REPI AND RESILIENCE

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Introduction

In recent years, hurricanes, unprecedented rainfall events, wildfires, and rising temperatures have resulted in billions of dollars in damage to military installations and significant readiness impacts. In one recent stretch, hurricanes in Florida and North Carolina, coupled with record floods in Nebraska, imposed nearly $10 billion in costs to DoD.

As the impacts of climate change are increasingly felt across the military enterprise, resilience has become a higher and higher priority, both within the Department of Defense and in Congress. These impacts will increase, and the DoD needs to ensure it can conduct its missions regardless.

Military training and testing ranges have felt the impacts as well—both directly and indirectly. Direct damage to ranges impacts their carrying capacity and their ability to support and sustain realistic training. Constraints stemming from environmental conditions can further impact readiness, such as limits to live-fire training during droughts. In the end, training days and access to training lands are lost, and the short and long-term capability of testing and training lands to support military requirements are diminished.

Looking into the future, these impacts can be expected to accelerate, creating a present-day imperative to prepare and to improve resilience to minimize impacts to readiness and the military mission.

Expanding REPI Authorities to Address Resilience

DoD initiated the Readiness and Environmental Protection Integration (REPI) program to combat the encroachment that can limit or restrict military training and testing. A key component of the REPI Program is the use of encroachment management partnerships, referred to as REPI projects, authorized by Congress within 10 USC 2684a. These cost-sharing partnerships between the Military Services, state and local governments, and private conservation organizations acquire easements or other interests in land from willing sellers that preserve critical buffer areas and habitat near our military installations. The REPI program works the twin imperative of military readiness and environmental protection—a unique convergence of shared interests.

In the Fiscal Year 2019 National Defense Authorization Act (NDAA), Congress expanded the REPI authority in 10 USC 2684a to extend the traditional REPI real property authorities to address military installation resilience. Specifically, the language now includes a provision that allows the Secretary of Defense or the Secretary of a military department to "enter into an agreement to address the use or development of real property in the vicinity of, or ecologically related to, a military installation…for the purposes of…preserving off base habitat on the property in a manner that…maintains or improves military installation resilience."

"Military Installation Resilience" carries a specific definition in the law: "*the capability of a military installation to avoid, prepare for, minimize the effect of, adapt to, and recover from extreme weather events, or from anticipated or unanticipated changes in environmental conditions, that do, or have the potential to, adversely affect the military installation or essential transportation, logistical, or other necessary resources outside of the military installation that are necessary in order to maintain, improve, or rapidly reestablish installation mission assurance and mission-essential functions.*" Anticipated or unanticipated changes in environmental conditions is a term that encompasses climate change.

This was one of a series of legislative measures passed by congress between 2017-2019 that expressed concern about the impacts of climate change and incorporated military installation resilience as a valid objective and rationale for using existing DoD authorities. For example, resilience provisions were added to the Office of Economic Adjustment's authorities, specifically allowing it to be considered during Joint Land Use Studies (now Compatible Use Studies). Resilience was also incorporated into the Defense Access Roads certification process, which authorizes the Department to make off-base investments to critical roads to address climate-driven impacts.

By incorporating resilience into 10 USC 2684a, a statute focused on limiting encroachment impacts on military testing, training and operations, Congress has cast climate change as an encroachment concern. This is how REPI will absorb this responsibility—maintaining its focus on readiness and expanding its encroachment mission to incorporate climate change as a threat.

This is not the first time that Congress has expanded the REPI authority to incorporate an encroachment problem that is somewhat different than that covered by the original statute. For example, the expansion of authority to allow it to address development in clear zones introduced a very different set of projects and transactions than was found in the original portfolio. Looking at the various projects that have been executed with REPI funds and under REPI authorities, there are clearly multiple types of encroachment issues that are addressed and addressing this new set of challenges is consistent with the broader encroachment mandate addressed by the REPI program.

In order to address this challenge, one has to address a set of interrelated questions.

First, in what ways do changes in environmental conditions negatively impact testing and training. In other words, how does climate change "encroach" on a military installation?

Second, how could the REPI authorities (both the traditional real property authority in 10 USC 2684a and related authorities such as the Sikes Act) counter these environmental encroachments?

Third, from a programmatic and readiness point of view, which of the kinds of projects that could reasonably fall under this new authority would have the most significant impact from a readiness perspective?

Finally, considering the overall REPI program to be more comprehensive than simply the acquisition of land, but rather the protection of readiness through environmental partnerships and

other, related activities, what are the broader implications for the REPI program now that Congress has incorporated military installation resilience into the REPI mission? How should military installation resilience be incorporated into partnership activities such as the Southeast Regional Partnership for Planning and Sustainability (SERPASS) and the Western Regional Partnership (WRP)? Are there other activities or authorities that fall within the REPI program that could or should be modified to address military installation resilience?

The Encroachment of Climate Change

Obviously, the REPI program is not prepared to address every aspect of climate change, so in advance of trying to develop or assess projects, it is important to consider how climate change acts to encroach on military testing, training and operations. Encroachment is traditionally considered to be development close to military bases that interferes with operations, but depending on how loose of a definition one uses, sometimes endangered species protection is considered to be an aspect of encroachment, as it can impose constraints on training and testing.

Using the broader and more flexible approach to defining encroachment, in order to encompass the increasing constraints that climate change places on operations, there are several climate change impacts that will increasingly impact military training, testing, and operations. Some examples include:

- *Sea Level Rise and Recurring Flooding*, which could result in the loss of coastal training infrastructure or interruption of operations at low-lying bases.
- *Inland Flooding*, driven by precipitation events and/or snow melt, which can impact infrastructure and operations at inland bases located in flood zones.
- *Increased Precipitation*, which could overwhelm stormwater system capacity and damage ranges or installations generally.
- *Increased Drought Conditions*, which could make a base more susceptible to wildfire impacts and impede the conduct of live-fire activities.
- *Increased Frequency of High Heat or Black Flag Days*, which could significantly interrupt training schedules.
- *Impacts on Protected Species or Habitat*, amplifying existing constraints on testing and training where such species are present.
- *Extreme Weather*, which can significantly impact existing infrastructure and ranges—to include disrupting operations across an entire base.
- *Increased Wildfires*, endangering lives in local communities at the urban/wildland interface, destroying valuable habitat, and damaging existing infrastructure.

In the short term, these impacts force workarounds in testing and training or interruptions in operations. Over a longer period of time, climate change impacts could result in the loss of entire ranges, or at least a reduction in their carrying capacity.

REPI and Resilience Authorities

With this set of challenges in mind, and the intent of Congress clear that the REPI Program should be working to address them, the next step is to open the tool box and see if REPI has the right tools for this job.

The first and most well-used tool in the REPI toolbox is 10 USC 2684a, the real property authority it uses when partnering with NGOs and other non-DoD entities to secure easements on valuable habitat or on land that sustains compatible land uses. However, even though this is the authority amended by Congress to incorporate resilience, it does not mean that it is the ideal way to address each of the climate change challenges, nor does it mean that it is able to address each of them equally well. In fact, the wide variety of resilience challenges that could reasonably fall under this new authority differentiates it from the clear zone authority mentioned earlier. While the clear zone approach involves a straightforward purchase of parcels in designated zones, the military installation resilience challenges can vary from installation to installation and do not come with a straightforward ruleset with which to respond. In other words, protecting an installation from increased flooding and protecting it from wildfires may both reasonably fit under the heading of military installation resilience, but they don't lend themselves to the same set of solutions.

In addition, the Sikes Act offers complementary tools for improving resilience. The Sikes Act is the primary authority governing DoD management of natural resources, including the authority to enter into cooperative agreements for the management of natural resources both on and off of military installations. In other words, it authorizes DoD to engage in natural resources management projects *without* securing a real property interest. This authority clearly encompasses resilience projects, and enables DoD to pursue projects that are more complex when combined with its 10 USC 2684a authority. Intriguingly, the Sikes Act also authorizes military services to fund an endowment for natural resources management from a single year's appropriation—funding multiple years of support for a cooperative agreement up front.

The Sikes Act authority is already broad enough to permit agreements designed to address—through the maintenance and improvement of natural infrastructure both on and off installations—the observed and anticipated challenges associated with climate change. It is clearly a complementary authority that can be built into projects that leverage the recent REPI resilience authority.

For additional details, please reference the document, "Using the REPI Authority and the Sikes Act to Address the Impacts of Climate Change on DoD."

In addition to the authorities to execute projects, there are several new authorities that support the *development* of projects. For example, in the FY20 NDAA, Congress included a provision that would require installation-specific assessments of climate vulnerability, directing that it be incorporated into the installation master plan. As these assessments are conducted, installations should consider the natural resource tools in the REPI toolbox as ways to mitigate their climate vulnerabilities.

Complementing the planning process at the installation level, the Office of Economic Adjustment (OEA) has been pursuing efforts within its expanded authority to explore climate change impacts as part of its Compatible Use Studies (formerly Joint Land Use Studies). Specifically, they developed an Addendum focused on resilience to the Hampton-Langley AFB JLUS, which proposes multiple actions for increasing the resilience of the installation. OEA has also considered resilience in recent studies for Offutt AFB, Naval Weapons Station Earle, and Beaufort/Parris Island, and they are expanding their practice of developing resilience addenda for existing Compatible Use Studies. These reports may have already identified challenges and possible solutions, and should be part of any project development effort.

As projects are developed, local and State authorities may come into play. Resilience projects are likely to have regional, rather than precision, benefits, and there are likely to be resilience-focused programs and authorities that can be leveraged depending on the location.

Finally, as projects are developed, there may be authorities and programs specific to the aspect of climate encroachment being addressed. For example, one effort might address forest management to reduce wildfire risk, while another might support wetlands development to address flooding. Other proposals could involve offshore oyster reefs to reduce storm surge associated with extreme weather or protecting upstream water resources to reduce the risk of drought. The REPI resilience authorities would encompass all of them, but partners would be able to leverage tailored authorities and programs to secure matching funds that might be different for each type of project.

Even though resilience projects may impact a broad area and have significant regional equities, projects pursued within the REPI program will need to make their primary focus the benefit to ranges, operations, and DoD equities more generally. REPI has a long tradition of balancing these equities—operational and environmental benefits—to achieve the mutually beneficial cost-sharing that is the heart of the 10 USC 2684a authority, but resilience programs and benefits will necessarily incorporate new stakeholders, new military and civilian beneficiaries, and new authorities.

Addressing Resilience Throughout the REPI Program

As discussed above, the REPI program is more than a single authority or a single tool, though it has been built around the 10 USC 2684a real property authority and associated projects. Its impact has stretched to partnerships built with communities and with a broader universe of stakeholders. Both SERPPAS and WRP, for example, are part of the REPI program though neither are directly related to the procurement of parcels.

Therefore, the expansion of REPI authority into the realm of military installation resilience should be incorporated into the expanded activities of the REPI program as well—particularly the aforementioned SERPPAS and WRP.

Sentinel Landscapes could address installation resilience in the goals of individual projects. Beyond the existing partnerships with DOI and USDA, the focus on resilience leads one to consider expanding Sentinel Landscapes to include, at a minimum, the Department of Homeland Security. DHS has a considerable amount of funding they will be making available for pre-disaster mitigation, and that funding complements the REPI resilience approach quite well. Other agencies, such as NOAA and the civilian side of the Army Corps of Engineers, would also be valuable partners on resilience projects.

In addition, REPI projects could benefit from collaborating with other DoD stakeholders and by leveraging other new authorities focused on military installation resilience. For example, OEA has already begun discussing resilience with selected communities (mentioned above), but more broadly, DoD relies on civilian infrastructure for critical services such as energy, water, wastewater, transportation, communications, and housing. There are more than a few resilience efforts that would lead to intuitive partnerships with local and state governments.

Conclusion—The Way Forward

At this point, across the Department, efforts to shore up military installation resilience are still in their formative stages. Much of the detailed planning at the installation level has not yet been conducted. At the same time, extreme weather impacts at locations such as Tyndall AFB, Camp Lejeune, and Offutt AFB have heightened concerns and brought political attention to this issue. The Hampton Roads region, with its ongoing flooding challenges and concentration of military infrastructure, has been a long-standing concern, but now other localities are turning their focus to this challenge.

The REPI program will approach this new authority deliberately and methodically, building first its expertise and understanding of work that is already ongoing and similar efforts that have been supported external to DoD. It can focus on integrating military installation resilience in the face of environmental changes as a separate category of encroachment and a separate set of projects starting in FY21 and contemplate how resilience will be fully incorporated in FY22.

The new resilience authority will be discussed by principals at both SERPPAS and WRP meetings over the coming year, both to start potential partners thinking about how to pursue it, but also to solicit their ideas and imagination regarding projects that could be pursued.

Both REPI and its partners will be able to cross-pollinate between REPI efforts and other DoD efforts such as military installation resilience plans and OEA sponsored Compatible Use Studies. This will both shorten learning curves and promote innovative proposals to address these critical issues.

In conclusion, resilience fits neatly into the REPI approach to protecting readiness when it views climate change as yet another form of encroachment. Resilience efforts are going to be somewhat different in character than previous efforts and may involve new stakeholders, but they appear to be quite compatible with the priorities, approaches, and legacy of the REPI program.

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Readiness and Environmental Protection Integration Program
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