

ANTICIPATING “DISRUPTIVE CHANGE” FOR ASIA, 2030

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1. INTRODUCTION

The geostrategic landscape of Asia is in flux, shaped by fundamental demographic, economic, social, and environmental “megatrends.” For the mid-term future, i.e., to 2030, trajectories of these trends are charted and their anticipated effects increasingly inform the planning of national security analysts². Less appreciated, however, are the prospects of non-linear, discontinuous shifts — so-called “disruptive changes” — which would substantially upset the parameters of the political/security regional order.

This brief looks to provoke consideration of disruptive changes that could directly or indirectly trigger strategic and military upheaval at national, transnational, and regional levels. For these purposes, the “security footprint” of Asia must be interpreted broadly, reflecting the impact of developments in South, Southwest, and Central Asia on the traditionally defined region of East and Southeast Asia, as well as the extension of the maritime dimension to the Indo-Pacific. As well, the definition of “security” must encompass both traditional and non-traditional dimensions. Increasingly, the lives of Asia’s peoples and the equanimity of their societies are determined by the latter, rather than the former.

2. THE ASIAN CONTEXT

The ten to fifteen year horizon of Asia will be shaped by the following global dynamics:

- **Demographic transition** of Asian societies, some becoming increasingly aged, others with tensions inherent in youth bulges, and others with gender imbalances affecting social and reproductive life.
- Unrelenting, **augmented demand for resources** and the imperative of states for their provision—for China, a key geostrategic driver. Demand for food, water, and energy is expected to rise by 35, 40, and 50% respectively by 2030.³
- The inexorable **impacts of climate change**, with Asia particularly vulnerable to rising sea levels, extended droughts, water shortage, and dramatic and destructive weather events.⁴
- The **shifting of gravity of the global economy** to Asia with attendant consequences positively and negatively of economic boom and collapse wherever initiated. Historical trends indicate the occurrence of another financial crisis within this mid-term future.
- The pervasive role and influence of **the Internet and digital communication** reshaping all dimensions of society—commerce, social relations, and military and security—enabling states and non-state actors with diverse agendas.
- The **rising expectations of Asian middle classes** for increased prosperity, quality of life, and responsible governance.

More specifically, with regard to **military and security dimensions of contemporary Asia**:

- The **human security of Asian populations** is increasingly at risk. Governments lack the motivation and capacity to respond to natural disasters, ensure food security, and address the impacts of climate change.
- **Rapid militarization of Asia** proceeds on land, air, sea, and space fronts, with the professionalization of personnel, acquisition of power projection capability, and high tech weaponry. Concern is heightened by the lack of transparency regarding China’s overall strategy and goals, and “assertive” behaviours. **CBRN incidents** (Chemical, Biological, Radiological and Nuclear incidents), either accidental or advertent, must be considered.

- **Non-state actors**, with extremist and non-negotiable agendas, pose increasing national and transnational threats, their sophisticated communication appealing to the disaffected, undermining the state, and heightening prospects of transnational terrorism.
- Tensions prevail over **traditional regional crisis points** including North Korea, Taiwan Straits, East China Sea, South China Sea, India-Pakistan, and China-Vietnam. Domestic governments fuel nationalism and promote risky military activity; or in the case of North Korea, testing and threatening use of nuclear weapons.
- Uncertainty surrounds **US “decline,” and the credibility** of the “pivot to Asia.” US military dominance through 2030 is acknowledged, although asymmetric vulnerabilities and access and denial capacities are increasingly questioned.
- The region’s multilateral **political/security architecture fails** to prevent or manage disputes. There is a “trust deficit” among all actors, including ASEAN members. Historical legacies prevail. Alternative institutions are advanced, e.g. the East Asia Summit, or among Northeast Asian states, but with little short-term prospect for preventive diplomacy.

3. DISRUPTIVE CHANGES: PROTOTYPIC EVENTS WITH SIGNIFICANT GEOSTRATEGIC IMPLICATIONS

Rather than speculate on the probabilities of specific events that might result in disruptive regional impacts, for analytical purposes it is more productive to specify the generic categories of events which policy makers should be considering over the mid-term future.

Given Asia’s regional context, disruptive change sufficient to alter regional military and security parameters could be arrayed across the **following five categories**. Specific events are listed as examples in these categories.

3.1 Interstate military conflict among key actors

- **US-China military engagement over the Taiwan Straits.** While all parties appear content with the status quo, conflict arising should Taiwanese actors cross Beijing’s “red lines” remains the major preoccupation of regional security analysts. A declaration of independence by a Taiwan nationalist government would provoke Chinese economic sanctions, moving to blockage of the Straits, escalating encounters with Taiwanese forces, ultimately drawing in US air and naval engagement. The reaction of key Asian states is highly uncertain.
- **Interstate military conflict among regional players:** Escalation of incidents involving **Japan and China** concerning disputed islands as a result of provocative action by nationalists, e.g. Japanese setting up encampment on an island, (possibly with the tacit encouragement of a nationalist government), leading to direct Chinese engagement, Japanese engagement, and failing the halting of hostilities, the entrance of US forces per the US-Japan alliance commitment.⁵
- **Interstate military conflict in the South China Sea:** Escalation of “assertive” actions in the **South China Sea**. Chinese assertive actions to establish exclusive fishing and territorial claims, e.g. involving the Philippines or Vietnam, may continue, but are unlikely to draw in the US navy. However, should the US begin joint patrols or place its personnel on SE Asian state vessels, Chinese aggressive actions could spark rapid escalation.⁶

[There is much speculation regarding China’s South China Sea policies. The author’s personal view is that China, seeing no positive prospect of a negotiated solution (especially concerning the so-called 9-dash line), is seeking to establish presence. Incremental sovereignty encroachment by the Chinese will proceed largely uninhibited. China will continue to aggressively exploit the fisheries and to explore for energy resources. Should they be verified,

China possesses the capital and technical capacities to extract these unilaterally—no longer dependent on western capital and western energy corporations. Chinese diplomacy has successfully capitalized on the divisions within ASEAN, effectively muting its institutional impact.]

- **Interference with the Sea Lines of Communication (SLOCs):** Any effort to control or interfere with international sea lanes through the **South China Sea** will draw an immediate show of force by the US navy, indeed also other navies, given Northeast Asian dependence on these routes for energy imports.

3.2 **State collapse and associated inter-state and intra-state conflict**

- Regime change or **collapse of North Korea** needs to be envisaged beyond its humanitarian dimensions to consider the highly destabilizing impacts of the likely engagement on the Peninsula of the militaries of Chinese, South Korean, and US. Coordination among them in immediate response to a humanitarian crisis is possible (under UN auspices), but the subsequent efforts to stake territory and fill the political and security vacuum could very well be conflictual. Securing of **North Korea's nuclear arsenal** will be a top priority. It could be accomplished on a cooperative basis, but the potential for crisis, either through technology escape from North Korea or competition for control within the Korean Peninsula exists. A North Korean military take-over could well involve the "cooperation" of the Peoples' Liberation Army. A sudden collapse of the regime will trigger massive flight to China, flooding its border regions with an impoverished and potentially disruptive ethnic population, creating friction with local Han and existing Korean communities.
- The partial or complete collapse of **Pakistan and/or Afghanistan** is a rising threat. Pakistan's failure, in particular, will create a security "black hole" with significant inter-regional spillover effects, drawing in the major powers. With extremist, non-state actors with jihadist goals in control, the export of jihadism and terrorism across Central, South and Southeast Asia and the Middle East, will increase. India's military will act to protect its borders, and retaliate for actions against it, e.g. in Kashmir. Containing the crisis within the territorial borders of Pakistan, in particular, will be difficult resulting in continued human security crises and intractable political/military tensions. As with North Korea, securing Pakistan's nuclear weapons and technologies will be a priority; past experience with leakage highlights the challenges.

3.3 **Catastrophic disasters (natural or human caused)**

Vulnerability and capacity: Asian populations confront extreme risks from a myriad of threats, natural and human caused: sea level change, earthquakes, volcanoes, floods, droughts, storms, environmental contamination, tsunamis, and nuclear accidents. Even the most advanced states, e.g. Japan and the US, struggle to respond; most others have limited domestic response capacity, raising the probability of populations fleeing and of civil disorder and government collapse. Albeit that functional cooperation on warning has improved, (e.g. tsunami warning systems), timely and effective cooperation among regional governments once disaster hits remains problematic.⁷

"The Asia/Pacific region accounted for 91% of the world's total death and 49% of the world's total damage due to natural disasters in the last century."⁸ Today, the top 8 of the world's 10 most vulnerable sites for critical damage from natural disasters are in Asia; the Pearl River Delta is the most vulnerable single site.⁹ Analyses of "state weakness" highlight the challenges faced by many Asian states, especially Pakistan, Bangladesh, and North Korea.¹⁰ Various scenarios must be considered, the most likely would be:

- **A regional/global pandemic.** The SARS, Avian Flu, and Ebola crises all have signaled the inherent dangers of diseases crossing the animal-human barrier, or are spread through respiratory transmission, or contaminated water supplies. The most probable scenario is an outbreak in southern China, with transmission across borders occurring before the outbreak is acknowledged and/or locally contained. Borders would subsequently be closed, in the face of flight of large populations; airline traffic would be halted; commerce effectively shut down, with significant inter-regional impacts. The military and security consequences are several, beyond the employment of forces to enforce quarantine, deliver assistance, and man borders. Should the disease become rampant among the military itself (e.g. the PLA) or across health systems, the prospects for the death of significant percentages of populations and the collapse of civil governance are significant.¹¹
- The **accelerated impact of climate change**, including rising sea levels, impacts of water shortages, and destruction of food sources. Conflict over access to resources (rivers, fisheries, energy) is foreseeable, e.g. in the South China Sea and regarding the Mekong. Rising sea levels could trigger massive relocation, as well as have significant consequences for regional navies and maritime commerce.

Analysts have pointed to the following types of security crises that could be brought on by climate change:¹²

- the disappearance of land resulting from rising sea levels (necessitating the relocation of island and sea-level populations) or from the effects of drought or flooding, forcing relocation and creating food security crises, e.g., Bangladesh;
- tension and conflict over shared water resources, inciting inter-state conflict over control of rivers, and up-stream pollution, e.g. over the Mekong, or involving India and China;
- domestic civil unrest in reaction to government policy responses, e.g. expropriations, corrupt land grabs, threats to safety and livelihood fostered by failure of government to regulate food, industrial, and agricultural operations; and
- state collapse creating uncontrollable civil violence and/or flight of large populations due to climate change induced natural disasters. Consider, for example, the regional implications of whole scale devastation of Bangladesh.

3.4 Terrorist attacks of 9-11 dimensions

Terrorist groups are gaining access to dangerous technologies and weapons, usually through leakage or complicity involving state actors. Terrorists cross borders and have the capacity to mobilize and organize from afar. Their sophisticated employment of the Internet for recruitment and planning purposes is increasingly difficult for security agencies to thwart and involves massive investments in surveillance and intelligence efforts. Homegrown terrorism poses threats to Asian states and beyond, as incidents in Singapore, Europe, and North America have driven home. Alternately, governments have fomented political violence by implementing repressive measures to squelch political discontent under the guise of anti-terrorist programs.

To date, terrorists have largely launched attacks against civilian populations, usually in situations of ongoing conflict. The mid-term danger is that extremist groups move to targeting commercial and civilian infrastructures. The damage inflicted could be much greater and longer lasting. A further dilemma is the difficulty of attribution and subsequent elimination of responsible actors. Analysts point to **three prototypic scenarios**:

- concerted **attacks on key civilian infrastructure**, e.g. the Tokyo or Beijing subway systems or urban water and utility supplies;
- attacks that significantly **destroy or disrupt regional international air traffic**, e.g. attacks on key airports (Singapore, Beijing, Shanghai), or the endangerment and closure of air traffic routes; and,

- the **destruction of maritime traffic and commerce**, through for example, attacks on port facilities (less well-guarded than airports) or on critical international waterways. The strategic sinking of several tankers within the Straits of Malacca would create tremendous disruption of the flow of energy to East Asia. If planned in conjunction with an attack on the Lombok passage, a key alternate to the Straits between the Indonesian islands of Java and Lombok, a regional crisis of substantial geostrategic economic and political upheaval would result. Regional tensions would be exacerbated by discovery of the actors involved having been harbored by a particular state.

3.5. **“Destabilizing” weapons technologies and systems**

Competitive escalation of security dilemmas among states are fueled by, among other factors, the continued acquisition of weaponry, especially weaponry that provides one side technological superiority, targets the asymmetric vulnerability of an adversary, or eliminates an opponent’s capacity to respond—this last being described as the elimination of second strike capacity, the key to maintenance of a deterrent relationship. Weapons and technologies with these characteristics are “destabilizing,” and especially concerning when introduced into contexts involving actors who perceive their core national interests and national identities are at stake. Analysts cite a variety of potentially destabilizing weapons, including laser weapons, electromagnetic pulse (EMP), automated drones, rail guns, biotech weaponry, robots, and magnetic force fields.

For the purposes of a forecasting exercise, such as this brief, what is of concern is appreciating the generic threats to stability posed by certain types of weapons and weapon technologies. The examples below are chosen to reflect the disruptive change impacts three such technological developments could pose.

- **Quantitative overwhelming of an adversary’s capacity, e.g., land-attack and antiship cruise missiles.** Cruise missiles are an attractive and alternately dangerous addition to an arsenal. They are small, rapidly deployable, difficult to detect, hard to defend against, high precision, super-sonic, cost-effective, and “smart.”¹³ China’s deployment of large numbers of cruise missiles toward the Taiwan Straits is regarded as a stealthy “assassin’s mace” designed to thwart the US’ anti-access/area-denial (A2/AD) strategy.¹⁴ They thus are regarded as destabilizing, as they may increase the probability of China’s initiating a military response towards Taiwan, or towards other adversaries, with the intention of simply overwhelming defensive forces, even though they be technologically more sophisticated. (In conceptual terms, this is somewhat analogous to a “denial of service attack” on the Internet.)
- **Pre-emptive attack: cyber warfare.** All aspects of society are now dependent on the functionality of the Internet, digital communication, and digitized information. But as interconnectivity across systems deepens, so do the prospects for malevolent actors and activities. Targeted attacks on corporations, government agencies, security and military establishments are increasingly common and often attributable to state-sponsored agents. Indeed, as with Estonia in 2007, a whole scale attack against government infrastructure, media, financial systems, and transportation systems can paralyze a state. Various states in Asia, including North Korea, South Korea, China, and Taiwan are already engaged in tactics of cyber warfare.

The probability of **state and non-state actors** resorting to generalized cyber-attack is rising. Two forms of disruptive change events can be foreseen. “At the one end of the spectrum lies an overt, immediately attributable cataclysmic cyber shock—a digital Pearl Harbor.” On the other, and more insidious, is a campaign of coordinated, incremental “drip-drip clandestine cyber-attacks”¹⁵ which infiltrate systems, abstract information, remove funds, and implant destructive software. As the Stuxnet episode demonstrated these can be orchestrated by state agencies to

destroy physical structures, but are more likely to be employed by both states and non-state actors in strategies to undermine the viability of their target's government and private systems.

- **Information Dominance: a “Black Swan” — quantum computing capability.** Security is sustained in all aspects on the internet through encryption. Breaking and bypassing encryption is the key to cybercrime and cyber warfare. The development and deployment of quantum computers poses the prospect of not only unlocking the encrypted information of other actors, while at the same time allowing its possessor to make impossible access to its information. It also, in terms of data processing capacity, would ramp up dimensionally the ability to analyze massive databases, and thus effectively “improving” monitoring and surveillance capacities, with both positive and negative implications for government and civil society. In situations of adversaries competing with each other on political, economic, or security dimensions, successful achievement of quantum computing capacities would be a “geopolitical game changer.”¹⁶

States are already actively pursuing quantum computer technology; competition for the advantage that it could provide instigating a spiraling “arms race” sparking pre-emptive attacks (digital and possibly against material assets) and threatening existing deterrent relationships. Thus, for instance, if the US or another state gained a five-year advantage over its competitors in Asia, this would provide significant advantage, but at the same time if become known would be threatening and destabilizing. As one analyst states, “deployable quantum computing technologies by one or two states becomes a real threat to civil and uncivil society.” There is a real first actor advantage, but simultaneously the prospect of disruptive change to the military and security parameters of the Asian region.

References

- ¹ The author thanks several colleagues who provided advice and feedback. The views expressed are the author's and do not reflect those of any institution. For correspondence: brian.job@ubc.ca.
- ² The primary example is the CIA's National Intelligence Committee's, *Global Trends 2030: Alternative Worlds*, 2012. Available at <http://www.dni.gov/index.php/about/organization/national-intelligence-council-global-trends>
- ³ *Global Trends 2030: Alternative Worlds*, p. iv; also see Bernice Lee *et al.* *Resource Futures: A Chatham House Report*. 2012. Available at http://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Energy,%20Environment%20and%20Development/1212r_resourcesfutures.pdf.
- ⁴ See IPCC working group II, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Chapter 24, Asia. Available http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap24_FGDall.pdf.
- ⁵ Note that the ongoing provocations and risky military actions by Chinese pilots and vessels towards their US counterparts are likely to continue with occasion accidental or intended (but unauthorized) engagement. These could escalate, but both sides evidence a strong interest in quickly resolving such incidents.
- ⁶ See Robert Kaplan's "The South China Sea is the Future of Conflict," *Foreign Policy*, August 15, 2011. Available at http://www.foreignpolicy.com/articles/2011/08/15/the_south_china_sea_is_the_future_of_conflict
- ⁷ Note, for instance, the confusion and lack of transparency and information sharing among SE Asian states in the aftermath of the Malaysian Airlines crash.
- ⁸ Quoted from IFAD, 2014. "Climate Change Impacts in the Asia/Pacific Region." Available at <http://www.ifad.org/events/apr09/impact/pacific.pdf>. See also footnote 4.
- ⁹ See the Swiss reinsurance bureau study, *Mind the risk: A global rating of cities under threat from natural disasters*. Swiss Re. 2014. Available at http://media.swissre.com/documents/Swiss_Re_Mind_the_risk.pdf
- ¹⁰ See *Index of State Weakness in the Developing World*. Brookings Institution, 2014. Available at http://www.brookings.edu/~media/research/files/reports/2008/2/weak%20states%20index/02_weak_states_index.pdf
- ¹¹ The NIC 2030 study cites the outbreak of a respiratory virus infecting more than one percent of its victims "is among the most disruptive events possible. ... Such an outbreak would result in a global pandemic ... probably in less than six months."
- ¹² For an introduction see Marc Levy. 2011. "Evolution and Trends of Climate/Conflict Research," New York: Woodrow Wilson Center, Columbia University. Available at <http://www.wilsoncenter.org/sites/default/files/Marc%20Levy%20Presentation.pdf>. For further work see the CIESIN, Earth Institute, at Columbia and Marc Levy's recent research, as available at the institute cite.
- ¹³ See Dennis M. Gormley, Andrew Erickson, and Jingdong Yuan, *A Low-Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions*. Washington DC: NDU Centre for the Studies of Chinese Military Affairs, 2014.
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- ¹⁶ "Quantum computing 101," University of Waterloo: Institute of Quantum Computing, available at <https://uwaterloo.ca/institute-for-quantum-computing/quantum-computing-101> and "Quantum Computing Market Forecast 2015-2020, available at <http://www.marketresearchmedia.com/?p=850>