Drexel Hamilton
A Service-Disabled Veteran Owned & Operated Business

Drexel GPS: Cyber/Geopolitical Insights for 2023

Welcome to 2023! Drexel GPS looks forward to continuing to provide intelligence using real time, ahead of the curve analysis of global and domestic events to provide our unique perspective. We aim to provide insights in a readily digestible format with more comprehensive and focused analysis as events dictate. We stand ready at the crossroads of where technology intersects with policy, law, defense, and national security.

Here are some Drexel GPS insights that are likely to shape the geopolitical landscape in the coming year and beyond…

Russia/Ukraine War:

- By far, the most reported geopolitical event coming out of 2022 was the war in Ukraine and the Russian invasion which started it. As the winter of 2023 sets in, both sides are taking enormous losses. The fighting seems to have evolved into a stalemate when looked at collectively.

- Russian President Vladimir Putin appears hell-bent on pressing his strategy in Ukraine and continuing to throw more men and material into the conflict's grinder. Ukrainian President Zelensky continues to make his case to the U.S. and Western coalition partners for more advanced arms, weapons, and economic support through a series of appeals, demands and a crafty use of social media.

- At the beginning of the conflict, the U.S. was hyper-cautious in ensuring that the suite of weapons it provided Ukraine were not the type to trigger a response from Russia that would escalate the conflict outside the borders of Ukraine and/or trigger a nuclear response from Putin.

- Moving into the new year and coming up on almost a full year of conflict, the U.S. appears poised to provide more of the types of offensive weapons and systems that were deemed too provocative by the administration earlier on. This shift is in light of Putin's outright refusal to voluntarily cede back control of Ukraine despite his military's dismal performance on the battlefield.

- The precursor to this new calculus was seen at the end of 2022 with the announcement of the Patriot Missile system being sent to Ukraine. Expect to see the U.S. lead efforts in conjunction with coalition partners to provide Ukraine with tanks, jets, and increased guided ordnance technology such as JDAM's (Joint Direct Attack Munition).

- While the war in Ukraine does not appear to be ending anytime soon, look for the Western alliance to tip the scales in favor Ukraine by providing it the tools to push Russia out. This is in contrast to the previous calculus which seemed to assume high numbers of Russian casualties would prompt Putin to remove his forces - albeit begrudgingly – of his own accord.

- Iran/Russia cooperation and military ties will likely strengthen as Russia (in the face of increasing sanctions) turns towards Iran for military support, which is currently mainly in the form of drones. As the partnership expands, look for Russia to potentially transfer ballistic missile technology to Iran in return.

- Another sign to look for in the coming year would be reports of Iranian "military advisors" on the ground in Ukraine or Russia. This would represent a significant escalation of the known support that Iran is providing and signify a much deeper relationship between the two countries.

- If the conflict in its present form lasts throughout the winter, expect Putin to redouble his military efforts in Ukraine in an attempt to appease hardliners in Russia who are embarrassed by the Russian military's performance so far.

- As the war continues, media reporting outside of Ukraine will lose general public interest and run the risk of transforming from a page one headline into a page 6 background story. The likelihood of this scenario will increase as negative domestic economic issues in coalition countries mount. If support for Ukraine wanes, expect potential political pressure to be exerted on Zelensky to accept terms for a ceasefire that possibly do not align with his public statements.

Russia/Ukraine war continues

Water Wars:

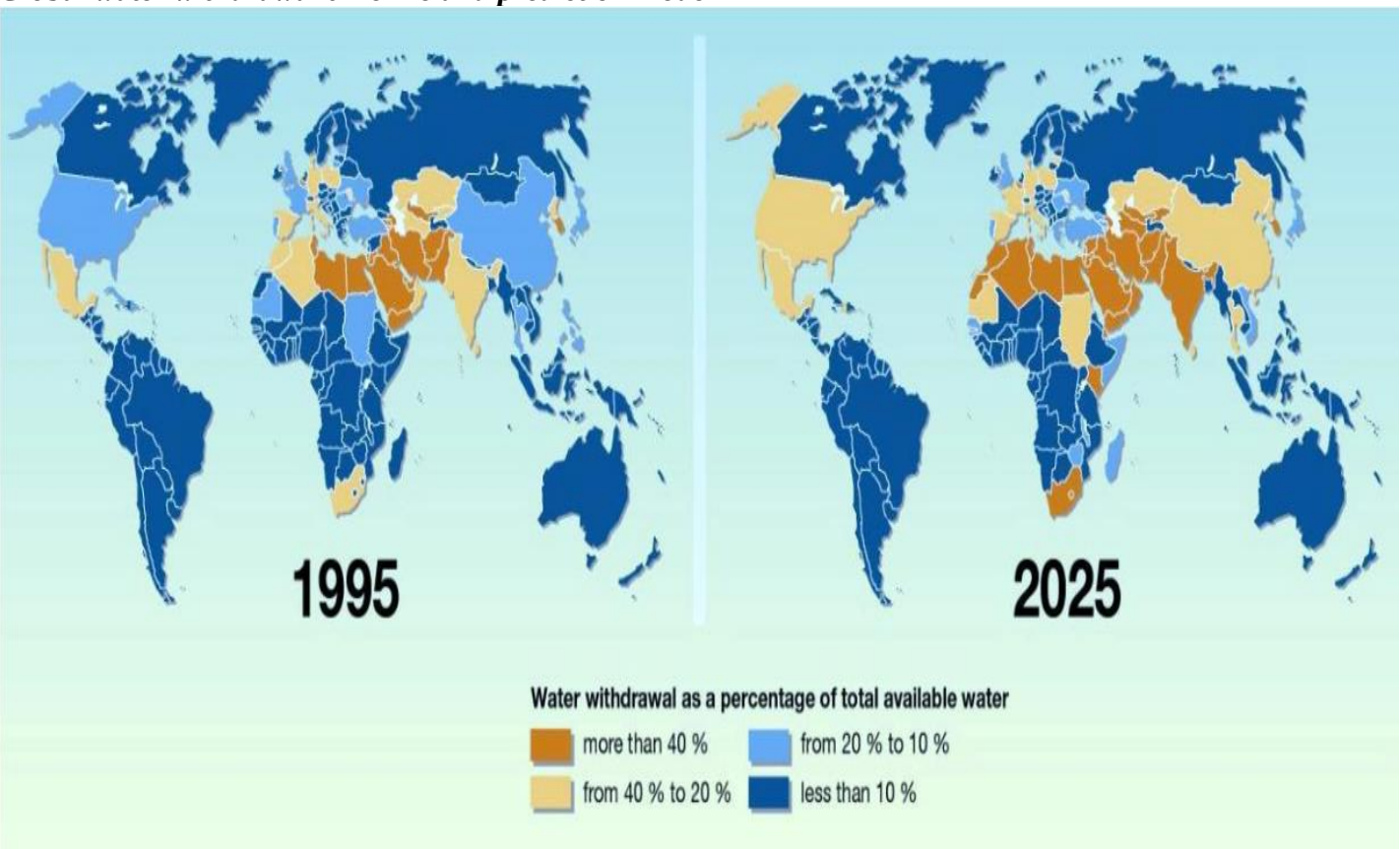
- Global water insecurity is poised to take on more prominence in global Geopolitics. Water scarcity affects roughly 40% of the world's population and, according to predictions by the United Nations and the World Bank, drought could put up to 700 million people at risk of displacement by 2030.

- The Surface Water and Ocean Topography (SWOT) satellite mission launched in December 2022 aims to provide valuable data and information about the world's oceans and terrestrial surface water such as lakes, rivers, and wetlands. SWOT was developed jointly by NASA, France, Canada, and the United Kingdom Space Agency (UKSA).

- SWOT will measure ocean surface topography and land surface water elevation with great accuracy, using interferometry to achieve two-dimensional mapping. SWOT will provide measurements of water storage changes (surface water area and water depth) of major lakes, reservoirs, rivers, and wetlands, and support derived estimates of river discharge, which aid in assessing water resources.

- As much as a quarter of the world's population now faces severe water scarcity at least one month out of the year. Unprecedented levels of dam building and water extraction by nations on great rivers are leaving countries further downstream increasingly thirsty, increasing the risk of conflicts.

Global water withdrawal timeline and prediction model



Rising Sun? Japan goes on the offensive

- Japan's military will shift its focus away from being a reactionary force designed primarily to respond to a potential attack and move into developing a much more robust suite of first-strike offensive capabilities.

- Although Japan is not tone-deaf to North Korea's constant military and nuclear saber-rattling, North Korea is not what our analysis determines is driving this change. The main catalyst pushing Japan to move towards developing an offensive capability is China's extremely aggressive and increased tempo of military activities in both Taiwan and the South China Sea.

- Japan will be weighing multiple factors, to include:

    - ✓ China's President Xi's doubling down of the hard-liner rhetoric on Taiwan. Xi's newly consolidated power base as "President for Life" status leaves little room for opposition or dissent within the Chinese government against any potential military actions Xi decides to act on.

    - ✓ The fragility of global supply chains that Covid-19 exposed which provided a blueprint to just how vulnerable national economies are to these types of disruptions.

    - ✓ Japan's increased political will to act in its own interest militarily. The strong anti-militarism and pacifism that existed among the Japanese citizenry after WWII is waning. Younger generations of Japanese are developing different ideologies toward military self-defense without the negative burden of Japanese imperialism that older generations possess. Increasingly, Japanese are not content to primarily depend on the U.S. to provide the lion's share of its defense capabilities through mutual defense agreements. Japan has expressed a desire to be able to project national military power throughout the region in a much more forward-leaning, standalone posture.

    - ✓ Japan has doubled its defense spending budget over the past two years and announced a $325bn buildup in December 2022. There is an increasing wave of nationalism in the country as some seek recognition that Japan, as the world's third largest economy, should have a commensurate military capability especially in the face of Chinese aggression in the region that can potentially threaten vital sea trade routes. It should also be noted that Japan has very few natural resources and is likely to feel a heighted sense of anxiety over energy supply disruptions that could stem from naval blockades or military activities by China.

Japanese Military Troops

Asymmetric technology, warfare's future: The Drones have it.

- As little as ten years ago, if a drone attack was reported in the news the possible actors would have been a very short list of rich and powerful nation states such as the U.S., U.K., and perhaps Israel. However, times have changed with a proliferation of drone technology in both civilian and military markets. Prices have fallen dramatically, and capabilities have advanced rapidly.

- This has allowed countries with limited defense sectors, such as Iran, to rapidly grow their own drone programs and particularly their offensive capabilities. The asymmetric warfare value of the low-cost versions of these weapons platforms has been on full display in Ukraine. Ukraine is having sensational success using the Turkish-made Bayraktar TB2 drone against Russian forces and command centers against a much larger and (on paper) superior Russian Army.

- Inversely, with Russian ground troops failing to achieve superiority on the battlefield and ordnance supplies running low due to sanctions, Russia has turned to using platforms such as the Iranian-made and supplied Shahed-136 drone to unleash devastating attacks against Ukraine's energy infrastructure.

- The battlefield success of both of these drone systems will likely increase the global race by armed forces and militia groups to proliferate and acquire these relatively low-cost armed drones.

- Historically, cheap-yet-effective small arms such as the Kalashnikov series of rifles (e.g., AK-47) and the RPG series of launchers were game changers in the realm of armed rebellion and insurgency. The simplicity and low cost of such weapons was a strength itself. Drones stand poised to be the technological equivalent of these small arms in the near future.

- Much like remote-detonated IED's which were widely used by insurgents against U.S. and coalition forces in Iraq and Afghanistan, drones will provide even more standoff distance and the ability to avoid direct confrontation. This denies larger forces the ability to bring their technological and organizational advantages to bear.

- The plausible effectiveness of drones against a conventional army is effectively "out of the bottle," highlighted by the success of both sides in the current Ukrainian/Russia conflict. Moving forward, expect to see preventing acquisition of drone technology as part of future anti-terrorism campaigns by the western world. Additionally, look for technological advancements in anti-drone tactics such as disrupting/disabling communication links between drones and their operators. 5G technology is likely to play a large role in the development of both drone offensive and defensive systems.

U.S. Marine launches tactical drone

Electric Vehicle charging Infrastructure expansion

- As we close the books on 2022, this year will bring an increased emphasis on the development of projects that support EV charging infrastructure. Why? In the U.S., for example, EV's just got several thousand dollars cheaper for the average consumer thanks to a federal tax credit that kicked in on New Year's Day.

- The $7500 rebate is part of the Inflation Reduction Act, which President Biden signed into law in 2022. The bill invests $369 million for energy security and climate change measures, including helping consumers save on qualifying electric vehicles. The plan calls for upwards of 500,000 EV charging stations. Currently, there are approximately 145,000 gas stations in the U.S.

- The Act includes plans to build a national network of 500,000 chargers along federal highways, which should, in theory, make it easier for people who own electric vehicles to feel comfortable driving longer distances. It would also make purchasing an EV a viable option for the millions of Americans who live in apartments and cannot charge their vehicles at home overnight.

- Contributing to the upcoming EV infrastructure investments is the fact that car manufactures are increasingly adding EV's to their lineups. In 2019, Tesla accounted for 80% of the domestic EV market share in the U.S.; in 2022 that number decreased to 65%. As the public, who may not necessarily subscribe to some of the niche-like fundamentals of Tesla vehicles, is given more options from known and trusted auto manufacturers, they will inevitably increase the adoption and widespread use of EV's a primary form of transportation.

- Currently, only 4% of North America's car production is electric. This leaves an enormous amount of room for EV charging station growth as a portion of the estimated 285 million cars on U.S. roads will be supplanted with EV's.

Electric vehicle charging

Drexel Hamilton will continue to monitor these situations as they develop.