisions and could motivate a desire to decentralize command in ways which decrease the likelihood of an accidental or injudicious launch. Such a preference might argue for a hybrid-type of command structure.

### **Implications for Strategic Stability**

China's choices about how to structure command and control will have important implications for strategic nuclear stability with the United States.

Maintaining strategic stability often depends on a secure second-strike capability and on maintaining a proper balance between positive and negative control. To the extent that the hybrid model increases negative control of China's nuclear weapons, increases redundancy in command and control infrastructure, and reduces the possibility of entanglement with conventional assets, it would contribute positively to strategic nuclear stability.

Regardless of what kind of macro-level command structure China opts for, there are additional measures it can take to enhance strategic stability. First, China should ensure that all personnel who work on its SSBN program undergo a thorough reliability vetting program. Second, to decrease the chances of misidentification and misperception, China should attempt to erect an operational firewall between its SSBN force and other vessels, especially its conventional attack submarines.



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This could include establishing parallel communications systems and separate basing schemes. Third, China should adopt an appropriately cautious approach to its SSBN fleet. Until it can ensure the survivability of its SSBNs, it should avoid emphasizing their role in deterrent operations.

<http://thediplomat.com/2017/02/who-will-command-chinas-new-ssbn-fleet/>

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The Diplomat – Tokyo, Japan

### **South Korea Mulls Ballistic Missile Test**

By Franz-Stefan Grady

February 16, 2017

*In response to Pyongyang's recent intermediate-range launch, Seoul is considering test firing a ballistic missile.*

The South Korean military is mulling test firing a ballistic missile in response to North Korea's recent missile test, a military official told Yonhap News Agency.

"In response to North Korea's missile launch Sunday, we are reviewing measures to discard security concerns and show our determination to retaliate against any aggression by the North," he said.

According to the military official, the South Korean government is considering test launching missiles of the Hyunmoo (현무, which literally means "Guardian of the Northern Sky") missile family, including the Hyunmoo 2A and 2B ballistic missile.

The Hyunmoo 2A is a surface-to-surface missile with an estimated range of 300 kilometers. The more advanced Hyunmoo 2B has an estimated maximum range of 500 kilometers (310 miles) and is capable of carrying a payload of up to 997 kilograms (2,200 pounds). The Hyunmoo 2B was last test fired in June 2015. As I noted previously (See: "South Korea Tests New Ballistic Missile"):

*Ever since 2012, Seoul has been developing a new ballistic missile after the United States and South Korea concluded an agreement to extend the range of those weapons by up to 800 kilometers (about 500 miles) and carry warheads heavier than the pre-2012 limit of 500kg (1,102 pounds).*

*However, the agreement stipulates that the payload of missiles with a 500-mile range is limited to 1,100 pounds or below, in order to avoid a regional missile arms race with South Korea's neighbors – China and Japan (shorter range ballistic missiles can carry up to 4,400 pounds under the rules).*

The state-run Agency for Defense Development (ADD) is purportedly also working on a new longer range ballistic missile, which also could be test launched in due time. "There is also an opinion in the military that it will be more effective to unveil the test-firing scene of a new 800 km ballistic missile, which is in the final stage of development," the military official said.



South Korea could also test fire a submarine-launched ballistic missile, which has been under development by the ADD for some time and allegedly has been specifically designed for Republic of Korea Navy KSS-III (aka Jangbogo III)-class diesel-electric attack submarines (See: "South Korea to Develop Submarine Launched Ballistic Missile").

Ballistic and cruise missiles (e.g. the Hyunmoo 3B and 3C surface-to-surface cruise missiles, with an estimated range of 1,000 and 1,500 kilometers respectively) play a pivotal role in South Korea's deterrence strategy, known as the Korea Massive Punishment & Retaliation (KMPR) plan vis-à-vis the North. In the event of a North Korean nuclear attack (or even signs of preparations for one), KMPR specifically calls for surgical strikes against key leadership figures of the communist regime and military infrastructure with the missiles part of a so-called kill chain consisting of integrated information, surveillance, and strike systems, as well as the Korea Air and Missile Defense (KAMD) system.

"In March [2016], the United States and South Korea held a large-scale military exercise that involved the execution of the so-called OPLAN 5015, a classified war plan signed last year that includes surgical strikes against North Korea's nuclear, missile, and command and control facilities. This plan is part of KMPR," I noted elsewhere. Furthermore, I reported previously, the United States and South Korea last conducted a long-range strike exercises against simulated North Korean targets in October 2016 to improve the strike capabilities of the United States Navy and Republic of Korea Navy ship-to-ground missiles.

<http://thediplomat.com/2017/02/south-korea-mulls-ballistic-missile-test/>

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38 North – Washington, DC

### **The Pukguksong-2: A Higher Degree of Mobility, Survivability and Responsiveness**

By John Schilling

February 13, 2017

Sources in the United States, South Korea and Japan reported that North Korea launched a ballistic missile over the weekend. North Korea has been hinting at an intercontinental ballistic missile test since the beginning of the year, but this was no ICBM. Reports indicate that this missile reached a height of 550 kilometers before impacting in the East Sea, 500 kilometers east of the DPRK. The US Strategic Command describes this as a medium or intermediate-range ballistic missile. South Korea's Yonhap News Agency reported that Seoul's Joint Chiefs of Staff initially assessed the missile as a Nodong medium-range missile, then changed their mind and said it was a "modified intermediate-range Musudan ballistic missile possibly equipped with a solid fuel engine." Finally, North Korea's Rodong Sinmun provided pictures of what it is calling the "Pukguksong-2, solid-fuel missile." The pictures show something very similar to the KN-11 solid-fuel submarine-launched missile successfully tested last August, which North Korea calls the Pukguksong-1.

We considered other alternate interpretations of this test, such as a failed or partial ICBM test in which only the first stage was functional, but the trajectory is not a good match for the first stage of any of North Korea's known ICBM projects. With a much lower terminal velocity than an ICBM, it would not be terribly useful for testing ICBM-class reentry vehicles or other technologies. And while the launch site, a military airbase near Kusong, has





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previously been used for Musudan testing, the trajectory of this test was not a good match for the Musudan, either. The only plausible candidates for this trajectory are the proven Nodong medium-range ballistic missile, or the KN-11, and North Korea is showing us a land-based KN-11.

Aside from the assessment by the JCS, this missile has little in common with the Nodong or the Musudan. It lacks the performance of the Musudan, though if launched on a more efficient trajectory it could reach a range of at least 1200 km rather than the 500 km just demonstrated – enough to reach targets in South Korea or parts of Japan. What this missile brings to the table is a much higher degree of mobility, survivability and responsiveness than the Nodong. The Pukguksong-2 was tested from a cold-launch canister system carried on a tracked transporter-erector-launcher (TEL) vehicle, which would provide substantially greater cross-country mobility than the Nodong's wheeled TEL. The solid-fuel missile is more robust, and as it does not need tanker trucks to carry propellant its logistical footprint is smaller. And as it does not need to be fueled prior to launch, it can launch on perhaps five minutes' notice compared to the thirty to sixty minutes required for a Nodong. All of these factors would make it much harder to find and preemptively destroy the Pukguksong-2.

It takes more than a single test to ready a missile for operational service. And this test likely had a political dimension that may have affected the timing – it is almost certainly not a coincidence that North Korea launched a missile towards Japan, with the range to reach Japan but on a trajectory that deliberately dropped it into the ocean instead, on the day Japan's prime minister was meeting the new US president in Florida. North Korea's engineers presumably learned a great deal from this test, which appears to have been basically successful. We do not know how much more they need to learn to be confident that the new missile will function reliably in combat, and will look to the pace of future testing to gauge progress with this new system.

<http://38north.org/2017/02/jschilling021317/>

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China Military – Beijing, China

### **What's Behind China's Trial Launch of DF-5C Intercontinental Missile**

By Yao Jianing

February 14, 2017

Some international media reported recently that China trial-launched its new intercontinental missile DF-5C carrying 10 MIRVs (Multiple Independently Targetable Re-entry Vehicle) in early January.

What's the strategic significance of the successful trial launch of DF-5C? What technological innovations does it have?

#### **History of DF-5C**

The Dongfeng family has DF-5, DF-5A, DF-5B and DF-5C.

As the first-generation intercontinental ground-to-ground strategic missile developed by China, DF-5 accomplished its first successful full-range flight test on May 18, 1980.

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With a full length of 32.6m, missile diameter of 3.35m and takeoff weight of 183 tons, the missile adopted second stage liquid rocket motor and was launched from the silo.

It had the maximal firing range of 12,000km-15,000km (DF-5A), and could carry one 3000kg nuclear warhead of three or four million tons of TNT equivalent or four to five MIRVs (DF-5A), with a hitting accuracy of 500m.

At first DF-5 series were deployed in a similar way. The missile was stored at a plane position in a tunnel under the mountain and could be vertically launched at the outside of the tunnel gate. Data show that it used to take two hours to fuel the missile.

The productive DF-5 and modified DF-5A later were deployed in the silo and kept in a ready-launch state.

At the military parade celebrating the 70th anniversary of the victory of Chinese People's War of Resistance against Japanese Aggression on September 3, 2015, the modified DF-5B ballistic missile was debuted.

As to DF-5C, it adopts fixed silo and is the latest modified version of DF-5 series. A conservative guess is that DF-5C's firing range is bound to exceed 10,000km, making it a real trump card for China.

### **How powerful is DF-5C?**

DF-5C was exposed less than two years after DF-5B's debut. What technological innovations does it have?

"Being able to carry ten MIRVs, DF-5C can strike independent targets in a region of hundreds of kilometers and adjust the timing and sequence of the strike, thus largely improving the penetration capability and strike effectiveness," Wang Yunfei, an expert on military strategy, told the reporter. DF-5C makes the deterrence of China's strategic nuclear force more flexible and effective, he added.

Some media found through China's tests of DF-5 missiles that DF-5A and DF-5B were able to carry three to five MIRVs, which increased to ten for DF-5C, indicating the multiplied combat capability.

Others held that the increase of MIRVs indicated that the deceptive technology of DF-5C's bait warhead has reached a high level.

Some military experts analyzed that DF-5C can carry ten MIRVs means that China has broken through its technical bottleneck in downsizing nuclear warhead.

### **Why is DF-5C unveiled now?**

"China announces the progress on its weapon and equipment development at specific points, which has something to do with its policy on open and transparent military development," Wang Yunfei said.

Unveiling the DF-5C now is part of China's plan to enhance the deterrent capability of its nuclear force, he added.

First, by demonstrating its latest nuclear "weapon", China shows the international community its resolve and capability of strategic gaming.

Actually at the military parade on September 3, 2015, China already showed the world that it not only had weapons against aircraft carriers, but also new weapons like DF-5B, but



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that's obviously not enough, so it recently revealed the DF-41 intercontinental missile that's already been deployed, and trial-launched the modified DF-5C at almost the same time.

Second, China is responding to a series of moves taken by certain countries that break the regional strategic balance, including deploying the THAAD system around China, trial-launching and preparing to deploy the SM-3 Block IIA missile. Trial-launching a major weapon like DF-5C now is to show the world that China won't make any strategic concession.

Third, China is displaying its strength to countries like the ROK and Japan. Compared with Japan's stance on the Diaoyu Islands and its history of aggression, the ROK's decision to deploy THAAD is a more pressing issue for China.

The Chinese government has expressed its concern and opposition to THAAD repeatedly. Exposing the deployment of DF-41 on a high profile and trial-launching DF-5C now is a targeted response to ROK.

Fourth, China is verifying the MIRV technology for mobile land-based nuclear missile and next-generation submarine-launched nuclear missile. China has made substantial progress in this key technology.

Generally speaking, China's new nuclear weapon in the future will be at least "downsized", "mobile" and "hypersonic".

Wang Yunfei stressed that despite the continual growth of China's nuclear force, it's still of a small scale and is kept in the minimal scope among the five nuclear countries recognized in the international stage.

Therefore, both the frequent exposure of DF-41 and the successful trial launch of DF-5C are aimed to make sure that China's peaceful rise isn't threatened by nuclear weapons from any other country.

[http://english.chinamil.com.cn/view/2017-02/14/content\\_7487613.htm](http://english.chinamil.com.cn/view/2017-02/14/content_7487613.htm)

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Russia Beyond the Headlines – Moscow, Russia

### **What's the Real Story Why the US Accuses Russia of INF Treaty Violations?**

By Oleg Yegorov

February 16, 2017

*Citing 'anonymous sources,' the New York Times baselessly claimed that Russia secretly deployed new cruise missile systems, which if true, would be an arms reduction treaty violation. Moscow denied the accusations, and Russian experts believe that U.S. domestic political intrigue might be the real reason behind the reckless newspaper article.*

"Russia has secretly deployed a new cruise missile," begins a New York Times article about Moscow's alleged violation of the Intermediate-Range Nuclear Forces Treaty (INF) signed in 1987. Citing unnamed White House representatives, the NYT writes that Russia developed and deployed a new land-based cruise missile with a nuclear warhead.



Arizona Senator John McCain commented, saying that the cruise missile allegedly in Russia's possession threatens NATO allies and U.S. forces in Europe. "It is time for the new administration to take immediate action to enhance our deterrent posture in Europe and protect our allies," urged McCain. In Russia, officials and experts said McCain's fears are unfounded.

### **Unproven information**

According to Kremlin press secretary Dmitri Peskov, Russia is faithful to its international agreements, including the INF.

The Russian Foreign Ministry also denied America's accusations, and its director of the Department of Armament Non-Proliferation and Control, Mikhail Ulyanov, remarked that the claims are groundless and uncorroborated.

Timofei Bordachev, director of the Center for Comprehensive European and International Studies at the Higher School of Economics, also said that it's difficult to prove America's accusations. "The article does not present any evidence, does not name the officials who speak about the violations," said Bordachev. "It is completely unproven information."

### **Intrigue in Washington**

Experts believe the newspaper publication might be linked to America's internal political wrangling. A substantial part of the U.S. establishment is afraid that President Trump is trying to improve relations with Russia, and wants to prevent this.

Bordachev suspects that the NYT article is a "fake" organized by supporters of a hard position in relations with Russia, adding that, "Such fakes are 'heavy artillery' used not to establish a certain reality but to create a political atmosphere that will make Russian-American reconciliation impossible."

Fyodor Lukyanov, a political analyst and editor-in-chief of the magazine, *Russia in Global Affairs*, agreed with Bordachev. "We are witnessing a clash between Trump and a large part of the ruling class, which is trying to at least paralyze him, if not remove him from power entirely," said Lukyanov.

He added that Russia has become a sort of "battering ram" used against Trump since the election campaign when Hillary Clinton accused him of being the Kremlin's marionette. "Therefore, everything that indicates proof of Russia's hostile plans and treachery benefits the anti-Trump camp," said Lukyanov.

### **New arms race?**

Lukyanov also speaks of a new trend in international relations. Countries have begun discussing issues related to nuclear arsenals and strategic security much more than in previous years.

"The U.S. is faced with the question of the modernization of its nuclear potential," said Lukyanov. "Just recently it was thought that nuclear weapons were basically a problem of the past, but now it turns out that's not so."

Issues dealing with nuclear weapons worry not only the U.S. but also Europe, which is why the accusations of Russia having violated the INF Treaty are heating up the atmosphere on the eve of the Munich Security Conference, to be held on Feb. 17-19.



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"The conference is a sort of barometer that measures the mood of the Euro-Atlantic community and it will not hurt to heat up the fears of European allies that are advocates of a hard position in relations with Russia," concluded Lukyanov.

<http://rbth.com/defence/2017/02/16/whats-the-real-story-why-the-us-accuses-russia-of-inf-treaty-violations-703386>

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Daily Mail – London, UK

### **Russia Secretly Deploys New Cruise Missile Despite US Complaints it Violates 30-Year-Old Arms Control Treaty**

By Francesca Chambers, Hannah Parry and Regina Graham

February 14, 2017

- *Russia has secretly deployed the ground-launched SSC-8 cruise missile*
- *Moscow has reportedly been developing and testing it for several years, bringing number of those missiles to two in Russia*
- *Action violates sections of the 1987 Intermediate-range Nuclear Forces treaty, which bans ground-based intermediate-range missiles*
- *The INF treaty helped end the Cold War between Russia and the United States*
- *Latest development comes as a Russian intelligence-gathering ship was spotted roaming the international waters 70 miles off the coast of Delaware on Tuesday*
- *President Trump demanded that National Security Adviser Michael Flynn resign because of an 'eroding level of trust' after his conversations with Russia*

Russia has deployed a new cruise missile apparently violating an arms control treaty banning ground-based U.S. and Russian intermediate-range missiles.

Russia has secretly deployed the ground-launched SSC-8 cruise missile that Moscow has been developing and testing for several years, despite U.S. complaints that it violated sections of the 1987 Intermediate-range Nuclear Forces treaty, The New York Times reported.

The Russian Defense Ministry did not immediately respond to requests for comment on the New York Times story.

Russia's actions prove to be a challenge for President Donald Trump, as he had pledged to improve the relations between the U.S. and Russia by working with President Vladimir Putin during his campaign.

Russia has secretly deployed the ground-launched SSC-8 cruise missile, as Moscow has reportedly been developing and testing it for several years

That brings number of those missiles to two in Russia as some officials say it violates 1987 Intermediate-range Nuclear Forces treaty

Latest development comes as a Russian intelligence-gathering ship was spotted roaming the international waters 70 miles off the coast of Delaware on Tuesday

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Also as President Trump demanded that National Security Adviser Michael Flynn resign because of an 'eroding level of trust' after his conversations with Russia

Flynn stepped down late on Monday night, less than a month into Trump's administration as questions mounted over his close links with the Kremlin

The State Department concluded in a July 2014 arms control report that 'the Russian Federation is in violation of its obligations under the INF Treaty not to possess, produce, or flight-test a ground-launched cruise missile (GLCM) with a range capability of 310 miles to 3,420 miles, or to possess or produce launchers of such missiles.

Russia accused Washington of conducting 'megaphone diplomacy' after the accusation was repeated by the State Department in 2015.

Moscow also denied it had violated the INF treaty, which helped end the Cold War between the two countries.

The New York Times said President Barack Obama's administration had attempted to persuade Moscow to correct the violation while the missile was still in the testing phase.

Instead, Russia has moved ahead with the SSC-8 missile, deploying it as an operational system, the report said.

Russia now has two battalions of the cruise missile, the newspaper quoted administration officials as saying.

One is located at Russia's missile test site at Kapustin Yar in the country's southeast.

The other cruise missile battalion has been located at an operational base elsewhere in Russia, the Times quoted one unidentified official as saying.

This latest development comes as the SSV-175 Viktor Leonov, a Russian intelligence-gathering ship, was spotted roaming the international waters 70 miles off the coast of Delaware, as it was heading north, officials told Fox News.

A Russian intelligence-gathering ship has been spotted roaming the waters off the East Coast on Tuesday 70 miles away from Delaware (pictured in 2015 off the coast of Cuba)

Armed with surface-to-air missiles, the ship is capable of intercepting communications and can measure U.S. Navy sonar capability, an official said.

'It's not a huge concern, but we are keeping our eyes on it,' they added.

The Viktor Leonov, which measures 300 feet long and 47.5 feet wide, has a crew of 200 sailors carries high-tech electronic surveillance equipment and weaponry, AK-630 rapid-fire cannons and surface-to-air missiles.

The Vishnya or Meridian-class intelligence ship patrolled near the U.S. nuclear missile submarine base in Kings Bay, Georgia, in 2014 in what the Department of Defense suspect may have been part of an intelligence-gathering operation.

In a throwback to the Cold War, the spy ship also caused a stir after unexpectedly docking in Havana on the eve of historic talks between the U.S. and Cuba the following year.

There was nothing stealthy about the arrival of the Leonov, which was moored to a pier in Old Havana where cruise ships often dock.

But the visit was not officially announced by Cuban authorities.



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The timing also raised eyebrows as it came on the eve of historic U.S-Cuba talks aimed at normalizing diplomatic relations.

U.S. officials in Washington played down the presence of the Russian vessel, saying it was perfectly legal and not at all out of the ordinary.

'It's not unprecedented. It's not unusual. It's not alarming,' a defense official told AFP news agency.

<http://www.dailymail.co.uk/news/article-4224750/Russia-secretly-deploys-new-cruise-missile.html>

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The New York Times – New York, NY

### **Joint Chiefs Chairman to Meet With Russian Counterpart in Azerbaijan**

By Michael Gordon

February 15, 2017

The nation's top military officer will try to reopen a military dialogue with his Russian counterpart on Thursday amid tensions over Russia's harassment of American warships, stepped-up fighting in eastern Ukraine and accusations that Moscow has violated a landmark arms control accord.

The meeting between Gen. Joseph F. Dunford Jr., the chairman of the Joint Chiefs of Staff, and Gen. Valery V. Gerasimov, chief of the Russian general staff, will take place in Baku, the capital of Azerbaijan.

It will be the first face-to-face meeting between military chiefs from Washington and Moscow since 2014. A Pentagon statement said that discussions would center on "the current state of U.S.-Russian military relations and the importance of consistent and clear military-to-military communication to prevent miscalculation and potential crisis."

The state of military relations between the two sides certainly has not been good. Last week, Russian warplanes flew at an usually low altitude over an American guided missile destroyer in the Black Sea, according to a spokesman for the United States European Command. It was a pattern of harassment that Western officials say has been increasingly common as NATO works to strengthen its defenses against a resurgent Russian military.

Relations also have been strained by the Russian deployment of a ground-launched cruise missile in what American officials say is a violation of the 1987 treaty banning intermediate-range American and Russian missiles based on land. The Russians have denied the complaint.

The meeting between the military chiefs took many months to arrange, and its utility is a matter of debate among military experts. Some former civilian Defense Department officials have argued there is little that a meeting between the two generals can accomplish while the Trump administration's policy toward Moscow remains unclear.

"I think the American people need to understand what this administration's strategy is vis-à-vis Russia before we go intensifying the relationship," said Elissa Slotkin, who was an

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acting assistant secretary of defense in the Obama administration. “Engagement just for engagement’s sake, without clear goals, simply plays into Russian hands.”

But other experts say it is important to strengthen communication between the American and Russian militaries, given the proximity with which they operate in Syria, the Black Sea and the Baltic region, among other potential flash points.

Celeste Wallander, the top Russian expert on the staff of the National Security Council during the Obama administration, said that the White House in 2016 had directed the opening of a high-level military channel “to avoid incidents, if possible, and prevent escalation.”

“I am fully supportive that it is finally happening,” she added.

The meeting follows years in which the Obama administration initially sought to isolate President Vladimir V. Putin of Russia because of Moscow’s annexation of Crimea — only to try later to cooperate with the Kremlin to bring an end to the fighting in Syria. That diplomacy collapsed when Russia backed the assault by the government of Bashar al-Assad on Aleppo and arranged a meeting in Moscow that included Iran and Turkey but not the United States.

General Dunford has spoken with General Gerasimov by phone, but this will be his first meeting.

Arranging that meeting has not been easy. The Russians suggested that General Dunford come to Moscow or to Belarus for the meeting, American officials said. The Pentagon preferred a location in Western Europe. That, however, was complicated by the fact that the European Union imposed a travel ban on General Gerasimov for his role in orchestrating the Russian military intervention in Ukraine.

Eventually Baku was selected as a neutral location.

General Gerasimov is a controversial figure. In 2013, he published an article that detailed the conceptual basis for Russia’s cyberattacks and other forms of what has become known as “hybrid” warfare.

Called the Gerasimov Doctrine, it held that the boundary between war and peace was increasingly hard to discern and that the use of proxies and covert tactics would increase in “nonlinear war.”

Military officials would not provide details of what General Dunford planned to discuss. The meeting will take place against the backdrop of Mr. Trump’s repeated suggestions that Moscow might be a useful ally in the campaign against the Islamic State, even as other tensions remain, or are increasing, in the bilateral relationship.

During his confirmation hearings to become chairman of the Joint Chiefs of Staff in July 2015, General Dunford described Russia in far more worrisome terms than has Mr. Trump. “My assessment today is that Russia poses the greatest threat to our national security,” he said. “If you look at their behavior, it’s nothing short of alarming.”

But he also appears to be calculating that his meeting can prove useful in reducing the risks of confrontation and perhaps in laying the groundwork to eventually overcome some policy differences.





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The results may also determine how influential a voice General Dunford becomes as the White House tries to sort out its Russia strategy.

<https://www.nytimes.com/2017/02/15/world/europe/russia-azerbaijan-general-dunford.html>

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Financial Times – London, UK

### **Germany Has Taken Itself Out of the Nuclear Running**

By Josef Joffe

February 13, 2017

*By 2023, the country will have none of the wherewithal for a weapons option*

Donald Trump's election has prompted some deep soul-searching in Germany. One of the most intriguing areas is on nuclear weapons policy. In an oracular pronouncement seized on by the media, Roderich Kiesewetter, a member of the ruling Christian Democrats, said that if Mr Trump's America "no longer wants to offer a nuclear security guarantee, Europe still needs a nuclear umbrella". One of the publishers of the Frankfurter Allgemeine Zeitung then gave the screw another twist. Given Russian rearmament and a smallish Anglo-French panoply, let's think the "unthinkable" — our "own nuclear deterrent".

In fact, the Germans have thought about it since the early days of the Federal Republic, not to speak of the Third Reich's scientists who had to stop when Hitler denounced the project as "Jewish physics".

After the war, the losers went about it in an oblique, precautionary way by building a civilian nuclear industry that became the envy of the world. The purpose was not to sneak into the club of the nuclear powers. That was strictly verboten while Hitler's heirs were on probation in the west and at the top of the east's enemy list. The point was to hedge. What was good for civilian nuclear energy was also good for the military side.

The public record will not reveal the quest for a nuclear option, especially since the Bonn Republic had forsworn nuclear weapons as the price of Nato membership. But listen to former defence minister Franz Josef Strauss railing against the Nuclear Non-Proliferation Treaty of 1968 that enshrined nuclear abstinence on the part of the have-nots. It was a "Morgenthau Plan squared", seethed Strauss, and a "Versailles of cosmic proportions".

Even the peace-minded Willy Brandt government of the early 1970s balked, giving in only when realising that the refusal to sign would kill Ostpolitik, the attempt to improve relations with Moscow and its satrapies. Still, Germany kept freedom for civilian nuclear research and development, later perfecting the entire fuel cycle, including a "fast breeder" designed to generate more fissionable material than it consumes: plutonium for fuel that could double as weapons-grade stuff.

It was not foreign pressure, but domestic revolt that dispatched the nuclear option. For reasons that will continue to fascinate cultural historians, Germany turned into the most anti-nuclear nation on earth — more obsessive in its revulsion than Japan. At Germany's nuclear sites, the pitched battles between protesters and police began to smack of civil war,

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so the government capitulated. In the 1980s and 1990s, it abandoned the accoutrements of potential bomb-making: fuel fabrication, reprocessing, “fast breeding”. Only a central link in the chain — power reactors — remained.

In the aftermath of Japan’s Fukushima disaster in 2011, the Merkel government cut that one, too. Since then, Germany’s nuclear power plants have been decommissioned one by one. The last is due to go offline at the end of 2022.

So, the unthinkable has become the undoable. By 2023, Germany will have none of the wherewithal for a weapons option, except a limited low-enrichment capability doomed to go when the last power reactor goes. You cannot build a bomb without a complete fuel cycle: from the gaseous diffusion of uranium ore to its transformation into bomb metal, from spent-fuel to fissionable plutonium, which is the other road to the bomb.

These are just the basics. A nation has to master “weaponisation” through design and testing. It has to acquire hardened silos or missile-bearing submarines that survive a first strike. It needs space-based surveillance and real-time command-and-control. Iran has been working on this since the days of the shah in the 1970s.

Just to rebuild the fuel cycle would take a small eternity, given a vast corpus of anti-nuclear legislation, popular revulsion and endless court battles. It will take longer still to change Germany’s singular anti-nuclear culture.

Yes, but. Aren’t Germany’s would-be nuclear warriors actually dreaming about a European deterrent? “Le nucléaire ne se partage pas”, runs a curt French line — the decision over a nation’s life and death cannot be shared. Neither Mr Trump nor Vladimir Putin of Russia can revoke this iron law. And what would Berlin get for investing its fabulous riches in somebody else’s deterrent? Maybe some say-so over targeting, but not a finger on the trigger. Hardly an option worth thinking about.

<https://www.ft.com/content/4a60efd8-f1fd-11e6-95ee-f14e55513608>

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Israel National News – Beit El, Israel

## **Syria Denies Using Chemical Weapons**

By Ben Ariel

February 16, 2017

*Syria's government says Human Rights Watch's claims it used chemical weapons in Aleppo are "fabricated".*

Syria's government on Wednesday denied claims by Human Rights Watch (HRW) that it used chemical weapons during the recent battle for Aleppo, AFP reported.

In a major report released Monday, HRW said Syrian government forces had carried out at least eight chemical attacks in late 2016 as they were fighting to capture second city Aleppo.

On Wednesday, a Syrian foreign ministry source said the report was "unprofessional and unscientific" and claimed it was based on fabricated testimony.

"The government of the Syrian Arab Republic altogether denies the false allegations made in Human Rights Watch's report," the source said, according to AFP.



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"Human Rights Watch's reliance on terrorist media sources and on fake eyewitnesses... proves this report's lack of credibility," the source added.

HRW said it interviewed witnesses, collected photos and reviewed video footage indicating that chlorine bombs were dropped from government helicopters during the offensive from November 17 to December 13.

It concluded that nine people, including four children, were killed and another 200 were injured by the toxic gases used on opposition-controlled areas of the northern city.

Both the regime of Syrian President Bashar Al-Assad and the Islamic State (ISIS) group have previously been accused of unleashing chemical weapons during the conflict.

Syria continuously denies using chemical weapons during the civil war, claiming that the allegations are "a campaign of lies" made by "Western circles".

Chlorine use as a weapon is banned under the Chemical Weapons Convention, which Syria joined in 2013 under pressure from Russia.

As part of a deal brokered by the United States and Russia, Syria agreed to hand over its chemical stockpile to the Organization for Prohibition of Chemical Weapons (OPCW) for destruction. Since then, however, the OPCW has determined that chlorine has been "systematically and repeatedly" used as a weapon.

A joint investigation by the United Nations and the Organization for the Prohibition of Chemical Weapons (OPCW) found that several units of the Syrian army had used toxic weapons against three villages in northern Syria in 2014 and 2015.

In January, the United States announced new sanctions against 18 senior Syrian military officers and officials over the use of chemical weapons.

<http://www.israelnationalnews.com/News/News.aspx/225089>

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Foreign Policy – London, UK

### **The United States Used Depleted Uranium in Syria**

By Samuel Oakford

February 14, 2017

*The airstrikes on oil trucks in Islamic State-controlled areas employed the toxic material, which has been accused of causing cancer and birth defects.*

Officials have confirmed that the U.S. military, despite vowing not to use depleted uranium weapons on the battlefield in Iraq and Syria, fired thousands of rounds of the munitions during two high-profile raids on oil trucks in Islamic State-controlled Syria in late 2015. The air assaults mark the first confirmed use of this armament since the 2003 Iraq invasion, when it was used hundreds of thousands of times, setting off outrage among local communities, which alleged that its toxic material caused cancer and birth defects.



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U.S. Central Command (CENTCOM) spokesman Maj. Josh Jacques told Airwars and Foreign Policy that 5,265 armor-piercing 30 mm rounds containing depleted uranium (DU) were shot from Air Force A-10 fixed-wing aircraft on Nov. 16 and Nov. 22, 2015, destroying about 350 vehicles\* in the country's eastern desert.

Earlier in the campaign, both coalition and U.S. officials said the ammunition had not and would not be used in anti-Islamic State operations. In March 2015, coalition spokesman John Moore said, "U.S. and coalition aircraft have not been and will not be using depleted uranium munitions in Iraq or Syria during Operation Inherent Resolve." Later that month, a Pentagon representative told War is Boring that A-10s deployed in the region would not have access to armor-piercing ammunition containing DU because the Islamic State didn't possess the tanks it is designed to penetrate.

It remains unclear if the November 2015 strikes occurred near populated areas. In 2003, hundreds of thousands of rounds were shot in densely settled areas during the American invasion, leading to deep resentment and fear among Iraqi civilians and anger at the highest levels of government in Baghdad. In 2014, in a U.N. report on DU, the Iraqi government expressed "its deep concern over the harmful effects" of the material. DU weapons, it said, "constitute a danger to human beings and the environment" DU weapons, it said, "constitute a danger to human beings and the environment" and urged the United Nations to conduct in-depth studies on their effects. Such studies of DU have not yet been completed, and scientists and doctors say as a result there is still very limited credible "direct epidemiological evidence" connecting DU to negative health effects.

The potential popular blowback from using DU, however, is very real. While the United States insists it has the right to use the weapon, experts call the decision to use the weapon in such quantities against targets it wasn't designed for — such as tanks — peculiar at best.

The U.S. raids were part of "Tidal Wave II" — an operation aimed at crippling infrastructure that the Islamic State relied on to sell millions of dollars' worth of oil. The Pentagon said the Nov. 16 attacks happened in the early morning near Al-Bukamal, a city in the governorate of Deir Ezzor near the border with Iraq, and destroyed 116 tanker trucks. Though the coalition said that the strikes occurred entirely in Syrian territory, both sides of the frontier were completely under the control of the militant group at the time. Any firing of DU in Iraqi territory would have far greater political repercussions, given the anger over its previous use there. The Nov. 16 video below shows tankers hit first by larger ordnances, before others are engulfed in sparks and ripped apart by fire from 30 mm cannons.

The use of DU in Syria was first reported by this author in IRIN News last October. CENTCOM and the U.S. Air Force at first denied it was fired, then offered differing accounts of what happened, including an admission in October that the weapon had been used. However, the dates confirmed by CENTCOM at that point were off by several days. It is now clear that the munitions were used in the most publicized of the Tidal Wave II attacks.

Depleted uranium is left over from the enrichment of uranium 235. It is exceptionally hard, and has been employed by militaries both to penetrate armored targets and to reinforce their potential targets like tanks against enemy fire. Though less radioactive than the original uranium, DU is toxic and is considered by the U.S. Environmental Protection Agency to be a "radiation health hazard when inside the body."

The most likely way for such intake to occur is through the inhalation of small particles near where a weapon is used. But doctors and anti-nuclear activists alike say there hasn't been enough research done to prove the precise health effects and exposure thresholds for



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humans. Most important, the lack of comprehensive research on illnesses and health outcomes in post-conflict areas where DU was used has led to a proliferation of assumptions and theories about DU's potential to cause birth defects and cancer. Firing rounds near civilian populations has a powerful psychological effect, causing distress and severe anxiety, as the International Atomic Energy Agency noted in 2014

Internationally, DU exists in a legal gray area. Internationally, DU exists in a legal gray area. It is not explicitly banned by U.N. conventions like those that restrict land mines or chemical weapons. And although the United States applies restrictions on the weapon's handling domestically, it does not regulate its use overseas in civilian areas with nearly the same caution.

"I think this is an area of international humanitarian law that needs a lot more attention," said Cymie Payne, a legal scholar and professor of ecology at Rutgers University who has researched DU. "As we've been focusing more in recent years on the post-conflict period and thinking about peace building ...we need a clean environment so people can use the environment."

Jacques, the CENTCOM spokesman, says the ammunition was fired that November because of a "higher probability of destruction for targets." Shortly after both attacks, the U.S.-led coalition released the videos showing multiple vehicles lit up by bombs, missiles, and prolonged fire from the 30 mm cannons of Air Force A-10s — but did not specify that the flight crews had loaded those cannons with DU. Those videos — along with dozens of other strike recordings — have been removed from official coalition channels in recent months.

When DU rounds are loaded in A-10s, they are combined with a lesser amount of non-DU high-explosive incendiary (HEI) rounds, amounting to a "combat mix." In November 2015, a total of 6,320 rounds of the mix were used in Syria: According to CENTCOM, 1,790 30 mm rounds — including 1,490 with DU — were fired on Nov. 16; on Nov. 22, 4,530 rounds of combat mix were fired containing 3,775 DU armor-piercing munitions. Though DU rounds have been fired in other theaters — including the Balkans — much of the attention centers on Iraq, where an estimated 1 million rounds were shot during the first Gulf War and the 2003 invasion.

A recent analysis of previously undisclosed firing data from the 2003 U.S. invasion of Iraq showed that most DU rounds were fired at so-called soft targets, such as vehicles or troop positions, instead of targeting the tanks and armored vehicles according to Pentagon guidelines that date back at least to a 1975 review by the U.S. Air Force. The Pentagon's current Law of War Manual states, "Depleted uranium (DU) is used in some munitions because its density and physical properties create a particularly effective penetrating combination to defeat enemy armored vehicles, including tanks."

The oil trucks hit in November 2015 were also unarmored and would qualify as soft targets. The oil trucks hit in November 2015 were also unarmored and would qualify as soft targets, the researchers who performed the analysis of the 2003 targeting cache contend. The trucks, in fact, were most likely manned by civilians rather than Islamic State members, according to U.S. officials. A Pentagon representative said the United States had dropped leaflets warning of an imminent attack before the Nov. 16 strike, in an effort to minimize casualties.



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“The use of DU ammunition against oil tankers seems difficult to justify militarily on the basis of the arguments used by the U.S. to support its use — that it is for destroying armored targets,” said Doug Weir, head of the International Coalition to Ban Uranium Weapons. “Tankers are clearly not armored, and the alternative non-DU HEI [high-explosive incendiary] rounds would likely have been sufficient for the task.”

The spent ammunition littering eastern Syria after the attack, along with the wreckage of the trucks, was almost surely not handled appropriately by the occupying authority — that is, the Islamic State. Even if civilians driving the trucks were not initially exposed to the toxic remnants of DU, scavengers and other local residents will likely be placed at risk for years to come.

“What will happen with the destroyed vehicles? Usually they end up in scrapyards, are stripped of valuable parts and components, and dumped,” said Wim Zwijnenburg, senior researcher at the Dutch NGO Pax. “This puts scrap-metal workers, most likely local civilians, at risk of exposure.”

If there are few ideas for what post-Islamic State governance will resemble in eastern Syria, there are none at all about how to safely handle the depleted uranium that the U.S.-led coalition has placed into the environment.

<http://foreignpolicy.com/2017/02/14/the-united-states-used-depleted-uranium-in-syria/>  
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Press TV – Tehran, Iran

### **Hezbollah Leader Urges Israel to Dismantle Dimona Nuclear Reactor**

Author Not Attributed

February 16, 2017

Hezbollah Secretary-General Sayyed Hassan Nasrallah warns Tel Aviv against starting another war against Lebanon, calling for the removal of the regime’s Dimona nuclear reactor, which, he said, would be within the resistance movement’s reach in case of a potential Israeli offensive.

He made the comments during a ceremony commemorating the martyrs of the Lebanese resistance movement as well as the national army.

Touching on the inauguration in January of US President Donald Trump, a staunch supporter of Tel Aviv, Nasrallah said the new leader in the White House might allow or encourage Israel to launch a new war against Lebanon.

However, he said, Trump’s Middle East policies are still not clear given the struggles and changes inside his cabinet.

He stressed that the resistance movement has no fear of enemies as its power base lies in the popular support it has inside Lebanon as well as the strong stance of Lebanese President Michel Aoun.

The Hezbollah chief said Tel Aviv once took our warning seriously and scrambled to “empty out its Ammonia tank after our threat to target it, but we’ll reach it out wherever they take it to.”

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"I call upon Israel not only to evacuate the Ammonia tank from Haifa, but also to dismantle Dimona nuclear facility," Nasrallah was quoted as saying by the website of the al-Manar television.

He warned that Israel would be "surprised by what we are hiding which would change the course of any war."

### **'Death of Israel-Palestine talks'**

The Hezbollah head further pointed to a meeting between Trump and Israeli Prime Minister Benjamin Netanyahu in Washington earlier this week, saying the outcome of their talks signaled an end to the negotiations on the Israeli-Palestinian conflict, the last round of which broke down in 2014.

"After what came out after the meeting between Netanyahu and Trump, I am not exaggerating if I say that yesterday there was a semi-official announcement of the death of the path of negotiations," Nasrallah said.

Speaking alongside Netanyahu on Wednesday, Trump ditched Washington's decades-long policy of supporting a so-called two-state solution to the conflict between Palestinians and Israelis.

"So I'm looking at two states and one state," he said. "And I like the one that both parties like," said the US president, in comments that elicited strong criticisms from both the Palestinian officials and the international community, including the UN and the Arab League.

A "two-state solution" would see the establishment of a sovereign Palestinian state within pre-1967 borders in the West Bank, Gaza Strip and East Jerusalem al-Quds, living peacefully alongside Israel.

The Hezbollah leader further said the so-called two-state solution was "meaningless to us," but it was the only hope left amid efforts to revive the conflict resolution talks between Israelis and Palestinians.

### **Bahrain, 'a Saudi-occupied country'**

Nasrallah also addressed the recent protest rallies in Bahrain marking the anniversary of its 2011 upspring against the ruling Al Khalifah family, censuring the regime in Manama for calling in Saudi troops to ruthlessly crack down on the protesters and political activists.

"Bahrain today is an occupied country by the Saudi forces," who are "killing the Bahraini people," the Hezbollah chief added.

Nasrallah further slammed Manama's execution in January of three Shia activists - Sami Mushaima, Abbas Jamil Tahir al-Sami' and Ali Abdulshahid al-Singace - over their alleged role in a 2014 bomb attack, saying the killings were a "Saudi order."

The executions sparked large anti-regime demonstrations in the kingdom, with the international community and prominent rights groups.

Back then, Hezbollah had said in a statement that the Bahraini regime and its Arab and Western supporters were responsible for this crime.



## Yemen's 'epic resistance' against Al Saud

Elsewhere in his remarks, Nasrallah hailed the Yemeni nation for keeping up its resistance against the Saudi aggression, saying the Yemenis prevented Riyadh and its allies from achieving their goals of war.

The Saudis and their allies imagined they could end the military campaign "in only weeks," but they were "mistaken," he added.

The Hezbollah chief deplored the United States and Israel for supporting the Saudi war against Yemen, saying Washington and Tel Aviv are complicit in Riyadh's crimes

Riyadh, along with a number of its allies, has been engaged in a deadly war against Yemen since March 2015 with the aim of reinstalling the former Yemeni government, a close Riyadh ally.

However, the campaign has been met with stiff resistance from Yemeni armed forces, including the Houthi Ansarullah fighters, army troops and popular forces.

So far, some 11,400 people have lost their lives in the war on Yemen, according to the latest tallies.

The Hezbollah leader further said Saudi Arabia has created the Takfiri Daesh terror group, stressing that the Al Saud regime is responsible for hundreds of thousands of deaths in the areas where the extremist terrorists are active, including Iraq, Syria and Egypt's Sinai Peninsula.

<http://www.presstv.ir/Detail/2017/02/16/510809/Lebanon-Hezbollah-Hassan-Nasrallah>

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The Algemeiner – New York, NY

## Middle East Experts: Trump's Promise to Israel That Iran Won't Be Allowed to Get 'Nuclear Weapons Capability' Could Indicate Shift in US Policy

By Barney Breen-Portnoy

February 16, 2017

The Trump administration's promise to Israel this week that Iran will not be allowed to get "nuclear weapons capability" could indicate a US policy shift vis-à-vis the Islamic Republic, two Middle East experts assessed on Thursday.

A day earlier, a White House-published joint readout of the meeting between US President Donald Trump and visiting Israeli Prime Minister Benjamin Netanyahu said, "The two leaders agreed that the Iran nuclear deal is a terrible deal for the United States, Israel, and the world. The president assured the prime minister that Iran must not, and will not, obtain nuclear weapons capability."

In a Thursday conference call for reporters organized by The Israel Project, David Makovsky — director of the Washington Institute for Near East Policy think tank's Project on the Middle East Peace Process — said the language of the statement "might be signaling something."

"Is he [Trump] saying that the United States will not allow Iran to get highly-enriched uranium, that's weapons-grade uranium?" Makovsky stated. "It would be interesting to ask





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either at the White House or the Pentagon about the meaning of the phrase that they use because every word here is pregnant with meaning and the past administration did not want to use that word ‘capability.’ They said, you know, ‘they will not get a nuclear bomb, period.’”

Behnam Ben Taleblu — senior Iran analyst at the Foundation for Defense of Democracies think tank — told The Algemeiner, “While it’s too soon to tell how the new administration would approach this question, the emphasis on capability is instructive. It could mean that President Trump is interested in broadening the scope of the current nuclear deal. Should this be the case, it would be consistent with one of his campaign promises with respect to Iran, namely the renegotiation or improvement of the JCPOA (the July 2015 Joint Comprehensive Plan of Action agreed to by Iran and six world powers).”

“The previous administration which negotiated the JCPOA appeared driven by breakout timelines, which would lapse after key junctures in the deal’s implementation were reached,” Taleblu continued. “As we know it, for several years the DNI [director of national intelligence] stated that weaponization is a political, not technical issue for the Islamic Republic. This would indicate that Tehran already (even predating the nuclear deal) had some understanding of any of the following activities: the enrichment process, production of high explosives, a functioning delivery vehicle, and/or warhead miniaturization.”

“Cognizant of Tehran’s possession of that knowledge as well as the timeline-driven approach in the JCPOA to containing Iran’s nuclear program, the new administration could look to provide checks against what the DNI believes to be Iran’s likeliest delivery vehicle, a ballistic missile,” Taleblu went on to say. “Already, the administration signaled its resolve to Tehran by designating 25 persons and/or entities in response to a nuclear-capable ballistic missile test by Tehran in January. It could expand upon those sanctions and erode the technical capacity for the production of those missiles, as well as work to tighten export controls with partners and allies in Europe and Asia — key domains for Iranian illicit procurement for its missile program.”

Taleblu concluded: “Another way to erode this capability would be to vigorously enforce the deal as it stands, and not let Iran transgress an iota of any temporary cap imposed upon it by the JCPOA. Another would be to engage in negotiations designed to extend and roll-back the timelines that exist in the accord which permit Iran to significantly ramp-up its program. However, to have full knowledge of this capability, a thorough understanding of the Iranian nuclear program is in order, and that must be provided by the IAEA [International Atomic Energy Agency], which is set to issue a ‘broader conclusion’ on the Iranian program. The new administration must make sure that this investigation is not subject to a political timeline, and when necessary act on the IAEA’s behalf to compel Iran to provide the organization with access to sites and persons needed to declare the Iranian nuclear program a purely peaceful one.”

<https://www.algemeiner.com/2017/02/16/middle-east-experts-trumps-promise-to-israel-that-iran-wont-be-allowed-to-get-nuclear-weapons-capability-could-indicate-shift-in-us-policy/>

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The Economic Times – New Delhi, India

## **Support for Verifiable Nuclear Disarmament Remains Firm: India**

By Barney Breen-Portnoy

February 16, 2017

India has said its support for global, non-discriminatory, verifiable nuclear disarmament in a time-bound manner remains firm.

Nuclear disarmament can be achieved by "a step-by-step process underwritten by a universal commitment and an agreed multilateral framework that is global and non-discriminatory", said Pankaj Sharma, Joint Secretary (D&ISA) at the Fiftieth Anniversary of the Treaty of Tlatelolco, in Mexico City.

The Treaty of Tlatelolco is the conventional name given to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean.

He said, "India's support for global, non-discriminatory, verifiable nuclear disarmament in a time bound manner remains firm."

"Reducing the salience of nuclear weapons in international affairs and security doctrines, with the aim of increasing restraints on the use of nuclear weapons can be an essential first step," Sharma added.

"Our initiatives in the UN General Assembly as well as the Conference on Disarmament (CD) reflect our sincerity in seeking peace and security through the pursuit of a world without weapons of mass destruction."

"The Chemical Weapons Convention and the Biological Weapons Convention are worthy examples of global non-discriminatory treaties for the complete elimination of the respective categories of weapons of mass destruction," he said.

India hopes that the Conference on Disarmament, the appropriate forum for negotiations on nuclear disarmament, can commence work towards this goal as soon as possible.

"As a nuclear power, India conveys its unambiguous assurances to fully respect the status of the zone of application of the Treaty of Tlatelolco," he said.

"As a founder member of the IAEA and as a country possessing advanced nuclear technologies, India believes that predictable access to nuclear energy would be critical to promote global economic development and combat climate change. We will be pleased to collaborate with the Parties to the Treaty of Tlatelolco to this end."

<http://economictimes.indiatimes.com/news/defence/support-for-verifiable-nuclear-disarmament-remains-firm-india/articleshow/57191689.cms>

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The Hindu – New Delhi, India

### **India to Frame Policy on Synthetic Biology**

By Jacob Koshy

February 7, 2017

*The technology could help produce drugs, vaccines, fuel components and other chemicals*

India is taking its first steps to evolve a policy on synthetic biology, an emerging science through which new life forms can potentially be made in labs and existing life forms, such as bacteria and other microbes, tweaked to produce specific proteins or chemically useful products.

The Environment Ministry will be convening a group of experts on biodiversity and biotechnology, to assess synthetic biology work pursued in Indian labs, potential benefits and risks, and the implications of the trans-boundary movement of such life forms.

Synthetic biology in microbial systems holds promise for production of drugs, vaccines, fuel components and other chemicals. A popular example is the production of artemisinin, a powerful anti-malarial drug, in yeast, at a commercial level. Microorganisms have also been constructed to act as sensors that can detect a toxin in vitro (outside a living organism) or in vivo (inside a living organism).

There are assorted labs in India that work on synthetic biology.

Last December, officials from the Environment Ministry participated in the United Nations Biodiversity Conference of the Convention on Biological Diversity (CBD) at Cancun, Mexico, where about 8,000 delegates from 180 countries discussed matters related to biodiversity.

India, so far, has no policy on synthetic biology, and according to a presentation made at the venue, it has promised to “put in place a Synthetic Biology Team for articulating India’s view” at a forthcoming meeting.

“We do not have any obligations to put in place any policy immediately,” Amit Prasad, Additional Secretary, Ministry of Environment and Forests, told The Hindu.

<http://www.thehindu.com/todays-paper/tp-national/India-to-frame-policy-on-synthetic-biology/article17244262.ece>

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India Times – India

### **Falling Economy and Rising Nuke Arsenal Make Pakistan the Most Dangerous Country For World, Claims Former CIA Official**

Author Not Attributed

February 16, 2017

*Pakistan is probably the "most dangerous country" in the world, a former CIA official has said, citing the potential dangers emanating from its failing economy, rampant terrorism and one of fastest growing nuclear arsenal.*

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Kevin Hulbert, a former CIA Station Chief in Islamabad, warned that the "failure" of Pakistan would have implications for the world.

Pakistan is like the bank that is "too big to fail", or "too big to allow to fail" more appropriately because allowing the bank to fail could have catastrophic impacts on the greater economy, Hulbert wrote in the Cipher Brief - a website for the intelligence community.

"We have big problems in Afghanistan with its population of 33 million people, but Pakistan has about 182 million inhabitants, over five times the size of Afghanistan," he said.

"With a failing economy, rampant terrorism, the fastest growing nuclear arsenal, the sixth largest population, and one of the highest birthrates in the world, Pakistan is of grave concern," Hulbert said.

Fastest growing nuclear arsenal

"In the end, while Pakistan is not the most dangerous country in the world, it probably is the most dangerous country in the world. There seem few levers to pull in Pakistan today, but if we pursue a strategy of containment or disengagement, things will only get worse," he said.

The US and the IMF have given billions of dollars in financial assistance because the spectre of Pakistan collapsing presents US President with more nightmare scenarios than probably any other country in the world, he said.

<http://www.indiatimes.com/news/world/falling-economy-and-rising-nuclear-arsenal-make-pakistan-the-most-dangerous-country-in-the-world-claims-former-cia-official-271659.html>

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India.com – India

### **Extended Range Version of Brahmos Likely to be Tested By March**

Author Not Attributed

February 15, 2017

*Bengaluru, Feb 15 (PTI) Defence Research and Development Organisation (DRDO) today said the extended range version of the Brahmos missile of 450 km is likely to be tested on March 10.*

Bengaluru, Feb 15 (PTI) Defence Research and Development Organisation (DRDO) today said the extended range version of the Brahmos missile of 450 km is likely to be tested on March 10.

Responding to a question whether the Russia has agreed to enhancement of the range to 450 km and when it will be tested, DRDO Chief S Christopher at Aero India 2017 here said, "Yes.....March 10 is the tentative date." He said that another version of Brahmos with a range of about 800 km was under development and it will take about two-and-a-half years for it to get tested.

Brahmos is a joint venture with Russia.

The government on December 16 last had said that India and Russia have agreed to extend the range of Brahmos supersonic cruise missiles beyond the current 300 km, with the country joining the elite Missile Technology Control Regime (MTCR).



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Membership of the MTCR, a key anti-proliferation grouping, helps India procure high-end missile technology and surveillance systems by leading manufacturers, which are allowed to be accessed by only MTCR member countries.

The aim of the MTCR is to restrict the proliferation of missiles, complete rocket systems, unmanned air vehicles and related technology for those systems capable of carrying a 500 kilogramme payload for at least 300 kilometres, as well as systems intended for the delivery of weapons of mass destruction (WMD).

In its first entry into any multilateral export control regime, India joined the MTCR in June last as a full member.

China, which had stonewalled India's entry into the 48-nation Nuclear Suppliers Group (NSG) at the Seoul plenary in June, is not a member of the 34-nation MTCR.

<http://www.indiatimes.com/news/world/falling-economy-and-rising-nuclear-arsenal-make-pakistan-the-most-dangerous-country-in-the-world-claims-former-cia-official-271659.html>

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CNBC – New York, NY

### **How Africa Can Help North Korea Evade Sanctions**

By Nyshka Chandran

February 14, 2017

As missile tests and alleged political assassinations deepen international concern about North Korea, the rogue nation may turn to the world's second-largest continent for help.

"In recent years, North Korea has sought to increase its trade relationship with Africa, both as a sanctions evasion technique since African enforcement tends to be lax, and as a way of reducing the country's enormous dependence on China," said Marcus Noland, executive vice president and director of studies, at the Peterson Institute for International Economics in a Tuesday note.

Indeed, an Africa pivot may be the only option left for the country officially known as the Democratic People's Republic of Korea (DPRK) as Beijing—its traditional ally—increasingly distances itself from the decades-old bilateral relationship amid international pressure.

Following North Korea's sixth nuclear test over the weekend, the United Nations (UN) warned its members to "redouble efforts" to enforce existing sanctions against the pariah state but refrained from meting out new punishment. In November, the UN cut one of Pyongyang's major income sources, coal exports, in response to a nuclear detonation in September.

It may be surprising to some but Pyongyang has long fostered diplomatic, economic and military relations with various African countries, which have thrived even after the widespread international condemnation that followed North Korea's first nuclear test in 2006.

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From 2007 to 2015, the value of annual trade activities between African states and the DPRK amounted to \$216.5 million, higher than the average \$90 million recorded from 1998 to 2006, according to a November report by the Institute for Security Studies (ISS), a Pretoria-headquartered think tank associated with the UN.

Because only seven African countries, or 13 percent of African Union members, have participated in the implementation of UN sanctions, North Korea may deliberately target African countries as a circumvention strategy, Noland warned.

### **A friendship rooted in socialism**

North Korea's ties with Africa date back to the 1970s, when the hermit nation participated in various cultural exchanges across the continent, establishing study groups and research institutes based on its state ideology of self-reliance, known as Juche, the ISS report explained.

At the time, several African governments admired Pyongyang's brand of socialist modernity, and the the relationship was sweetened by the offer of free education for African students in North Korea during the 1980s, the report added.

More recently, Pyongyang has built arms factories in the Democratic Republic of the Congo, Ethiopia, Madagascar and Uganda; it's also been contracted to construct military sites in Namibia, the report said. Police training and leadership-protection courses provided by North Korea have also been popular across the continent, including Benin, Mozambique, Nigeria, and Zimbabwe.

Pyongyang has also sold ballistic-missile manufacturing lines to Egypt and Libya, while South Africa intercepted a shipment of weapons from North Korea bound for the Congo in 2009, the ISS said.

A UN report in Feb. 2016 indicated Pyongyang was still exporting ballistic missile-related items to the Middle East and Africa.

"Many African states are not fully aware of the nature of the North Korean state," the ISS warned, explaining that media stories detailing humanitarian challenges in North Korea simply weren't highlighted in African press.

<http://www.cnbc.com/2017/02/14/north-korea-sanctions-africas-role.html>

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The Hill – Washington, DC

### **Trump Makes Nuclear Mistake on Arms Control Treaty With Russia**

By Amb. Thomas Graham & Fmr. Sen. Byron Dorgan

February 16, 2017

Since the end of the Cold War, verifiable nuclear arms reductions have been a bipartisan priority. Both Democratic and Republican administrations worked to reduce the number of Russian nuclear weapons that could be pointed at the United States and vice versa.

Unfortunately, this bipartisan consensus has been dangerously unsettled during a phone call between President Donald Trump and President Vladimir Putin.

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According to media reports, President Donald Trump denounced the New Strategic Arms Reduction Treaty (New START) in his first formal conversation with the Russian president late last month, reportedly calling the arms control agreement a bad deal for the United States.

It's not a bad deal. In fact, New START was ratified by the United States Senate with bipartisan support — and endorsements from senior military officials — precisely because it benefits U.S. national security.

Here are the facts: By 2018, New START will limit both Russia and the United States to approximately 1,550 deployed nuclear warheads and no more than 700 deployed delivery systems for these warheads.

Though Russia currently deploys more than 1,550 warheads (a common critique of New START), all evidence suggests they will verifiably meet their obligations under the treaty by the 2018 deadline.

Critically, New START also includes extensive verification measures that allows the United States to conduct 18 on-site inspections each year. This forces Moscow to be transparent about its nuclear arsenal, providing the U.S. intelligence and defense communities with extensive information about Russian nuclear forces.

Without the agreement, U.S. national security would be at risk. Russia would have no limitations preventing a nuclear build-up. Moscow's transparency would immediately turn to opacity. None of this would be in the interest of the United States. If anything, ending New START would only benefit the Kremlin.

Don't just take our word for it. Numerous national security officials and senior military brass staunchly approve of New START.

After the treaty was signed, seven former commanders of the U.S. nuclear arsenal signed a joint letter supporting it, noting that New START "will enhance American national security in several important ways," including restrictions on the number of deployed Russian nuclear weapons and tough verification processes — all while preserving a robust U.S. nuclear deterrent to prevent an attack against the United States and its allies.

Various members of President Trump's political party also support New START.

Former Republican Secretaries of State George Schultz, Henry Kissinger, James Baker, Lawrence Eagleburger and Colin Powell endorsed the agreement in 2010, writing, "Whenever New START is brought up for debate, we encourage all senators to focus on national security," adding that it is "in the national interest to ratify New START."

Senator Bob Corker, the current chairman of the Senate Foreign Relations Committee, has also backed New START.

"My only concern in consideration of this treaty has been the safety and security of the American people," he said in 2010. "In the final analysis, I am pleased to support a treaty that continues the legacy of President Reagan who signed the first nuclear arms reduction treaty with Russia in 1987."

From the annexation of Crimea to the abhorrent situation in Syria, Washington has found itself in contention with Moscow. But preserving a pivotal nuclear arms control agreement is in the clear interest of the United States, and beneficial to global security.

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During President Trump's next conversation with Putin, he would be prudent to discuss possibilities of extending New START, not threatening a treaty that retains wide support and improves the safety and security of the United States.

<http://thehill.com/blogs/pundits-blog/foreign-policy/319864-president-trump-makes-nuclear-mistake-on-arms-control>

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Carnegie Europe – Brussels, Belgium

### **Judy Asks: Can NATO Convince Trump?**

By Judy Dempsey

February 15, 2017

*A selection of experts answer a new question from Judy Dempsey on the foreign and security policy challenges shaping Europe's role in the world.*

**Federiga Bindi - Senior fellow at the School of Advanced International Studies at Johns Hopkins University, director of the Foreign Policy Initiative at the Institute for Women's Policy Research, and D. German distinguished visiting chair at Appalachian State University**

The question is: Can anyone convince Trump, a man who has declared he knows it all and does not need advisers?

On February 9–10, EU foreign policy chief Federica Mogherini made the trip across the Atlantic for a pragmatic fact-finding mission while also offering some criticism. Among other things, she reminded her audience of the importance of NATO in transatlantic relations. Donald Trump follows a long line of U.S. presidents who have asked Europeans to contribute more—in monetary terms—to NATO. Europeans are not really in a position to oblige, although as Mogherini pointed out, they could save millions of euros by enhancing their cooperation in the defense sector, which they are starting to do. However, Europeans saving money on defense would mean spending less on U.S. military infrastructure and hardware, which would hurt the sector and economic growth in the United States. Trump may not listen to advice, but he certainly has an ear for U.S. business.

### **Frances G. Burwell - Distinguished fellow at the Atlantic Council**

Despite calling NATO obsolete, U.S. President Donald Trump can certainly be convinced that the alliance is valuable. But the allies must do their part. Most importantly, they must continue to grow defense spending and, as an alliance, take a more visible role in the campaign against the self-proclaimed Islamic State.

Trump likes stories, and NATO has a good one: successfully defending Europe for almost seventy years and invoking Article 5 of the NATO treaty to defend the United States after 9/11. U.S. Defense Secretary James Mattis should take Trump to Afghanistan and introduce him to the allies who have been fighting with Americans for over a decade, sometimes suffering higher death rates than U.S. forces.

At the NATO summit in May 2017, a major initiative on defense spending should encourage all allies to spend 2 percent of their GDP on defense in a few years. Although many are already moving in that direction, they should let Trump take the credit. The alliance should also repackage its role in the anti-Islamic State coalition, making clear that nations are

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effective partners because of NATO's interoperability, even if not they do not act under NATO command. More visibility for the anti-Islamic State role of NATO's airborne warning and control systems (AWACS) would also be useful. With these two initiatives, Trump can declare NATO no longer obsolete.

### **Dominik P. Jankowski - Head of the OSCE and Eastern Security Unit at the Polish Ministry of Foreign Affairs**

Yes, but it will not happen overnight. Growing criticism of NATO in the United States is nothing new. In a bleak speech in 2011, then U.S. defense secretary Robert Gates warned Europeans of a dwindling patience in the American body politic with expending funds on behalf of nations that are unwilling to be serious about their own defense. Some European capitals, especially after Russia's aggression against Ukraine in 2014, understood that message.

Currently, in a post-truth world, Europeans need to speak truth to power and clearly communicate what NATO can deliver. The alliance cannot be a silver bullet to every problem. Yet, it can become a platform for a new transatlantic grand bargain that should lead to more balanced burden sharing, in terms of both devoting necessary financial resources and investing in the right capabilities. Following the decisions NATO made at its Warsaw summit in July 2016, the alliance will need additional heavier high-end capabilities, including those to counter anti-access and area-denial (A2/AD) systems.

NATO is a reputable trademark. It helps keep Europe strong and effectively deter Russia, which challenges the United States in various corners of the world. Coolheaded analysis shows that a strong NATO is in America's national interest.

### **Markus Kaim - Senior fellow in the International Security Research Division at the German Institute for International and Security Affairs (SWP)**

The question is not whether NATO—particularly its European members—can convince the U.S. president that the alliance remains a valuable instrument of U.S. leadership and an important multilateral forum for security and defense cooperation. The real questions are twofold: first, whether European governments fully understand the shifts in the transatlantic security relationship; and second, whether they can use the shockwave of the first weeks of Donald Trump's presidency to reinvigorate European efforts to play an autonomous and effective role in international affairs.

On one hand, Europeans should not reject outright the current burden-sharing debate in NATO. Instead they should self-critically reflect on additional financial and capability commitments. But more important than discussions about NATO's goal for allies to spend 2 percent of their GDP on defense, European members should coordinate their security policies in NATO more closely, in particular with regard to crisis management in Europe's neighborhood. A European pillar of the alliance as an expression of Europe's increased level of ambition is overdue.

On the other hand, the EU must become serious about its Common Foreign and Security Policy (CFSP), which was established twenty-five years ago. The proper answer to less U.S. leadership must be more European responsibility in international affairs. Deepening cooperation in CFSP is a difficult challenge in sovereigntist times, but it is needed more than ever.



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**Julian Lindley-French - Vice president of the Atlantic Treaty Association, senior fellow at the Institute of Statecraft, and director of Europa Analytica**

The week of Valentine's Day, love is in the air. U.S. President Donald Trump seems to be falling ever so slightly in love with NATO. Since British Prime Minister Theresa May's Washington jaunt on January 26–27, Trump has gone from dismissing the alliance to saying he is "100 percent behind NATO." Even by the standards of America's mercurial chief executive, this suggests a profound shift in affections.

On February 14, U.S. Defense Secretary James Mattis landed in Brussels en route to that annual talk fest, the Munich Security Conference. Mattis, at the height of his influence, appears to have convinced the president to give the allies a chance. And, like all good deal makers, Trump is spouting the kind of empty love one hears in the early throes of a business negotiation.

Love? Europeans had better understand that Trump still has a Monty Python Life of Brian "What have the Europeans ever done for us?" view of NATO. The only way for NATO's European allies to convince Trump will be to spend a minimum of 2 percent of GDP on defense, of which 20 percent must be on new equipment—not by 2024, as allies agreed at their Wales summit in 2014, but by the alliance's next meeting in May 2017, or maybe by the next U.S. presidential election in 2020.

**Artis Pabriks - Member of the European Parliament and former Latvian minister of defense and foreign affairs**

The answer to this question will to an extent depend on the mood of U.S. President Donald Trump and whether he will allow himself to be convinced by truth instead of what his administration has called "alternative facts." NATO's next summit in May 2017 has to prove that the alliance is not an obsolete organization, but rather that it takes security seriously, just as the U.S. president claims he does. In business terms Trump is more used to, NATO's task is to make a business pitch to show that the alliance is a relevant tool for rational politics.

NATO has to demonstrate that it can act at a speed that addresses the actual problems in a given timeframe, instead of getting lost in long, bureaucratic procedures—which tends to happen in Europe.

Furthermore, Washington's European counterparts have to show that they mean business. It is no longer acceptable that most European countries contribute less than 1 percent of their GDP to the common defense budget. The United States should not pay disproportionately for European security and defense; Europeans should increase their defense spending. If this happens, Trump should be able to understand that the United States needs its NATO allies just as Europe needs the United States.

**Marc Pierini - Visiting scholar at Carnegie Europe**

Let's wait until the inception phase of Donald Trump's presidency is over.

So far, the Trump administration has mostly been solving crises of its own making: a ban on immigration from seven predominantly Muslim countries, a proposed wall along the U.S. border with Mexico, feuds with the intelligence community and the media, and rivalries in the administration's inner circle.

Concerning real issues such as Beijing's one-China policy, the 2014 international deal on Iran's nuclear program, North Korea's nuclear policy, the U.S. relationship with the EU, and

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the role of NATO, it seems that Trump's initial brash attitude is somewhat subsiding and that traditional U.S. policies are making a comeback.

In NATO, the Trump administration will probably continue to push European allies to spend more on defense, and it may convince some of them to foot more of the bill. On NATO's deterrence vis-à-vis Russia, this is an ongoing process—the United States is deploying troops and armor alongside European allies in Central Europe—and it is unlikely that the Trump administration will want to reverse such a process, despite proclamations pointing to a deal with Russia. Another crucial test will be whether NATO's missile defense shield becomes fully operational on Europe's southeastern flank, although this will depend more on Turkey honoring its commitments to NATO than on Trump's policies.

Overall, rather than NATO convincing Trump, the U.S. administration will need to provide considered answers to a host of serious questions.

### **Jacek Saryusz-Wolski - Member of the European Parliament Committee on Foreign Affairs**

To secure continued U.S. involvement in NATO, European members of the alliance and of the EU should do the following: share the defense burden proportionally, spending 2 percent of GDP on defense; establish incentives for defense expenditure under the EU Stability and Growth Pact; narrow the differences between various European states' threat perceptions; and show political will to use existing military capabilities.

The current imbalance of military power in NATO puts the United States' continued engagement in question. U.S. President Donald Trump's external pressure might give European politicians the push they need to treat defense seriously.

That means increasing spending. Bear in mind that NATO's targets of spending 2 percent of GDP on defense and 20 percent of that amount on defense investment are only recommended minimums. Europeans should be ready to counter threats in all directions, through either surgical actions or sustained engagement—in Eastern Europe, the Western Balkans, and the Middle East and North Africa. That requires immediate investment in power projection, but above all the will to use the means Europeans already possess.

Some immediate solutions are available: Europeans must fully participate in joint exercises and increase their presence on Europe's Eastern flank as framework nations. The same goes for maritime operations in the Mediterranean. By increasing their engagement, Europeans would give the Trump administration a clear signal that it is being taken seriously.

### **Stephen Szabo - Executive director of the Transatlantic Academy**

NATO will need to immediately increase European defense contributions. This is not just an issue concerning U.S. President Donald Trump, but one that former president Barack Obama pushed and that has general support from the U.S. foreign policy community. The decision made at NATO's Warsaw summit in July 2016 to rotate U.S. and European troops through the Baltics was an important signal that Europeans are willing to do more to share the defense burden, and not just in terms of spending.

The 2016 German defense white paper and Chancellor Angela Merkel's commitment to the 2 percent defense spending goal are further signs that a key European country is willing to do more for European defense. Moves to strengthen the EU's defense efforts are another



indicator of change. Following the French and German elections in 2017, the leaders of these two nations should provide an impetus for more European defense cooperation.

Europeans should come up with proposals to take on more responsibilities in the NATO military command structure. The medium-term goal should be to create a European—preferably German or French—supreme allied commander for Europe (a post traditionally held by an American) and an American secretary general (conventionally a European).

There is still widespread support for NATO in the U.S. foreign policy establishment and among the American public—support that will be enhanced by a perception that the Europeans are willing to take on more ownership of European security.

<http://carnegieeurope.eu/strategieurope/68005>

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Eurasia Review – Albany, OR

## **Nuclear vs. Conventional Weapons: Debate On India's Defense Budget Hike**

By Asma Khalid

February 16, 2017

The principle purpose of the nuclear weapon is to deter the adversary to ensure national security. International scholars have identified that states contribute in the nuclearization process for various reasons ranging from status-quo to security threats, deterrence, offensive strategies and enhancing the state's standing in international arena.

The role of nuclear weapons has not much evolved since its origin. Such as during the Cold-War era nuclear capability was used to deter and maintain the balance of power among two symmetric adversaries and nuclear doctrine of the states was persuing state-centric policy. Whereas in the 21st century, the role of the nuclear weapons has slightly evolved as now states go after acquiring the nuclear arsenals to overcome the conventional superiority of the adversary through nuclear deterrence. Another significant shift has seen that nuclear capability is acquired to deal with regional security concerns. Thus, since its inception, the factor of deterrence has remained a constant, which means that its role in military planning will not change.

Nuclear weapons play a pivotal role in national security as it is a significant component of integrated defence policy that is comprised of conventional forces and diplomacy, including nuclear capability. Nuclear armed states aim to decrease proliferation of nuclear weapons under the Non-Proliferation Treaty. But a steady hike has been observed in the nuclear spending of these states. The hike in nuclear spending reflects two dominating facts. First, nuclear capability has a stabilizing effects among states relations by making the conflict unacceptably catastrophic. Secondly, states negate the conventional military superiority through the deterrence. A rising nuclear budget proves that these both factors are operational in South Asia.

A rising defense budget reflects that states are facing security dilemma. South Asia is significant for its unparalleled nuclear build up between two nuclear rivals: India and Pakistan. Regional security dimensions revolve around the triangular relations between China, India and Pakistan. Pakistan's military doctrine is India-centric, whereas India claims that its military doctrine is China-specific, but technically and practically most of its



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strategic developments are made against Pakistan. The security dilemma in South Asia is operational between two nuclear powers in the region and adversarial bilateral relations have resulted in conventional and nuclear arms race. Conventional military imbalance is one of the significant factors that Pakistan is forced to respond to the arms buildup triggered by India.

Defence budget is considered as most important element of national security in South Asia. In 2016-17 defence budget, India has allocated almost US\$ 52.2 billion to modernize and expand its armed forces. The latest defence budget comes in the wake to achieve the objectives of the “Make in India” strategy to design, make, develop and produce military arms to achieve self-reliance and reduced dependence on imports, the heart of this initiative is Aero India in 2015. India’s Finance Minister Arun Jaitley in his federal budget speech stated: “We have been over dependent on imports, with its attendant unwelcome spin offs, we are thus pursuing the ‘Make in India policy’ to achieve greater self-sufficiency in the area of defence equipment.”<sup>1</sup>

In 2015, India became biggest arms importer of the world, as it is trying to build its armed forces to counter Pakistan and deal with the rising military power of China. Generally, compared to previous budgets, the military expenditure and spending of India has doubled, meaning a 100% increase in the last 10 years, since 2006 as Indian military spending was \$19.23 billion in 2006 to \$39.8 billion in 2015, yet, in 2016-17 budget the government announced a 9.14% hike (without pensions) to spend on the modernization of its forces.

Since 2004, India has increased its defence budget around 16.5 percent. Indian war-prone military strategies and its modernization drive have not only widened conventional asymmetry, but have compelled Pakistan to enhance its defensive strength. There is a possibility that a constant focus on modernizing and enhancing armed forces, might give India enough courage to wage a limited conflict against Pakistan. Although, Pakistan has always rejected a conventional or nuclear arms race with India, but it cannot compromise over its minimum credible and sufficient conventional and nuclear deterrence. It is imperative that against India’s growing conventional superiority, Pakistan’s nuclear weapons capability ensures its deterrence and status quo in region.

Pakistan is trying to fill the defence production gap through maintaining its credible nuclear deterrence. Additionally, many factors have compelled Pakistan to increase its dependence on nuclear weapons. Significantly, economic and technological constrains to achieve conventional parity has played central role to shape Pakistan’s perspective nuclear policy. Despite India’s military modernization drive, it may not be able to perform an offensive strike, and it is very difficult for Indian policy makers to gain a strategic surprise over Pakistan due to its nuclear capability. Therefore, India’s increasing defence spending has been viewed as a factor of instability in regional nuclear/conventional equations and could force Pakistan to review its nuclear calculus.

<http://www.eurasiareview.com/16022017-nuclear-vs-conventional-weapons-debate-on-indias-defense-budget-hike-oped/>

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The Independent – London, UK

## **Should We Really Be So Afraid of a Nuclear North Korea?**

By Markus Bell and Marco Milani

February 16, 2017

*While North Korea looks increasingly like it will use atomic weapons, there's no use cutting Pyongyang off from the rest of the world*

The common thinking is that North Korea's nuclear programme poses a threat to global peace and diverts economic resources from an impoverished population. North Korean leaders are depicted in the Western media as a cabal of madmen who won't be satisfied until Washington, Seoul, or some other enemy city is turned into a "sea of fire".

Successive US governments have used a range of carrots and sticks to entice or pressure the North Korean leadership to give up its nuclear programme. The North's missile launches and nuclear tests last year make plain that these efforts have failed; in short, the West has to accept that it is now a nuclear power and focus instead on limiting the risks a nuclear North Korea presents.

But it also pays to consider what sounds like a perverse question: could a North Korean bomb actually benefit both the country's people and the world at large?

First, a reality check: the North Korean nuclear programme is less a madcap scheme than a clear and deliberate strategy. Its leaders have closely watched what's happened to other countries that have backed away from nuclear arsenals, and two in particular: Ukraine and Libya.

Ukraine gave up its massive Soviet-era nuclear arsenal in 1994 when it signed the Budapest Memorandum with Russia, the US and the UK, on whose terms it traded nuclear weapons for a formal reassurance to respect its sovereignty; 20 years later, Moscow invaded and annexed the Crimean peninsula, and a pro-Russian insurgency in the east is still rumbling. As for Libya, Muammar Gaddafi renounced his weapons of mass destruction programme as part of an opening to the West only to be forcibly removed from power by the same countries some eight years later.

Along with the Iraq War, these spectacles taught the North Korean regime that it's hard for a relatively small, isolated country to survive without the military hardware to guarantee it. Pyongyang has duly shown great diplomatic skill in drawing out nuclear negotiations, buying itself both time and financial aid as its programme moves forward.

In 2016 alone, it tested two nuclear weapons, sent a satellite into orbit, and made advances in both submarine-launched ballistic missiles (SLBM) and intercontinental ballistic missile (ICBM) technology. In his New Year's address at the start of 2017, Kim Jong-un emphasised that the country's nuclear forces are central to its self-defence capability: "We will defend peace and security of our state at all costs and by our own efforts, and make a positive contribution to safeguarding global peace and stability."

A nuclear North Korea obviously worries the international community for several reasons. Kim might in theory actually use nuclear weapons on his enemies, a threat he periodically makes. His country's admission into the "nuclear club" might spark a regional arms race. It could share or sell technologies of mass destruction to hostile states. And then there's the danger of a full-blown nuclear accident with all the attendant regional repercussions.

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These risks aren't trivial, but they should be viewed with some perspective. For starters, a nuclear attack from Pyongyang appears highly unlikely. The government is fully aware that it would incur an overwhelmingly destructive military response from the US and South Korea. It's also worth remembering that while the programme has been underway for 25 years, there is still no sign of a regional nuclear arms race.

As for proliferation or accidents, these demand not isolation but cooperation and communication. Keeping Pyongyang cut off from the world will not help; if its nuclear facilities are to be kept safe and their products not used to bring in illicit foreign revenue, they must be properly monitored rather than kept hidden.

Meanwhile, a nuclear North Korea might well see fit to downsize its enormous and costly conventional military forces, which are among the world's largest. As it transitions away from what it calls a "military first" policy to something more deterrent-centric, it makes sense to encourage it to reduce its conventional military forces. (Better still, if it did, heavily-armed South Korea might follow suit.)

With a smaller conventional military to maintain, Pyongyang might be able to channel scarce state funds away from defence and towards raising the standard of living for ordinary North Koreans. This point is in line with its stated strategy of growing the economy and developing the nuclear deterrent in parallel, a policy known as the byungjin line, and with Kim's mooted five-year economic plan. His plans demand dramatic shifts in North Korean state policy, which could destabilise the regime. The calculation is that the security provided by nuclear capabilities would offset the shock of sudden domestic change.

Most paradoxically of all, North Korea's nuclear "arrival" might make for a positive turn in inter-Korean relations. International efforts to eliminate North Korea's nuclear programme isolated the country, in turn greatly undermining the chances of a rapprochement with the South, whose efforts to defrost relations have lately come to nothing. The pace of the North's nuclear development meant that the now-impeached President Park Geun-hye's policy of reconciliation – "trustpolitik" – was doomed before it began.

As far as Pyongyang is concerned, its militaristic strategy has worked: It has kept the Kim government internally stable, the population dependent on the government, and the country's enemies at bay. Accepting the country's nuclear status, rather than trying to head it off with sanctions and threats, could bring it back to the diplomatic bargaining table.

<http://www.independent.co.uk/news/world/politics/north-korea-nuclear-bomb-war-south-atomic-ballistic-missile-test-a7578016.html>

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## **ABOUT THE USAF CUWS**

The USAF Counterproliferation Center was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University, while extending its reach far beyond - and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff Director for Nuclear and Counterproliferation (then AF/XON), now AF/A5XP) and Air War College Commandant established the initial manpower and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

The Secretary of Defense's Task Force on Nuclear Weapons Management released a report in 2008 that recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." As a result, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide continuing education through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the Counterproliferation Center in 2012, broadening its mandate to providing education and research to not just countering WMD but also nuclear deterrence.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards. The CUWS's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation - counterforce, active defense, passive defense, and consequence management.

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