

Water Security: What Else Can We Do?

by

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USAWC STRATEGY RESEARCH PROJECT

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Abstract

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Water is a strategic resource with projected future reduced quantities and increased consumption due to world population growth, which will affect security around the globe and will threaten United States interests. Water is fundamental to human life and vital for food production; sanitation; economic development and opportunity; human health; trade power generation; environmental sustainability; recreation; and stability and security. Because it is tied to so many sectors, water scarcity and projected declining per capita quantities of this vital resource challenge government legitimacy of developing countries around the world as political leaders struggle to fulfill the basic needs for their growing populations. The United States, other global leaders, and partners must continue to focus on managing water scarcity challenges in order to increase world security and stability. The United States can do more with better interagency cooperation with a "whole of government" approach in order to prevent future conflict and protect vital U.S. interests.

Water Security: What Else Can We Do?

Water security for us is a matter of economic security, human security, and national security, because we see potential for increasing unrest, conflicts, and instability over water.

—Secretary Clinton remarks on World Water Day 2011¹

Since the dawn of time, water, the watering hole, or the well has been critically important and gave life to flora and fauna. Water, next to air, is one of the basic necessities for life. It is fundamental to human life not only as the universal, low-cost, life-giving beverage, but because it is vital for food production; sanitation; economic development and opportunity; human health; trade; power generation; environmental sustainability; recreation; and stability and security.² Because it is tied to so many sectors, water scarcity and projected declining per capita quantities of this vital resource challenge government legitimacy of developing countries around the world as political leaders struggle to fulfill the basic needs for their growing populations. The United States, other global leaders, and partners must continue to focus on managing water scarcity challenges in order to increase world security and stability.

Water: the Element

A useful way to understand the security dimension of water is through the concept of Yin and Yang. Most know the symbol and that it stands for opposites. So it is with water. Water is the source of life, but it can also serve as a destructive force. On a small scale, it can serve as an adhesive, or it can pull things apart. A small amount of water (with some help from the cold) can split gigantic boulders. Water is also used as the catalyst to make concrete. This process creates huge structures (specially engineered boulders) which serve to increase the standard of living for humans around the world with roads, buildings, and dams.

The lack of water (along with many other factors) brought about destruction to entire regions during the Dust Bowl in the United States' mid-west. Conversely, with the New Deal projects of the Great Depression and the industrial demands of World War II, water brought about tremendous economic abundance which improved the standard of living for a large portion of the Northwestern United States. Water has also flooded regions along flood plains and nearly destroyed New Orleans during Hurricane Katrina, but those same waterways brought about an abundance of crops, an inexpensive method of transporting goods, and a form of recreation.

It has always been man's dream to control the elements for the good of mankind. Water is no exception. At the birth of the United States, the young nation managed waterways in order to provide transportation networks for commerce and economic, as well as western expansion. Later rail, then roads and airlines, provided alternative means of transportation for delivery of goods across the country and to the ocean for world trade. As the population grew, water took on a vital importance for food production and industrial purposes. Though water is still an important and the least expensive method of transportation for goods, it is only available in regions which have rivers and channels. Rail, ground, and air transportation can cost tens to hundreds of dollars more per ton to move goods when compared to water transportation sources. This makes moving certain types of goods by water, where available, the preferred choice in a free market economy.

The U.S. Army Corps of Engineers

In order to control this great element, Congress established the U.S. Army Corps of Engineers (the Corps) in 1802 with authorities to control water resources primarily for navigation purposes.³ Since water does not abide by state or national boundaries, it

was only logical to make this a Federal matter. Just as the nation expanded and changed, the Corps' authorities changed to meet the times; from merely managing waterways to meet commercial transportation demands to regulating water for the good of the nation related to industry, agriculture, residential use, recreational purposes, and to protect the environment. This change occurred over time with Congress changing authorizations and appropriations to direct work on massive water related projects and programs to meet the growing national needs. The Corps and several other federal U.S. agencies have been at the forefront of developing and enforcing national "water strategies" that have contributed significantly to the nation's growth, which has undoubtedly increased the standard of living for many of its citizens. These strategies have also produced experts on systems of water management to meet the various environmental and political consideration of the different regions of the United States.⁴ These may serve as a good suite of examples for different regions of the world. The Corps' expertise is world known and frequently requested.

It is true that the Corps makes controversial decisions almost on a daily basis which result in criticisms from multiple "water users" and environmentalists. This is a result of managing a scarce commodity which always causes conflict. It is best described by Garrett Harden's *Tragedy of the Commons* as "mutual coercion mutually agreed upon."⁵

Water Scarcity and Global Conflict

As in the United States, water is already a scarce resource in many regions of our globe. There are many regions which do not have water to sustain their current population and must import food because the lack of water prevents them from growing local crops or producing protein products. These regions are in the deserts of Africa,

the U.S. Southwest, northern Mexico, the Middle East, and several other areas of the world.

Africa has a particularly startling statistic. The Defense Science Board's *Trends and Implication of Climate Change* states that "the single greatest direct driver of impact on human habitat is water -- too much or too little."⁶ Furthermore, per capita renewable water resources in Africa have decreased by a factor of three.⁷ The reasons for these stark statistics are many, but the leading issue may be population growth because it causes further stress on water demand. Population growth is a significant impact around the globe but in Africa, as with most developing regions, the growth has been more of an explosion. Already in Sub-Saharan Africa, 54% of people lack improved drinking water resources.⁸ The population growth problem will only make matters worse.

In addition to world population growth, and an even greater population growth in developing regions of the globe (who have less capacity to deal with the increase), there is also a global trend of population migration to urban areas. This migration is largely based on the fact that urban areas provide more opportunity for employment, education, and generally a better standard of living. Only 30% of the world's population lived in urban areas in 1950. Today it is up to 50%, and by 2030 the projection is 60%.⁹ Many of these urban areas are already experiencing significant shortages in resources. One of those is water.

According to multiple sources, climate change is also aggravating the water problem. Some experts believe climate change is causing dryer areas to become dryer. The United Nations (International) Panel on Climate Change (IPCC) Assessment

Report predicts a 20-40% rainfall increase in higher latitudes and wet tropical climates, but a decrease by 10-30% in some dryer regions which are presently water-stressed areas.¹⁰ Where population growth increases the demand, climate change is causing an impact to supply (too much or too little) of water in already troubled regions of the globe. Together these two main variables create significant challenges in many parts of the world.

The dual nature of water can serve as a source of conflict or as the one thing which can bring nations in a conflict to the table. The Mekong Committee during the Vietnam War; the secret “picnic table” talks between Jordan and Israel; and the Indus River Commission between Pakistan and India are examples of such cooperative phenomenon.¹¹ Cooperation agreements through treaties continue to produce peaceful results, almost regardless of existing or future hostilities, because of the extensive negotiations and mutually agreed upon nature of the agreements.¹²

The Water Challenge: Quantity, Quality and Variability

Issues related to water can be divided into three primary areas: quantity, quality, and variability. The quantity problem is not much different from any other supply and demand issue. The primary consumers, humans, are growing in numbers while some of the sources of water continue to dwindle. Quality is primarily an issue for consumption, and it usually impacts the downstream users. It impacts drinking water, hygiene, sanitation, and human health. Some experts estimate that four million people die worldwide because of poor water quality.¹³ Variability causes spike and troughs which may produce drought and floods depending on seasons.

Water Quantity

Of all the water on earth, 97.5% is salt water in our oceans and 2.5% is fresh water elsewhere.¹⁴ Of the world's fresh water, 68.7% is in glaciers, 30.1% is groundwater, 0.8% is permafrost, and 0.4% is surface and atmosphere. Of the surface and atmosphere water, 67.5% is in freshwater lakes, 12.0% is in soil moisture, 9.5% is in the atmosphere, 8.5% is in wetlands, 1.5% is in rivers, and 1.0% is in vegetation. Humans primarily use rivers, lakes and groundwater as sources.¹⁵ Therefore, supply is significantly less than 1% of the world's water because much of the fresh water is in glaciers and groundwater, inaccessible to population centers.

About 68% of water use is for agriculture, 19% is for domestic and other industrial uses, 10% is for power generation (and some of this is reused for other purposes further downstream), and about 3% is lost to evaporation, primarily in lakes and reservoirs.¹⁶ Therefore, the largest use (nearly 70%) is for food production.

The quantity of water available to a population in a region has an impact on the standard of living of its people, because it is tied to a basic human need and multiple other sectors of development. History shows that most great cities were established near reliable water supplies. The standard of living for a given population gradually increases with the quantity of water, but then reaches a tipping point where the quantity of water becomes a hazard and gradually starts to deteriorate living conditions (assuming no adaptive measures). See figure 1 below, a conceptual picture of the impacts of water quantity on standard of human living.

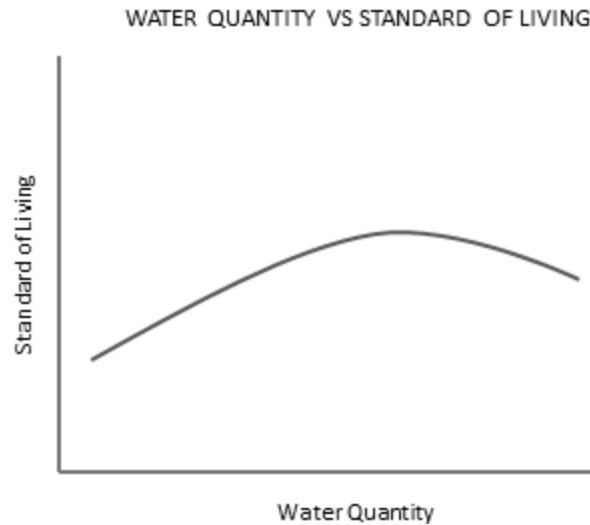


Figure 1: Water Quantity impacts on local human standard of living

If over 97% of water resides in the oceans, why not take sea water and purify it? Some countries are already doing this. However, the issue is the cost of desalinization. For those countries who can afford it, they are converting sea water into drinking water through desalinization technologies. However, most of these are countries like Israel or the oil rich countries of the Middle East. Even they can't afford to desalinate water for industrial or irrigation purposes. As stated earlier, irrigation for food production is the biggest portion of water use. With current technologies, it is less expensive to import most food rather than desalinate for irrigation purposes.

Glaciers and ground water are both great sources of water and are used in regions where they exist. However, most population centers are not located in regions with glaciers, and the resource is dwindling according to reports on global warming. Studies vary on how quickly the change is taking place. Most experts agree that global warming is real. Whether it is just a symptom of our current location on the episodic warming curve, or an actual long-term upward trend of global warming, are both possible

and the source of much debate. See figure 2 below for a conceptual depiction of both possibilities.

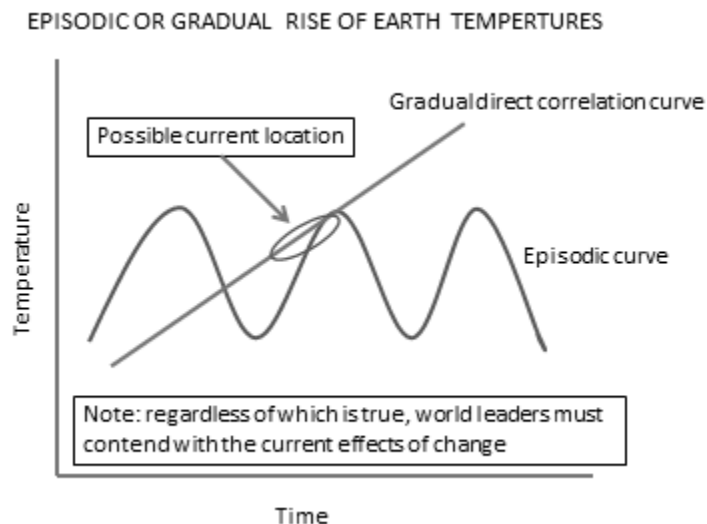


Figure 2: Two possibilities of global warming

The fact remains that glaciers are disappearing very quickly, and this has an impact on a key source of water for a few regions of the world. The October 2011 Defense Science Board study has placed the sea level rise at about 2-3 cm every ten years because of glacial melt and the thermal expansion of water.¹⁷ This produces additional impacts which challenge world leaders but is beyond the scope of this paper.

Ground water is extensively used in many regions of the world. The “well” is the pathway to our ground waters. However, in some areas these sources are literally drying up. Currently, significant acreage in some regions of the world is no longer farmland because of the declining water table. So both glaciers and ground water are a large source of water, but they are unpredictable, localized, and are diminishing at an alarming rate. This makes management of limited resources an important mitigating strategy for the future.

Water Quality

The quality issue is the second challenge but involves much more scientific data and is beyond the scope of this paper. For the most part, developed countries are making progress in this area at the cost of short-term fiscal trade-off, but with long-term gains in standard of living for humans and other plant and animal species of the region. Meanwhile, developing countries, in order to achieve short-term competitiveness in world markets, trend more towards accepting short-term gains in efficiencies to their industrial and urbanization endeavors, but risk the long-term impacts of environmental costs and pass on huge challenges to their future generations. The Three Gorges Dam in China is probably the best example of the latter. The fact that U.S. project costs have increased significantly in time and money as a trade-off for environmental stewardship and building consensus is an example of the former. Unlike water quantity, water quality has a direct correlation to long-term standard of living. See figure 2 below for a conceptual view of the direct correlation of water quality to human standard of living.

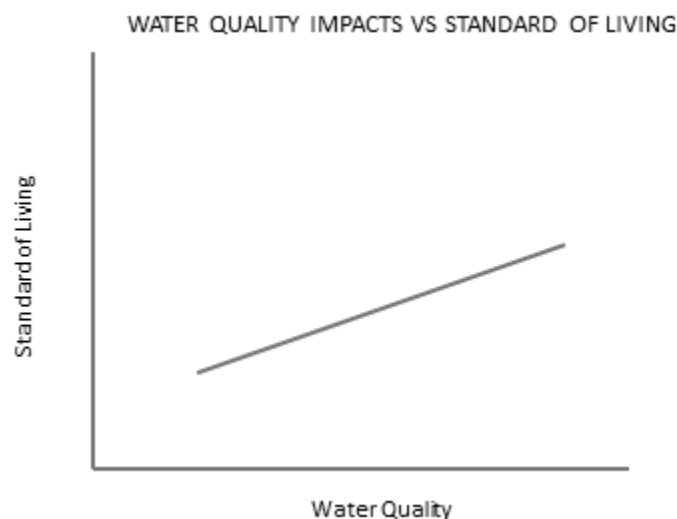


Figure 3: Standard of living as it relates to water quality

Spikes and Troughs; the Variability Problem

In addition to water quantity and quality, frequency of delivery is the third challenge impacting standard of living. Though the annual totals may show that there is sufficient rainfall in a region, the reality may be that variability produces flood and famine. Unlike water quality, variability is indirectly proportional to standard of living. See figure 4 below for a conceptual depiction of this phenomenon.

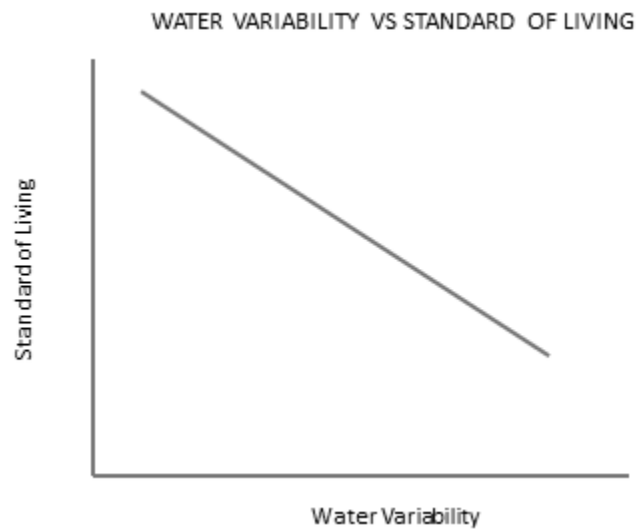


Figure 4: Water variability and its impacts on human standard of living

Future Water Trends

Why is this important now? According to experts, the world community has a window of opportunity to influence this challenge. As already discussed, water can be both a catalyst for conflict and an incentive for adversaries to come to the negotiating table. Population growth, coupled with the growth of the middle class within emerging countries, will significantly increase the need for additional world water supply. World-wide, the population will increase from 7.1 Billion in 2012 to 8.3 Billion by 2030.¹⁸ To make matters worse, the population increase in developing countries that have fewer

resources to deal with the impacts is more significant. Additionally, the increase in the middle class who will consume more protein products (which cost more to produce and uses more irrigation water) will demand an increase of food production of over 30% world-wide.¹⁹ Because of the additional water required to meet the need of the protein hungry middle class, world water demand will increase by 40% by 2030.²⁰

Several sources indicate that within the next ten years many countries important to the United States will face water problems that will contribute to instability and state failure.²¹ In essence, they will have water security issues or will lack “the reliable availability of an acceptable quantity and quality of water for health, livelihoods, and production, coupled with an acceptable level of water related risks.”²² Additionally, the United States’ position as a world leader and economic engine is projected to remain stagnant or decline (or at a minimum decline relative to the rise of other states -- making it harder to influence solutions in the future). Therefore, it is important to evaluate what the United States and other world leaders (governmental and non-governmental) are currently doing in order to make the necessary adjustment in the ends, ways, and means of the water security strategy to mitigate the risk to an acceptable level.

Current “Whole of Society Approach”

Although water security statistics are not promising, the current actions of world governments, non-governmental organizations, and others are impressive. This does not mean that the conglomerate of actions or strategies is perfect, but many organizations and public servants across the globe have dedicated an inordinate amount of energy to mitigate water security concerns. A simple look on Google Earth will show that many of our rivers/drainage basins in populated or heavily farmed regions of the globe have been dammed up in order to provide water for multiple purposes.

These structures range from the massive Three Gorges Dam which promises to produce significant electrical power and will provide water for down-stream farmers while providing future flood protection, to a simple earthen watering hole dug by a developing country farmer whose goal is to feed/water his herds in order to provide for his family. Multiple positive water sharing agreements exist, and others are still in their early stages of development. Education programs on water conservation, impacts of individual user actions on the rest of the system, and implications of poor water quality on society are prolific. Science is developing genetically modified (GM) plants which can produce larger crop yields. Technology has also produced monitoring techniques which allow for a smarter way to get more crop yield from less land and less water. Recently, NASA's Earth Science program launched a new Landsat satellite in order to extend the longest continuous data record on the earth's surface. NASA's administrator, Charles Bolden, said, "This data is a key tool for monitoring climate change and has led to the improvement of human and biodiversity health, energy and water management, urban planning, disaster recovery and agricultural monitoring."²³ According to Michael Foote, a Regional Specialist for Africa and the Middle East of the United State Geological Survey (USGS), his team provides visualization tools to help decision makers in water basins to gather gaging system data which will help in deciding the mutually agreed upon rules for sharing limited water resources of a region.²⁴ Multiple departments and agencies of the U.S. Government (USG) have partnered with multiple state and regional organizations world-wide to mitigate some of the effects of water security challenges.

Several studies provide a look at water. Some are independent and others are government directed. Examples of these are the Defense Science Board's Climate Change report, the Center for Strategic International Studies report on Global Water Futures, the Director of National Intelligence's report on Global Water Security, and the Global Trends 2030 report (which focuses broader than water but indicates water is a significant issue for the future). All of these reports have some common themes as it relates to water scarcity and global water security. First, the problem is real because the demand for water is growing and the supply is dwindling. Second, it will take a "whole" of government approach to address this complex issue because the nature of water does not conform to political boundaries. Also, many actors are already taking action -- sometimes in an uncoordinated manner. Third, there is no "common picture" because though there are multiple collection platforms and prediction models, sometimes the multiple methods of looking at the data confuse the issues. Finally, water security is tied to meeting basic human needs and directly impacts a government's legitimacy and thereby security and stability. For reasons already stated, the African continent is the region of the world with the most significant negative future impacts because of a growing demand, diminishing supply, and security/stability issues in the region.

The following actions are not all inclusive but serve as an example of what the whole of the United States Government, in coordination with global partners, is doing to assist like-minded governments meet basic human needs (water and all the sectors it affects) in order to increase legitimacy and thereby decrease regional instability and security challenges. These are not all inclusive but will provide examples of some of the

many actions that are currently underway to mitigate some of the impending water challenges in many areas.

Strategic Documents

The first paragraph of the National Security Strategy (NSS) identifies four broad primary threats: terrorism, deadly technologies, economic upheaval and climate change.²⁵ Coupled with the Defense Science Board's finding that water is the single greatest driver of impact on human habitat makes water security one of the top four threats.²⁶ Additionally, the World Economic Forum's Eighth Edition of Global Risks (2013) identifies water supply crisis and major systematic financial failure as the current top two concerns when evaluating future world risks based on likelihood and impact.²⁷ Furthermore, President Obama stresses engagements with the broader world community and cooperation between government agencies; the "whole of government approach" as the key to confronting threats.²⁸

Congress passed and President Bush signed the Paul Simon Water for the Poor Act in 2005. This act sets a central goal of affordable and equitable access to safe water and sanitation in developing countries as a key component of U.S. foreign assistance programs. The act sets the goal "to provide affordable and equitable access to safe water and sanitation in developing countries."²⁹

State Department and United States Agency for International Development

The Department of State (DOS) has lead on water policy for the United States. The United States Agency for International Development (USAID) has lead for development. DOS and USAID conduct coordination meetings on a periodic basis (along with multiple other USG organizations – i.e., DOD, USGS, NASA) to discuss water security issues. During the last Interagency Water Working Group and Nexus

Dialogue on Water Infrastructure Solutions, the State Department led discussions on upcoming workshops to “build a global dialogue on water infrastructure (dams, barrages, irrigation systems) to more effectively and sustainably meet the challenges posed by rising water, food, and energy demands.”³⁰ Furthermore, the group discussed the numerous ongoing bilateral discussions in Pakistan and the Mekong River basin. Additionally, the group discussed the upcoming World Water Day which has been a significant event involving the whole of government, multi-national/regional partners, and non-governmental organizations to continue to raise awareness on water challenges and ongoing solutions. The main issue around the table stemmed from the significance of the sequestration impacts and the reduction in travel budgets. Most in attendance relayed that the pending sequestration and travel budget restrictions would have a significant impact on their ability to continue to partner.

Besides policy and bringing groups together to share best practices, the DOS has made a concerted effort to bring private sector resources to bear on water security challenges. During the 2011 World Water Day, Secretary Clinton signed a Memorandum of Understanding with the World Bank.³¹ She also recognized and thanked multiple other organizations, to include the Gates Foundation and Rotary International for their contributions. Private sector and volunteer organization involvement and contributions are paramount in the future in view of U.S. fiscal challenges.

Department of Defense

As stated earlier, the State Department has lead on water policy but since water security has implications for security and stability issues, the Department of Defense (DoD) has conducted several multi-national and multi-agency conferences. In March

2011, the United States Pacific Command hosted a conference at Honolulu, Hawaii, to discuss environmental security issues.³² This venue was attended by 18 countries and multiple USG experts. In 2012, the Deputy Assistant Secretary of Defense (DASD) for African Affairs asked the Africa Center for Strategic Studies (ACSS) and the Center for Strategic Leadership (CSL) to host a water-focused dialogue under the theme of *Environmental Security in Africa*.³³ This report concluded that DOD should focus on formulating programs to assist foreign militaries in adapting and training to build capacity.³⁴ The report also recommended that DOD harness resources beyond the traditional command structure (e.g., National Guard [State Partnership Program]³⁵, USACE [the Corps], and Naval Facilities Command, etc).³⁶ These dialogues used the draft *3D Planning Guide: Diplomacy, Development and Defense* as a guide for some of the discussions and as a document to discuss the methodology by which each organization conducts planning.³⁷

The Department of Defense's Minerva Research Initiative leverages academic institutions to conduct research studies in order to provide recommendations on complex challenges. This program is in its infancy but promises to deliver recommendations in areas related to water security. Four of the 52 topics for 2012 are related to water security.³⁸ One of the current initiatives of the 2012 Minerva Project is to study the effect of climate change on African security.³⁹ Additionally, the Minerva Project has another initiative which will provide some recommendations on how to prevent future conflicts related to water.⁴⁰ Although this second initiative is not specific to the African continent, it should prove a very valuable tool in further developing goals within the broader water strategy for Africa.

Within the Department of the Army, the Corps (USACE) already has a working relationship with State, USAID, and multiple other USG agencies. The Corps' Institute for Water Resources (IWR) regularly works with DOS and USAID, academia, and global organizations like the International Center for Integrated Water Resource Management (ICIWaRM). The Army has also recently announced its Regionally Aligned Forces (RAF) strategy.⁴¹ In a December 2012 speech to the National Press Club, Secretary Panetta stated that "the Army's new regionally-aligned brigade structure [will] engage on a rotational basis to assist other countries."⁴² The Army has announced the first Brigade Combat Team (BCT) of approximately 4000 Soldiers from Fort Riley will support AFRICOM.⁴³ Richard Downie, an Africa expert at the Center for Strategic and International Studies, contends that there are lots of issues in Africa that are causing concern -- the United States must address the underlying issues.⁴⁴

The U.S. Army is also working on Base Camp solutions to sustain its force of the future. One of the lessons learned in the last ten years is that the logistic support to meet energy, water, food, and materiel requirements is unsustainable.⁴⁵ This capability provides a force tailored solution to meet housing, water, and energy needs of deployed units.

Combatant Commands

Combatant Commanders and their staff comprehensively engage with more of the regional actors than any other USG organization. The 2012 report to Congress on Combatant Commands and the Unified Command Plan asks, "Has U.S. Foreign Policy become 'too militarized' as a result of Geographic COCOMs?"⁴⁶ It also recommends a Course of Action to replace the combatant command with a Joint Interagency Organization led by a civilian.⁴⁷ This is a good suggestion with some merit but with

multiple challenges for implementation. As long as the Combatant Command exists as the key organization which has the ability to see things regionally, it is the United States' current organization best resourced to influence regional security issues. However, its actions must be well coordinated with State, USAID, other USG departments/agencies and other world and regional organizations in their Area of Operations (AOR). Because of this requirement, many agencies are represented on the Combatant Command staff. United States Joint Doctrine defines this as Unified Action; a comprehensive approach that synchronizes, coordinates, and when appropriate, integrates military operations with the activities of other governmental and NGO's to achieve unity of effort.⁴⁸

Recommendations

At the strategic level, the National Security Strategy (NSS) provided guidance to nest action required to address challenges associated with climate change (a subset of which is water security) and makes a commitment to development. It also makes the whole of government approach a key component of meeting these challenges. The most pressing action required from our national leaders (executive and legislative) is the resolution of the budget crisis. As stated earlier, this is creating some significant second and third order effects on USG organizations' ability to continue partnering, planning, and funding ongoing and future projects and programs. This is apparent from daily print, radio, television, and electronic news media reports. The inability to come to resolution on this issue is sapping the energy from many organizations, not only because of the reduction of resources (funding and manpower), but also because of the uncertainty and multiple "what if" drills that have lasted over a year.⁴⁹ The reduction in budgets is also causing reductions in niche capabilities of many organizations; one of

these is water policy experts, even though water security is listed as one of the top two global concerns in *Global Trends 2030* and other reports.

The DOS, USAID and DOD must approve the *3D Planning Guide* which provides a methodology for continued coordination -- as directed by the NSS. Even more critical is the positive relationship between the Secretary of State and the Secretary of Defense. With a change of senior leaders currently underway, that relationship must look more like Clinton-Gates than Rumsfeld-Rice. Many within these two influential departments, as well as observers from other organizations, agree that this relationship is key to achieving the “whole of government” or “unified action” approach. Additionally, Secretary Kerry should dedicate the same or more energy as Secretary Clinton to global water security challenges. For example, by all accounts, Secretary Clinton’s leadership in this area made significant positive impacts both in securing funding from the global community, as well as raising awareness by speaking at the World Water Day event. Finally, what seems to be missing at the national level is a strategic communications (STRATCOM) plan with specific themes and messages detailing the tremendous work planned and currently underway to resolve some of the water security issues. This STRATCOM will help improve the image of the United States in many of the developing regions experiencing water security challenges and may further encourage additional investment from the private sector to meet these challenges.

The Department of Defense should continue to work with other agencies to understand the implications of water scarcity on future stability and security issues. As joint and department staffs conduct the political, military, economic, social, information, infrastructure (PMESII) nodal analysis, they must account for the cause and effect of

water scarcity on security and stability.⁵⁰ Similar to the Improvised Explosive Devices (IED) method of “getting left of the boom⁵¹,” DOD must dedicate efforts to some of the causes (one of those is water scarcity) of lack of security and stability in areas critical to United States’ interests. As tactical units in Iraq and Afghanistan quickly learned, dedicating some efforts and resources to the important (tracking the money, providing alternate means of employment) rather than only the urgent (killing the trigger man) paid dividends because the less important actions addressed a root cause of IEDs. DOD should continue to fund the Minerva Research Initiative; but more importantly should direct actions that are feasible, acceptable, and suitable to Combatant Commanders through the Guidance of Employment of the Force (GEF).

Combatant Commanders responsible for regions that have water scarcity issues should include their concerns in the Planning Input Memos (PIMs), as well as the Integrated Priority Lists (IPLs). Specifically, since Africa is experiencing significant water scarcity challenges, AFRICOM must include water security in their Theater Campaign Plan. This must have several components: first, a method to see the environment across the region. There are several space (NASA) collection platforms and several models available, as well as expertise in the USGS team. Second, use these tools to identify the future environment in order to forecast issues. Third, identify the need for long-term resources required in the budget for the out years. Fourth, ask for a capability in the Army’s Regionally Aligned Forces’ strategy which will further the goals that will prevent conflict and will mitigate the water challenges in the region. It will be critical to develop a strategy which has the consensus of the region, fiscal support for

the out years, and an established mechanism for feedback on reaching intermediate goals.

The Department of the Army should make recommendations on force structure to AFRICOM as the Regional Alignment concept becomes a reality. The focus on building military partner capacity in order to combat emerging terrorist elements in the region should be the leading goal. However, a more balanced approach of targeting some of the key underlying regional issues which will give the populace other alternatives to disrupting security and stability is paramount. The Army should recommend a force package which has the capacity to further the Combatant Command's strategy to develop basin wide water solutions which will be beneficial to all regional actors. Some of this capacity exists in the Operational Army within Engineer and Combat Service Support Military Occupational Specialties (MOS's). It also exists in the Corps of Engineers. As stated earlier, the Corps actively participates with other DOD, DOS and USAID experts in the water management field and would provide tremendous capability to the Combatant Command directly or through the Regionally Aligned Forces. This is similar to the Corps' Department of the Army Civilians used to augment the efforts in Iraq and Afghanistan. However, the U.S. Army must come to grips with the fact that the situation in Africa is different than the "last war." In the words of GEN Rupert Smith, "Armies do not prepare for the last war, they prepare for the wrong war."⁵² As the Army creates the BCT deployment package, it must consider that water security contributes to government legitimacy which leads to security and stability. Army leaders must look "left of the boom" and must dedicate some efforts to the important – not just the urgent.

The Army should also test its System of System (SOS) Base Camp packages with the deployment of the RAF. Not only will this help the deploying units, but it will help to improve the systems by quickly implementing recommended changes from the field. Finally, because many regions in Africa lack infrastructure, the deployment of the SOS package will ensure U.S. troops are not taking critical facilities away from the indigenous populace and will help build the capacity of the local militaries by providing at least a portion of the SOS technologies for future use.

The above are a few recommendations and are by no means all inclusive. They are feasible because, for the most part, they do not require any additional resources than those already planned. The “whole of government” approach provides a synergistic effect which may offset some of the current and future fiscal challenges that lie ahead. Though some entrenched organizations may find it unacceptable, there are currently no laws or policies that prevent organizations from working together. On the contrary, it is directed by the U.S. NSS. This, in addition to all of the ongoing efforts, is also a suitable solution to mitigate some of the challenges that lie ahead. As evident from the United States Mississippi River basin in early 2013, there is no silver bullet to resolve water scarcity issues.⁵³ Though the United States has dedicated an inordinate amount of time developing infrastructure, policies, and monitoring techniques to ensure the basin meets everyone’s needs; nature ultimately gets the final vote. However, the actions taken over time by multiple agencies have made the region more resilient, have provided options to those making the tough decisions, and provide a “mutually agreed upon method” to peacefully resolve conflict over a limited resource.

Conclusion

In the National Security Strategy, President Obama states, “Our commitment to human dignity includes support for development, which is why we will fight poverty.”⁵⁴ He also states, “Our long-term security will come not from our ability to instill fear in our peoples, but through our capacity to speak to their hopes.”⁵⁵ The President also calls for a renewed strategy of global leadership and for a whole of government approach. Where better to apply this global leadership and cooperation than in an area that will not only fight poverty but will decrease conflict. The United States has the capacity to provide leadership to mitigate water security challenges to nurture security and stability. The Department of Defense has the capacity to support the interagency process to successfully address these issues. It could mean the difference between success and failure in achieving our national security interests.

Endnotes

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