



USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal

Issue No. 1139, 31 October 2014

Welcome to the CUWS Outreach Journal! As part of the CUWS' mission to develop Air Force, DoD, and other USG leaders to advance the state of knowledge, policy, and practices within strategic defense issues involving nuclear, biological, and chemical weapons, we offer the government and civilian community a source of contemporary discussions on unconventional weapons. These discussions include news articles, papers, and other information sources that address issues pertinent to the U.S. national security community. It is our hope that this information resource will help enhance the overall awareness of these important national security issues and lead to the further discussion of options for dealing with the potential use of unconventional weapons. **All of our past journals are now available at http://cpc.au.af.mil/au_outreach.aspx.**

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FEATURE ITEM: *"North Korea: Test Stand for Vertical Launch of Sea-Based Ballistic Missiles Spotted"*. Authored by Joseph S. Bermudez Jr. and posted on the "38 North.org" website, 28 October 2014.
<http://38north.org/2014/10/jbermudez102814/>

Recent press reports have raised the possibility that North Korea is developing the capability to launch ballistic missiles from submarines.[1] A review of commercial satellite imagery since 2010 covering submarine bases and submarine shipyards has identified a new test stand at the North's Sinpo South Shipyard, probably intended to explore the possibility of launching ballistic missiles from submarines or of a shipboard vertical launch ballistic missile capability. The new installation is the right size and design to be used for the research, development, and testing of the process of ejecting a missile out of a launch tube as well as evaluating its compatibility with submarines and surface combatants as well as the missiles themselves.

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The Washington Examiner – Washington, D.C.

U.S. Nuclear Arsenal Due for Modernization

By Charles Hoskinson

October 27, 2014

The U.S. nuclear deterrent is in need of an expensive modernization as Cold War-era weapons reach their age limits.

The program is both inconvenient and crucial. It's inconvenient because the defense budget already is under severe political pressure and goes against President Obama's central policy goal of nuclear disarmament. But it's crucial because the specter of nuclear conflict has re-emerged more strongly than at any time since the end of the Cold War, with increased Russian hostility toward NATO and the expansionist ambitions of smaller powers such as Iran.

The Pentagon's fiscal 2015 budget calls for dramatic increases in spending on a new manned bomber for the Air Force and a nuclear ballistic missile submarine for the Navy. The third leg of the nuclear triad, land-based Minuteman III intercontinental ballistic missiles, are being considered for modernization as well.

The budget also includes more funding for new warheads and missiles and for refurbishing existing ones.

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The Congressional Budget Office estimates the program would cost \$355 billion by 2023, but that's just a start. Deploying a new three-legged nuclear force is expected to cost \$1 trillion over the next 30 years.

Those plans are "unaffordable" under current budget constraints and "would likely come at the expense of needed improvements in conventional forces," noted a bipartisan, congressionally appointed panel that reviewed U.S. military strategy for a report issued in July.

They also clash with Obama's oft-stated goal of weaning the world off nuclear weapons.

"What is clear is that the current plans to replace the nuclear arsenal do conflict with the administration's policy

"What is clear is that the current plans to replace the nuclear arsenal do conflict with the administration's policy of reducing reliance on nuclear weapons," says Adam Mount, a fellow with the Council on Foreign Relations.

Though the U.S. nuclear stockpile has shrunk 85 percent from its peak in 1967, it remains a formidable force. The United States has 4,804 warheads deployed on 14 submarines, 85 B-52 and 19 B-2 strategic bombers, and 450 Minuteman III ICBMs, or kept in reserve. Plans to modernize the force are based on the lower limits set by the 2011 New START agreement with Russia, which calls for a maximum of 1,550 deployed warheads on 700 launch systems by February 2018.

To get that deal ratified by the Senate, Obama had to pledge in writing to modernize the U.S. nuclear arsenal, and the Republican lawmakers who negotiated the pledge have pushed him to honor it.

Now they have a new reason to do so: Since the crisis over Russia's aggression in Ukraine erupted in February, Russian President Vladimir Putin has repeatedly invoked his nation's nuclear arsenal in warnings to the West not to push its disapproval of Moscow too far.

"We hope that our partners will realize the recklessness of attempts to blackmail Russia, will remember the risks that a spat between major nuclear powers incurs for strategic stability," he told the Serbian newspaper Politika in an interview published Oct. 16.

Meanwhile, U.S. officials are working to conclude a nuclear deal with Iran by a Nov. 24 deadline that would remove the threat of proliferation in the Middle East. And nuclear-armed North Korea remains dangerously unpredictable.

The specter of a new nuclear arms race has taken the edge off the president's rhetoric and disappointed advocates of nuclear disarmament. In his annual speech in September to the United Nations General Assembly, the president highlighted past cooperation with Russia to reduce nuclear stockpiles and strengthen international nonproliferation agreements, but sounded a pessimistic note for the future, saying: "And that's the kind of cooperation we are prepared to pursue again — if Russia changes course."

http://www.washingtonexaminer.com/u.s.-nuclear-arsenal-due-for-modernization/article/2555237?custom_click=rss

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Phys.org – Douglas, Isle of Man, U.K.

W88 Warhead Program Performs Successful Tests

By Sue Holmes

October 28, 2014

The first flight and drop tests for the latest variant of the W88 nuclear warhead are providing data for Sandia National Laboratories to validate designs, improve computer modeling and update component specifications. The two successful tests, which were conducted this summer, provide data for the program, the W88 ALT 370 (alteration), to move forward, said Tim Edwards, manager for the program's technical basis and qualification activities.

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The Critical Radar Arming and Fuzing Test (CRAFT) was the first flight test of a prototype radar for the W88 ALT 370. CRAFT demonstrated how the radar performed during re-entry through plasma generated by the hypersonic speeds at which the warhead travels.

The new radar functioned as expected after launch on a Trident II missile from a Navy submarine, Edwards said. Sandia and its partners are analyzing results to validate requirements and radar design.

The June CRAFT test was the first of several planned flight tests to demonstrate the upgraded system's performance. It also represented a milestone: the first flight test unit Sandia and its partners, Los Alamos National Laboratory (LANL), the Kansas City Plant (KCP) and Pantex, delivered to the Navy for full-scale testing under the program.

A month later, the first drop test of the W88 ALT 370 program mimicked a crane accidentally dropping the re-entry body onto a concrete surface to develop evidence that it would remain safe during an accident. Using an unarmed re-entry body, Sandia conducted the test in partnership with LANL, KCP and Pantex at Sandia's 185-foot Drop Tower Facility, using the same handling gear a crane would use to move the weapon, making the test as realistic as possible.

It was the W88 program's first abnormal drop test since the system's original qualification test in 1987. An abnormal environment is one that is unexpected, such as an accident.

"The weapon is not required to function after that, just to stay safe," Edwards said.

Sandia will use vibration and shock measurements from the test to update specifications for components in the weapon, he said. It also will use the information to validate computer models designed to apply the results to other drop scenarios, since it's not possible to replicate every possible accident in tests.

<http://phys.org/news/2014-10-w88-warhead-successful.html>

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The Japan Times – Tokyo, Japan

Imminent U.S. Revamp of Nuclear Weapons, Subs and Planes Is Too Costly, some say

By David Alexander, Reuters

October 29, 2014

KINGS BAY, GEORGIA – Defense Secretary Chuck Hagel grabbed a ladder extending through the sleek black hull of the USS Tennessee at a U.S. Navy submarine base in Kings Bay and disappeared down the hatch for a close look at one of the Pentagon's most daunting budget issues.

Inside, 24 tubes for launching nuclear ballistic missiles sliced through the submarine's decks, with the crew's bunks and spartan living quarters packed around them.

The Tennessee and 13 other Ohio-class submarines are critical elements of the U.S. nuclear deterrent, but the oldest has been in service for 33 years and the end of the fleet's useful life of 42 years is in sight.

Aging poses the same challenge across the entire U.S. nuclear weapons complex. Warheads, bombs, submarines, missiles and bomber aircraft are all approaching the end of their service.

Over the next 30 years, Washington will have to overhaul or replace much of its nuclear arsenal, an effort that experts say could cost as much as a trillion dollars. The problems will lie in choosing what is truly indispensable, and in how to pay for it.

The congressionally mandated National Defense Panel put it bluntly in a July review of the Pentagon's defense plans, saying the effort to build a new triad of nuclear bombers, missiles and submarines is "unaffordable" under present budget constraints.

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With legislation in 2011 putting in place a decade of budget spending cuts, analysts say the White House will ultimately have to delay some systems, trim others or find more money. Most likely, it will have to do all three.

“The bill is coming due, and it’s a huge bill,” said Frank Klotz, head of National Nuclear Security Administration, the Department of Energy agency that maintains the weapons.

He noted that many U.S. nuclear weapons systems were built in the Reagan era three decades ago, and Washington has not invested heavily in them since then.

But while the cost is huge, it is a fraction of the Pentagon’s spending, he said, with the annual defense budget of about \$500 billion translating into \$15 trillion over three decades. “The question we have to ask ourselves as a nation is, ‘Is this something which we need to invest in?’ Obviously the view of this administration is, it is,” Klotz said in an interview.

With nuclear-armed Russia and China increasingly assertive on the world stage and other nations pursuing nuclear ambitions, Washington still needs an effective deterrent, and President Barack Obama supports the modernization effort.

However, critics say the administration’s programs are too ambitious, too expensive and out of sync with the president’s aims to further reduce the size of the U.S. nuclear arsenal.

“The current plans would perpetuate a nuclear arsenal size and structure that clearly exceeds our deterrence requirements as defined by the president,” said Daryl Kimball, head of the Arms Control Association advocacy group.

Obama’s National Security Council has begun a review looking at how to revamp nuclear forces without jeopardizing other national security priorities, officials and defense analysts said.

Its decisions, which could resolve some of the financial conflicts, will feed into the 2016 budget draft due to be presented around February. Analysts say it is one of Obama’s last opportunities to influence U.S. nuclear arms policy, one of his top issues.

The submarine program highlights the challenges ahead.

During his visit to the USS Tennessee last July, Hagel reassured submariners the administration was committed to building a new group of ballistic missile submarines.

The navy plans to spend \$1.2 billion this year for initial research and development, and hopes to begin building the new vessel in 2021. The problem is that by the mid-2020s, it would be spending half its ship-building budget on a dozen submarines that it hopes will never have to fire a missile, squeezing funding needed to expand its fleet elsewhere.

Adm. Jonathan Greenert, the chief of naval operations, and Navy Secretary Ray Mabus have urged Congress to take the project out of the navy’s shipbuilding budget and to fund it some other way.

Rep. Randy Forbes, who heads the sea-power panel of the House Armed Services Committee, has proposed paying for the submarine by creating a sea-based deterrence fund in the Defense Department budget and giving the Pentagon more flexibility in moving money around.

But the plan does not provide new money, and Forbes said Congress should ultimately provide some extra funds.

Former Pentagon comptroller Robert Hale, however, warned that with several major weapons purchases going to full production next decade, the United States would still face big challenges to fund the systems it wants. We’re going to have to have overall debate over priorities,” he said.

Arms control groups say nuclear overhaul plans simply need to be trimmed.

Kimball’s Arms Control Association released a study last week, titled “The Unaffordable Arsenal,” detailing cost-cutting steps, many recommended by government oversight panels.

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The Congressional Budget Office, for example, has said Washington could save about \$40 billion over 30 years by delaying the new submarine program by three years and buying only eight instead of the planned 12.

Deferring the long-range bomber program until after 2023 could cut \$32 billion in new spending over the decade, freeing up money for other priorities, like the F-35 Joint Strike Fighter and new KC-46A refueling tankers, the CBO said.

All in all, savings could reach some \$70 billion over the next 10 years, according to the “Unaffordable Arsenal” report. That would be 20 percent less than the \$355 billion spending the CBO has projected for the decade based on Pentagon plans.

Jon Wolfsthal, a former director of nonproliferation for Obama’s National Security Council, said the administration needed to force the trade-offs and compromises needed to put the nuclear arsenal overhaul on a more financially realistic path.

With its interagency review, the National Security Council may be moving toward some sort of solution.

Assistant Secretary of Defense Andy Weber, the head of nuclear, chemical and biological defense programs, said some compromises, such as eliminating duplicate systems, should make it possible to maintain a nuclear triad over the long term.

For example, the government is investing heavily in the B61-12 gravity bomb as a refurbished weapon for the long-range bomber, so perhaps an air-launched cruise missile replacement will not be necessary, Weber told reporters last month. “These are the kinds of questions that I think we’re examining.”

<http://www.japantimes.co.jp/news/2014/10/29/world/imminent-u-s-revamp-of-nuclear-weapons-subs-and-planes-is-too-costly-some-say/#.VFFsBSxARDw>

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National Defense Magazine.org – Arlington, VA

Updating Nuclear Weapons Arsenal Requires Renewed Focus, Steady Funding

By Stew Magnuson
October 29, 2014

The United States went on a two-decade “procurement holiday” when it came to updating its nuclear weapons arsenal and its delivery systems, but now the bill is coming due, the head of the National Nuclear Security Administration said Oct. 29.

“There are many issues associated with management of the nuclear security enterprise in both [the Department of Energy] and the [Defense Department] that, quite frankly, we have to fix,” said retired Air Force Lt. Gen. Frank G. Klotz, the Energy Department’s undersecretary for nuclear security and administrator of the National Nuclear Security Administration.

An interim report by the congressional advisory panel on the governance of the nuclear security enterprise released in April said the nation’s ability to have a nuclear deterrent is at risk over the long term.

The report said the NNSA “is on a trajectory towards crisis unless strong leadership arrests the current course and reorients its governance to better focus on mission priorities and deliverables.” The root of the problem is the complacency that took hold after the end of the Cold War.

Klotz, who became the agency head at about the time the report was released, agreed.

“Nuclear deterrence and its forces were at center stage during the Cold War. At the end of the Cold War it was almost as if we had all heaved a sigh of collective relief” that we didn’t have to worry about it anymore, he said.

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At the same time, the national security apparatus shifted toward conflicts in the Balkans and the Middle East, and combating terrorism. “As a result of that, I think the attention, the focus and the resources that were given to our nuclear deterrent forces were not what they were in the past. And quite frankly, we lost focus.”

Klotz referred to Air Force scandals, when an armed nuclear weapon was flown on a B-52 bomber over the United States, sensitive parts were accidentally shipped to Taiwan, and missile silo officers were found to be sleeping on the job and cheating on tests.

As for his own agency — charged with developing, maintaining and integrating nuclear warheads onto Defense Department platforms — steps are already being taken to address some of the report’s concerns, he said.

“At the end of the Cold War we entered into a sort of procurement holiday as far as our strategic nuclear forces were concerned, and we were able to do that because they were extraordinarily capable systems, but now after a couple of decades of doing that, the bill is coming due.”

NNSA has to address its poor track record of completing large construction projects, he said. It has formed an acquisition program management organization, and brought in experts.

“It is important to bring that kind of expertise in to ensure you are doing the types of things that enable you to deliver projects on time and under budget,” he said.

It is also standing up an office of cost estimation and program evaluation.

“One of the challenges NNSA and DoD have had is accurately estimating the cost of projects and then making sure that the projects fit the cost profiles that were laid out,” he said.

The advisory panel’s final report is expected in mid-November. Klotz said he has not seen it yet.

“The situation we find ourselves in 20 years later is making sure we reinstitute that focus and that we step up to making the types of resources investments we need to make in order to continue to ensure that this part of our national security policy — that still remains important — is able to function the way it is expected to,” Klotz said.

The NNSA is in a decade-long process to modernize and replace its nuclear warheads.

The B61-12 bomb, which is delivered by aircraft, is one of the key life-extension programs that the NNSA has responsibility for over the next decade, he said. It is currently in the engineering and design phase. It will replace four existing variants of the B61 gravity bomb with a single one. He pointed to recent success testing the bomb’s fit into two aircraft, the F-15 and F-16, during wind tunnel tests.

The W76-1, which is employed on Navy sea-launched ballistic missiles, is well into the production phase, and Klotz recently visited the Pantex Plant in Amarillo, Texas, to mark the program’s halfway point.

As for another gravity bomb, the B83, the NNSA will continue to monitor and do the work necessary to ensure its safety, security and effectiveness for as long as it remains in the stockpile, he said.

“We have phased these in such a way that we balance the workload across several years,” he said.

It is “extraordinarily important” that funding be consistent to execute these modernization programs, he said.

“If you are expecting a certain level of funding for a particular type of activity and it does not come in, it’s delayed, or it’s withheld, or it’s less than you anticipated, then you have to take actions in terms of how much workforce you can have, how much work they can do, and this tends to ripple through programs that may extend for a decade,” he said.

<http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?ID=1656>

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Great Falls Tribune – Great Falls, MT

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15 Air Force Officers to Be Discharged after Cheating

By Jenn Rowell

October 30, 2014

Of the airmen involved in the cheating investigation at Malmstrom Air Force Base, most of them are now back on the job.

In May, the Tribune reported that two-thirds of the airmen were pulling alert shifts or in the training pipeline to be recertified for alert duty.

This week, Air Force officials told the Tribune that all of those airmen have since been recertified and retrained and are back on alert.

The remainder of the airmen who were under investigation are undergoing a security clearance review by Department of Defense authorities. Their security clearances were pulled during the investigation.

The Air Force has initiated involuntary discharge procedures against 15 officers, one of whom already has been discharged from the Air Force.

The discharge procedures vary depending on time spent as a commissioned officer. The process for officers is lengthy since the cases are carefully reviewed at each level in the chain of command, culminating with a review and decision by the Office of the Secretary of the Air Force.

Both the test compromise and drug use investigations are over, but the command is reviewing the evidence and deciding on the appropriate course of action for four officers.

One officer has been charged for drug use and obstruction of justice.

An Article 32 investigative hearing, similar to a grand jury, was held and the case is still being reviewed to determine if trial by court-martial is warranted.

In response to the investigation, the Air Force announced earlier this year that additional personnel would be sent to all of the intercontinental ballistic missile bases.

In July, the Tribune reported that 216 new personnel would be coming to Malmstrom.

On Thursday, the Tribune learned that the number had increased to 236 and most of those airmen had already arrived at Malmstrom. All 236 will arrive by November, according to Air Force Global Strike Command.

The majority of those positions will be security forces airmen.

One hundred officers at Malmstrom were involved in the investigation. Nine were cleared when the findings were announced in March. Some cases were retained by the Office of Special Investigation since they involved the mishandling of classified material or were part of the initial drug investigation that uncovered the cheating.

The investigation report that was released in late March included 98 officers, two were added later, and 79 in that report were subject to disciplinary action through Air Force Global Strike Command. Of those 79, evidence supports that 15 of the officers sent, received and solicited testing material; 13 sent and received the material; four only sent material; nine solicited and received testing material; 30 only received material; three solicited but did not receive material and five had direct knowledge of cheating and failed to report it, according to the investigation report.

The investigation revealed low morale and other issues throughout the nuclear force that prompted the Air Force to establish the Force Improvement Program, asking airmen to make suggestions for improvements.

One of those improvements is being implemented now.

Air Force officials have already issued a contract at F.E. Warren Air Force Base in Wyoming to deep clean launch control centers and underground launch control equipment centers.

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Malmstrom and Minot contracting officers will use that contract as a template to award local contracts for their facilities.

In total, 45 launch control centers along with 30 underground launch control equipment buildings at Malmstrom, F.E. Warren and Minot will be deep cleaned.

The launch control centers have been in continuous use for 50 years and though crews do routine cleaning daily, they don't have time away from alert duties or equipment to completely sanitize the LCC, according to the Air Force.

This deep clean will continue on a contract.

Approximately \$348,000 will be divided between the three missile wings under 20th Air Force to pay for the one year initial contract. AFGSC plans to write a new contract, spanning 5-10 years, for the missile wings.

<http://www.greatfallsribune.com/story/news/local/2014/10/30/air-force-officers-discharged-cheating/18189829/>

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RIA Novosti – Russian Information Agency

US, Russia Continue to Implement New START Treaty against All Odds: State Undersecretary

25 October 2014

MOSCOW, October 25 (RIA Novosti) - The United States and Russia continue to implement the New START Treaty against all odds, US Undersecretary of State for Arms Control Rose Gottenmoeller said.

"The United States and Russia are continuing to implement the treaty in a businesslike manner, despite all the tensions," Gottenmoeller was quoted by the Massachusetts Institute of Technology (MIT) as addressing students Friday.

The United States and Russia signed the New START Treaty in 2010 in a bid to bilaterally reduce nuclear arms by 2018. The treaty did not start being implemented until its entry into force in 2011.

The treaty enables both the United States and Russia to check each other's facilities 18 times a year, according to Gottenmoeller.

Despite their "businesslike" approach to the treaty, the two countries should continue making progress in other areas of nuclear security, Gottenmoeller noted.

MIT also quoted Gottenmoeller as adding that "the Russians have been good partners" in removing chemical weapons from Syria.

<http://en.ria.ru/politics/20141025/194560169/US-Russia-Continue-to-Implement-New-START-Treaty-Against-All.html>

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The Shreveport Times – Shreveport, LA

Global Strike Challenge Returns to Barksdale

By John Andrew Prime

October 27, 2014

Risen like a phoenix after the sequester and austerity cuts, Air Force Global Strike Command's fourth Global Strike Challenge competition will wind up months of competition with team arrivals, a symposium and score posting events at Barksdale Air Force Base early next week.

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Dignitaries scheduled to speak at the event, an enlargement and successor to the fabled Strategic Air Command "Bomb Comp," include Secretary of the Air Force Deborah Lee James, AFGSC commander Lt. Gen. Stephen Wilson, Chief Master Sgt. of the Air Force James Cody and Madelyn Creedon, deputy administrator for the National Nuclear Security Administration.

Global Strike Challenge is a missile, bomber, helicopter and security forces competition with more than 350 competitors and around 800 total attendees expected.

Awards will be presented to the best performing Intercontinental Ballistic Missile, B-1 Lancer, B-2 Spirit, B-52 Stratofortress, UH-1N Huey helicopter and security forces units.

"This is the perfect opportunity to recognize the professionalism, dedication and expertise of our competitors," said Lt. Col. Derrick Ossmann, command lead for Global Strike Challenge.

Participants are from Barksdale, as well as from Dyess Air Force Base, Texas; Ellsworth Air Force Base, S.D.; F.E. Warren Air Force Base, Wyo.; Kirtland Air Force Base, N.M.; Malmstrom Air Force Base, Mont.; Minot Air Force Base, N.D.; and Whiteman Air Force Base, Mo.

Teams are scheduled to arrive at Barksdale Monday, with a Technology and Innovation Symposium to be held Wednesday at the Bossier Civic Center and final score postings to be held at Hoban Hall on the base that evening.

Follow it digitally

To follow the 2014 Global Strike Challenge on your mobile device, use #GSChallenge14 for Facebook and Twitter updates. Updated information, photos, video and team stories can be found at <http://bit.ly/GSChallenge14>.

<http://www.shreveporttimes.com/story/news/local/2014/10/27/global-strike-challenge-back-bafb/17997301/>

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The Times of India – Mumbai, India

Ebola May Not Be Deadly for Everyone: Study

Press Trust of India (PTI)

October 31, 2014

WASHINGTON: Ebola may not be a deadly disease for everyone, suggests a new study that found the virus affects different people differently.

A newly developed mouse model suggests that genetic factors are behind the mild-to-deadly range of reactions to the Ebola virus.

People exposed to Ebola vary in how the virus affects them. Some completely resist the disease, others suffer moderate to severe illness and recover, while those who are most susceptible succumb to bleeding, organ failure and shock.

In the new study, scientists led by the Katze Laboratory at the University of Washington Department of Microbiology described strains of laboratory mice bred to test the role of an individual's genetic makeup in the course of Ebola disease.

The scientists examined mice that they infected with a mouse form of the same species of Ebola virus causing the 2014 West Africa outbreak.

Interestingly, conventional laboratory mice previously infected with this virus died, but did not develop symptoms of Ebola hemorrhagic fever.

In the present study, all the mice lost weight in the first few days after infection. Nineteen per cent of the mice were unfazed.

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They not only survived, but also fully regained their lost weight within two weeks. They had no gross pathological evidence of disease. Their livers looked normal.

Eleven per cent were partially resistant and less than half of these died. Seventy per cent of the mice had a greater than 50 per cent mortality, researchers found.

Nineteen per cent of this last group had liver inflammation without classic symptoms of Ebola, and thirty-four per cent had blood that took too long to clot, a hallmark of fatal Ebola hemorrhagic fever in humans.

Those mice also had internal bleeding, swollen spleens and changes in liver colour and texture.

The scientists correlated disease outcomes and variations in mortality rates to specific genetic lines of mice.

"The frequency of different manifestations of the disease across the lines of these mice screened so far are similar in variety and proportion to the spectrum of clinical disease observed in the 2014 West African outbreak," said virologist Angela Rasmussen.

While acknowledging that recent Ebola survivors may have had immunity to this or a related virus that saved them during this epidemic, researcher Michael Katze said, "our data suggest that genetic factors play a significant role in disease outcome."

In general, when virus infection frenzied the genes involved in promoting blood vessel inflammation and cell death, serious or fatal disease followed.

On the other hand, survivors experienced more activity in genes that order blood vessel repair and the production of infection-fighting white blood cells.

<http://timesofindia.indiatimes.com/home/science/Ebola-may-not-be-deadly-for-everyone-Study/articleshow/44995191.cms>

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The Japan Times – Tokyo, Japan

North Korea Likely Can Build Nuclear Warhead: U.S. General

Agence France-Presse (AFP)-JJI

October 25, 2014

WASHINGTON – The commander of U.S. forces in South Korea said Friday that North Korea likely has the ability to produce a nuclear warhead that could be mounted on a missile, but officials later sought to downplay his remarks.

The comments by the commander echoed an internal debate among U.S. spy agencies that came to light last year when the military's intelligence service warned that the North was closer to achieving a nuclear-tipped missile than previously believed.

Gen. Curtis Scaparrotti told a news conference the North Korean regime's pursuit of atomic weapons had progressed to the point where it could probably create a nuclear device to be fitted on the tip of a missile, a major development in the North's nuclear ambitions.

But he said he had no evidence to back up his view and there is no sign the North has tested such a device.

"They've had the right connections, and so I believe have the capability to have miniaturized a device at this point, and they have the technology to potentially actually deliver what they say they have," he said. "We have not seen it tested. And I don't think as a commander we can afford the luxury of believing perhaps they haven't gotten there."

Pressed by reporters as to whether North Korea could manufacture a nuclear warhead, Scaparrotti offered a more cautious assessment. "I'm not saying that I know that by any factual basis, but I believe they probably have the background to do this."

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North Korea had “proliferation relationships” with other countries, including Iran and Pakistan, that could help it develop such a device, he said.

A Defense Intelligence Agency report leaked last year concluded North Korea probably had the ability to fit a miniaturized nuclear device on a missile.

The report made headlines, but U.S. officials at the time said it did not represent a consensus view of all the spy agencies.

The director of national intelligence, James Clapper, said last year that “North Korea has not yet demonstrated the full range of capabilities necessary for a nuclear armed missile.”

U.S. intelligence agencies have not changed their fundamental assessment of the North’s nuclear program, officials said when asked about Scaparrotti’s comments.

Officials have said previously that the North has yet to demonstrate it has a functioning long-range intercontinental missile or a nuclear warhead that could be placed on it.

The Pentagon denied the general had expressed a view that was out of sync with intelligence reports and insisted there was no disagreement about the nature of the threat posed by North Korea.

“We have no reason to doubt the general’s belief, but as the general also said, he has no facts or evidence to confirm that,” spokesman Rear Adm. John Kirby said. “So we share his concern, we share his general belief that this is a capability they want to acquire, and that they very well could have the miniaturization capability.”

<http://www.japantimes.co.jp/news/2014/10/25/asia-pacific/north-korea-likely-can-build-nuclear-warhead-u-s-general/#.VFEMLixARDx>

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Korea JoongAng Daily – Seoul, South Korea

Minister Says North Has Tech for Uranium Bomb

By SER MYO-JA
October 28, 2014

A top defense official said yesterday North Korea has the technology to build uranium-based atomic bombs, the first such admission by the South Korean government.

At a National Assembly’s audit, Minister of National Defense Han Min-koo addressed the progress of the North’s nuclear program in response to a question by Rep. Kim Sung-chan of the ruling Saenuri Party. He asked if Pyongyang was capable of building a uranium-based bomb.

“North Korea has conducted three nuclear tests and a significant time has passed since then,” Han said. “The North has also announced that its capability has reached a certain level.”

Han also said it is believed that the North’s miniaturization of its nuclear technology has improved considerably, although there was no confirmation on how far. The South Korean military must be ready for a situation based on those assumptions, he said.

The minister’s testimony was in line with comments Friday by the commander of the U.S. Forces Korea, who said he believes Pyongyang has the capability to build a nuclear weapon that can fit on a ballistic missile.

“I believe they have the capability to miniaturize a device at this point and they have the technology to potentially deliver what they say they have,” General Curtis Scaparrotti said during a news conference at the Pentagon on Friday.

“We’ve not seen it tested, and I don’t think as a commander we can afford the luxury of believing perhaps they haven’t gotten there,” he added.

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Asked about the possibility that the North has developed missiles capable of carrying multiple warheads, Han said yesterday there was no confirmation on the progress, but the South must not rule out the possibility that the North is armed with such advanced technology.

Through its initial nuclear program, the North is believed to have a handful of crude plutonium-based bombs.

Pyongyang also pushed forward another clandestine nuclear program using highly enriched uranium and admitted to its existence in 2002.

Since then, it has conducted three nuclear tests. The first and second in 2006 and 2009 were believed to test plutonium-based devices, but the most recent one in February last year was believed to be a test of a uranium-based device.

Intelligence authorities have assessed that the North is capable of producing up to 40 kilograms (88 pounds) of highly enriched uranium annually. A warhead requires up to 20 kilograms of the atomic substance and the North, theoretically, can build two uranium-based bombs every year.

While reprocessing plutonium requires a larger facility including a reactor, making weapons-grade uranium uses simpler centrifuges. The international community tried to block the North from obtaining components to build the centrifuges, but Pyongyang managed to learn to produce parts domestically, experts have said.

<http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2996555>

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Deutsche Welle (DW) – Berlin, Germany

Analysts Skeptical North Korea Can Build Nuclear Warhead

A US general recently said he believed Pyongyang has the capability to build a nuclear warhead that can be mounted on a ballistic missile. But given the secrecy and lack of evidence, experts are doubtful. DW examines.

Gabriel Domínguez

28 October 2014

Speaking at a news conference on October 24, General Curtis Scaparrotti, the commander of US forces in South Korea, said that the North Korean regime likely has the ability to produce a nuclear warhead that could be mounted on a ballistic missile. "They've had the right connections, and so I believe [they] have the capability to have miniaturized a device at this point, and they have the technology to potentially actually deliver what they say they have," Scaparrotti was quoted as saying.

The general pointed out that he had no evidence to back up his view, but added Pyongyang probably has the background to do this. But while the general's comments seem to be in line with a Defense Intelligence Agency report leaked last year, this view is not shared by all experts, either inside or outside the US intelligence community.

North Korea is widely believed to be seeking to develop such a nuclear warhead, but many analysts doubt the authoritarian government under Kim Jong Un already has the nuclear weapon design and manufacturing skills necessary to build such a warhead. There also seems to be considerable skepticism about the reliability and operational readiness of the country's existing ballistic missile force. Officially, the US Government's current assessment, shared by South Korea, is that North Korea has not yet mastered this step.

Lack of information

Pyongyang has conducted three nuclear tests since 2006 and a string of long-range rocket launches. But compared with the missile program of other countries, North Korea has carried out only a small number of test and training launches of its indigenously produced missiles before declaring them operational, Shannon Kile, nuclear arms control and non-proliferation expert at the Stockholm International Peace Research Institute (SIPRI), told DW.



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Given the opacity of the regime's nuclear program, it is very difficult to credibly assess where the country's strategic weapon programs stand at any particular moment, so even basic questions about its nuclear weapon capabilities are shrouded in considerable uncertainty.

For example, there is no public information to verify how many operational nuclear weapons the country might possess - or indeed, whether it even has produced operational nuclear weapons as opposed to rudimentary nuclear explosive devices, says Kile, who is also head of the Nuclear Weapons Project of the SIPRI Arms Control and Non-proliferation Program.

Does Pyongyang have the knowhow?

North Korean officials and military officers have repeatedly stated that the country's most recent nuclear test explosion, carried out in February 2013, involved a smaller and lighter "miniaturized" device with a higher explosive yield than the devices used in the two previous tests. However, these claims could not be independently confirmed.

Experts argue that while the development of a miniaturized nuclear warhead would represent an important step towards building a nuclear-armed ballistic missile, it would not mean that North Korean engineers have overcome all of the technical hurdles for doing so. "In this sense, the emergence of evidence that North Korea had developed a miniaturized nuclear warhead would not be a strategic game-changer per se for the USA and its allies in the region," says Kile.

Also unanswered remains the question as to whether the country's latest nuclear device used highly enriched uranium (HEU) as the fissile material, rather than plutonium, which North Korea was believed to have used in the two previous tests.

But while the international community remains in the dark about North Korea's nuclear capabilities, the country's has been developing its long-range ballistic missile program unabated for over two decades, as Victor Cha, senior adviser and Korea Chair at the Center for Strategic and International Studies (CSIS) in Washington, told DW. "The North Koreans crossed a significant technological threshold with their last missile test when they were able to put a payload into orbit," said Cha.

What difference would it make?

Analysts point out that evidence of the regime's mastery of the technology for building a lightweight nuclear weapon would intensify the already serious concerns in the United States, Japan and South Korea about Pyongyang's evolving capabilities and intentions. "In the near-term, this could lead them to adopt defense planning that would prioritize expanding and upgrading ballistic missile defense capabilities and to deploy new pre-emptive strike capabilities," says Kile.

Cha, however, believes that capability itself wouldn't change much in terms of the regional dynamics, arguing that Japan is already under the threat of short- and medium-range ballistic missiles, which could potentially carry biological or chemical weapons, and that the US-South Korean alliance has been adjusting to the reality of a nuclear North Korea with increased deterrence efforts. "The biggest change might be in the US in a political sense because this administration will likely be blamed for allowing North Korea to develop a capability to threaten the homeland," added Cha, author of *"The Impossible State: North Korea, Past and Future."*

The risk of proliferation

But perhaps even than more worrying that capability itself is North Korea's illicit arms trade and the risk of nuclear proliferation. "North Korea has engaged extensively in illicit trafficking to obtain materials and equipment which were banned by successive United Nations Security Council resolutions and other international sanctions," said Kile. While the years of increasingly rigorous sanctions have almost certainly slowed North Korea's military program - to which the leadership in Pyongyang has assigned a top priority - they have not halted it altogether.

Moreover, there has been considerable speculation about North Korea's so-called "proliferation relationships" with Pakistan and Iran. Pyongyang is believed to have obtained clandestine design assistance for an HEU-based

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weapon from Pakistani nuclear engineer, Abdul Qadeer Khan, and some analysts suspect that it might have received help from either or both countries in developing a lighter, more compact nuclear warhead design. In addition, North Korea is known to have shared ballistic missile technologies with both countries, said Kile.

Cha pointed out that the most recent known case in this context is North Korea's cooperation with Syria in building what looked like a 5-megawatt reactor similar to North Korea's nuclear facility at Yongbyon. "I worry about this. North Korea has basically sold every weapons system it has developed," said the analyst.

<http://www.dw.de/analysts-skeptical-north-korea-can-build-nuclear-warhead/a-18025750>

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The Asahi Shimbun – Tokyo, Japan

N. Korea thought to be Developing Sea-Based Missiles

By The Associated Press (AP)

October 29, 2014

WASHINGTON — North Korea has built a new testing facility that is probably intended to research how to launch ballistic missiles from submarines or ships, according to a U.S. research institute.

The North is still likely years away from fielding such missiles, but the finding will add to concern over its weapons development.

The analysis is based on recent satellite imagery at the east coast site of Sinpo, where the institute says North Korea has a naval shipyard and research institute. It shows a 12-meter (39-foot) -high stand on a 30-meter (98-foot) -wide concrete base that is the right size and design for testing how a missile would eject from a launch tube as on a submarine or surface combat ship, according to the analysis published by 38 North, the website of the U.S.-Korea Institute at the Johns Hopkins School of Advanced International Studies.

Nearby the test stand are support buildings protected by berms and what looks like the entrance to an underground facility.

"This may be an early indication that North Korea is considering basing ballistic missiles armed with nuclear weapons on submarines in order to hide them and make them more survivable," said Joel Wit, a former State Department official and editor of 38 North.

"However, Pyongyang would still have a number of difficult technical hurdles to jump before actually fielding an operational weapon. It remains unclear whether it will be able to do so," he said.

North Korea's development of nuclear weapons and land-based missiles is a growing concern to Washington.

Last week, Army Gen. Curtis Scaparrotti, commander of U.S. forces in Korea, said Pyongyang may already have the capability to miniaturize a nuclear device and potentially to deliver one on a missile fired from a road-mobile launcher. Although the missile is thought to have the range to reach America, Scaparrotti said North Korea hasn't tested it and the chances of it being effective are low.

A Congressional Research Service report in 2009 said there were indications that North Korea may be pursuing a sea-based ballistic missile capability, after reportedly obtaining some of the necessary technology when in 1993 it bought 12 decommissioned Russian submarines for scrap.

The 38 North analysis is written by Joe Bermudez, who is an expert on satellite imagery and North Korea's military. He says that naval construction and modernization programs by the North since the early 2000's appear to have accelerated under current leader Kim Jong Un.

However, he notes that despite recent reports that North Korea may have equipped a submarine with a missile launch tube, commercial satellite imagery of North Korea's submarine bases and shipyards since 2010 hasn't turned up evidence that the North has done so.

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Bermudez says that in the event North Korea were to take such a step, it would be easier technically to start with Scud or short-range ballistic missiles, rather than its medium- or intermediate-range missiles, which are capable of traveling several hundred miles (kilometers) or more.

Bruce Bennett, a senior defense analyst at the RAND Corp., said while the shorter-range missiles would not give North Korea much capacity to strike targets even in neighboring countries, it would still be a significant capability if it then built longer-range missiles to fit in the same launch tube.

He questioned, however, the capability of North Korea's current fleet of submarines for that job, as the vessels tend to be small and old, and relatively easy to find via anti-submarine warfare.

"Unless the submarine is hard to find, it is not a very good platform on which to put a ballistic missile," Bennett said.

http://ajw.asahi.com/article/asia/korean_peninsula/AJ201410290012

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The Korea Times – Seoul, South Korea

Four-Step NK Nuke Dismantling Revealed

Top unification panelist stresses patient approach

By Yi Whan-woo

October 29, 2014

North Korea's nuclear weapons are indisputably the biggest stumbling block to lasting peace on the Korean Peninsula.

The reclusive state clings to them like an infant holds on to a favorite toy. So how can the outside world best deal with them?

Chung Chong-wook, vice chairman of the Presidential Committee for Unification Preparation, suggested in a recent interview that the outside world should "outwait" the Stalinist country before removing them in four steps. President Park Geun-hye heads the committee.

"The North will eventually reach the moment," Chung said, referring to his call for patience to wait the North out until it comes to the negotiating table.

Only then, he said, will the outside world and Pyongyang be able to implement a four-step approach to do away with the latter's nuclear arsenal and its related weapons program.

"The first step should be aimed at preventing Pyongyang from making any further progress in its nuclear program," he said.

"We then freeze the program and increase transparency in North Korea's nuclear activities. One way to do this is having the reclusive state accept international inspections."

He said that the third step will focus on scaling back the program gradually, which will be followed by full denuclearization of the North.

"Getting it going is the difficult part," he said.

He added that the process should coincide with separate efforts to provide the North with humanitarian assistance, but didn't mention tying any progress the North makes with corresponding incentives.

Meanwhile, he also said the two Koreas could discuss ways to settle the Seoul-imposed May 24 sanctions, which, among other things, freeze all inter-Korean trade and other cooperative efforts, except in the Gaeseong Industrial Complex.

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The sanctions were imposed on May 24, 2010 by Park's predecessor, Lee Myung-bak, after North Korea sank the South Korean frigate Cheonan in March of that year.

"The measures were not imposed by the Park administration and they are not legally binding," Chung said. "There are signs that the May 24 sanctions can be eased under the current government."

He also pointed out that South Korean enterprises have shown interest in participation in the "Najin-Khasan project" established by North Korea and Russia in 2008.

For instance, POSCO, Hyundai Merchant Marine and the Korea Railroad Corporation conducted an on-site feasibility study in July for possible investment into RasonKonTrans, the Russian-North Korean joint venture carrying out rail and port renovation.

This was launched to modernize the 54-kilometer railway between Rajin, a port city in North Korea, and Khasan, a town in the far eastern part of Russia.

"It's likely that the May 24 measures can be eased if Pyongyang engages in inter-Korean talks sincerely," Chung said.

He stressed, however, that the repressive regime should improve its human rights conditions if it wants to attract international investment.

Pyongyang has been stepping up its efforts to defend Kim against the United Nation's moves accusing him of committing crimes against humanity and to bring him before the International Criminal Court.

http://www.koreatimes.co.kr/www/news/nation/2014/10/485_167205.html

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RIA Novosti – Russian Information Agency

North Korea Can Miniaturize Nuclear Warheads for Medium-Range Missiles: US Military Expert

30 October 2014

MOSCOW, October 30 (RIA Novosti) – A US military expert believes North Korea has the ability to miniaturize nuclear warheads for its medium-range missiles, however Pyongyang does not appear to have technical capacity to conduct tests, Yonhap News Agency reported on Thursday.

"My analysis is that North Korea could probably miniaturize a warhead that should fit for a Rodong missile," director of the Non-Proliferation and Disarmament Program at the International Institute for Strategic Studies (IISS) Mark Fitzpatrick told Yonhap News. "Probably not as Scud missile, which has a smaller diameter, but Rodong most probably."

Fitzpatrick is currently in South Korea, taking part in the third Seoul Defense Dialogue, which started on Wednesday. Hundreds of officials and security experts from 24 countries and three international organizations have gathered at the international forum gathered, the source reported.

The expert has said that North Korea would attempt to test its miniaturized warhead.

"Probably, the North [North Korea] knows how to do it [the miniaturized warhead] based on their technical abilities, but until they test the miniature warhead, they would not be sure. In the process of the warhead development, it takes several tests to get it right", Fitzpatrick added, as quoted by Yonhap News.

Pyongyang started to test its nuclear weapons in 2006. In February 2013, the country tested its most powerful weapon yet.

Just three weeks ago, the two Koreas exchanged heavy artillery fire. The countries have formally been in a state of war since 1953, as no peace treaty was signed after the Korean War ended. Relations between Seoul and

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Pyongyang have been tense, especially since North Korea torpedoed its neighbor's warship in the Yellow Sea back in 2010.

<http://en.ria.ru/world/20141030/194836616/North-Korea-Is-Capable-of-Building-Medium-Range-Nuclear-Warheads.html>

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Yonhap News Agency – Seoul, South Korea

S. Korea, China Express 'Deep Concern' over N. Korea's Nuclear Advance

October 31, 2014

BEIJING, Oct. 31 (Yonhap) -- South Korea and China expressed "deep concern" over North Korea's advances of its nuclear and missile capabilities and agreed to continue efforts to prevent the North from further developing such capabilities, Seoul's chief nuclear envoy said Friday.

Hwang Joon-kook made the remarks after talks with his Chinese counterpart, Wu Dawei, in Beijing, adding that South Korea and China pledged to make joint efforts to resume a "meaningful dialogue" on North Korea's nuclear weapons program.

"We exchange deep concern about North Korea's advances of nuclear and missile capabilities and, with a sense of urgency, agreed to continue to make close cooperation to curb such advances," Hwang told a group of South Korean correspondents.

Last week, Gen. Curtis Scaparrotti, the top commander of U.S. forces in South Korea, told reporters in Washington that he "believes" that North Korea has the capabilities to build nuclear-tipped missiles, although he has no evidence to confirm his assumption.

Hwang arrived in Beijing on Thursday after making a rare, three-day visit to China's northeastern provinces, where thousands of North Korean defectors are believed to be hiding before eventually resettling to South Korea.

It was the first time that a South Korean chief nuclear envoy visited Shenyang and other Chinese border towns with North Korea, Seoul officials said.

The six-party talks, involving South Korea, North Korea, the U.S., China, Russia and Japan, were last held in December 2008. North Korea has conducted two nuclear tests since then.

North Korea wants an unconditional resumption of the six-party talks, but South Korea and the U.S. demand that Pyongyang first take concrete steps to show its denuclearization commitment. South Korea and the U.S. have also urged China to do more in reining in North Korea.

<http://english.yonhapnews.co.kr/search1/2603000000.html?cid=AEN20141031009800315>

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The Washington Post – Washington, D.C.

Ebola Crisis Rekindles Concerns about Secret Research in Russian Military Labs

By Joby Warrick

October 24, 2014

She was an ordinary lab technician with an uncommonly dangerous assignment: drawing blood from Ebola-infected animals in a secret military laboratory. When she cut herself at work one day, she decided to keep quiet, fearing she'd be in trouble. Then the illness struck.

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“By the time she turned to a doctor for help, it was too late,” one of her overseers, a former bioweapons scientist, said of the accident years afterward. The woman died quickly and was buried, according to one account, in a “sack filled with calcium hypochlorite,” or powdered bleach.

The 1996 incident might have been forgotten except for the pathogen involved — a highly lethal strain of Ebola virus — and where the incident occurred: inside a restricted Russian military lab that was once part of the Soviet Union’s biological weapons program. Years ago, the same facility in the Moscow suburb of Sergiev Posad cultivated microbes for use as tools of war. Today, much of what goes on in the lab remains unknown.

The fatal lab accident and a similar one in 2004 offer a rare glimpse into a 35-year history of Soviet and Russian interest in the Ebola virus. The research began amid intense secrecy with an ambitious effort to assess Ebola’s potential as a biological weapon, and it later included attempts to manipulate the virus’s genetic coding, U.S. officials and researchers say. Those efforts ultimately failed as Soviet scientists stumbled against natural barriers that make Ebola poorly suited for biowarfare.

The bioweapons program officially ended in 1991, but Ebola research continued in Defense Ministry laboratories, where it remains largely invisible despite years of appeals by U.S. officials to allow greater transparency. Now, at a time when the world is grappling with an unprecedented Ebola crisis, the wall of secrecy surrounding the labs looms still larger, arms-control experts say, feeding conspiracy theories and raising suspicions.

“The bottom line is, we don’t know what they’re doing with any of the pathogens in their possession,” said Amy Smithson, a biological weapons expert who has traveled to several of the labs and written extensively about the Soviet-era weapons complex.

At least four military labs have remained off-limits to any outside scrutiny since the end of the Cold War, even as civilian-run institutions adopted more transparent policies and permitted collaborations with foreign researchers and investors, U.S. officials and weapons experts say. Even acknowledging — as most experts do — that Russia halted work on offensive bioweapons decades ago, the program’s opacity is a recurring irritant in diplomatic relations and a source of worry for security and health experts who cite risks ranging from unauthorized or rogue experiments to the theft or accidental escape of deadly microbes.

Enhancing the threat is the facilities’ collection of deadly germs, which presumably includes the strains Soviet scientists tried to manipulate to make them hardier, deadlier and more difficult to detect, said Smithson, now a senior fellow with the James Martin Center for Nonproliferation Studies, a research institute based in Monterey, Calif.

“We have ample accounts from defectors that these are not just strains from nature, but strains that have been deliberately enhanced,” she said.

Other countries, including the United States, also conduct military research on defending against biological threats, including Ebola — a fact that draws criticism from some health experts and charges of hypocrisy from Russia. Pentagon officials counter that U.S. biodefense laboratories are subject to oversight and regular inspections by outside agencies.

Russian officials defend their right to military secrecy and point to tangible benefits from years of Ebola research. This month, Russian officials announced experimental Ebola vaccines developed by the same two labs that lost workers to Ebola accidents: the Defense Ministry’s Microbiology Research Institute at Sergiev Posad and the Vector Center for Virology and Biotechnologies in the Siberian city of Novosibirsk.

“Vaccines are ready,” Valery Chereshnev, chairman of a science committee in the Russian parliament, told the news agency Tass last week.

Two Ebola accidents

The Sergiev Posad lab was the site of the first of the two Ebola accidents, which today remain the only known cases in which lab workers died from inadvertent exposure to the virus. Similar exposures occurred in labs in the United States, Germany and Britain, but in those cases the victims survived.

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In the 1996 incident, first documented in Russian-language news accounts and later described by author David Quammen in his 2012 book, "Spillover," a worker named Nadezhda Makovetskaya cut herself at a facility that was developing an experimental treatment for Ebola derived from blood serum from horses.

The job was unusually risky because of the test animals' size, Lt. Gen. Valentin Yevstigneyev, a Defense Ministry official overseeing biodefense work, was quoted as telling Russian journalists.

"It is difficult to describe working with a horse infected with Ebola," he said. "One false step, one torn glove and the consequences would be grave."

Despite wearing layers of protective clothing, the woman suffered a cut that penetrated her gloves, he said. Makovetskaya hid the accident from her bosses until it was too late, he said. Her death would be noted in records of the World Health Organization as the first Ebola fatality stemming from a laboratory accident anywhere in the world.

In the second incident, a Russian lab worker contracted Ebola in 2004 while working with infected guinea pigs in the Vector virology research center outside Novosibirsk. The victim, Antonina Presnyakova, 46, was drawing blood from one of the animals on May 4 when she accidentally pricked her left hand with a needle that pierced two layers of gloves.

Presnyakova was immediately hospitalized, but despite medical treatment she contracted the disease and died two weeks later.

A notorious past

The facilities that reported the accidents have a notorious past, having once been part of a larger complex of Soviet laboratories and testing facilities devoted to the science of biological warfare.

Russian President Boris Yeltsin confirmed the existence of the secret program to top U.S. officials in the early 1990s after declaring an end to bioweapons research in the months after the Soviet Union's dismantling. Afterward, successive U.S. administrations dispatched experts and resources to the former Soviet republics to help secure dangerous pathogens and support the transition to peaceful research at civilian-run labs, including Vector, one of two known repositories for the smallpox virus.

U.S. experts collected first-person accounts of the research and visited outdoor testing facilities where dogs, monkeys and other animals were exposed to deadly pathogens, encounters described in the Pulitzer Prize-winning history "The Dead Hand," by former Washington Post editor David Hoffman. But Russian officials refused to grant access to military laboratories and never offered a full accounting of past weapons research or described how they disposed of weaponized biological agents.

But more recently, new historical scholarship, drawing from Soviet-era records and interviews with Russian scientists, has offered deeper insight into Soviet efforts to make weapons out of a wide range of pathogens, from anthrax bacteria to the viruses that cause Marburg fever and Ebola.

According to these accounts, much of the Ebola research appears to have been devoted to developing vaccines to protect Red Army troops against the disease. But scientists also ran experiments intended to optimize the virus's growth and isolate the parts of its genome that make it deadly, said Raymond Zilinskas, a microbiologist and co-author of "The Soviet Biological Weapons Program," an exhaustive history published in 2012 by Harvard University Press.

As Soviet scientists worked in secret to manipulate the virus, other teams constructed large fermenters and production facilities that could reproduce the altered pathogens on an industrial scale, Zilinskas said.

"There is only one reason why you would have a large production of these viruses, and that's for offensive purposes," said Zilinskas, who, along with co-author Milton Leitenberg, spent more than a decade interviewing Russian scientists and other officials with direct knowledge of the program.

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In the years just before the Soviet Union's collapse, the program's managers plunged into novel experiments — with code names such as “Hunter” and “Bonfire” — that sought to create superbugs that would resist common antibiotics, or combine elements of different microbes to increase their lethality. Sergei Popov, a former Vector scientist who defected to the West, described work on creating a “completely artificial agent with new symptoms, probably with no ways to treat it.”

“Nobody would recognize it. Nobody would know how to deal with it,” Popov said in an interview broadcast on the PBS program “Nova” in 2002, a few years after the scientist settled in the United States. Popov declined a request for an interview this week.

Ultimately, the effort to concoct a more dangerous form of Ebola appears to have failed. Mutated strains died quickly, and Soviet researchers eventually reached a conclusion shared by many U.S. biodefense experts today: Ebola is a poor candidate for either biological warfare or terrorism, compared with viruses such as smallpox, which is highly infectious, or the hardy, easily dispersible bacteria that causes anthrax.

Things might have turned out differently if the Soviets had continued their work, Zilinskas and Leitenberg suggest in their account. The science of genetic modification was still in its infancy at the time Yeltsin outlawed the program, essentially freezing the research in place.

“Most, if not all, of the recombinants created in the laboratory were not close to being weaponized,” the book states. Still, it adds: “One must assume that whatever genetically engineered bacterial and viral forms were created . . . remain stored in the culture collections of the Russian Federation Ministry of Defense.”

http://www.washingtonpost.com/national/health-science/ebola-crisis-rekindles-concerns-about-secret-research-in-russian-military-labs/2014/10/23/ce409716-5945-11e4-b812-38518ae74c67_story.html

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RIA Novosti – Russian Information Agency

Russia Test Fires Bulava Sea-Based Ballistic Missile

29 October 2014

MOSCOW, October 29 (RIA Novosti) - Russia has successfully test-fired a Bulava submarine-launched ballistic missile (SLBM) from the Borey-class Yury Dolgoruky nuclear-powered submarine, the Russian Defense Ministry said Wednesday.

The missile was launched from the submerged submarine at a location in the Barents Sea and hit a designated target at the Kura test range on Russia's Kamchatka peninsula, the ministry said in a statement.

According to the statement, it was the first operational test launch of Bulava in line with the program of combat training. All previous launches were part of development testing.

The three-stage Bulava SLBM carries up to 10 independent warheads and has a range of 8,000 kilometers (5,000 miles).

Earlier in October, a source in the Russian military-industrial complex said there would be two Bulava launches by the end of 2014, one from the the Alexander Nevsky nuclear submarine in November, and one - from Yury Dolgoruky in October.

In September, a Bulava missile was successfully test-fired from the Borey-class Vladimir Monomakh nuclear-powered submarine.

Bulava testing has encountered several failures in the past. In September 2013, during trials of the Aleksander Nevsky nuclear submarine a Bulava rocket malfunctioned. Following this incident, five additional Bulava launches were ordered.

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Despite the test failures, the Russian military insisted there was no alternative to the Bulava as the main armament for Russia's new Borey-class strategic missile submarines that are expected to become the backbone of the Russian Navy's strategic nuclear deterrent force.

<http://en.ria.ru/russia/20141029/194801278/Russia-Test-Fires-Bulava-Sea-Based-Ballistic-Missile.html>

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TASS Russian News Agency – Moscow, Russia

Russia to Restore Space Echelons of Missile Defense System

According to Deputy Defense Minister Yuri Borisov, Russia actually has no unprotected territories

October 30, 2014

MOSCOW, October 30. /TASS/. The Russian Defense Ministry will restore the space-based echelon of the missile attack early warning system, Deputy Defense Minister Yuri Borisov told reporters on Thursday. He said the missile launch monitoring spacecraft are part of the missile warning system, its first echelon. The system will also comprise a network of ground-based radar stations.

Russia is currently developing a single space system that is set to become a space echelon of the missile warning system, designed to detect and track launches of ballistic missiles around the world.

Borisov said the nuclear strike systems are now actively being developed, in particular, the creation of manoeuvring ballistic targets and the missile penetration system development is underway, so the role and place of the space echelon of the missile warning system will be constantly growing.

General designer of the missile warning system Sergey Boyev told TASS in early October that the first new satellites will be orbited in 2015.

The last satellite of the Oko-1 system that had been created in the 1990s for warning about launches of intercontinental ballistic missiles (ICBM) was decommissioned in April. The military said then that of the total 6 spacecraft in the missile warning system's space echelon only 2 remained and so they could perform their tasks only for three hours per day.

"The system restoration work is going on schedule," the deputy defense minister said. "After the first launches of the satellites that will form the unified space system, the first echelon's importance will be increasing." He said Russia "actually has no unprotected territories." "We are reliably protected from all missile-threat directions. The work will be continued," he said.

The Western sanctions against Russia are unlikely to seriously affect the terms of the project's implementation and the quality of the system, the chief designer said.

<http://en.itar-tass.com/russia/757309>

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TASS Russian News Agency – Moscow, Russia

Share of New Armaments in Russian Strategic Nuclear Forces Reaches 55% — Putin

Combat skills of Russian troops have improved considerably, says Vladimir Putin

October 31, 2014

MOSCOW, October 31. /TASS/. Russia's military doctrine is defensive and its main objective is ensuring the country's sovereignty, peace and calm for its citizens, Russian President Vladimir Putin said at a meeting with top-ranking officers on Friday.

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Referring to the supplies of modern equipment to the army, Putin said that today the share of new armaments in the country's strategic nuclear forces has already reached 55%, in the Air Force - about 35% and in the Navy - more than 50%, and in the ground forces the armoured and automobile equipment has been almost 70% renewed.

The president also said that combat skills of Russian troops have been considerably improved, which has been confirmed by snap checks in the forces and units and the results of more than 3,000 military exercises of various level.

<http://en.itar-tass.com/russia/757667>

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RIA Novosti – Russian Information Agency

Islamic State Militants Fire Iraqi Anbar Province with Chlorine Shells

26 October 2014

BAGHDAD, October 26 (RIA Novosti) – Islamic State (IS) militants fired chlorine-filled shells on a residential district in Iraqi's western Anbar Province, commander of the rapid intervention forces in Anbar, Shaaban Obaidi said Sunday.

"The militants of "Daesh" [the Arabic for Islamic State] fired seven shells filled with chlorine on the residential district in Al Anbar," the local Khabarnet News Agency quoted Obaidi as saying.

According to the commander, no casualties were registered as a result of the shelling, as residents had left the buildings and some shells did not explode.

In September, Iraqi media said that the IS militants fired the city of Dulu'iyya with shells that contained toxic substances, presumably chlorine.

A week after the news of the incidents in Dulu'iyya was released, Iraqi mass media, referring to a member of Iraq's parliament, reported that 300 soldiers, who were trapped in the suburbs of Fallujah, were killed by a chlorine attack.

Iraq's Ministry of Defense stated on September 28 that IS extremists have used chlorine in fougasses several times, but do not currently possess enough chlorine to cause severe destruction.

The IS, also known as the Islamic State of Iraq and Greater Syria (ISIS) or the Islamic State of Iraq and the Levant (ISIL), has been fighting the Syrian government since 2012. In June 2014, the group extended its attacks to northern and western Iraq, declaring a caliphate on the territories over which it had control.

<http://en.ria.ru/world/20141026/194624171/Islamic-State-Militants-Fire-Iraqi-Al-Anbar-Governorate-With.html>

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Tasnim News Agency – Tehran, Iran

Iran Says Ultimate Nuclear Deal Possible

October 27, 2014

TEHRAN (Tasnim) – Iranian President Hassan Rouhani reiterated on Monday that a final nuclear agreement between Tehran and world powers is within reach provided that the other side shows political will.

"If the negotiating parties have the necessary political will as well (as Iran) in this regard, achieving the comprehensive agreement will be possible within the next month," President Rouhani said in a meeting with Norway's new ambassador to Iran, held in Tehran on Monday.

The Iranian chief executive also underscored that Tehran has so far taken "very positive steps" in the course of nuclear talks with the Group 5+1 (Russia, China, the US, Britain, France and Germany).

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Rouhani noted that clinching the long-awaited nuclear deal in the shape of a “win-win approach” will contribute to the enhancement of Iran’s ties with the whole members of the European Union, including Norway.

As regards the mutual cooperation in the international arena, Rouhani said Tehran and Oslo can hold consultations to help settle a range of problems, such as extremism and terrorism.

For her part, the new Norwegian ambassador, Odyssey Norheim, expressed the Scandinavian country’s determination to broaden ties with Iran.

She also stressed that Norway recognizes Iran’s right to enjoy nuclear energy for peaceful purposes, expressing the hope for the final accord on Iran’s nuclear case before a November 24 deadline.

Iran and the six powers are in talks to iron out differences and secure an agreement that would end the West’s 12-year-old standoff on Tehran’s peaceful nuclear program.

On November 24, 2013, Iran and the G5+1 signed an interim nuclear deal in the Swiss city of Geneva.

Based on the interim deal, the world powers agreed to suspend some non-essential sanctions and impose no new nuclear-related bans in return for Tehran’s decision to freeze parts of its nuclear activities.

In July, Tehran and the six countries agreed to extend negotiations until November 24 in the hope of clinching a final deal.

<http://www.tasnimnews.com/English/Home/Single/541959>

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FARS News Agency – Tehran, Iran
Tuesday, October 28, 2014

Vice-President Reaffirms Iran's Rigid Nuclear Stance

TEHRAN (FNA) - Iranian First Vice-President Eshaq Jahangiri renewed Tehran's firm stance in the ongoing negotiations with the 5+1 (the US, Russia, China, Britain and France plus Germany) group of powers, and said that the country's negotiators are moving within the framework of the guidelines of Iran's Supreme Leader.

"We frankly announce that the world should not think that we have closed our eyes waiting for the negotiations to bear results, we have planned and prepared ourselves for more difficult conditions," Jahangiri said, addressing a meeting in Arak city, Central Iran, on Tuesday.

He noted that the government moves within the framework of the policies of the Supreme Leader, and said, "We are insisting on defending the (Iranian) nation's nuclear rights."

Earlier this month, Iranian Foreign Minister Mohammad Javad Zarif said Tehran and the 5+1 group have not yet reached an agreement over their main bones of contention.

"There are outstanding differences, but it doesn’t mean that these differences cannot be resolved," Zarif told reporters after meeting EU foreign policy chief Catherine Ashton in Vienna on October 14.

"Of course, this doesn’t mean that a solution cannot be achieved. Everyone believes that this issue can be settled since actually, Iran's nuclear program is a peaceful program and a reality on the ground," he added.

Stressing that working on solutions is necessary, he said that during the Tuesday talks among the Iranian, EU and the US officials, the participants proposed different solutions in a series of serious discussions, but they have not yet reached a common conclusion and "I believe that in case there is a political will, reaching a solution will be possible".

He noted that as long as the two sides don’t agree on all issues, no agreement can be said to have been obtained on any single issue.

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"Yet, we still have time to reach an agreement," the Iranian lead negotiator concluded.

Iran and the six major world powers ended their 8th round of nuclear negotiations in Vienna on Thursday.

Zarif and Ashton presided over the 8th round of the talks between Tehran and the G5+1 in the Austrian capital.

The 7th round of talks between Iran and the Group 5+1 was held in New York on the sidelines of the UN General Assembly meeting last month.

The two sides held six rounds of negotiations in Vienna to reach a comprehensive deal after they inked an interim agreement in Geneva on November 24.

The Geneva agreement took effect on January 20 and expired six months later on July 20. In July, Tehran and the six countries agreed to extend negotiations until November 24 after they failed to reach an agreement on a number of key issues.

<http://english.farsnews.com/newstext.aspx?nn=13930806001605>

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Gulf News.com – Dubai, U.A.E.

Slim Chances of Iran Nuclear Deal by Deadline — Diplomat

The ball is in Iran's court, Western diplomat says

Agence France-Presse (AFP)

October 28, 2014

Paris: A deal on Iran's contested nuclear programme before a November 24 deadline is highly unlikely, a Western diplomat close to negotiations said on Monday.

"There are four-and-a-half weeks left to conclude a definitive pact. We are hoping for that but the chances are very slim," the diplomat said.

"The ball is in Iran's court" and Tehran would have to make "significant gestures," the diplomat added.

The six powers in the talks with Iran — Britain, China, France, Russia, the United States plus Germany, known as the P5+1 — have set November 24 as the deadline for a comprehensive deal.

The aim is to close avenues towards Tehran ever developing an atomic bomb, by cutting back its enrichment programme, shutting down suspect facilities and imposing tough international inspections.

In return, the global community would suspend and then gradually lift crippling economic sanctions imposed on the Islamic Republic.

But the two sides, despite long-running talks, remain far apart on how to reconcile their objectives.

The diplomat said the divisions between two sides remained great.

US Under Secretary of State Wendy Sherman has spoken of "a forest of distrust" between the West and Iran.

But in months of discussions since an interim agreement struck last November took effect in January, some progress has been made.

This includes possible changes in the design of an unfinished reactor at Arak so that it produces less weapons-grade plutonium, enhanced UN inspections, and alterations to Iran's fortified Fordo facility.

<http://gulfnews.com/news/region/iran/slim-chances-of-iran-nuclear-deal-by-deadline-diplomat-1.1404918>

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TASS Russian News Agency – Moscow, Russia

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Regular Round of Talks between Iran, P5+1 to Start in Vienna November 18

The outcome of the talks depends on the parties' political will and on who will make the first step, a source close to the negotiations told TASS

October 28, 2014

VIENNA, October 28. /TASS/. A regular round of talks between Iran and the P5+1 (five permanent members of the UN Security Council and Germany) at the level of political directors will start in Vienna on November 18, a source close to the negotiations told TASS on Tuesday.

Last week the experts-level consultations "were held well." "The results were achieved in all directions," the source said.

"The outcome of the talks depends on the parties' political will and on who will make the first step," it said.

<http://en.itar-tass.com/world/756862>

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Tasmin News Agency – Tehran, Iran

Iran Seeks Removal of All Sanctions/ No Deal Means Everything Back to Square One

October 30, 2014

TEHRAN (Tasnim) – A senior Iranian lawmaker called for the lifting of all anti-Iran sanctions before the November 24 deadline for a nuclear deal between Tehran and world powers.

"If we want a definitive accord on November 24, there must be an immediate lifting of sanctions," Alaeddin Boroujerdi, chairman of the Iranian Parliament's National Security and Foreign Policy Commission, said Wednesday in a press conference in Paris.

His comment came in reaction to a report carried last week by the Reuters News Agency which alleged that Iran's leadership would be satisfied with partial lifting of the embargos.

He further referred to a US proposal for gradual removal of sanctions and said it is unacceptable.

Later on Wednesday, Boroujerdi in an interview with France 24 news network, warned that Iran will resume its nuclear activities if no deal is reached with world powers by the November 24 deadline.

"If for any reason there is no agreement, then this path will no longer remain one-way, with us sticking to our end of the bargain, while our opposite numbers deliver nothing," he said. "If needs be, we will embark on a legal process ... to take everything back to square one."

Iran and the Group 5+1 (Russia, China, the US, Britain, France and Germany) are in talks to hammer out a final deal to end a decade of impasse over Tehran's peaceful nuclear energy program.

On November 24, 2013, Iran and the G5+1 (alternatively known as the P5+1 or E3+3) signed an interim nuclear deal in the Swiss city of Geneva.

Based on the interim deal, the world powers agreed to suspend some non-essential sanctions and impose no new nuclear-related bans in return for Tehran's decision to freeze parts of its nuclear activities.

The Geneva deal (the Joint Plan of Action) came into effect in January and expired in July, when the parties decided to extend negotiations until November 24 in the hope of clinching a final deal that would end a decade of impasse over Tehran's peaceful nuclear energy program.



In July, Tehran and the six countries agreed to extend negotiations until November 24 in the hope of clinching a final deal.

<http://www.tasnimnews.com/English/Home/Single/544789>

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The Jerusalem Post – Jerusalem, Israel

Iran says Foils Attempt to Sabotage Nuclear Heavy-Water Tanks

The Islamic Republic has repeatedly complained of alleged covert US and Israeli attempts to cripple its nuclear program.

By Reuters

October 30, 2014

Iran has foiled an attempt to sabotage tanks used for transporting heavy water, which is needed to run some nuclear reactors, and blames a "foreign country" for the incident, a senior official was quoted by local media as saying.

The Islamic Republic is at odds with the West over suspicions it is covertly using its declared civilian atomic energy program to develop a nuclear arms capability. It denies this and has repeatedly accused certain Western states of trying to cripple the program through acts of sabotage.

Asghar Zarean, deputy chief in charge of nuclear protection and security at Iran's Atomic Energy Organization, was quoted by the Tehran newspaper Arman as saying the bid to damage tanks at the Arak heavy-water production plant occurred two weeks ago.

"There were attempts to cause disruption in storage tanks due to carry heavy water. But these attempts were discovered and foiled before the tanks were filled with heavy water at Arak," Zarean was quoted as saying.

"A foreign country was behind the attempt," he said, without elaborating. Iranian officials could not be immediately reached for further comment.

The Arak plant has been producing heavy water to operate a planned 40-megawatt research reactor nearby that Iran says is intended to make isotopes for cancer and other medical treatments.

But in June it said that it was redesigning the Arak reactor to sharply cut its potential output of plutonium, a nuclear bomb material, a gesture apparently meant to address a thorny issue in negotiations with six world powers.

Iran also stopped installing major components in the Arak reactor as part of an interim deal struck with the powers in November 2013, and which expires next month, to curb some sensitive nuclear activity in exchange for limited relief from sanctions. Iran also agreed not to transfer heavy water to the reactor site under this temporary pact.

World powers are negotiating to strike a permanent settlement with Iran by a Nov. 24 deadline under which Tehran would curb its nuclear fuel enrichment work to ensure it cannot be applied to bomb-making in exchange for a phased removal of international sanctions that have hobbled its oil-based economy.

The Islamic Republic has repeatedly complained of alleged covert US and Israeli attempts to cripple its nuclear program.

Iran's intelligence minister said on Oct. 21 that several people seeking to engage in nuclear espionage "for foreigners" had been arrested in the southern province of Bushehr, where Iran's only nuclear power station is located.

In 2010, Iran's uranium enrichment facilities were temporarily impaired by a virus known as Stuxnet, which was widely believed to have been developed by the United States and Israel, although no government took responsibility for it.



In March of this year, pumps at the Arak reactor were subjected to a failed sabotage attempt, Iranian media quoted a senior official as saying at the time.

<http://www.ipost.com/International/Iran-says-foils-bid-to-sabotage-nuclear-heavy-water-tanks-380292>

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International Business (IB) Times – New York, NY

Iran Nuclear Program: IAEA Investigation into Potential Military Dimensions Is Faltering

By Erin Banco

October 31 2014

Leaders in the international community are waiting to see if Iran will agree to limit its nuclear program in exchange for the easing of economic sanctions by the Nov. 24 deadline for the P5+1 talks. But analysts say there is perhaps a more pressing issue, which is completely in the hands of the International Atomic Energy Agency, or IAEA, of the investigation into whether Iran plans to use its nuclear material to develop weapons.

The IAEA has worked for almost 60 years to prevent the proliferation of nuclear weapons, and has spent the last decade addressing the Iran nuclear threat. More recently, it has led a team of investigators to look into the possible military dimensions, or PMD, of Iran's nuclear material. The deal is meant to "strengthen their cooperation and dialogue aimed at ensuring the exclusively peaceful nature" of the program. The investigation was supposed to have been completed by the end of the summer, but the IAEA has not been able to get enough evidence, or answers from Iran, to determine if the country's nuclear program is for peaceful purposes.

The investigation is not part of the P5+1 and Iran Joint Plan of Action deadline. That deal was signed in November 2013 and the implementation of the agreement began in January 2014. The agreement, which was set to end in July with a final deal on the future of Iranian sanctions, was extended until Nov. 24. The IAEA and Iranian deal is part of a separate agreement that was part of a Framework for Cooperation, signed by both parties in November 2013.

Analysts said the Iran-IAEA agreement is more important than the outcome of the deal that will be announced next month.

"It is only if Iran has a dedicated secret program that one would be concerned," Robert Kelley, a fellow at the Stockholm International Peace Research Institute, said. Kelley previously worked on the Iraqi nuclear weapons investigation for the IAEA.

Another expert said the problem is that the people working on the Iran case don't have the resources or the expertise needed to complete the investigation. They lack the necessary intelligence gathering skills, he said. The expert, who asked to remain anonymous because he is not authorized to speak on the matter, said the IAEA has one person looking into Iran's centrifuges and two people looking at the potential for weaponization of its nuclear material.

There is a second issue that Kelley said could cause the entire PMD case to collapse: the information provided to the IAEA, almost exclusively by the U.S. and the U.K., is not enough to prove Iran has a clandestine nuclear weapons program. That information is in an intelligence document and is being investigated by the IAEA. The agency has asked Iran to respond to the allegations, and says that Tehran's answers were not adequate.

In an interview with Democracy Now!, Kelley told host Amy Goodman that, during his time working for the IAEA team in Iraq, what he "saw being presented to the American people by, say, Colin Powell's speech to the U.N., it was completely at odds with the truth." Now, he is seeing a similar trend in regard to IAEA and P5+1 rhetoric on Iranian capabilities, he said.



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"There are people who believe that Iran is a threat to the entire region, and any evidence they can develop against them is for that purpose. But I think if you're coming back to nuclear weapons, are they actually developing nuclear weapons? It's hard to say," he said.

Kelley told International Business Times that Iran has agreed to everything that has been asked, but the U.S. is now pressing the country to adhere to inspections that were never part of the original agreement. Members of Congress, Kelley said, are using the Iranian reaction to these demands to claim that Iran is not cooperating on the nuclear issue.

"That is simply not true," he said.

An IAEA statement in July said the agency was pleased with Iran's progress and cooperation under the Joint Plan of Action -- the agreement the country made with the P5+1, according to Kelley. The statement did not mention the PMD case between the IAEA and Iran, which, according to Kelley, is "a clear sign that moving toward the end of these negotiations, the PMD [case] may be swept under the rug."

<http://www.ibtimes.com/iran-nuclear-program-iaea-investigation-potential-military-dimensions-faltering-1716566>

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The New Indian Express – Chennai, India

Five Homegrown Missiles Lined Up for Tests in Nov

By Hemant Kumar Rout

27th October 2014

BALASORE: The Strategic Forces Command (SFC) of Indian Army has started preparations for a series of user trials of indigenously developed weapons systems from November 9. The missiles lined up for tests include nuclear capable Agni-II, Prithvi-II and Agni-III.

Defence sources said apart from the user trials, the Defence Research and Development Organisation (DRDO) is also preparing for two experimental trials of its long range missiles - Agni-V and Agni-IV. Both the missions assume significance as their successful tests would pave the way for their induction in the armed forces and serial production.

While Agni-II has been planned to be test fired on November 9, Prithvi-II is scheduled for November 14. Though the schedules for the rest three missiles of the Agni series have not been fixed, sources informed that these weapon systems would be tested between November 24 and December 30.

Preparations are on in full swing at both the test facilities of the DRDO at Chandipur and Wheeler Island. All the Agni series of missiles would be fired from the Wheeler Island and the Prithvi-II would be launched from Chandipur test range. User trials would be conducted by the SFC personnel with logistic support from the DRDO.

Prithvi-II has a strike range of 350 km and the capability to carry 500-kg warhead. It is thrusted by liquid propulsion twin engine and uses Advanced Inertial Guidance System (AIGS) with manoeuvring trajectory.

Similarly, 3,000-km range Agni-III is a short and two-stage missile. It can carry both conventional and nuclear warheads weighing around 1.5 tonnes.

After two successful test-firings of Agni-V from land-based mobile launchers, the DRDO is looking forward to the first canister-launch of the missile. It is capable of carrying a nuclear warhead of about 1.5 tonnes.

<http://www.newindianexpress.com/states/odisha/Five-Homegrown-Missiles-Lined-up-for-Tests-in-Nov/2014/10/27/article2494952.ece>

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Deccan Herald – Bangalore, India

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India Readies for Full-Fledged Test of Indigenous ICBM

Indo-Asian News Service (IANS)
October 29, 2014

New Delhi -- India is readying for the full-fledged test-firing from a canister of an indigenous long-range missile that carries a one-tonne nuclear warhead and can target cities as far as Beijing.

The previous two launches of the 5,000 km Agni-5 intercontinental ballistic missile (ICBM) with dummy warheads have been from open mobile launchers. The canisterised version has a much longer shelf-life, with the container being made of special steel that absorbs the blast of the takeoff.

"The test will happen by the end of November or early December. It will be another feather in the cap of Indian missile scientists," an official of the Defence Research and Development Organisation (DRDO) that developed the 50-tonne missile told IANS on condition of anonymity.

"We have already successfully fired two dummy missiles, and we are confident that the canister launch will be successful," the official added. The dummy missiles tested were of exact mass and height as the Agni-5, but without the warhead.

According to the official, in the launch, a gas generator inside the canister ejects the missile up to a height of about 30 metres. A motor is then ignited to fire the missile.

As the launch process happens inside a canister, it takes away the need of a jet deflector on the launcher that is otherwise needed for redirecting the high energy exhaust.

The strength of the surface of the launch pad is not a critical factor either, making it possible to launch the missile from anywhere.

In addition to giving the user more flexibility, a canister-based missile offers the option to launch at a very short notice and with less manpower.

"Canister launch provides the missile a quick reaction stop-and-launch system," the official said.

"As the missile is sealed in a canister, there is no impact on the outside environment. This protects the missile, and many pre-checks are not needed, making the launch process shorter," the official added.

The Agni-5 is the most advanced version of the Agni, or Fire, series, part of the Integrated Guided Missile Development Programme that started in the 1960s.

Before this, DRDO scientists successfully conducted from an underwater pontoon the K-15 ballistic missile that will be used to arm the Indian Navy's submarines.

<http://www.deccanherald.com/content/438484/india-readies-full-fledged-test.html>

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TASS Russian News Agency

Russia's Deputy FM Voices Concern over Risk Libyan Chemical Weapons may be put to Use

Although the Syrian issue is practically settled, the risk of chemical weapons getting into wrong hands in Libya still remains, says Russia's Deputy Foreign Minister Gennady Gatilov

October 29, 2014

VIENNA, October 29. /TASS/. The elimination of the last facilities related to Syria's chemical weapons program will be completed within months, Russia's Deputy Foreign Minister Gennady Gatilov told the media on Wednesday.

"The Syrian issue is practically settled, chemical weapons there have been eliminated. The few outstanding issues are of no cardinal importance to evaluating the chemical weapons situation," he said.

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In the meantime, Gatilov voiced alarm over the remaining risk chemical weapons in Libya might go out of control.”

“The country is practically disintegrated. Nobody controls anything. The risk of uncontrolled use of these chemical agents or weapons remains,” he warned.

“We talked about that long ago, when NATO’s bombardments were still in progress. We kept warning that it was fraught with the proliferation of these weapons about the entire region of North Africa. Now it has happened,” Gatilov recalled. “Some have been moved to Mali to end up in the hands of terrorists, and others were smuggled to Syria.”

Struggle against Islamic State

Gatilov warned there was a major risk the Islamic State might use chemical weapons. He remarked that the Russian Foreign Ministry did not have any evidence yet that extremist group had employed chemical warfare agents, but remarked that such risk did exist.

“Aware of the Islamic State’s tactics and its methods of conducting combat operations one cannot be certain this will not happen. One should be prepared for any march of events,” Gatilov said.

It will be difficult for the anti-terrorist coalition to achieve any results in the struggle against the Islamic State extremist group without cooperation with the Syrian authorities, Russian Deputy Foreign Minister Gennady Gatilov went on to say.

“From the very beginning the Syrian government said it was ready to cooperate in this issue. But we’re again faced with the position of our Western colleagues, who do not want to cooperate with the Bashar al-Assad government for their reasons — because they consider this regime illegitimate,” he said.

The present situation runs counter to international law when the coalition delivers strikes on the Syrian state. “Any actions that the coalition is taking towards the Islamic State (in the territory of Syria) are in essence considered illegal because without the legitimate government’s consent this can be only described as the violation of sovereignty and territorial integrity,” Gatilov said.

The Western partners were late in realizing the threat to justify terrorists. “We told our partners long ago, a couple of years ago, that it was necessary to look at the threat of terrorism. But unfortunately, nobody heard us because the Western countries had their goal, and indeed it (the goal) remains the only one: to overthrow the regime of (Syrian President) Bashar al-Assad,” he said.

“At that moment they believed that all measures were good. Now we’ve faced with the situation when terrorism went to Iraq from Syria. The Islamic State with the corresponding ideological attitude is created de facto in the territory of two Middle East states,” Gatilov said.

<http://en.itar-tass.com/world/757077>

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The Diplomat – Tokyo, Japan

OPINION/Features

US-China Need a Missile Launch Notification Deal

The United States and China should establish an advance launch notification agreement for long-range missile systems.

By Nicholas Cosmas, Meicen Sun, and John K. Warden for *The Diplomat*

October 27, 2014

In his July call with Chinese President Xi Jinping, U.S. President Barack Obama again called for an improved U.S.-China relationship defined by “increased practical cooperation and constructive management of differences.” But between territorial issues, cyber espionage, air-to-air standoffs, and countless other flare ups, there are few reasons to be optimistic about U.S.-China relations in the short or medium-term.

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One area where progress has been particularly slow is the strategic relationship. Throughout the Obama administration, Washington has called for an official, Track-I discussion centered on nuclear weapons and strategic capabilities—to include nuclear weapon posture, missile defense, and long-range conventional strike—but Beijing has declined. Chinese interlocutors maintain that China, as the weaker power, has not reached the point where such discussions with the United States are appropriate.

Yet both sides acknowledge that the United States and China have a shared interest in improving strategic communication. In April, U.S. Secretary of Defense Chuck Hagel and Chinese Minister of Defense Chang Wanquan proposed a “military notification mechanism of major military activities.” Advance notification would allow the two countries to avoid misperception, miscalculation, and inadvertent escalation in times of crises.

Under the broader military notification umbrella, the United States and China should establish a reciprocal advance launch notification agreement for long-range missile systems. Such an agreement would serve two purposes. First, it would establish the foundation for a broader military notification mechanism. Second, it would serve as a test case for informal arms control arrangements.

Fortunately, both the United States and China have experience with launch notification agreements. The United States and the Soviet Union agreed to the first such agreement, the Accident Measures Agreement, as part of the Strategic Arms Limitation Talks (SALT) in 1971. At the 1988 Moscow Summit, they signed the more expansive Ballistic Missile Launch Notification Agreement, which for the first time required prior notification for all strategic ballistic missile launches. China and Russia negotiated a separate bilateral ballistic missile launch notification agreement in 2009. This was the first time that China agreed to share information about its ballistic missile launches. However, despite these parallel agreements, the United States and China have been unwilling to share information with each other about strategic capabilities.

To improve communication and build trust, the United States and China should develop a launch notification agreement that includes not only intercontinental ballistic missiles and submarine-launched ballistic missiles, but also long-range conventional strike and ballistic missile defense interceptors. Each country should submit to notifying the other at least twenty-four hours in advance of the planned date, launch location, and area of impact of launches for any of the included systems. Because live-tests of strategic systems are infrequent, the agreement would likely cover only a handful of launches each year.

A U.S.-China advance launch notification agreement would have a number of benefits. First, it would ensure that launches are not misinterpreted as attacks. Mistaken retaliation is a low-risk, but potentially catastrophic scenario. An advance notification mechanism would ensure that each country can easily inform the other when it carries out a test or launches a missile at a third-party. Second, it would reduce misunderstanding about capabilities and each country’s testing regime. Both sides would, in particular, be interested to learn about the parameters of the other’s ballistic missile defense testing program, hypersonic capabilities, and the development of new long-range missiles. With this information at their disposal, military planners in both countries could avoid worst-case assumptions. Third, it would improve both sides’ early warning capabilities. Advance notification would aid efforts to identify characteristics of particular missiles via national technical means and potentially offer a way to distinguish between conventional and nuclear-armed missiles. Finally, a launch notification agreement would lay the groundwork for future confidence-building measures. The agreement would demonstrate the benefits of increased transparency and build the mechanisms and expertise for future steps to enhance strategic stability.

These benefits would be amplified if the United States and China went further and included a provision requiring the exchange of telemetry (technical data that a missile sends to operators during flight) for each test. The United States and Russia agreed to exchange such data in START I and continue to do so in a more limited fashion under New START. Exchanging this data would give both sides a better picture of the types of capabilities that the other is developing and fielding and, perhaps most important, show that neither has anything to hide.

There would, of course, be obstacles, but these can be managed. For example, both sides might worry about asymmetric benefits. The United States has a far more advanced capability than China to detect and predict launches of ballistic missiles around the world. As a result, some U.S. analysts might argue that the United States is

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giving up a lot of information for little benefit. Chinese analysts, on the other hand, might argue that the United States would gain greater insight from data provided. A well-crafted agreement, however, would allow each to demonstrate that, even if somewhat asymmetrical, the benefits outweigh the costs. Namely, that the reduced risk of miscalculation outweighs the cost of more accurate military planning.

A second obstacle is the security of information. China would be most concerned with Japan's access to Chinese launch information. Japan has a close alliance relationship with the United States, and China is suspicious of its expanding defense capabilities. The United States would be most concerned with the transfer of intelligence to North Korea. The United States has been critical of China's stance toward North Korea's nuclear program and would worry that information about its strategic systems would improve North Korean military planning. To allay such fears, the two sides must exclude the most sensitive information and provide reliable guarantees that shared information will not be passed to third parties.

To begin to operationalize such an agreement, the United States and China should gather technical and policy experts in a Track-II working group dedicated exclusively to launch notification. U.S. and Chinese experts have experience working together through informal mechanisms such as the Pacific Forum CSIS-Naval Postgraduate School U.S.-China Strategic Dialogue and could take those discussions to the next level by addressing a specific policy challenge. A well-implemented Track-II framework would elucidate the benefits and obstacles of a launch notification agreement, while providing each side with timely information about relevant technological and policy developments—a confidence-building measure in and of itself.

In service of eventual government adoption, the working group could answer a number of relevant questions. First, would a U.S.-China launch notification agreement enhance strategic stability and improve the U.S.-China relationship? Second, for the purposes of this agreement, what should constitute a “long-range missile system?” Third, are there any lessons from the U.S.-Soviet or China-Russia agreements that should inform the U.S.-China agreement? Finally, should the agreement be extended beyond notifications to include on-site monitoring or the exchange of telemetry data?

As the Track-II group begins to hammer out the details, the governments could establish trust and build momentum for the proposal by providing post-launch notifications for long-range missile and interceptor tests. As an interim step, this would allow both countries to become comfortable with sharing launch information and start to reduce misunderstanding.

There is no panacea for U.S.-China relations, but small, incremental steps can have an important impact. Even as the relationship remains rocky, mechanisms for strategic dialogue and communication can prevent inevitable crises from spiraling out of control.

Nicholas Cosmas is a foreign area officer in the United States Army. Meicen Sun is a doctoral student at the University of Pennsylvania. John K. Warden is a WSD-Handa Fellow at the Pacific Forum CSIS.

This article builds on discussions at the Pacific Forum CSIS-Naval Postgraduate School US-China Strategic Dialogue on June 8-10, 2014 in Ihilani, Hawaii. All views expressed are those of the authors and do not necessarily represent the views of the organizations with which they are affiliated.

<http://thediplomat.com/2014/10/us-china-need-a-missile-launch-notification-deal/>

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The Daily Signal.com – Washington, D.C.

OPINION/Commentary

US General: North Korea Now Has Nuclear Warheads for Missiles

By Bruce Klingner

October 27, 2014

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North Korea now has the ability to produce a miniaturized nuclear warhead that can be mounted atop a ballistic missile.

That is the assessment of Gen. Curtis M. Scaparrotti, the senior U.S. commander on the Korean Peninsula, as he talked to reporters Friday. Scaparrotti also concluded that Pyongyang has a functioning long-range mobile missile launcher.

Although North Korea has conducted three nuclear explosion tests and several medium-and long-range missile test firings, it had not been known whether the regime had developed a nuclear warhead sufficiently small to fit on top of a missile with the range to reach the continental United States.

“Personally I think that they certainly have had the expertise in the past. They’ve had the right connections [with Iran and Pakistan],” commented Scaparrotti, “and so I believe have the capability to have miniaturized a [nuclear] device at this point, and they have the technology to potentially actually deliver what they say they have [and] I think they have a launcher that will carry it at this point.”

To date, experts have predominantly asserted that North Korea would not master for several more years the ability to miniaturize a nuclear warhead and deliver it via missile. Media reports habitually declare that North Korean missiles cannot yet reach the United States.

However, as I testified before Congress in March 2014, that benign assumption is flawed since, for example, it gives insufficient weight to Pyongyang’s lengthy collaborative nuclear and missile relationship with Pakistan, a country that all experts assess already has nuclear weapons deliverable by missile. North Korean scientists provided critical assistance to Islamabad’s missile programs in return for reciprocal uranium-based nuclear weapon expertise, technology and components.

Available unclassified evidence indicates North Korea has likely already achieved warhead miniaturization, the ability to place nuclear weapons on its medium-range missiles and a preliminary ability to reach the continental United States with a missile.

Indeed, Scaparrotti’s remarks appear part of an increasingly stronger U.S. military assessment of the North Korean nuclear threat. After South Korea recovered components of the North Korean December 2012 long-range missile launch, Vice Chairman of the Joint Chiefs of Staff Adm. James Winnefeld stated in March 2013, “We believe the KN-08 [long-range missile] probably does have the range to reach the United States.”

U.S. experts concluded that the recovered North Korean missile provided “tangible proof that North Korea was building the missile’s cone at dimensions for a nuclear warhead, durable enough to be placed on a long-range missile that could re-enter the earth’s atmosphere from space.” A U.S. official added that South Korea provided other intelligence suggesting that North Korea had “mastered the miniaturization and warhead design as well.”

Following an August 2013 meeting between South Korean Minister of Defense Kim Kwan-jin and U.S. Secretary of Defense Chuck Hagel, a Ministry of Defense official commented that both countries agreed that North Korea could “miniaturize nuclear warheads small enough to mount on ballistic missiles in the near future.”

During heightened tensions in 2013, Pyongyang threatened to turn Seoul and Washington into “seas of fire” through a “precise nuclear strike.” North Korea has repeatedly declared that it will never negotiate away the “treasured sword” of its nuclear arsenal, even revising the constitution to enshrine itself as a nuclear nation.

Last year, North Korean leader Kim Jong-un declared that he would, “increase the production of precision and miniaturized nuclear weapons and the means of their delivery and ceaselessly develop nuclear weapons technology to actively develop more powerful and advanced nuclear weapons.”

Bruce Klingner, a senior research fellow for Northeast Asia at The Heritage Foundation’s Asian Studies Center, spent 20 years in the intelligence community working at the CIA and Defense Intelligence Agency.

<http://dailysignal.com/2014/10/27/us-general-north-korea-now-nuclear-warheads-missiles/>

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Lowry Interpreter.org – Australia
OPINION/The Interpreter

Misinterpreting China's Nuclear Posture

By Wu Riqiang
28 October 2014

This post is part of a debate on Sea-based nuclear weapons and strategic stability

18 of 18

In this debate, both Thomas Mahnken and Elbridge Colby argue that a secure sea-based second-strike capability might embolden China to pursue a more aggressive foreign policy.

Their arguments are based on an article by Thomas Christensen, which drew the conclusion that China's nuclear strategy is based on a textbook of the PLA's Second Artillery Corps, *Science of Second Artillery Campaigns*, which calls for blurring the line between conventional and nuclear war.

Christensen's conclusion is problematic for several reasons.

First, the Second Artillery is responsible for implementing China's nuclear strategy, not making it. This is the responsibility of China's top political leadership.

Second, Christensen mistranslates a critical term and misunderstands the cultural context in which the textbook was written. Christensen interprets the terms of 'conventional war under nuclear deterrence', 'double deterrence' and 'nuclear forces as a shield for conventional forces' as if China would combine nuclear and conventional coercive means to achieve its diplomatic objectives. But the original meaning in Chinese is that if an adversary were to use nuclear forces as coercion against China in a conventional conflict, China would need its own nuclear capabilities to deter this potential coercion.

Rather than emboldening China to pursue a more aggressive foreign policy, a secure nuclear retaliatory capability will give China an equal footing in which to fight a conventional war with the US, where neither side could coerce the other with nuclear weapons. Recall that the direct driving factor of China's nuclear weapons program was the nuclear threats from America during the Korean War and Taiwan Crisis. China has already achieved mutual deterrence with America, and current China-US strategic relations are stable. However, US homeland missile defence has the potential to neutralise China's nuclear deterrent, and China may be forced to build up its nuclear arsenal in order to restore strategic stability.

Thomas Mahnken also mentioned the 'consequential' fact that China apparently, to some extent, co-mingles the deployment and command and control of its nuclear and conventional forces. While sharing his concern on possible escalation, two points have to be made.

First, China does operate both conventional and nuclear ballistic missiles, but China does not deliberately co-locate its conventional and nuclear missiles to confuse its adversary. Conventional and nuclear missiles require different operating sites, so technically it is not easy to co-locate them. Besides, co-locating different missiles to confuse the adversary would undermine the survivability of China's nuclear forces, which is not in China's interest.

Second, every country to some extent, including America, co-mingles the deployment and command and control of its nuclear and conventional forces. For example, America co-mingles the deployment of its SSNs and SSBNs, and US strategic bombers could be used for both conventional and nuclear purposes.

Potential China-US conflict escalation is a focus of current international relations scholarship. China is developing asymmetric means (in American terms, anti-access/area denial capabilities) to counter superior US military forces, and accordingly America is developing the Air-Sea Battle concept to address that. We should make it very clear that it is the interaction between these strategies that would cause escalation, rather than the strategies themselves. In order to understand the mechanism and try to reduce the escalatory risk, we need to analyze both sides' strategies and their interaction.

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Simply blaming one side is not constructive and will not help.

Wu Riqiang is Associate Professor at School of International Studies, Renmin University of China. He received his PhD in politics from Tsinghua University in 2012. Before that, he worked for six years at the China Aerospace Science and Industry Corporation as a missile designer.

<http://www.lowyinterpreter.org/post/2014/10/28/Misinterpreting-Chinas-nuclear-posture.aspx?COLLCC=1156470430&COLLCC=2553573231&COLLCC=1219869445&>

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RT (Russia Today) – Moscow, Russia

OPINION/Op-Edge

Russian Approaches to Nuclear Disarmament

By Dr Alexander Yakovenko

October 30, 2014

Elimination of the threat posed by weapons of mass destruction, including nuclear weapons, remains one of the key priorities of the international community.

Russia works actively to that end taking concrete steps for limitation and reduction of its nuclear arsenals. Over the last 25 years, they have been reduced many times over. Under the New START Treaty, Russia and the US have set a goal of reaching new agreed limits of warheads, means of delivery and launchers by 2018. We think that this goal is achievable.

Another existing agreement between Russia and the US in the field of nuclear missiles is the Treaty on Intermediate-Range and Shorter-Range Missiles (INF). Unfortunately, our American partners have been committing violations of the Treaty. These include the use of target missiles during tests of missile defense system, as well as strikes by unmanned aerial vehicles. The scheduled deployment of Mk-41 launchers in Europe would also become a serious violation of the INF Treaty. We hope that as a result of the dialogue that has started on these issues, the US will return to compliance with this important agreement.

It is obvious that for further advancement towards a nuclear-free world it is necessary to establish appropriate international conditions. The most essential is ensuring equal security and maintaining strategic stability. As President Putin put it recently at the final plenary meeting of the Valdai Club, Russia is *“ready for the most serious, concrete discussions on nuclear disarmament – but only serious ones without any double standards.”*

We have repeatedly drawn attention to the factors that negatively impact strategic stability. One of the extremely destructive factors is the unilateral development by the US of the global missile defense system, which could be a serious impediment on the way to further nuclear disarmament and even create dangerous prerequisites that could lead to the resumption of a nuclear arms race.

We also have growing concerns over the US concept of Prompt Global Strike. It poses risks especially when undertaken within the context of the policy aimed at establishing overwhelming military supremacy. It, too, will negatively influence the prospects for nuclear disarmament. As President Putin said, *“the use of a so-called first global pre-emptive strike may become tempting.”*

Moreover, the threat of the placement of weapons in outer space also has negative influence on strategic stability. Over several decades no practical solutions have been agreed in that regard at the UN General Assembly. Under the circumstances we believe that it is time to take measures to prevent turning outer space into an arena of military confrontation. Ten years ago Russia launched the initiative to undertake political commitments not to be the first to place weapons in outer space. Ten UN member-states have joined this initiative. We call on everyone who shares the goal of keeping outer space free of weapons to join the co-sponsors of a draft resolution that we traditionally present at the UNGA together with our partners.

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We believe that it is important to move towards a legally binding prohibition of the placement of weapons in outer space. The updated draft of an international treaty on this issue was presented jointly by Russia and China at the Conference on Disarmament in June this year. We are looking forward to its thorough and constructive examination by the international community.

The statements, views and opinions expressed in this column are solely those of the author and do not necessarily represent those of RT.

Dr Alexander Yakovenko, Russian Ambassador to the United Kingdom of Great Britain and Northern Ireland, Deputy foreign minister (2005-2011).

<http://rt.com/op-edge/200847-nuclear-disarmament-treaty-russia-us/>

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The Nukes of Hazard Blog.com – Washington, D.C.

OPINION/Blog

The Unaffordable Arsenal

By Greg Terryn

October 30, 2014

Top government officials are in agreement that current plans to rebuild our nuclear arsenal (to the price tag of at least \$355 billion over the next decade and up to \$1 trillion over the next 30 years) are overly ambitious and likely unaffordable. Add in a defense budget that's already stretched thin, always-looming budget caps and sequestration, new international security challenges like Russian expansion in Ukraine, terrorist expansion in Iraq and Syria, and the Ebola virus in Africa, and it's safe to say the US budget is burning its 'defense candle' at both ends.

The Arms Control Association (ACA) has released a report on just this issue, urging the "executive branch, Congress, and the American public to rethink current plans to rebuild U.S. nuclear forces in the years ahead." The nuclear shopping list is a long one: new ballistic submarines, new nuclear-capable bombers, land-based intercontinental ballistic missiles, a new air-launched cruise missile, and an upgrade to five nuclear warhead types. By paring down that list, ACA has highlighted some commonsense solutions to save roughly \$70 billion dollars in the next decade. A summary of ACA's recommendations follows.

Strategic Submarines - SSBN(X): Save \$16 billion/10 years

A 2013 report by the CBO analyzed the option of reducing the SSBN(X) force to 8 boats. Under this scenario, the Navy would still have a robust deterrent and be able to deploy the maximum number of warheads at sea, consistent with the New START treaty.

Long-Range Bombers – LRSB: Save \$32 billion/10 years

Because the current US bomber fleet will operate into the 2040s-50s, there is no urgency for a renovation. By delaying the LRSB until the mid-2020s, the USAF can free up \$32 billion dollars for other projects that have more urgent funding needs.

Air-Launched Cruise Missile – ALCM: Save \$3 billion/10 years

The recently rebuilt gravity bomb (B61-12) gives our current bombing fleet the capability to drop nuclear weapons, drawing the need for a new air-launched cruise missile into question. Not only is this weapon unnecessary, as our submarines are capable of launching a nuclear ballistic missile, but it would serve as an effective bargaining chip on the international stage. Discontinuing our ALCMs as part of a global ban on nuclear-armed cruise missiles would eliminate the growing threat of a Chinese or Pakistani cruise missile while simultaneously saving at least \$3 billion dollars in development and procurement costs.

B61 Life Extension Program – LEP: Save \$4 billion/10 years

The B61 Life Extension Program is designed to extend the lives of 400 gravity bombs for tactical (front lines) and

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strategic (reserves) purposes. The two most costly portions of the program are a consolidation plan of four versions of the bomb into one and the refurbishment of some of the nuclear components. This program has faced budget pressures in Congress and would be better served by scaling back the program to update our strategic reserve bombs while allowing our tactical bombs in Europe to age out gracefully. This or other reductions to the program, such as discontinuing the 4-in-1 modification plans for the bomb, will allow for cost savings up to 4 billion dollars over the next decade.

Intercontinental Ballistic Missiles – ICBMS: \$16 billion/10 years

The Air Force's 450 ICBMs are scheduled for maintenance to ensure their reliability through 2030. The Air Force is expected to decide by 2016 whether they will employ incremental modernization of the missiles, or scrap the current design and create new ones. A 2014 RAND study sponsored by the Air Force to analyze options for the ICBM determined that incremental modernization would both meet the US's nuclear deterrent needs and be the most cost-effective. The USAF would save at least \$16 billion dollars by forgoing a new missile and an additional \$84-\$219 billion (not included in above projections) by forgoing potential mobile-basing options which have been considered ineffective since the 1980's.

These options illustrate ways to safely trim the bloated nuclear budget while maintaining our nuclear deterrent. This creates a win-win scenario for the Department of Defense, which will preserve the nuclear arsenal from uncontrolled cuts as a result of an overly ambitious budget and secure funding for its conventional forces. In a world where nuclear exchanges are most commonly associated with global destruction, these nuclear exchanges to the budget are both sensible and necessary.

Greg Terryn is a Scoville Fellow at the Center for Arms Control and Nonproliferation.

<http://nukesofhazardblog.com/story/2014/10/30/103356/10>

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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.

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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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Phone: 334.953.7538 | Fax: 334.953.7226