Volume 1, Issue 2

OCTAVIAN REPORT

Spring 2015

WATER SECURITY AND GLOBAL DYNAMICS

BY **DEE SMITH**

Water is the most precious resource our civilization has — the fundamental prop on which our social structures rest, though we have become somewhat blind to this fact. Water too is the very stuff of life for countless species, including us, without which we cannot survive and yet which is becoming increasingly scare and vulnerable. Security expert Dee Smith charts the myriad ways in which water security directly impinges on global security — and the risks facing both.

Human history is replete with examples of the devastating effects of the lack of water. A centuries-long drought is the prime candidate as the ultimate cause for the collapse of the major "classical period" civilizations of ancient Mexico, including the Maya. But to the modern world, with its advanced technology and systems, water issues pose no existential threat.

Or do they?

Water is as essential to modern life as it was to our progenitors. Arguably, our current situation is even more fragile, because our societies — although they seem and are robust in many ways — are hypersensitive to resource interruptions. In some ways, they exist as close to the edge as earlier societies, and perhaps even closer. And the most fundamental resource is water. Without sufficient water, human life is simply impossible; without reliable water supplies, human civilization quickly unravels.

Make no mistake: the world is on the cusp of a serious water crisis. Approximately 1.2 billion people have no access to safe water, and 2.6 billion — more than a third of the world's population — have no access to sanitation. It is estimated that close to two million children die every year because they have no access to clean water. The risks that this creates range from individual human suffering on a vast scale to serious challenges to political stability: they could fuel geopolitical struggles that might lead to war, including war between nuclear-armed states. It is easy to imagine that the brunt of the water resource problem falls on the poor, which at the moment is true. However, this set of conditions will not necessarily last.

China provides an excellent example of the challenges in modern water security. There are more dams in China than in any other country in the world. This is not due just to the need for water for human consumption and sanitation, but also because of the massive demand for electrical power that China's population and growing industrial base require (sometimes called the "productive resource" use of water). In the middle of the last decade, China announced plans to triple its hydroelectric power generation between 2007 and 2020. Ma Jun, director of the Institute of Public and Environmental Affairs, a Chinese NGO, has stated that many Chinese rivers simply will not be running in ten years if China meets these ambitious hydropower goals.

Much of the water flowing through these dammed-up rivers is already polluted to an astonishing level. Consider the now-infamous dead pig incident on the Huangpu River in Shanghai province in March 2013. Approximately 16,000 porcine corpses were found floating in the Huangpu – a crucial source of drinking water for Shanghai's 26 million residents. Chemical pollution may be an even greater problem. In Lanzhou, Gansu province, municipal leaders were forced to find a secondary water supply following the discovery of high levels of benzine in the city's tap water. The list of similar incidents is lengthy.

It is key here to understand the tightly-coupled nature of modern social and economic systems. Water touches every facet of them, and water issues cannot be dealt with in isolation. This makes the problem — or more properly, the complex of problems — much more intractable. There is evidence, for example, that the Huangpu floating pig disaster is a direct result of an attempt by the Chinese authorities in recent years to crack down on the illegal sale for food or processing of sick or dead-from-disease pigs. Unable to sell them, the farmers simply dumped the pigs into rivers, and the end result became a global bad news story.

These water issues complicate and amplify the enormous and escalating problems China faces on many other fronts. Not-for-attribution sources estimate the actual number of protests in China to be an astonishing 190,000 per year — far above generally-reported figures. Critically, most of these protests are economic in nature and not political. Water disruption is a key factor (among a number of others) that could easily lead to an inflection point from which China would find it hard to recover, and which its government might not survive. Needless to say, the disintegration of a country led by a political regime that might use any level of coercion necessary to try to retain its grasp of the reins of power, and that is armed with nuclear weapons with reliable delivery systems, is not just an internal threat but also a threat to its neighbors and indeed to the world.

China is not alone. Across the Himalayas lies India, with its burgeoning population and its own set of water crises, and this is not to mention Southeast Asia, which draws its water from many of the same sources as China. Both China and India derive a

great deal of their water supply from the ice cap of the Himalayas, which has been called the water tower of Asia. Some geopolitical analysts believe that the longstanding Chinese political oppression of Tibet has more to do with securing the water resources of the Himalayas than it does with the political question of Tibetan autonomy.

The role of water as a causal factor of social disruption and war is becoming better understood. Drought can degrade or destroy agriculture, dramatically increasing migration to cities that are already under huge strain from decades of urbanization, poor resource management and government, and poverty. Couple this with rapid population growth and the effects are potentially explosive. Indeed, new research suggests that water scarcity has direct ties to the Syrian conflict and the rise of ISIS. A National Academy of Sciences study published in March 2015 highlights the relationship of water disruption to an unfortunate causal complex of ill-advised economic development, bad political leadership, corruption, and regional instability. The study claims this was at least a proximate cause (if not the ultimate cause) of social collapse and the rise of extremism in Syria.

The al-Assad family that rules Syria focused efforts in recent years on the cultivation of higher-value export crops that happened to be extremely water-intensive. (Big chunks of the extra revenue generated ended up, of course, in the Assads' own pockets.) At the same time, the drilling of illegal irrigation wells led to the depletion of groundwater in the country's most fertile regions. Very quickly, agricultural production, which had made up one-fourth of the Syrian economy, plummeted by 30 percent. In the northeastern part of Syria — the hardest hit in terms of water shortages and not coincidentally the area in which ISIS saw its first significant successes — herds of livestock were obliterated, the prices of basic foodstuffs, particularly cereals, doubled, and childhood-nutrition-related disease rates skyrocketed. This led to the flight of up to 1.5 million people into Syrian cities, thinning out the countryside and making it easier for ISIS to consolidate its gains in what had become a very sparsely populated area.

Furthermore, whatever the causes of climate change, it is clear that climate is becoming much more variable than it was for most of the 20th century (the emerging term for this is "global weirding"). And the impact of climate change on the availability of water grows more and more visible each year. Look at Sao Paolo, Brazil, a mega-city facing its worst drought in decades. Look at the drought in California. Look at the the huge amounts of water demanded in new methods of carbon energy production such as hydrological fracturing or "fracking." Or the increased and unprecedented flooding in recent years. And this is to say nothing of the collapse of water-based ecological systems and the massive global depletion of groundwater.

So what are the big risks to the First World? More traditional national-security issues play into this question, of course. Most experts believe that due to the large volume involved in contemporary urban water supply systems, deliberate attempts to contaminate them would not really be feasible for most terrorist groups. A more realistic scenario is a cyberattack on national utility software that could interfere with the ability to deliver water to a population. Given the growing aptitude for cyberwar shown by rogue states like North Korea, state-adjunct groups like the Syrian Electronic Army, and emergent forces like ISIS, the risk here is real.

But the key issue is that *homo sapiens* developed a very complex globalized civilization during what now seems to have been a period of unusual climatic stability over the last half of the 20th century. If that is now changing significantly for the middle- or long-term — no matter the reasons — the effects could be disastrous to a global society dependent for survival on the

conditions that birthed it continuing. Water is the *sine qua non* in this equation: the fundamental resource on which food, energy, industry, employment, and every social structure on earth depends. Therefore, when water availability changes

significantly, instability hockey-sticks with devastating ubiquity, rapidity, and effect.

This is why it is in the direct interests of those better-off to pay attention to finding solutions to a problem that may seem largely to affect only the poor. The good news is that better policies could in fact ameliorate the problems significantly and provide a pathway to continued social and economic stability. There are policy options that, through a concerted process to achieve water and sanitation for all by means of a global plan of action coupled with wise national strategies, could go far to mitigating the worst (and most conflict-prone) possible developments. However — as in the solution to so many problems — this would require a level of cooperation and enlightened self-interest that seems to elude the political leaders of most nations.

Seriously tackling this problem will require a coordinated effort between governments of nations where the problems are at their worst, multi-lateral organizations, and large donor nations (like the US and some EU countries). This needs to be a concerted international response on the level of the anti-HIV/AIDS epidemic effort, which has made a difference over the last several decades. Unfortunately, all indications are that this is a problem where an inductive, "grass-roots" approach will have very limited effect.

There would be several key components to an effective approach:

- Create a concerted international program to encourage governments to extend water and sanitation access to all citizens, including those living in slums (some of the poorest people in the world are paying the highest prices in the world for water, because of the limited formal supplies in villages but particularly in slums in large cities). This program would have to be supported with money, expertise, and political will.
- Support the efforts by people who live in rural villages and slums to come up with their own innovative solutions to mobilize resources, through community-government partnerships.
- Because water is a "natural monopoly," ensure that water providers are either highly regulated public entities or highly regulated private providers.
- Ensure through a variety of resource availability and economic support programs that no household has to pay more than three percent of its income for water (household water use usually reflects less than five percent of total water use in most countries).
- Provide guidelines and enhancements to countries to change public policies involving underpricing and subsidies in wealthier urban areas that have encouraged significant overuse of water.
- Create specific enhancements to ensure that sanitation is in place at the very least for all residents of all large urban environments. The absence of toilets and the presence of open, public waste creates breeding grounds for disease — and in our global world, disease can travel fast.
- Engineer financial "frontloading" to make sufficient critical resources immediately available for investment in water and sanitation development, in which the repayment of such funds is made over longer periods.
- Help countries competing over water resources negotiate realistic treaties.
- Perhaps most important, make goals attainable: pie-in-the-sky aspirations are worse than none.

Water issues will get progressively worse if they are not addressed as an international priority. The people most affected by the water crisis are currently the poor, whose circumstances make it difficult for them to have a political voice without resorting to violence. It is there where a key danger lies. If these issues are not addressed, and addressed quickly, more and more countries will drift towards the precipice of a real water crisis, with the massive social instability that can result. And failed states are breeding grounds for terrorism and crime, primed as they are for the attractions of extremist ideologies. It is not only the right thing to do from a humanitarian standpoint to start addressing this crisis in a much more serious way. It is the sound thing to do if we are interested in our own and our children's futures. Water is everybody's problem — right now.

Dee Smith is the founder and CEO of the Strategic Insight Group. (c) Dee Smith.