## Water

#### SMRs are the only effective way to solve water scarcity

Palley ’11 Reese Palley, The London School of Economics, 2011, The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World, p. 168-71

The third world has long been rent in recent droughts, by the search for water. In subsistence economies, on marginal land, water is not a convenience but a matter of life and death. As a result small **wars have been fought, rivers diverted, and wells poisoned in what could be a warning of what is to come as industrialized nations begin to face failing water supplies.** Quite aside from the demand for potable water is the dependence of enormous swaths of industry and agriculture on oceans of water used for processing, enabling, and cleaning a thousand processes and products. It is interesting to note that fresh water used in both industry and agriculture is reduced to a nonrenewable resource as agriculture adds salt and industry adds a chemical brew unsuitable for consumption. More than one billion people in the world already lack access to clean water, and things are getting worse. Over the next two decades, the average supply of water per person will drop by a third, **condemning millions** of people **to** waterborne **diseases** and an avoidable premature death.81 So **the stage is set for water access wars between** the **first and the third worlds**, between **neighbors** downstream of supply, between **big industry** and big agriculture, between **nations**, between **population** centers, and ultimately between you and the people who live next door for an already inadequate world water supply that is not being renewed. **As populations inevitably increase, conflicts will intensify**.82 It is only by virtue of the historical accident of the availability of nuclear energy that humankind now has the ability to remove the salt and other pollutants to supply all our water needs. The problem is that **desalination is an intensely local process**. Some localities have available sufficient water from renewable sources to take care of their own needs, but not enough to share with their neighbors, and it **is here that the scale of nuclear energy production must be defined locally.** Large scale 1,000 MWe plants can be used to desalinate water as well as for generating electricity However we cannot build them fast enough to address the problem, and, if built they would face the extremely expensive problem of distributing the water they produce. Better, much better, would be to use small desalinization plants sited locally. Beyond desalination for human use is the need to green some of the increasing desertification of vast areas such as the Sahara. Placing twenty 100 MWe plants a hundred miles apart along the Saharan coast would green the coastal area from the Atlantic Ocean to the Red Sea, a task accomplished more cheaply and quickly than through the use of gigawatt plants.83 This could proceed on multiple tracks wherever deserts are available to be reclaimed. Leonard Orenstein, a researcher in the field of desert reclamation, speculates: If most of the Sahara and Australian outback were planted with fast-growing trees like eucalyptus, the forests could draw down about 8 billion tons of carbon a year—nearly as much as people emit from burning fossil fuels today. As the forests matured, they could continue taking up this much carbon for decades.84 **The use of small, easily transported**, easily **sited**, and walk away **safe nuclear reactors dedicated to desalination is the only answer** to the disproportionate distribution of water resources that have distorted human habitation patterns for millennia. Where there existed natural water, such as from rivers, great cities arose and civilizations flourished. Other localities lay barren through the ages. We now have the power, by means of SMRs profiled to local conditions, not only to attend to existing water shortages but also to smooth out disproportionate water distribution and create green habitation where historically it has never existed. **The endless wars that have been fought**, first over solid bullion gold and then over oily black gold, **can now engulf us in the desperate reach for liquid blue gold. We need never fight these wars again as we now have the nuclear power to fulfill the** biblical **ability to “strike any local rock and have water gush forth**.”

#### Military SMRs key to mobile desalination and water delivery—only energy source that solve

Butler 10

Lieutenant Colonel, Glen, Why the Marine Corps should lead the environmental and energy way forward and how to do it http://www.mca-marines.org/gazette/not-green-enough

Environmental and energy (E2) issues have been politically ladened topics throughout their existence in the public’s consciousness. In the 1970s, E2-concerned citizens were stereotypically depicted as hippies building solar farms on communes, although OPEC’s (Organization of Petroleum Exporting Country’s) actions and the oil embargo of 1973 shot fuel dependency into the mainstream. Nevertheless, the country took little sustained notice after a brief period of heightened concern. In the 1980s and 1990s, the Marine Corps’ E2 was largely focused on compliance with existing regulations, prevention of oil spills and hazardous material incidents, and stewardship of threatened or endangered species. However, “green fever” transitioned E2 from an emotional peacenik mantra—first into the marketer’s delight, and more recently, into genuine national concern. The government, for its part, has brought in another important consideration particularly emphasized within the last few years—E2 as a national security linchpin.1 Whether you stand behind global warming or “climategate” matters little; we as Marines should understand that these issues are not Republican or Democrat and not a mere debate between Al Gore and Sean Hannity.2 E2 issues are now at the forefront of everything we do, validated by a preponderance of Federal directives and related military mandates. Both the Secretary of the Navy (SecNav) and Commandant of the Marine Corps (CMC) have made their positions clear via broad and innovative guidance.3 From the CMC’s Marine Energy Assessment Team and Expeditionary Energy Office to Secretary Raymond Mabus’ “Great Green Fleet,”4 the Navy-Marine Team has never had stronger green leadership. Nevertheless, **the Marine Corps has yet to fully seize the moment and take truly bold and daring steps.** Most every Service and successful organization has embraced the green revolution in some form, but **the Marine Corps has work remaining if it desires to lead the charge in typical Marine fashion**. With support to our combat deployed forces remaining the number one priority, it is understandable that expeditionary energy is the focus. But if installations are truly the fifth element of the MAGTF,5 this emphasis must be broadened to include warfighters’ stateside homes. There are many avenues in the E2 arena to accomplish this; here are just a few recommendations. Back Policy With Resources Much green verbiage today is delivered in neat, round goals (“reduce XXX 20 percent by 2020,” etc.) bathed in cliché ecoterms like “alternative,” “renewable,” “clean,” and “sustainable.”6 Yet without resources to support those goals, this is but a promulgation of the ends but not the ways or means. To help correct this problem the Marine Corps should lead endeavors for joint force planning, identify potentially synergetic projects, lobby for substantial E2-targeted resources,7 and develop more Marine-specific, Corps-wide guidance to secure future mission capabilities. Continue Multifaceted Approach, but Standardize Best Practices Many significant E2 initiatives exist across the Corps, yet most remain a patchwork of uncoupled and often competing efforts cobbled together by energetic commanders and creative action officers. We need a centralized, web-based hub to share best practices, voice concerns, and foster additional E2 learning,8 and all bases and stations should establish dedicated, robust energy websites.9 Although installations should retain a degree of flexibility to suit local nuances of region, they should capitalize on successful programs by replication through directives and with resources from the top; where good ideas exist, adopt these best practices Service-wide.10 Pursue bold, long-term programs but also easy quick-kills to show progress and produce a gradual paradigm shift.11 Even so, be leery of excessive “innovations” that substitute unnecessary inconvenience (like trayless mess halls) in place of education and impractical rationing that ignores realities of operational requirements, mission expansion, and population growth.12 Focus on educating Marines and families to make proper choices. Enhance Education For better linkage with our Operating Forces, infuse the E2 sector across the fifth element with uniformed Marines. Just as developing computer/Internet technology and operations necessitated the creation of new computer-related MOSs/billets in the 1990s, so too should we now lean forward and inject professionally trained active duty officers into the E2 field (not just civilian logisticians).13 Higher level guidance on E2 issues is (overly) abundant,14 yet the education piece—(key to drive a cultural shift and often the most effective method for positive change) is severely lacking. Our resident and nonresident professional military education curricula lack any modern E2 instruction.15 The majority of actionable and educational initiatives are left to the local commander’s own resourcefulness. In addition to attendance at E2 conferences16 and liaison between the new Marine Corps/Navy Energy Offices, the Marine Corps should collaborate with our Navy leadership to develop high-quality educational programs, available on a variety of levels (from MarineNet to The Basic School to the war colleges to the Naval Postgraduate School), to ensure that our next generation of Marines and sailors is poised to lead the way forward in E2 fields, including renewable, alternative and, yes, nuclear energy technologies. Consider Nuclear Power On 16 March 1979, The China Syndrome opened in theaters across the country, depicting a fictitious story about a reporter witnessing an accident at the Ventanna nuclear plant outside Los Angeles and the subsequent evil plot to suppress the truth. Twelve days later the Three Mile Island partial core meltdown in Pennsylvania helped propel The China Syndrome to theatrical success and permanently scarred the American psyche. The nail in the nuclear energy coffin was the nuclear disaster 7 years later at Chernobyl, in the Ukrainian Soviet Socialist Republic.17 But despite these stains on the nuclear power industry, the time has never been better for the Marine Corps (and Navy) to dive in than now. Here’s why. First, the political climate, though still tenuous, is shifting to favorable, with the change coming from the top down. During his 27 January 2010 State of the Union address, President Barack Obama echoed themes from his campaign trail by clearly voicing his intention to include nuclear power in American’s playbook of energy security options.18 Similarly, as the Department of Energy’s (DoE’s) Secretary of Energy, Steven Chu has articulated similar sentiments, declaring that “President Obama and I are committed to restarting the nuclear industry in the United States.”19 Many other political leaders and policymakers indeed support a true “nuclear renaissance,”20 and the growing momentum stands a chance to bury the ghosts of Chernobyl once and for all. Second, with our **well-replicated but limited pursuit of the standard renewable energies,21 we’re putting all energy eggs in one basket, a vessel unlikely to hold a sufficient load for success**. Currently pursued renewable energy sources do have limitations.22 More importantly, with military installations relying almost exclusively on external sources for energy, and those sources largely unpredictable, unsecured, and reliant on foreign-based oil,23 if energy security is truly a national security issue, then nuclear power should be considered. Solar demonstrations at Miramar and Barstow are not enough. Third, nuclear technology today has advanced well beyond the days of Three Mile Island. Specifically, small modular reactors (**SMRs) offer great potential to safely and effectively provide energy island/net zero capabilities to Marine Corps** and Navy **installations** across the country.24 SMRs have relatively low plant cost, can replace aging fossil plants, and do not emit greenhouse gasses. Some are as small as a “hot tub” and can be stored underground, dramatically increasing safety and security from terrorist threats.25 Encouragingly, in fiscal year 2010 (FY10) the DoE allocated $0 to the U.S. SMR Program; in FY11, they’ve requested $38.9 million. This funding is to support two main activities—public/private partnerships to advance SMR designs and research and development and demonstrations. According to the DoE’s website, one of the planned program accomplishments for FY11 is to “collaborate with the Department of Defense (DoD) . . . to assess the feasibility of SMR designs for energy resources at DoD installations.”26 The Marine Corps should vigorously seek the opportunity to be a DoD entity providing one platform for this feasibility assessment.27 Fourth, SMR technology offers the Marine Corps another unique means to lead from the front—not just of the other Services but also of the Nation, and even the world.28 This potential Pete Ellis moment should be seized. There are simple steps we could take,29 and others stand ready to lead if we are not.30 But **the temptation to “wait and see**” and “let the others do it; **then we’ll adopt it” mentality is not always best.** Energy security demands boldness, not timidity. To be fair, nuclear technology comes with challenges, of course, and with questions that have been kicked around for decades. An April 1990 Popular Science article asked, “Next Generation Nuclear Reactors—Dare we build them?” and included some of the same verbiage heard in similar discussions today.31 Compliance with National Environment Policy Act requirements necessitates lengthy and detailed preaction analyses, critical community support must be earned, and disposal challenges remain. Still, none of these hurdles are insurmountable.32 Yet despite the advances in safety, security, and efficiency in recent years, nuclear in the energy equation remains the new “n-word” for most military circles. And despite the fact that the FY10 National Defense Authorization Act called on the DoD to “conduct a study [of] the feasibility of nuclear plants on military installations,” the Office of the Secretary of Defense has yet to fund the study.33 Fifth, the cumbersome, bureaucratic certification process of the Nuclear Regulatory Commission (NRC), often enough to scare away potential entrepreneurs and investors, is not necessarily a roadblock to success. The NRC is “responsible for licensing and regulating the operation of commercial nuclear power plants in the United States.” Military installations offer unique platforms that could likely bypass an extended certification process. With established expertise and a long safety record in nuclear reactor certification, operations, training, and maintenance, the Naval Nuclear Propulsion Program comprises the civilian and military personnel who: . . . design, build, operate, maintain, and manage the nuclear-powered ships and the many facilities that support the U.S. nuclear-powered naval fleet.”34 Bypassing the NRC and initiating SMR experimentation under ADM Hyman Rickover’s legacy umbrella of naval reactors could shorten the process to a reasonable level for Marine and naval installations.35 Finally, Marine Corps-SMR technology opens the pathway for related endeavors and synergetic undertakings. The Army has several smart and influential individuals poised to partner in nuclear energy endeavors, and our naval brethren enjoy a long history of nuclear reactor expertise. Partnerships and enhanced use leases to support SMR deployments should be leveraged.**36 As the collective military expertise in SMR technology grows**, additional capabilities, such as expeditionary and vehicular power sources, could be explored. And **related technologies, such as** hybrid/electric vehicle power storage and recharging facilities and **water desalination plants, could collocate with nuclear plants on installations to both use the energy.**37 Explore Desalination Desalination is another evolving technology that many avoid discussing, mainly because it is still a very expensive and immature technology with problems such as high energy consumption, brine disposal, and potential for harm to marine life. But once again, fear of the challenges should not prevent expanded exploration in this area. Worldwide, there are over 13,000 desalination plants, collectively producing more than 12 billion gallons of water each day, many of them in the Middle East, but the trend is spreading to the United States.38 Camp **Pendleton surfaced** in 2009 **as a potential** desalination **plant location, but the official Marine Corps stance has been hesitant** rather than an eager courtship of the opportunity.39 Indeed, many major Marine bases are in coastal areas and could benefit from SMR/desalination cogeneration plants. Potential **future Marine sites** like Guam could undeniably benefit from such advancements,40 and as the number of reverse osmosis sites increases, the cost per unit will decrease. The CMC has repeatedly explained how the Marine Corps Warfighting Laboratory looked 25 years into the future and believes that, by then, **water will be as precious a commodity as oil**, so the time to start preparing for that dire situation is now.41 Overall, the Navy-Marine Team has made huge strides in the E2 fields, yet much remains to be accomplished. E2 is more than compact fluorescent lightbulbs and protection of sea turtles and tern nests. The warfighting mission will always come first, but combat mission accomplishment and E2 goals are not mutually exclusive; the first can be strengthened through the latter. When considering the Marine Corps’ Service Campaign Plan 2009–2015,42 we should remember that one of the CMC’s seven main focus areas in his planning guidance is to “Posture the Marine Corps for the Future.” A decade ago, some discussed the “Revolution in Military Affairs.” Now is the time to be bold and daring, to recognize that the Marine Corps is not yet green enough. Now is the time to embark on a revolution in environmental and energy affairs. Our natural, and national, security depends on it.43 “What the Navy and Marine Corps are doing now is great, but I am here to encourage you and us to go farther—to dream what might be rather than to simply accept what is. Bold steps are in our nature as Americans and what make us a great nation; no one has ever gotten anything big done by being timid.”

#### Water assistance vital to effective public diplomacy—key to combat perception of American foreign policy as militarized

Seib, 10

(Professor of journalism and public diplomacy and director of the Center on Public Diplomacy-USC, Considering Water Diplomacy, 6/29, http://www.huffingtonpost.com/philip-seib/considering-water-diploma\_b\_629487.html)

The vitality and seriousness with which the institute addresses such issues is a reminder **that water-related assistance is an underused tool of public diplomacy**. Rather than an "advertising" approach to public diplomacy ("We are wonderful! Love us!"), water diplomacy answers a crucial question often asked by recipients of public diplomacy efforts but just as often ignored by public diplomacy planners: "What can you do for us?" Throughout the world, few things are more precious than a safe and abundant water supply. **A country that can help another nation improve the availability and quality of water is likely to win friends, regardless of how the respective governments get along**. Water diplomacy is an excellent tool for the United States to use in improving relations with Syria, which is enduring a prolonged drought, and other **countries where the public has been indifferent or even hostile toward American interests, but would welcome water-related assistance.** Public diplomacy does not need to be a unilateral enterprise. Engaging in water diplomacy offers the United States an opportunity to develop international partnerships for creating and delivering public diplomacy programs. A U.S.-Singapore joint venture in this field would enhance both countries' credentials as leaders in improving lives throughout the world, and for the United States it would be an improvement on the go-it-alone approach that characterizes much of its foreign policy. Private sector participation by foundations and corporations should be another facet of such partnerships, and could include funding for research into ways to combat water-borne diseases. Developing the concept of water diplomacy requires an essential, but often neglected, element of public diplomacy: imagination. Too much public diplomacy today has become a process of simply going through the motions in overblown public relations campaigns that misjudge the needs and underestimate the sophistication of global publics. **Actually improving people's lives** is given short shrift, and as a result public diplomacy fails to reach its potential as a means of advancing national interests.

#### Public diplomacy key to AFRICOM effectiveness

Seib, 9

(Professor of Public Diplomacy & International Relations-USC, America’s New Approach to Africa: AFRICOM and Public Diplomacy, http://uscpublicdiplomacy.org/CPD\_Perspectives.pdf)

Regardless of what reasons are proffered for AFRICOM’s importance, public diplomacy is often cited as **an essential element of the command’s work**. Ryan Henry, principal deputy undersecretary of defense for policy, has stated that “AFRICOM, at its core, is about public diplomacy, which is **critical to its mission** and how we as a nation compete not only in Africa but in the wider marketplace of ideas concerning governance and security facing key regions, critical indigenous peoples, and global stakeholders throughout the world today. Whether you want to call it ‘soft power’ or ‘smart power,’ or even just ‘the right power,’ the bottom line is we have created, for a variety of reasons, a national security structure that today is currently out of balance and is biased toward the military toolset.” He added: “AFRICOM is a risk-laden experiment on the part of government and the Department of Defense specifically on how to more holistically engage the continent of Africa, a specific region of emerging interest. **And public diplomacy is a fundamental element of its success**. **We cannot continue to pursue 21st century missions** in an information digital network age with bureaucratic constructs and thinking laid out as part of the Industrial Age in the aftermath of World War II.” Despite efforts by Gates and his deputies to assuage **concerns about further militarization of U.S. foreign policy**, such worries **cast a shadow on AFRICOM’s prospects**. As the Barack Obama administration begins, the Pentagon’s role in public diplomacy is still being defined. So too is the American view of Africa and Africa’s perception of America.

#### Effective AFRICOM is key to fighting terrorism

Miles 2012 – Donna is a reporter for the American Forces Press Service, U.S. Department of Defense, Africom Strives to ‘Turn on Lights’ Against Terrorism in Africa, http://www.defense.gov/news/newsarticle.aspx?id=116839

STUTTGART, Germany, June 21, 2012 – Eliminating terrorist safe havens and support for terrorist groups in Africa is a top U.S. Africa Command priority, Africom’s top military officer said. Army Gen. Carter F. Ham told American Forces Press Service he’s committed to working with African partners to confront violent extremists “that have very clearly articulated an intent to attack the United States, its allies, its citizens and its interests both within Africa and also more broadly, in Europe.” All, he said, want to take advantage of ungoverned or under-governed regions where they can operate without restraint. Countering this threat is the common denominator that drives Ham’s theater engagement strategy and its broad array of operations, exercises and security cooperation programs. This includes teaching partner nations how to improve their border security, intelligence and tactical capabilities and equipping African nations so they can operate more effectively. “Ultimately, what we want to do through our activities – not just through Africom, but as a larger whole-of-government and international effort – is to ‘turn the lights on,’” said James Robertson, an Africom strategist. “And when the lights are on, we will find increased security and stability. Africa has struggled for decades with civil wars and conflicts, underdevelopment and poverty that make it inviting to terrorists from the Middle East, Robertson said. “They want what Africa has to offer,” he added. “They want this ungoverned space so they can operate freely, and so our aim is to deter and disrupt them and, ideally, ensure that they don’t gain access.” Recognizing the extent of the threat, Ham has set East Africa as the No. 1 focus of his commandwide counterterrorism strategy. “Why East Africa?” said Army Maj. Gen. Charles Hooper, the command’s director of strategy, plans and programs. “It’s because East Africa faces the challenges that we face in Arabia, particularly Yemen, and the al-Qaida elements emanating from Yemen and other areas in the Middle East.” It’s also home to the al-Shabab terror organization in Somalia that formally announced its affiliation with al-Qaida in February. Hooper also cited other terrorist threats in Africa. In the North African desert, the al-Qaida in the Lands of the Islamic Maghreb organization is committed to destabilizing the trans-Sahara region and Northwest Africa. But its pursuits, he said, also threaten European allies across the Mediterranean Sea, as well as the United States. He also noted concerns in the Gulf of Guinea, a major transit point for illicit trafficking in drugs, weapons and humans bound predominantly for Europe. In addition, a violent group known as Boko Haram has extended its influence to challenge the central government in Nigeria – a major economic power in Africa and a contributor to United Nations peacekeeping missions. Africa’s vast natural resources compound the region’s strategic importance, Hooper said, particularly oil that’s exported to the United States. “Access to the global commons, and stability in Western Africa and in those important sea lines of communication that run through the Gulf of Guinea and through Western Africa, remain important,” he said.

#### AQIM security risks are high – further attention is needed

Masters 1/24/13 – Johnathan is the editor of Council Foreign Relations, Al-Qaeda in the Islamic Maghreb (AQIM), http://www.cfr.org/north-africa/al-qaeda-islamic-maghreb-aqim/p12717

Al-Qaeda in the Islamic Maghreb (AQIM) is a Salafi-jihadist militant group and U.S.-designated Foreign Terrorist Organization operating in North Africa's Sahara and Sahel. The group can trace its provenance back to Algeria's civil war, and has since become an al-Qaeda affiliate with broader regional and international ambitions. While many experts suggest AQIM is the primary transnational terror threat in North Africa, the risk it poses to Europe and the United States remains unclear. AQIM's activities have garnered heightened scrutiny in recent months, particularly after the group, along with other jihadist factions, expanded its foothold in Mali's vast ungoverned north. In early 2013, a French-led military intervention has, thus far, halted the southward advance of Islamist insurgents, but analysts warn that the operation may fail unless followed up with a robust contingent of African ground forces. Western nations, including the United States, Britain, and Canada have provided some logistical support, and are weighing further action.

**Even a small attack causes great power wars and extinction**

**Ayson 10** – Professor of Strategic Studies and Director of the Centre for Strategic Studies: New Zealand at the Victoria University of Wellington (Robert, July. “After a Terrorist Nuclear Attack: Envisaging Catalytic Effects.” Studies in Conflict & Terrorism, Vol. 33, Issue 7. InformaWorld.)

But these two nuclear worlds—a non-state actor nuclear attack and a catastrophic interstate nuclear exchange—are not necessarily separable. It is just possible that some sort of terrorist attack, and especially an act of nuclear terrorism, could precipitate a chain of events leading to a massive exchange of nuclear weapons between two or more of the states that possess them. In this context, today’s and tomorrow’s terrorist groups might assume the place allotted during the early Cold War years to new state possessors of small nuclear arsenals who were seen as raising the risks of a catalytic nuclear war between the superpowers started by third parties. These risks were considered in the late 1950s and early 1960s as concerns grew about nuclear proliferation, the so-called n+1 problem. It may require a considerable amount of imagination to depict an especially plausible situation where an act of nuclear terrorism could lead to such a massive inter-state nuclear war. For example, in the event of a terrorist nuclear attack on the United States, it might well be wondered just how Russia and/or China could plausibly be brought into the picture, not least because they seem unlikely to be fingered as the most obvious state sponsors or encouragers of terrorist groups. They would seem far too responsible to be involved in supporting that sort of terrorist behavior that could just as easily threaten them as well. Some possibilities, however remote, do suggest themselves. For example, how might the United States react if it was thought or discovered that the fissile material used in the act of nuclear terrorism had come from Russian stocks,40 and if for some reason Moscow denied any responsibility for nuclear laxity? The correct attribution of that nuclear material to a particular country might not be a case of science fiction given the observation by Michael May et al. that while the debris resulting from a nuclear explosion would be “spread over a wide area in tiny fragments, its radioactivity makes it detectable, identifiable and collectable, and a wealth of information can be obtained from its analysis: the efficiency of the explosion, the materials used and, most important … some indication of where the nuclear material came from.”41 Alternatively, if the act of nuclear terrorism came as a complete surprise, and American officials refused to believe that a terrorist group was fully responsible (or responsible at all) suspicion would shift immediately to state possessors. Ruling out Western ally countries like the United Kingdom and France, and probably Israel and India as well, authorities in Washington would be left with a very short list consisting of North Korea, perhaps Iran if its program continues, and possibly Pakistan. But at what stage would Russia and China be definitely ruled out in this high stakes game of nuclear Cluedo? In particular, if the act of nuclear terrorism occurred against a backdrop of existing tension in Washington’s relations with Russia and/or China, and at a time when threats had already been traded between these major powers, would officials and political leaders not be tempted to assume the worst? Of course, the chances of this occurring would only seem to increase if the United States was already involved in some sort of limited armed conflict with Russia and/or China, or if they were confronting each other from a distance in a proxy war, as unlikely as these developments may seem at the present time. The reverse might well apply too: should a nuclear terrorist attack occur in Russia or China during a period of heightened tension or even limited conflict with the United States, could Moscow and Beijing resist the pressures that might rise domestically to consider the United States as a possible perpetrator or encourager of the attack? Washington’s early response to a terrorist nuclear attack on its own soil might also raise the possibility of an unwanted (and nuclear aided) confrontation with Russia and/or China. For example, in the noise and confusion during the immediate aftermath of the terrorist nuclear attack, the U.S. president might be expected to place the country’s armed forces, including its nuclear arsenal, on a higher stage of alert. In such a tense environment, when careful planning runs up against the friction of reality, it is just possible that Moscow and/or China might mistakenly read this as a sign of U.S. intentions to use force (and possibly nuclear force) against them. In that situation, the temptations to preempt such actions might grow, although it must be admitted that any preemption would probably still meet with a devastating response. As part of its initial response to the act of nuclear terrorism (as discussed earlier) Washington might decide to order a significant conventional (or nuclear) retaliatory or disarming attack against the leadership of the terrorist group and/or states seen to support that group. Depending on the identity and especially the location of these targets, Russia and/or China might interpret such action as being far too close for their comfort, and potentially as an infringement on their spheres of influence and even on their sovereignty. One far-fetched but perhaps not impossible scenario might stem from a judgment in Washington that some of the main aiders and abetters of the terrorist action resided somewhere such as Chechnya, perhaps in connection with what Allison claims is the “Chechen insurgents’ … long-standing interest in all things nuclear.”42 American pressure on that part of the world would almost certainly raise alarms in Moscow that might require a degree of advanced consultation from Washington that the latter found itself unable or unwilling to provide. There is also the question of how other nuclear-armed states respond to the act of nuclear terrorism on another member of that special club. It could reasonably be expected that following a nuclear terrorist attack on the United States, bothRussia and China would extend immediate sympathy and support to Washington and would work alongside the United States in the Security Council. But there is just a chance, albeit a slim one, where the support of Russia and/or China is less automatic in some cases than in others. For example, what would happen if the United States wished to discuss its right to retaliate against groups based in their territory? If, for some reason, Washington found the responses of Russia and China deeply underwhelming, (neither “for us or against us”) might it also suspect that they secretly were in cahoots with the group, increasing (again perhaps ever so slightly) the chances of a major exchange. If the terrorist group had some connections to groups in Russia and China, or existed in areas of the world over which Russia and China held sway, and if Washington felt that Moscow or Beijing were placing a curiously modest level of pressure on them, what conclusions might it then draw about their culpability?

#### AFRICOM partnerships key to disease prevention

Martin, 9

(MD & US Naval Officer, 1/9, “Africa Command Health Symposium: Health as a Bridge to Peace and Stability” http://intlhealth.fhpr.osd.mil/Libraries/IHDocuments/AfricaCommandHealthSymposiumProceedings.sflb.ashx)

The newly established United States Africa Command (AFRICOM) intends to incorporate health as a bridge towards security. AFRICOM was declared a fully unified command on October 1, 2008. It was designed to be a “different kind of command” focusing on war prevention rather than war-fighting (AFRICOM, 2008a). Over half the personnel who will ultimately be assigned to AFRICOM will be civilians, including representatives from nonmilitary U.S. government agencies. Africa Command’s mission is to work in concert with other U.S. government agencies and international partners. It will conduct sustained security engagement through military-to-military programs to promote a stable and secure African environment in support of U.S. foreign policy (AFRICOM, 2008b). The intention of this new command is to increase security on the African continent through an integrated and coordinated approach. There is a reflexive relationship between public health, civil security, and economics. Improvements in one of these areas generally help the status of the others. The medical and health issues representative to Africa Command is the Command Surgeon, who has many mission objectives. His goal is to enhance coordination and create more sustainable medical programs through military-to-military engagement efforts. There are many potential positive benefits for civilian public health infrastructure and capacity building that may ensue from these engagements. To help facilitate these objectives, the U.S. Assistant Secretary of Defense for Health Affairs sponsored the Africa Command Health Symposium convened at the National Academy of Sciences from January 8-9, 2009. The goals of the Africa Command Health Symposium were to: 1) Introduce the U.S. Africa Command Surgeon; 2) Explore the successful public-private partnership model in Africa; 3) Explore the potential role of health research in developing host nation capabilities; and 4) Develop a communication and coordination mechanism to share best practices among service providers regarding health care capabilities and programs. The intent of the conference was to bring together senior government and non-government agency leaders and allow them the opportunity share successful development models with Africa Command. The aim is to build stronger and more effective partnerships for current and future joint development projects in Africa. These goals were accomplished by bringing together experts from academia, U.S. Government, private sector, and the African Union to address challenges across the healthcare spectrum. Public Health and Military Significance Health as a Bridge for Peace was formally accepted by the 51st World Health Assembly in May 1998. It has been defined as the integration of peace-building concerns, concepts, principles, strategies and practices into health relief and health sector development (WHO, 2009). Deficiencies in transnational governance may create a global public health crisis. Health is no longer just a humanitarian issue, but rather a major economic and security issue (Kickbusch, 2002). In 2005 a Department of Defense directive defined “stability operations” as a “core U.S. military mission” with a “priority comparable to combat operations.” This required the DoD to expand from its traditional war-fighting mission to one that includes preventing or mitigating collapse of failing nations (DoD, 2005; Reaves, Schor, & Burkle, 2008). With globalization, every communicable disease is now potentially only an airplane trip away from any of us. It is imperative that surveillance programs be as robust as possible. Collaboration between U.S. Africa Command and local African military forces provides an opportunity both to **expand U.S. knowledge of emerging diseases and improve the local African health systems**. Military-to-military and military-to-civilian partnerships support ministers of health in obtaining laboratory, epidemiological, and logistical resources (Chretien et al., 2007). Direct health-related strategic threats to the United States include infectious diseases such as pandemic influenza. However, chronic diseases, maternal and child mortality, sanitation, malnutrition, and access to basic health care also affect U.S. national interests due to their impacts on key countries’ economies, governments, and militaries (NIC, 2008)

#### Key to containment

Geller, 9

(MD & Lt. Colonel-US Army, 1/9, “Africa Command Health Symposium: Health as a Bridge to Peace and Stability” http://intlhealth.fhpr.osd.mil/Libraries/IHDocuments/AfricaCommandHealthSymposiumProceedings.sflb.ashx)

The Africa Command Surgeon’s priorities include developing a DoD medical strategy for the continent, regional situational awareness and developing medical common operating picture, CJTF-HOA integration of medical MAPE’s-2009, component medical integration-RMTR, developing partnerships into effective programs, and developing measures of effectiveness that are outcomes driven. We need to show measurable outcomes like the 40% weight gain in herds vaccinated by JTF-HOA compared to herds that were not vaccinated. Other key medical measures of effectiveness include Partner Nation (PN) militaries having medical capabilities to support all necessary force health protection issues, deployable medical capabilities to support PKOs and regional security organizations, medical capabilities to assist with HN and regional disaster response efforts, comprehensive HIV education/testing/treatment programs, and effective AI/PI (EID) contingency plans in place. How is Africa Command going to accomplish Theater Strategic Objective 3: The American population is protected from deadly contagions emanating from Africa? It will measure percentage of military trained in Force Health Protection measures, percentage of military medically-ready for deployment as defined by African Union, verify incidence rate of HIV/AIDS in military continues to decline, and verify State’s military has a specified epidemic response mission. Subjective indicators include: military has developed and routinely-exercised epidemic response plans which are assessed to be **effective to contain the spread of pandemic influenza** and other high-risk contagions, military has medical/veterinary surveillance and reporting capability sufficient to identify pandemic influenza (PI) or other high-risk contagions, military has access to an accredited diagnostic reference laboratory, military has adequate medical logistical capability for epidemic response to pandemic influenza or other high-risk contagions, and no increase in regional instability due to emerging disease threat.

#### Africa’s key – new pandemics are likely

Boyer, 11

(9/24, Reporter-EMax Health, http://www.emaxhealth.com/8782/us-not-well-prepared-flu-pandemic-man-infects-pigs-h1n1-swine-flu)

UCLA Scientists studying the H1N1 swine flu virus have discovered the first evidence of animal infection between man and pigs in Central Africa and believe that such transmission can lead to a new pandemic of the H1N1 swine flu. The H1N1 swine flu virus is a genetic hybrid of DNA from bird, swine and the human influenza viruses. According to the Centers for Disease Control (CDC) the swine flu virus is responsible for a pandemic in 2009 which infected an estimated 60 million people resulting in 270,000 hospitalizations and 12,500 deaths. In a recent study published in the scientific journal Veterinary Microbiology, scientists from UCLA traveled to Cameroon to determine whether the H1N1 virus was present in African livestock. The researchers collected nasal swabs and blood samples from randomly selected domestic pigs in outlying villages and farms. What they found were two cases of active H1N1 virus infection from the nasal samples. The blood samples, however, showed that 28% of the pigs tested positive for past infection of the virus, and of that 28% almost all demonstrated that their infection was due to the H1N1 influenza virus isolated from humans during the 2009 pandemic. Although theH1N1 virus has been detected in livestock in other countries, this was the first evidence of it in Africa and showing that contamination was from man to pig. According to a press release from the University of California the authors of the paper were surprised by the results. "I was amazed that virtually every pig in this village was exposed," said Thomas B. Smith, director of UCLA's Center for Tropical Research and the senior author of the research. "**Africa is ground zero for a new pandemic.** Many people are in poor health there, and disease can spread very rapidly without authorities knowing about it." "The pigs were running wild in that area," said lead author Kevin Njabo, a researcher in UCLA's department of ecology and evolutionary biology and associate director of the Center for Tropical Research. "I was shocked when we found out it was H1N1. Any virus in any part of the world can reach another continent within days by air travel. We need to understand where viruses originate and how they spread, so we can destroy a deadly virus before it spreads. We have to be prepared for a pandemic, but so many countries are not well-prepared - not even the United States." According to Njabo, the importance of their findings is that it shows how that farming practices can lead to a viral outbreak. "The pigs got H1N1 from humans," Njabo said. "The fact that pigs in Africa are infected with the H1N1 flu virus illustrates the remarkable interconnectedness of the modern world with respect to diseases. The H1N1 virus that we found in livestock in Cameroon is virtually identical to a virus found in people in San Diego just a year earlier, providing an astonishing example of how quickly the flu can spread all over the globe.” The authors of the paper have also collected hundreds of sample from chickens, ducks and wild birds for additional studies to determine the interaction of viruses and infections between humans and both wild and domestic animals. "The world is a global village; no area is truly isolated," said Njabo, who was born and raised in Cameroon. "There are so many unknowns about the transmission rates of viruses between humans and wild animals. We have to expand screening."

#### Zoonotic disease causes extinction—diagnosis is key, and their impact defense doesn’t apply

Quammen, 2012 - award-winning science writer, long-time columnist for *Outside* magazine for fifteen years, with work in National Geographic, Harper's, Rolling Stone, the New York Times Book Review and other periodicals,

(David, “Could the next big animal-to-human disease wipe us out?,” The Guardian, pg. 29, Lexis)

Infectious disease is all around us. It's one of the basic processes that ecologists study, along with predation and competition. Predators are big beasts that eat their prey from outside. Pathogens (disease-causing agents, such as viruses) are small beasts that eat their prey from within. Although infectious disease can seem grisly and dreadful, under ordinary conditions, it's every bit as natural as what lions do to wildebeests and zebras. **But** conditions aren't always ordinary. Just as predators have their accustomed prey, so do pathogens. And just as a lion might occasionally depart from its normal behaviour - to kill a cow instead of a wildebeest, or a human instead of a zebra - so a pathogen can shift to a new target. **Aberrations occur**. When a pathogen leaps from an animal into a person, and succeeds in establishing itself as an infectious presence, sometimes causing illness or death, the result is a zoonosis. It's a mildly technical term, zoonosis, unfamiliar to most people, but it helps clarify the biological complexities behind the ominous headlines about swine flu, bird flu, Sars, emerging diseases in general, and the threat of a global pandemic. It's a word of the future, destined for heavy use in the 21st century. Ebola and Marburg are zoonoses. So is bubonic plague. So was the so-called Spanish influenza of 1918-1919, which had its source in a wild aquatic bird and emerged to kill as many as 50 million people. All of the human influenzas are zoonoses. As are monkeypox, bovine tuberculosis, Lyme disease, West Nile fever, rabies and a strange new affliction called Nipah encephalitis, which has killed pigs and pig farmers in Malaysia. Each of these zoonoses reflects the action of a pathogen that can "spillover", crossing into people from other animals. Aids is a disease of zoonotic origin caused by a virus that, having reached humans through a few accidental events in western and central Africa, now passes human-to-human. This form of interspecies leap is not rare; about 60% of all human infectious diseases currently known either cross routinely or have recently crossed between other animals and us. Some of those - notably rabies - are familiar, widespread and still horrendously lethal, killing humans by the thousands despite centuries of efforts at coping with their effects. Others are new and inexplicably sporadic, claiming a few victims or a few hundred, and then disappearing for years. **Zoonotic pathogens can hide**. The least conspicuous strategy is to lurk within what's called a reservoir host: a living organism that carries the pathogen while suffering little or no illness. When a disease seems to disappear between outbreaks, it's often still lingering nearby, within some reservoir host. A rodent? A bird? A butterfly? A bat? To reside undetected is probably easiest wherever biological diversity is high and the ecosystem is relatively undisturbed. The converse is also true: ecological disturbance causes diseases to emerge. Shake a tree and things fall out. Michelle Barnes is an energetic, late 40s-ish woman, an avid rock climber and cyclist. Her auburn hair, she told me cheerily, came from a bottle. It approximates the original colour, but the original is gone. In 2008, her hair started falling out; the rest went grey "pretty much overnight". This was among the lesser effects of a mystery illness that had nearly killed her during January that year, just after she'd returned from Uganda. Her story paralleled the one Jaap Taal had told me about Astrid, with several key differences - the main one being that Michelle Barnes was still alive. Michelle and her husband, Rick Taylor, had wanted to see mountain gorillas, too. Their guide had taken them through Maramagambo Forest and into Python Cave. They, too, had to clamber across those slippery boulders. As a rock climber, Barnes said, she tends to be very conscious of where she places her hands. No, she didn't touch any guano. No, she was not bumped by a bat. By late afternoon they were back, watching the sunset. It was Christmas evening 2007. They arrived home on New Year's Day. On 4 January, Barnes woke up feeling as if someone had driven a needle into her skull. She was achy all over, feverish. "And then, as the day went on, I started developing a rash across my stomach." The rash spread. "Over the next 48 hours, I just went down really fast." By the time Barnes turned up at a hospital in suburban Denver, she was dehydrated; her white blood count was imperceptible; her kidneys and liver had begun shutting down. An infectious disease specialist, Dr Norman K Fujita, arranged for her to be tested for a range of infections that might be contracted in Africa. All came back negative, including the test for Marburg. Gradually her body regained strength and her organs began to recover. After 12 days, she left hospital, still weak and anaemic, still undiagnosed. In March she saw Fujita on a follow-up visit and he had her serum tested again for Marburg. Again, negative. Three more months passed, and Barnes, now grey-haired, lacking her old energy, suffering abdominal pain, unable to focus, got an email from a journalist she and Taylor had met on the Uganda trip, who had just seen a news article. In the Netherlands, a woman had died of Marburg after a Ugandan holiday during which she had visited a cave full of bats. Barnes spent the next 24 hours Googling every article on the case she could find. Early the following Monday morning, she was back at Dr Fujita's door. He agreed to test her a third time for Marburg. This time a lab technician crosschecked the third sample, and then the first sample. The new results went to Fujita, who called Barnes: "You're now an honorary infectious disease doctor. You've self-diagnosed, and the Marburg test came back positive." The Marburg virus had reappeared in Uganda in 2007. It was a small outbreak, affecting four miners, one of whom died, working at a site called Kitaka Cave. But Joosten's death, and Barnes's diagnosis, implied a change in the potential scope of the situation. That local Ugandans were dying of Marburg was a severe concern - sufficient to bring a response team of scientists in haste. But if tourists, too, were involved, tripping in and out of some python-infested Marburg repository, unprotected, and then boarding their return flights to other continents, the place was not just a peril for Ugandan miners and their families. It was also an international threat. The first team of scientists had collected about 800 bats from Kitaka Cave for dissecting and sampling, and marked and released more than 1,000, using beaded collars coded with a number. That team, including scientist Brian Amman, had found live Marburg virus in five bats. Entering Python Cave after Joosten's death, another team of scientists, again including Amman, came across one of the beaded collars they had placed on captured bats three months earlier and 30 miles away. "It confirmed my suspicions that these bats are moving," Amman said - and moving not only through the forest but from one roosting site to another. Travel of individual bats between far-flung roosts implied circumstances whereby Marburg virus might ultimately be transmitted all across Africa, from one bat encampment to another. It voided the comforting assumption that this virus is strictly localised. And it highlighted the complementary question: why don't outbreaks of Marburg virus disease happen more often? Marburg is only one instance to which that question applies. Why not more Ebola? Why not more Sars? In the case of Sars, the scenario could have been very much worse. Apart from the 2003 outbreak and the aftershock cases in early 2004, it hasn't recurred. . . so far. Eight thousand cases are relatively few for such an explosive infection; 774 people died, not 7 million. Several factors contributed to limiting the scope and impact of the outbreak, of which humanity's good luck was only one. Another was the speed and excellence of the laboratory diagnostics - finding the virus and identifying it. Still another was the brisk efficiency with which cases were isolated, contacts were traced and quarantine measures were instituted, first in southern China, then in Hong Kong, Singapore, Hanoi and Toronto. If the virus had arrived in a different sort of big city - more loosely governed, full of poor people, lacking first-rate medical institutions - **it might have burned through a much larger segment of humanity**. One further factor, possibly the most crucial, was inherent in the way Sars affects the human body: symptoms tend to appear in a person before, rather than after, that person becomes highly infectious. That allowed many Sars cases to be recognised, hospitalised and placed in isolation before they hit their peak of infectivity. With influenza and many other diseases, the order is reversed. That probably helped account for the scale of worldwide misery and death during the 1918-1919 influenza. And that infamous global pandemic occurred in the era before globalisation. Everything nowadays moves around the planet faster, including viruses. **When the Next Big One comes**, **it will** likely **conform to the** same perverse pattern as the **1918 influenza**: high infectivity preceding notable symptoms. That will help it move through cities and airports like an angel of death. The Next Big One is a subject that disease scientists around the world often address. The most recent big one is Aids, of which the eventual total bigness cannot even be predicted - about 30 million deaths, 34 million living people infected, and with no end in sight. Fortunately, not every virus goes **airborne** from one host to another. If HIV-1 could, you and I might already be dead. If the **rabies** virus could, it **would be the most horrific pathogen on the planet**. The influenzas are well adapted for airborne transmission, which is why a new strain can circle the world within days. The Sars virus travels this route, too, or anyway by the respiratory droplets of sneezes and coughs - hanging in the air of a hotel corridor, moving through the cabin of an aeroplane - and that capacity, combined with its case fatality rate of almost 10%, is what made it so scary in 2003 to the people who understood it best. Human-to-human transmission is the crux. That capacity is what separates a bizarre, awful, localised, intermittent and mysterious disease (such as Ebola) from a global pandemic. Have you noticed the persistent, low-level buzz about avian influenza, the strain known as H5N1, among disease experts over the past 15 years? That's because avian flu worries them deeply, though it hasn't caused many human fatalities. Swine flu comes and goes periodically in the human population (as it came and went during 2009), sometimes causing a bad pandemic and sometimes (as in 2009) not so bad as expected; but avian flu resides in a different category of menacing possibility. It worries the flu scientists because they know that H5N1 influenza is extremely virulent in people, with a high lethality. As yet, there have been a relatively low number of cases, and it is poorly transmissible, so far, from human to human. It'll kill you if you catch it, very likely, but you're unlikely to catch it except by butchering an infected chicken. But if H5N1 mutates or reassembles itself in just the right way, if it adapts for human-to-human transmission, it could become the biggest and fastest killer disease since 1918. It got to Egypt in 2006 and has been especially problematic for that country. As of August 2011, there were 151 confirmed cases, of which 52 were fatal. That represents more than a quarter of all the world's known human cases of bird flu since H5N1 emerged in 1997. But here's a critical fact: those unfortunate Egyptian patients all seem to have acquired the virus directly from birds. This indicates that the virus hasn't yet found an efficient way to pass from one person to another. Two aspects of the situation are dangerous, according to biologist Robert Webster. The first is that Egypt, given its recent political upheavals, may be unable to staunch an outbreak of transmissible avian flu, if one occurs. His second concern is shared by influenza researchers and public health officials around the globe: with all that mutating, with all that contact between people and their infected birds, the virus could hit upon a genetic configuration making it highly transmissible among people. "As long as H5N1 is out there in the world," Webster told me, "**there is the possibility of disaster**. . . There is the theoretical possibility that it can acquire the ability to transmit human-to-human." He paused. "And then God help us." We're unique in the history of mammals. No other primate has ever weighed upon the planet to anything like the degree we do. In ecological terms, we are almost paradoxical: large-bodied and long-lived but grotesquely abundant. **We are an outbreak**. **And here's the thing about outbreaks**: **they end**. In some cases they end after many years, in others they end rather soon. In some cases they end gradually, in others they end with a crash. In certain cases, they end and recur and end again. Populations of tent caterpillars, for example, seem to rise steeply and fall sharply on a cycle of anywhere from five to 11 years. The crash endings are dramatic, and for a long while they seemed mysterious. What could account for such sudden and recurrent collapses? One possible factor is infectious disease, and viruses in particular.