Reimagining the Future of War with 'Optimal Warfare'

Philip Campose

Wars of the future need to be very different from wars of the past, if not for ethical, then for the reason that the initiators of war would need to better protect their own short and long-term interests. Wars of the past were largely based on strategies, operational art and tactics related to the use of brute force – that came out of the World War II experience. Today, technology is providing the means for warfare to become even more lethal.[1] That lethality provides militaries the means to inflict much more destruction and many more casualties, to both military personnel and civilians, in smaller spaces and in speedier timeframes. But warfare is also becoming much more complex. Asymmetric warfare is providing weaker adversaries the means to hit back by low cost means[2] – means that may be considered by most to be 'foul rather than fair' – and prolong the battle to the disadvantage of the stronger adversaries. On the other hand, technology is also providing the means to ensure that wars do not have to be so violent[3] – and cause so much death and destruction before the war aims are met and the war is brought to a close.

Precision technologies and munitions are providing the means to ensure that wars can be fought more ethically, while disruptive technologies like the Stuxnet have shown that war aims can be achieved much more 'smartly' and economically. Essentially, the way we fight in the future should provide us speedy victory, with minimum long-term

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adverse consequences. Thus, there is clearly a need to reimagine 'wars and warfare means' of the future, based on technological trends, as well as the knowledge gained by nation-states in the past while dealing with conflict situations.

Two quotes from the work of well-known 'futurist' author, Alvin Toffler, make a case-in-point. In his book *The Third Wave*, written in 1980, Toffler predicted that, in the future, "force-based warfare would be transformed into knowledge-based warfare"[4]. And, in his subsequent book, *War and Anti-War*, written along with Heidi Toffler in 1993, i.e. in the aftermath of the First Gulf War, he stated, "In future, the way we make wealth will be the way we will make wars"[5], predicting that military commanders will use computer networks to create situational awareness and informational superiority, make faster and more efficient decisions and increase the accuracy of their predictions, just as corporations do in the case of their business practices and predictions. The first part of this article shall attempt to contextualise these thoughts of Toffler, which are proving to be true, to quite some extent.

The 20th Century Experience and its Fallout

Even fifty-five years after the formation of the United Nations at the end of World War II, the world has continued to be somewhat violent, due to conflicts caused by economic and ethnic rivalries, territorial disputes, political demagoguery, religious fanaticism and various allied reasons. Nation-states generally did not hold back from initiating 'all out' wars, to deal with disputes with other states or to impose their will. On the other hand, studying the trends from this second decade of the current 21st century, it is obvious that the world is finally witnessing a reduction

in such wars[6]. In fact, it would not be wrong to conclude that such 'full-fledged' or 'all out' wars will be the exception rather than the norm in the foreseeable future, in the 21st century.

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The Second War in Iraq: Anything But Optimal

To that extent, the Second Iraq War, of the first decade of this century, has been a watershed event in the history of modern warfare, because it appears to have made the major powers pause, and take a more deliberate look at how they fight wars or deal with conflict situations. For the weaker side in the Iraq War, the Iraqi Army, which turned insurgent at the end of the initial conventional phase of that war, it highlighted the importance of *asymmetric warfare*, whereas for its dominant military adversary, the United States, the turn of events during that war clearly emphasised various 'red flags' – that, despite its initial claims of a swift and decisive military victory, the large numbers of body bags and war-disabled, which continued to come back for a long time thereafter, were not an acceptable outcome of war, especially in democratic societies. Concurrently, the United States faced universal opprobrium for the large scale human rights violations, in terms of the wanton destruction of infrastructure, the mass casualties and the extensive displacement among the civilian population of Iraq that were caused during that war.

According to the report of the 2013 'Cost of War' Project[7] of the Watson Institute of Brown University in the United States, the Second Iraq War, which was primarily aimed at regime change in Iraq, resulted in over 37,000 Service casualties among the US-led Coalition forces, i.e.

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over 4,800 personnel killed and over 32,200 wounded, over a period of eight years. Equally significant, it also resulted in the death of at least 134,000 Iraqi civilians – as a direct consequence of that war. When the numbers of Iraqi security forces, journalists, humanitarian workers and insurgents who were killed are added, the numbers of Iraqis killed as a direct consequence, jumps up in their estimate by another 50,000 or so. Further, the Watson Institute research team concluded that the number of Iraqis killed due to the indirect effects of the war, like disease and other such causes, were four times the number of those killed due to its direct effects[8]. It needs mention that other agencies like the Lancet of the UK have put a much higher number for Iraqi civilians killed and disabled[9]. As for the financial cost of the war to the United States, a war largely conducted on fiscal borrowings, it was estimated at US$ 2 trillion, which is likely to go up to US$ 6 trillion, including interest payments for the borrowings, over the next four decades. And, among the most significant, though negative, outcomes of the Iraq War was the consequent strengthening of Islamist radicalism and terrorism in Iraq and its environs, as demonstrated by the revival of Al-Qaeda and creation of *Daesh,* also known as the Islamic State or ISIS. Thus, it has generally been concluded that the Second Iraq War was not conceived, conducted and concluded optimally by the initiators of that war – an understatement as many would say. And that brings up the questions: couldn't that war have been conducted better? Wasn't there a way that the United States could have achieved its war aims optimally?

Further, the war also contributed to the economic downturn in the United States and, resultantly, in most other parts of the world[10]. All

that just for 'regime change' in Iraq, which was accepted later as the primary purpose of the war[11], and for some other unstated secondary purposes, which continue to be debated. As for Iraq, because of the war, it was brutally traumatised, a situation from which the country has yet not recovered. One shudders to visualise what would have happened to the United States and the world at large in case the United States had decided to launch a similar war in Syria, in the immediate aftermath of the Iraq War, as was being speculated at that time. Within the same first decade of the 21st century, many similar lessons were learnt by Israel at the end of the Lebanon War in 2006, though at a much smaller scale.

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This points towards the argument that, throughout the 20th century, and until the first decade of this century, countries which were instrumental in initiating wars, normally against weaker adversaries, appeared to show no concern whatsoever for their negative consequences, in terms of fiscal cost, casualties to Service personnel, casualties to innocent civilians, legal implications or humanitarian costs. There was hardly any sense of proportionality or optimality on display. On the other hand, it now appears that all this is starting to change. Is the change occurring due to the lessons learnt from the Iraq experience, or is it due to the induction of nuclear weapons by some weaker adversaries, or is it occurring due to the legal challenges that initiators of wars and wanton deaths and destruction may face – it is still too early to predict. There appears to be a sense now, among many, that conflict situations need to be dealt with more optimally, i.e. through smarter utilisation of instruments of hard and soft power

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available to the state, instead of resorting to unbridled use of hard and blunt instruments, which tend to escalate or enhance costs, or accountability in the long run. It can be argued that we are entering a phase where countries will increasingly display higher levels of circumspection while taking decisions on dealing with conflict situations, howsoever grave the provocations may be. It needs to be stated, however, that such a prognosis does not cater for the possibility of 'extreme irrationality', which political leaderships may continue to display, on some occasions, in various parts of the world.

Emerging Global Strategic Scenario and Hot Spots

A broad look at the emerging global security scenario would help contextualise the subject even further. Without doubt, the phenomenal and speedy rise of China in the economic and military domains[12] is the most important development on the global stage, which is going to have far-reaching effects, many of them in the realm of security and great power rivalry. When seen in the light of the convergence of China-Russia interests and the on-going military resurgence of Russia, as evident from its resultant muscle flexing in Syria and Ukraine, a second Cold War appears to have already started.

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to the Cold War era. But it also appears that China is not likely to initiate large-scale wars for a long time. The experience of the Vietnam War of 1979 taught the Chinese leadership huge lessons, which they still are cognisant of. If at all, its muscle flexing along its periphery could lead to 'local wars' in some form, which it would endeavour to limit, weighing the political and economic costs, and by its careful orchestration in terms of time and space.

As for the global hot-spots, there are other enduring wars in the Middle East – Syria, Libya, and Yemen – and there are simmering battles on-going in Afghanistan, Congo, Somalia, South Sudan, Kurdish areas of West Asia, Eastern Ukraine, and some more. The end-states in these wars generally appear undefined[15]. And, thus, these too may lead to unexpected escalations and outcomes, if they are not monitored and controlled.

Changing Nature and Character of Warfare

Further, going by current trends, warfare of the future is mostly going to be 'hybrid' in nature[16] – many a time fought in a nuclear backdrop. The *hybrid wars* could be a mix of regular and irregular warfare, asymmetric, economic, technological and informational warfare. And not surprisingly, to the extent possible, the major powers will continue to ensure that these wars are fought far away from their borders, by providing support to local forces or regional allies. Thus, *proxy wars,* mostly of questionable intent, appear to be the preferred option of some nation-states[17]. The most prominent example of this trend is China's use of Pakistan and North Korea as its proxies to keep China's traditional rivals at bay[18], without getting directly involved. Nonetheless, the deaths and devastation caused in these wars can lead to widespread condemnation, and even legal challenges for the leadership of the states that sponsor or initiate these wars.

There also appears to be an increasing realisation that if the selected warfare means are not applied with due 'proportionality' and control, it

will lead to negative effects like adverse economic and internal political consequences as well as international opprobrium on legality and human rights violations. To that extent, the Chilcot Inquiry Report[19] in the UK after the Iraq War and its devastating critique of the political leadership could be taken as a landmark development which will definitely act as a dampener for many trigger-happy political leaders and governments, who would realise that they can be legally and morally held responsible for their actions if due diligence is not applied, while taking decisions on wars and war-fighting means. Further, for the nuclear weapon states, given the emerging nature of warfare means, it is also becoming quite obvious that even the deterrence potential of their arsenals has some serious limitations when it comes to preventing military provocation and terror attacks on their people.

The Complexity and Ambiguity of Violence

Many of today's wars are tending to generate extreme levels of Violence, Uncertainty, Complexity and Ambiguity – VUCA, as they say. A close look at the various players that are encountered in war zones today[20], as gathered from the Iraq and Syria experience, amplifies this point. On the hostile side, the foe, in today's conflict zones could be the regular military, which could include special forces as well as regular forces of friends and allies; there can also be irregular forces – militias, insurgents, terrorists, hostile intelligence agencies and members of organised criminal syndicates. Also, a host of other violent extremist groups like urban guerrillas, tribal fighters, rural guerrillas, mercenaries and local terrorists could be added to the fray. There could also be terrorist social media, drug traffickers, human traffickers, pirates, bandits, looters, criminal gangs, as well as hostile media, business corporations, arms dealers, religious sects, as well as unarmed protestors and environmental groups active in these war zones or elsewhere. And there can also be an ever-present threat of chemical, biological and radiological attacks.

As for neutral external forces and influences that could come into play, which at times do not appear so neutral, there can be regular and irregular forces of neutral countries, as also regional and global media, global opinion, international agencies like the UN and International Committee of the Red Cross (ICRC), legal agencies like International Court of Justice (ICJ), humanitarian agencies, Non-Governmental Organisations (NGOs), and so on[21]. Another important consideration regarding future wars is that, concurrently, technological advancements are making warfare immensely lethal in its future manifestations, as the cyber, space and cognitive domains have been added to the existing domains of land, sea and air. Among the conventional weaponry, modern fighter aircraft, tanks, infantry combat vehicles, artillery guns, anti-aircraft weapon systems, combat ships, submarines, mobile rocket launchers, armed drones, anti-tank missiles and precision guided munitions are improving in the range and accuracy of their engagements, just as efforts are being made to make them more stealthy, while the military makes efforts to improve survivability and battle awareness in increasingly lethal operating environments.

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High technology has brought in advanced manifestations of cyber and electronic warfare, and we are also seeing the entry of autonomous weapons, directed energy weapons[22], thermobaric munitions, high power microwaves and miniature munitions, which can make the battle zones much more lethal. Thus, wars of the future are going to be increasingly complex and lethal, with highly unpredictable outcomes, unless they are waged very deliberately and intelligently, with clear and speedy 'end states' in view. And, increasingly, technology is providing the means and

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opportunity of fighting more smartly and efficiently.

Optimal Warfare: The Way to Go

Therefore, despite the inherent obligation of nation-states to avoid war, whenever war is seen as unavoidable, '*optimal warfare*' – the smarter way of waging war – should be the new norm. How can *optimal warfare* be defined? Based on the foregoing discussion, it can be defined as the "technology assisted selection of a mix of warfare means, applied in a limited, calibrated and proportionate manner in a specific conflict situation, to achieve favourable outcome in the shortest possible timeframe, with positive long-term effects." Of course, this also assumes that war is being waged with adequate justification and in exceptional circumstances – as "the option of last resort." [23]

To achieve this, firstly, the aim of waging war, or even a limited 'surgical' strike, must be clearly defined, to include its 'desired end state' after taking into consideration possible escalation and other long-term outcomes and effects, both short and long-term. Moreover, its long-term effects must define victory or 'favourable outcome' not just by capturing territory, destroying the adversary's assets, killing soldiers or civilians and capturing prisoners, all of which, by themselves, have only short-term effects.

Secondly, the political, human, moral, legal and fiscal costs of waging war should be deliberately calculated and given due consideration in the decision-making and planning process for its conduct. Only then will

the right mix be selected and the 'red lines' established to ensure that unplanned escalation does not take place and there are no adverse outcomes, immediately or eventually. Cyber, economic and informational warfare will also have to be applied in a calibrated manner, for optimal effects.

India would need to consider achieving military deterrence and modernisation in the overall context of the way wars are likely to be fought in the future.

Technology, especially developments in long-range sensors and weapon systems, combined with big data analytics and artificial intelligence[24], holds the key to *optimal warfare*. The availability of technologically superior sensors, with better capability to discriminate between hostile combatants and innocent civilians, in combination with long range weapon systems and precision guided munitions with improved accuracy, enable better calibration of the level of violence and prevent 'collateral damage.' Further, automated processes using big data analytics and artificial intelligence facilitate better decision-making towards initiating war, planning the war, as well as selecting the right mix of warfare means and calibrating its conduct and cessation – to achieve optimal outcomes.

What Optimal Warfare Would Entail for India: An Inward Approach

It would be in order to take an inward look at the actions India would need to consider towards achieving military deterrence and modernisation in the overall context of the way wars are likely to be fought in the future. It also needs to be kept in view that wars in our subcontinent, between nuclear-armed adversaries, would always need to be fought below the nuclear threshold. Nonetheless, it needs no reiteration that, even against such a backdrop, military deterrence against potential adversaries would be an essential part of India's national security strategy. And continuous

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military modernisation, which is an important factor contributing to our military deterrence posture[25], would be as relevant in the future as the earlier concept of 'all out wars', even if implemented selectively and progressively. Essentially, our military planners would need to look at the following in the changing context:

- How to deter;
- How to fight wars;
- How to modernise; and
- How to spend our defence budget.

The above must also be seen in the context that, in keeping with its big power aspirations of the future, India needs to develop a modern 'world class' military, without further delay.

Military Deterrence and War-Fighting in an Era of Optimal Warfare

Military deterrence entails projecting capability to fight wars successfully against potential adversaries, through the possession of appropriate military strength, backed by other instruments of national power, with a view to prevent those foes from undertaking wars or other hostile acts against our nation and its interests. In our case, this capability is based on preparing for the worst-case scenario of a simultaneous 'two-and-a-half-front' threat.

That approach needs serious review[26] in view of changes in the way wars are likely to be fought in the future. Whereas existing structures and deployments may broadly need to be maintained at appropriate levels, these should no longer be based on worst-case scenarios entailing the use of brute force in 'all-out war' scenarios. Instead, against the backdrop of

India's nuclear strategies, which would prevent nuclear adventurism against it, the conventional (and counter sub-conventional) capabilities must be reviewed and doctrines modified to fight limited or local wars 'smartly', to meet India's strategic ends with minimum disruption or chances of failure.

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And, operationally, most importantly, the military must function 'jointly' in a synergised and well-coordinated manner, in the interests of optimising our war-fighting capabilities and potential. That is where the Indian military appears to be seriously lacking, because, it appears, the Indian Army plans to go ahead and fight its land wars independently, while the Air Force focusses on the air war and the Navy on the sea war, with insufficient sharing of resources and operational synergy among them. This anomaly needs to be corrected. Also, the raising of tri-Service futuristic organisations – the 'Cyber', 'Space' and 'Special Operations' Commands – cannot be delayed any further. These organisations must, preferably, be raised within existing military manpower resources, so as to not enhance revenue costs.

Military Modernisation: Urgent Need for an Integrated Approach

Modernisation of the military entails replacement of outmoded doctrines, structures and equipment with newer versions, keeping in view the changes in the nature of threats, concepts of warfare and advances in technology. India's current plans for military modernisation and deterrence are

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hamstrung by inordinate delays and lack of a coordinated approach[27].

In the absence of a central military body like the Chief of Defence Staff (CDS) to coordinate matters authoritatively, each wing of the military – the Army, Navy and Air Force – devises its own military aims, objectives and strategies separately, which appear quite divergent from each other. Consequently, the three Services are perceived to be indulging in competitive jockeying separately for independent role expansion and more budgetary resources, rather than a coordinated and concerted effort at improving their combined capabilities. To this are added the decision-making delays, the bureaucratic prevarication and the inadequacies in the military procurement system – the end results consequently are far from satisfactory.

Towards an Era of Smart and Optimal Expenditure

Normally, in our case, the Indian Army, Navy and Air Force, while formulating their plans for military deterrence and war-fighting, cater for addressing 'worst case scenarios' that they envision, independently. Whereas this may have been an acceptable approach in a bygone era when adequate budgets were the norm, it is currently resulting in unnecessary duplication, wastage and overblown inventory – and the consequential exacerbation of overall deficiencies. Thus, in a period when requisite budgets are not being allotted as per the demands – a situation that is likely to continue well into the future, at least for the next decade or so – such an outcome needs to be prevented. It needs no emphasis that, at this

point, there appears to be a perception among the nation's economic planners that, given the high levels of poverty, economic inequality and the country's receding ranking in the 'human development' indices, allocations towards defence would, of necessity, have to experience a continuing squeeze. As against a requirement of 2.5 to 3 per cent of the Gross Domestic Product (GDP) to meet the minimum essential needs towards defence modernisation and operational preparedness, only 1.56 per cent has been allocated this year[28] – a trend which appears to be heading further downwards, unless a change in approach is undertaken by the government of the day.

The government must lay down clear aims, objectives and strategy for the military, as well as define the range of collective military capabilities and levels of operational preparedness that must be achieved by the three Services and joint Services organisations.

Conclusion and Recommendations

Indian security planners must understand and accept that wars of the future would need to be fought differently, and more 'optimally', as is evident from current global and technological trends. Further, the Indian military needs to modernise in an early timeframe, keeping in view the changing scenarios and the evolving nature of warfare. India must work towards possessing a 'world class military' of appropriate size and strength, which must not only meet our deterrence and war-fighting needs, but also contribute towards our growing stature as a regional power, which should develop as a global power by the middle of the current century. Recommendations in this regard are as follows[29]:

- The government must lay down clear aims, objectives and strategy for the military, as well as define the range of collective military capabilities and levels of operational preparedness that must be achieved by the

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three Services and joint Services organisations in the short, medium and long terms.

- As a follow up to the above, the existing military doctrines need to be reviewed to check out their relevance and efficacy against changes in the current and future threat perspective, operational environment and warfare concepts. There should be a renewed focus on employment of accurate, Beyond Visual Range (BVR) weaponry – long range Precision Guided Munitions (PGMs), armed drones and other stand-off weapons – to meet our needs for 'optimal warfare' in both the conventional and counter-sub-conventional roles. Technological inputs employing big data analytics and artificial intelligence will need to be employed much more imaginatively in operational planning and execution.
- Defence expenditure must be optimally planned and undertaken. This implies that the military capabilities must develop a joint character. The three Services cannot plan to fight and win wars on their own, and priorities will have to be clearly enunciated in terms of desired capabilities to be achieved by each Service, individually as well as collectively, against a range of military options. This would also guide the laying down of priorities for acquisition of weapons and equipment in a joint Services perspective. Initially, an additional budget would have to be provided for some critical big-ticket needs.
- The on-going acquisition proposals of weapons, equipment and ammunition of the three Services would need to undergo serious review for efficacy and quantitative optimisation, in a joint Services context. Duplication and wastages must be ruthlessly curbed. Quantities must be suitably staggered to cater for technological developments of the future. Contracts must reflect the need for

periodic technological upgrades in equipment specifications accordingly.

- And last but not the least, the CDS must be appointed immediately and empowered adequately to assist the government to achieve its long-term military aims in the interests of national security. Prevarication on this issue so far has cost the nation dear in terms of sub-optimal levels of coordination in operational planning as well as duplication and wastages in resource planning.

The three Services cannot plan to fight and win wars on their own, and priorities will have to be clearly enunciated in terms of desired capabilities to be achieved by each Service, individually as well as collectively, against a range of military options.

Notes

1. Noel Sharkey, "Saying 'No!' to Lethal Autonomous Targeting," *Journal of Military Ethics*, Vol. 9, No. 4, 2010, pp. 376-38. Also see "Samuel Gibbs, Elon Musk Leads 116 Experts Calling for Outright Ban of Killer Robots," *The Guardian*, available at https://www.theguardian.com/technology/2017/aug/20/elon-musk-killer-robots-experts-outright-ban-lethal-autonomous-weapons-war'
2. Rod Thornton, *Asymmetric Warfare: Threat and Response in the 21st Century* (Polity Press, 2007), ch 1. Also see Clinton J Ancker III and Michael D Burke, "Doctrine for Asymmetric Warfare," *Military Review*, Vol. 83, No. 4, 2003.
3. Joshua S. Goldstein, "Think Again: War," *Foreign Policy,* available at http://foreignpolicy.com/2011/08/15/think-again-war/
4. Alvin Toffler, *The Third Wave* (Morrow, 1980).
5. Alvin Toffler and Heidi Toffler, *War and Anti-War: Making Sense of Today's Global Chaos* (New York: Warner Books, 1993), p. 93.
6. Joshua S. Goldstein and Steven Pinker, "The Decline of War and Violence," *The Boston Globe,* available at https://www.bostonglobe.com/opinion/2016/04/15/the-decline-war-and-violence/lxhtEplvppt0Bz9kPphzkL/story.html
7. "US and Allied Killed and Wounded," *Costs of War Project* (Watson Institute, Brown University), available at http://watson.brown.edu/costsofwar/costs/human/military.
8. Omar Dewachi, "Insecurity, Displacement and Public Health Impacts of the American invasion of Iraq," *Costs of War Project* (Watson Institute, Brown University), pp. 13-17.

9. Gilbert Burnham et al., "Mortality After the 2003 Invasion of Iraq: A Cross-Sectional Cluster Sample Survey," *The Lancet*, Vol. 368, No. 9545, pp. 1424-1427.
10. Vincent Cable, "The Economic Consequences of War," *The Guardian*, available at https://www.theguardian.com/politics/2003/feb/02/foreignpolicy.iraq.
11. Esther Pan, "Iraq: Justifying the War, Council on Foreign Relations," available at https://www.cfr.org/backgrounder/iraq-justifying-war.
12. Arthur Waldon, "The Rise of China: Military and Political Implications," *Review of International Studies*, Vol. 31, No. 4, 2005.
13. Staff, "US-Saudi Relations, Council on Foreign Relations," available at https://www.cfr.org/backgrounder/us-saudi-relations; also see Armin Rosen, "The US and Egypt Sure Look Like Allies, at Least on Military Matters," *The Atlantic,* available at https://www.theatlantic.com/international/archive/2012/09/the-us-and-egypt-sure-look-like-allies-at-least-on-military-matters/262411/.
14. Catherine Putz, "India and Pakistan's Proxy War in Afghanistan," *The Diplomat*, available at https://thediplomat.com/2015/04/india-and-pakistans-proxy-war-in-afghanistan/; for a viewpoint on the Sino-Indian Rivalry in the Indian Ocean Region, see David Brewster, "An Indian Ocean Dilemma: Sino-Indian Rivalry and China's Strategic Vulnerability in the Indian Ocean Region," *Journal of the Indian Ocean Region*, Vol. 11, No. 1, 2015.
15. Michael O'Hanlon, "How Will Syria's War End? Other Civil Wars Suggest an Answer," *The Washington Post*, available at https://www.washingtonpost.com/posteverything/wp/2015/09/03/how-will-syrias-war-end-other-civil-wars-suggest-an-answer/?utm_term=.7493ac3a5753.
16. James N. Mattis and Frank Hoffman, *Future Warfare: The Rise of Hybrid Wars* (United States Naval Institute), Vol. 132/11/1,233, November 2005, available at http://milnewstbay.pbworks.com/f/MattisFourBlockWarUSNINov2005.pdf.
17. Andrew Mumford, "Proxy Warfare and the Future of Conflict," *RUSI Journal*, Vol. 158, No. 2, 2013.
18. Manoj Anand, "China Plans Proxy War Against India with Support of Northeast Militant Groups," *Deccan Chronicle,* available at http://www.deccanchronicle.com/nation/current-affairs/050417/china-plans-proxy-war-against-india-with-support-of-northeast-militant-groups.html; for an example of the China-North Korea relations, see Joby Warrick, "Kim Jong Un's Rockets are Getting an Important Boost – From China," *The Washington Post,* available at https://www.washingtonpost.com/world/national-security/kim-jong-uns-rockets-are-getting-an-important-boost--from-china/2017/04/12/4893b0be-1a43-11e7-bcc2-7d1a0973e7b2_story.html?utm_term=.0e0e4e890bbb.
19. Committee of Privy Counsellors, "The Report of the Iraq Inquiry – Executive Summary," available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/535407/The_Report_of_the_Iraq_Inquiry_-_Executive_Summary.pdf
20. "Syria War: A Brief Guide to Who's Fighting Whom," *BBC*, available at http://www.bbc.com/news/world-middle-east-39528673
21. Brent Eng and José Ciro Martínez, UN, "International NGOs Appeal for Help to End Syria Crisis," *Deutsche Welle*, available at http://www.dw.com/en/un-international-ngos-

appeal-for-help-to-end-syria-crisis/a-18995116
22. See Monika Chansoria, "Directed Energy Weapons, India's Strategic Game Changer?," *Foreign Policy*, available at http://foreignpolicy.com/2014/08/15/directed-energy-weapons-indias-strategic-game-changer/
23. Philip Campose, "Optimal Warfare (OW): The Emerging Warfare Concept of the 21st Century," CLAWS, available at http://www.claws.in/1719/optimal-warfare-ow-the-emerging-warfare-concept-of-the-21st-century-lt-gen-philip-campose.html
24. "Autonomy in Weapon Systems," *SIPRI*, available at, https://www.sipri.org/research/armament-and-disarmament/emerging-military-and-security-technologies/autonomy-weapon-systems.
25. Walter C. Ladwig III, "Indian Military Modernization and Conventional Deterrence in South Asia," *The Journal of Strategic Studies*, Vol. 38, No. 5, 2015.
26. Vijay Oberoi, "Need for Holistic Restructuring of the Indian Military," *Journal of Defence Studies*, Vol. 2, No. 1, 2008.
27. Vijai Singh Rana, "Enhancing Jointness in Indian Armed Forces: Case for Unified Commands," *Journal of Defence Studies*, Vol. 9, No. 1, 2015, pp. 45-49.
28. Laxman K. Behera, "India's Defence Budget 2017-18: An Analysis," IDSA, available at https://idsa.in/issuebrief/india-defence-budget-2017-18_lkbehera_030217.
29. Campose, n. 23.