Peace and Security Review

Review

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Editors Note

The contemporary world has been rife with a variety of experiences that define the 21ˢᵗ century. Climate change is one of the most pressing issues, and Bangladesh is one of the countries most prone to its devastating impacts. It has been identified as one of the countries that will spark off mass climate refugees in the future and, therefore, it must be adequately equipped to face international climate negotiations. At the same time, as the world experiences great technological shifts and digitisation, craving for advanced smart cities are increasing rapidly. Southeast Asian states are leading developing states trying for developing smart cities. Cyber warfare is an increasing tendency in the technologically developed world in the 21ˢᵗ century. With increasing militarization of the cyberspace, both state actors and non-state actors in the international arena are vying for achieving capacity to utilize cyber power. Violent extremism poses existential threat to all these developments and civilized nation-states. As in anywhere else, Bangladesh is also prone to the threats posed by violent extremism. Bangladesh has experienced many successful counter-terrorism operations. Countering Violent Extremism (CVE) is still an important task for the country. By covering an array of pressing issues, this review gives a flavor of contemporary developments and opportunities that will impact the coming tomorrow.

The first article, titled *Climate Diplomacy: A Study on Bangladesh's Preparedness for International Climate Negotiations*, by Mr. F. M. Tunvir Shahriar conceptualizes the stand of Bangladesh in terms of climate diplomacy in the international arena. Climate change is a pressing problem globally, as it is for Bangladesh. The study discusses the conceptual significance of climate negotiation and climate diplomacy and their relevance to the developing states like Bangladesh. Even though the country has already been featured as one of the states that will produce mass level of climate refugees in the future, its role in regard of participation to tackle climate change and its impacts has been widely acknowledged and appreciated in global forums including the United Nations. Expertise in policy research is limited in Bangladesh although

it has 2554 NGOs including 233 INGOs from 27 countries dealing with the issue. This mixed methodology study concludes that the preparedness of Bangladesh in terms of climate negotiations has a long way to go in the field of climate diplomacy, and therefore, the materialization of all its bright potentials in climate negotiations depends on how much smarter Bangladesh progresses in preparing, deciding, and acting in the climate regime.

The second article of the journal, authored by Dr. Moonyati Yatid and Mr. Ryan Chua, from Institute of Strategic and International Studies (ISIS) Malaysia, discusses the rise of global urban population cravings for smarter, safer, healthier and more efficient environment and digitization in their article, titled *Digitalisation and Smart City Management*. Today, in the era of the Fourth Industrial Revolution, advancement and convergence of emerging technologies pave the way for rapid progress of the development of smart cities that utilise the technologies such as the Internet of Things (IoT) as well as network infrastructure to deliver new urban and social objectives, which include the optimal efficiency of a city's operations and services, among others. Even though smart cities bring many positive outcomes, some negative impacts have come to the fore such as cyber security and environmental hazards. Developing smart cities also create some 'side effects' – inequality and exclusion of some communities. The article generally revolves round the case of smart city initiatives taken by the Malaysian government, and discusses aspects of development, issues of concern, as well as the positives of such accomplishment.

The next article, titled *The Evolution of Cyber War: The Actors and Strategies Shaping the Internet of Today*, authored by Mr. Khaled Nasir sheds light on the actors and strategies that are driving a new arms race that is revolving around the cyberspace in the contemporary context. In the modern world, evolution of cyber weapons, developed by both state and non-state actors to use in warfare is a new phenomenon. This study identifies and analyses how cyber power has become a great equalizer in conflict situations, serving anonymity and deniability on the part of the attacker. The qualitative study focuses on the historical perspective of evolution of technology and the advancement of cyber warfare in the contemporary mass cyber battlefield.

The last article of the journal, authored by Mr. Mohammad Ahsan Uddin, and titled *Curbing the Spike of Death Wish among Islamic Militants in Bangladesh: Government Response and the Public Perceptions* elaborates on the threat of violent extremism as an existential threat to any state. In Bangladesh, atrocities included murder of foreign nationals, law enforcement personnel, religious personalities, attacks on religious places and killing of bloggers. The study

by Mr. Ahsan aims to consolidate knowledge base of key steps taken by the government of Bangladesh for CVE and the public perceptions regarding the government initiatives taken so far. Divided into eight parts, the article discusses the various strategies of CVE in Bangladesh, shedding light on key anti-terrorism operations.

This review offers different perspectives to enable the reader to have a holistic idea in terms of understanding the ever changing world. The world is witnessing the disruptive changes in this decade alone. Different threats such as climate change, ever growing demand of urbanization and energy, cyber security risks and terrorism through process of radicalisation have been discussed in the journal. The reader would find fascinating ideas regarding the forces that are shaping our world.

Major General ANM Muniruzzaman, ndc, psc (Retd.)
Editor

Climate Diplomacy: A Study on Bangladesh's Preparedness for International Climate Negotiations

F. M. Tunvir Shahriar[1]

Abstract

Climate change is a pressing problem in Bangladesh, but the country lacks sufficient resources and expertise to address it properly. The study discusses the conceptual significance of climate negotiation and climate diplomacy and their relevance to the developing states like Bangladesh. Climate diplomacy is comparatively a new discipline, and literature discussing climate diplomacy from the least developed and developing states' perspective is limited in number. Significant gaps the study finds in the existing literature is that it does not sufficiently explain whether and how the preparatory activities of climate diplomacy influence its exercise. The study mainly contributes to solving this gap and to outlining Bangladesh's climate negotiation profile in general. The study is explorative and uses secondary sources of data. It explains that in climate diplomacy functions in two particular phases in Bangladesh, development and implementation. The development phase includes scholarly development, administrative capacity-building, and mobilization of diplomatic expertise, while the implementation phase comprises bilateral negotiations, building alliances, and global representation on climate change issues. The study argues that these two phases are positively correlated. Major findings of the study include that Bangladesh lacks in sectors like quality research on climate change, adaptation, and resilience, and mobilization of climate diplomatic expertise. The study suggests that it is time climate-diplomatic outreach and representation of Bangladesh went beyond the few development partners and UNFCCC.

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1. **Introduction:** *Background and Significance of Climate Diplomacy*

Climate change is real, and therefore, climate diplomacy is necessary. Casualties in armed conflicts and repercussions of climate change are perhaps the two most recurrent news that people around the world encounter in national and global media every day. Floods in South Asia, hurricanes in the Atlantic, glaciers melting in the Himalayas, droughts in Africa, or famines in the Middle East are among the breaking broadcasts almost every week no matter what channel someone is switching. Now the case is that these two, climate change and geopolitics, are ostensibly associated with one another as we know from the study of Thomas Homer-Dixon[2], an iconic figure in the discipline. This association may not always be direct, but climate change surely acts as a multiplier and also as a trigger in some cases. However, climate change is scientifically proven to have impacts on human inhabitance, livelihoods, and socioeconomic development in particular and sustainability in general, and that might raise fundamental political and policy questions about access to resources, territorial integrity, and even sovereignty[3]. Given this debate–climate change creates politicoeconomic problems or only degrades them–it is a fact that a consensus on climate change effects on security issues is now getting increased international attention and acceptance among scientists and policymakers. Hence, climate diplomacy claims its space in both academic discourse and policy discussions. Climate diplomacy refers to diverse and various foreign policy approaches and continuous engagement of both formal and informal diplomatic networks that are based on consultation and argumentation among stakeholders from different geographical, socioeconomic, and cultural backgrounds in order to guide both domestic and foreign policymakers to an effectively sustainable decision-making process[4].

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[2] Homer-Dixon, Thomas F., "On the Threshold: Environmental Changes as Causes of Acute Conflict." *International Security* 16(2) (Fall, 1991): 76-116. DOI: 10.2307/2539061. https://www.jstor.org/stable/2539061 (retrieved August 23, 2019).

[3] Adriázola, Paola, Carius, Alexander, Ruthner, Lena, Tänzler, Dennis, Thwaites, Joe and Wolters, Stephen, *Climate Diplomacy, New Approaches for Foreign Policy*, (Berlin: Adelphi, 2013), 8-9. https://www.adelphi.de/en/system/files/mediathek/bilder/climate_diplomacy_2013_online.pdf (retrieved August 23. 2019).

[4] Carius, Alexander, Ivleva, Daria, pohl, Benjamin, Schaller, Stella, Sharp, Helen, Tänzler, Dennis and Wolters, Stephen, *Climate Diplomacy, Foreign Policy Responses to Climate Change*, (Berlin: Adelphi, 2017), 14. https://www.climate-diplomacy.org › file › download (retrieved

National governments as well as non- and inter-governmental domestic, regional, and international organizations are initiating conferences, dialogs, negotiations, agreements on how to deal with this alarming concern that warrants multilateral and multidimensional engagements. Bangladesh, a country featured in The Guardian's 'Seven Climate Change Hotspots' in the world with 10 million potential climate refugees in the next two decades, faces major climate change risks like increased number of cyclones, frequent floods, earthquakes, alarming draughts, and rise in the sea level and limited resources and inadequate training to deal with them[5]. But despite the limitations, Bangladesh, surprisingly, has already secured a leadership position in international climate negotiations, particularly as a vibrant representative of the developing world. The role of Bangladesh in this regard has been widely acknowledged and appreciated in global forums like the United Nations. Bangladesh, on the one hand, is pursuing sustainable development plans while, on the other hand, is concentrating on power production that is supposed to have serious environmental implications. This contradiction appears to press Bangladesh, and the country must reconcile it for a developed while environment-friendly future at the same time.

2.   Literature Review: *What We Already Know about Climate Diplomacy*

In the heart of climate diplomacy is the realization that climate change is a multilateral issue, and joint initiatives are necessary to deal with it. Nations can prepare their respective interest debates, but transnational constituencies must be engaged to foster any positive change in this respect. Climate and Development Knowledge Network (CDKN) argues that climate diplomacy calls for three core capabilities[6].

i.   Identifying how climate change affects the core national interests and then determining the national position accordingly

ii.   Gathering intelligence on the perceptions, preferences, resource capacities, and weaknesses of the counterparts

iii.   Translating the national priorities into political and diplomatic actions

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August 23, 2019).

[5] Desk report. "Bangladesh listed as one of 7 climate change hotspots" *Dhaka Tribune* (Jun. 24, 2017). https://www.dhakatribune.com/climate-change/2017/06/24/bangladesh-listed-one-7-climate-change-hotspots/ (retrieved August 23, 2019).

[6] Nick Mabey, Nick, Gallagher, Liz and Born, Camilla, *Understanding Climate Diplomacy*, (London: E3G, October 2013). https://cdkn.org/wp-content/uploads/2013/03/E3G-Understanding-Climate-Diplomacy.pdf (retrieved August 24, 2019).

by building confidence and alliances

However, the European Union (EU) identifies three basic activities of climate diplomacy in 2016[7].

  i.   Strategically prioritizing climate change in policy instruments and diplomatic exercises

  ii.   Promoting climate resilient development by low-emission

  iii. Utilizing diplomatic toolbox to address the connection among climate change, natural resources, prosperity, stability, and migration

In its 'ecosystem approach' of climate diplomacy, EU advocates that climate ambitions and actions are made out of an ecosystem of domestic and external actors from politics, administration, corporate world, civil society, academia, and the media[8]. However, at home, climate diplomacy emphasizes on improved and advanced cooperation among ministries of environment, energy, trade, finance, and foreign affairs, and it provides its practitioners, especially government officials, with a shared conceptual and analytical understanding of it[9]. International Institute for Environment and Development (IIED) describes that Climate diplomacy is executed in three different approaches[10].

  i.   Bilateral diplomacy like the joint presidential statements by China and the USA before COP21[11]

  ii.   Multilateral diplomacy like the UNFCCC negotiations, and

  iii. Summit diplomacy or summitry like the Copenhagen Summit in 2009[12]

Least developed Countries (LDCs), IIED continues, recently find pursuing

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[7]   Adelphi, *About Climate Diplomacy*. https://www.climate-diplomacy.org/about-climate-diplomacy (retrieved August 24, 2019).

[8]   Ivleva, Daria, *SDG17 on Global Partnerships – The embodiment of foreign policy*, (Adelphi, April 2019).   https://www.climate-diplomacy.org/news/sdg17-global-partnerships-%E2%80%93-embodiment-foreign-policy (retrieved August 24, 2019).

[9]   Nick Mabey, Nick, Gallagher, Liz and Born, Camilla, *Understanding Climate Diplomacy*, (London: E3G, October 2013). https://cdkn.org/wp-content/uploads/2013/03/E3G-Understanding-Climate-Diplomacy.pdf (retrieved August 24, 2019).

[10]   Craft, Brianna, *Climate diplomacy: a beginner's guide*, (IIED, October 2015). https://www.iied.org/climate-diplomacy-beginners-guide (retrieve August 24, 2019).

[11]   Conference of the Parties (COP) is the supreme decision-making body of the United Nations Framework Convention on Climate Change (UNFCCC). COP21 was held in Paris in 2015.

[12]   United Nations Climate Change Conference that was held in Bella Center, Copenhagen, Denmark during 7-18 December, 2009.

international actions for climate change amid their vital national interests for they are the countries that are seriously exposed to climate change[13]. Although LDCs are forming alliances and coalitions and are trying to promote equitable climate decisions in global platforms but it is also a fact at the same time that they still lag behind in participating equally in the international climate decision-making for their limited resources and bargaining capacity to invest in fields like climate diplomacy. Although each of the 48 LDCs has a different political and economic context, they have a similar economic classification and climate change situation since they first formed a negotiating bloc in the UNFCCC in 2001[14]. Therefore, they have a common path to influence the developed countries on the climate diplomacy table. Jayaram argues that in the reality of USA's withdrawal from the Paris Agreement and Brazil's threat to follow suit, long-term interests of the LDCs are being ignored and overlooked in the name of hope that the LDCs would succeed in mobilizing sufficient finances for their mitigation and adaptation to climate change according to the Nationally determined Contributions in particular and achieving some form of consensus on the COP rulebook in general[15]. In this context, Micale et al. cautions that with an estimated adaptation cost of USD 140-300 billion every year by 2030, which might increase up to USD 280-500 billion at the global level every year by 2050, LDCs are supposed to find it almost impossible to address the climate crises without the financial and technological assistant of the developed world[16]. Along with financial and technological arrangements, another question remains about who would execute LDCs' climate diplomacy in the field and whether or not they are prepared enough. Administrative capability is a major area of challenge for the LDCs both for they lack it and making it an excuse, developed countries try to deny any climate compensation for the LDCs. Experts recommend three particular actions for Bangladesh to

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[13] Craft, Brianna, *Helping poorest nations engage in climate diplomacy*, (IIED, August 2013). https://www.iied.org/helping-poorest-nations-engage-climate-diplomacy (retrieved August 24, 2019).

[14] Craft, Brianna, *Increasing the influence of LDC climate diplomacy, Developing a theory of change*, (IIED, December 2016). https://pubs.iied.org/pdfs/10170IIED.pdf (retrieved August 24, 2019).

[15] Jayaram, Dr. Dhanasree, *In 2019*, *Climate Diplomacy Needs to Challenge 'Systemic' Politics*, (Adelphi, March 2019). https://www.climate-diplomacy.org/news/2019-climate-diplomacy-needs-challenge-%E2%80%98systemic%E2%80%99-politics (retrieved August 24, 2019).

[16] Micale, Valerio, Tonkonogy, Bella and Mazza, Federico, *Understanding and Increasing Finance for Climate Adaptation in Developing Countries*, (Adelphi, December 2018). https://climatepolicyinitiative.org/wp-content/uploads/2018/12/Understanding-and-Increasing-Finance-for-Climate-Adaptation-in-Developing-Countries-1.pdf (retrieved August 24, 2019).

adopt for climate diplomacy, which the country still keeps in ad hoc status[17].

i.   Integrating climate diplomacy into the training programs of government officials, those of the foreign ministry particularly

ii.   Designating a group of senior foreign service officers, preferably those who have vast experiences in negotiation in international and particularly UN levels, as leaders in diplomatic matters related to climate change

iii.   Convening a group of national scholars who have expertise in climate change and international negotiation, who act as advisors in this regard

3. **Conceptual Context:** *Connecting the Dots of Climate Diplomacy*

In the context of LDCs, the reviewed literature focuses on two particular areas-one is where they need to develop, and the other is where they contribute. Calculation of national climate change impacts and strategic prioritization of the issue and its policy inclusion are not easy tasks for a developing state with limited resources like Bangladesh[18]. Existing literature does not provide enough information about how to do it and who to assign it for. However, Bangladesh's diplomatic toolbox is not a very rich one to prepare for international climate negotiations, for only a few diplomats have expertise in the area. Still, there is no concrete account of Bangladesh's climate diplomacy lineup available in the existing literature. However, it is evident that states that are economically and politically developed are the major culprits of climate change, and tracking their climate crimes and gathering evidence against them is really tough for Bangladesh[19]. Existing climate discourse lacks in explaining how to do that. However, Bangladesh has recently concentrated on augmented power generation in both public and private sectors in response to increased demand

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[17]   Huq, Saleemul, "Why we should set our sights on climate diplomacy" *The Daily Star* (February 20, 2019). https://www.thedailystar.net/opinion/politics-climate-change/news/why-we-should-set-our-sights-climate-diplomacy-1704397 (retrieved August 24, 2019).

[18]   Khan, Md. Shakil (ed.), *National Report on Sustainable Development*, (Dhaka: Ministry of Environment and Forests (MoEF), May 2012). https://sustainabledevelopment.un.org/content/documents/981bangladesh.pdf (retrieved August 25, 2019).

[19]   Byrne, Mark, "Climate Crime: Can Responsibility for Climate Change Damage be Criminalised?" *Carbon & Climate Law Review (CCLR)* 4(3) (2010): 278-290. https://www.jstor.org/stable/24323993?seq=1 (retrieved August 25, 2019).

that is projected to be almost 34000 megawatts by 2030[20]. With seven more coal-, oil-, and gas-fired power plants that are currently under construction, it is supposed to be hard for Bangladesh to always promise low-emission and climate resilient development in the coming decades[21]. It is still unclear how to mitigate this dichotomy. Finally, the present literature also does not clarify how the political translation of climate priorities is possible in a state like Bangladesh, where political discontent and discord are miserably prevalent. However, merging the gaps in the literature and building on the propositions drawn from them, the study suggests the following conceptual outline.
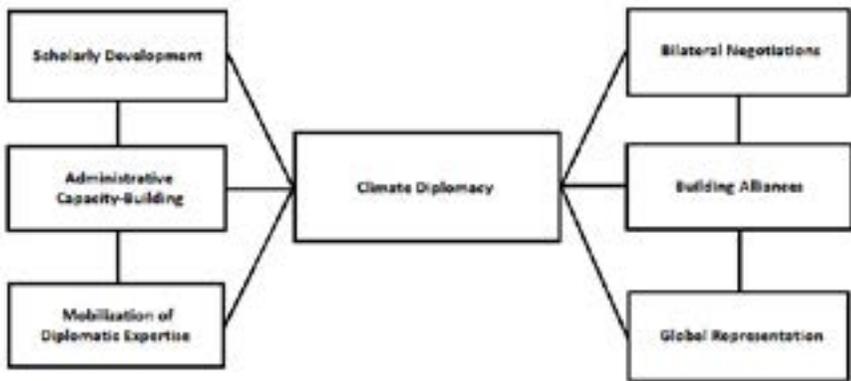
Figure 1: Conceptual Outline of Climate Diplomacy

The outline suggests that there is a correlation between the development and implementation phases of climate diplomacy. In the development phase, a tripartite approach is necessary. Developing and low-income states first need to progress and produce understanding and knowledge of climate change and climate negotiations[22]. The state should also go for building administrative and institutional capacities to prepare for climate diplomacy[23].

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[20]   Haque, Mohammad Asrarul, *"Power generation capacity continues to grow in response to high demand supply gap"* EBL Securities Ltd. https://databd.co/wp-content/uploads/2019/07/Bangladesh-Power-Sector-Overview-2018.pdf (retrieved August, 2019).

[21]   Moazzem, Dr Khondaker Golam and Ali, Mohammad, *The Power and Energy Sector of Bangladesh: Challenges of Moving beyond the Transition Stage*, Centre for Policy Dialogue (CPD). https://cpd.org.bd/wp-content/uploads/2019/03/The-Power-and-Energy-Sector-of-Bangladesh.pdf (retrieved August 25, 2019)

[22]   Sterner, Thomas, Damon, Maria, Köhlin, Gunnar and Visser, Martin, "Capacity Building to Deal with Climate Challenges Today and in the Future." *The Journal of Environment and Development* 21(1) (February, 2012): 71-75. DOI: 10.1177/1070496511435672. https://www.researchgate.net/publication/274968938_Capacity_Building_to_Deal_With_Climate_Challenges_Today_and_in_the_Future (retrieved August 25, 2019).

[23]   Willems, Stéphane and Baumert, Kevin, *Institutional Capacity and Climate Actions*, Organisa-

Preparedness of all concerned ministries of the government and their officials and importantly, coordination among them essential for climate diplomacy to function correctly. The budgetary allocation is another significant aspect that needs special attention in this respect. On the other hand, none other than the expert diplomats, both in service and retired, who have huge experiences in climate and international negotiations, can support the climate security and thus climate diplomacy mechanism and strengthen the administrative and institutional capacities[24]. However, the literature indicates that these tree mutually complementary areas are related to how or perhaps how well climate diplomacy is exercised. The more prepared climate diplomacy is in terms of scholarly research, administrative capacity, and diplomatic expertise, the more efficiently it is supposed to perform on the climate table. Nonetheless, the literature identifies three modes to exercise climate diplomacy. Bilateral climate negotiation indicates a streamlined international climate negotiation between either two major emitters or two grave victims, although a negotiation between a climate perpetrator and a climate victim is also not impossible, though unlikely[25]. This is termed as 'minilateralism'. Advantage in this approach is that both parties have similar experiences and thus, similar goals. That is why they are supposed to reach an agreement, particularly to assist one another in settling bilateral climate issues and/or on the global forums, quickly and peacefully. In addition to that, there is general confusion and misunderstanding in the LDCs that climate actions are expensive. Actually, not addressing climate change is even more costly in the long run[26]. LDCs share a common ground of pursuing fair change of wellbeing for all in the world based on more nature-oriented closed-loop systems and recognizing their diversities, tend to act together to share and thus save resources[27]. Those are the basic causes for them to have formed alliances on their side of the climate regime. The climate alliance of LDCs empowers the small states to raise a

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tion for Economic Co-operation and Development (OECD) and International Energy Agency (IEA). https://www.oecd.org/env/cc/21018790.pdf (retrieved August 25, 2019).

[24] *Climate Security Expert Network (CSEN)*. https://climate-security-expert-network.org/start (retrieved August 25, 2019).

[25] Eckersley, Robyn, "Moving Forward in the Climate Negotiations: Multilateralism or Minilateralism?" *Global Environmental Politics* 12(2) (May, 2012): 24-42. https://www.mitpressjournals.org/doi/pdf/10.1162/GLEP_a_00107 (retrieved August 25, 2019).

[26] Global Climate Change Alliance (GCCA), *Using Innovative and Effective Approaches to Deliver Climate Change Support to Developing Countries*, (2011). https://ec.europa.eu/clima/sites/clima/files/docs/gcca_brochure_en.pdf (retrieved August 25, 2019).

[27] Mekjian, Sarah (ed.), *European municipalities in partnership with indigenous peoples Taking local action on global climate change*, (Frankfurt: Climate Alliance, 2018), 8. https://www.climatealliance.org/fileadmin/Inhalte/7_Downloads/Climate_Alliance_Annual_Report_and_Outlook_2017_2018.pdf (retrieved August 25, 2019).

louder voice together against the climate offenders. Their vast population and public support is another advantage that they utilize in favor of their claim for climate compensations. Finally, the global representation of the LDCs on climate negotiations has been proved as to their key role in the field of climate diplomacy. A notable advantage of the climate regime is that it provides more space for the LDCs than on any other international forum. COPs, in particular, have created such a global setup where the LDCs can put the developed ones under an obligation. Hence, it is to be noted that these three approaches are also correlated and complement each other.

4. Data and Method: *Arrangements for Conducting the Study*

The basic purpose of the study is to outline the profile of Bangladesh in climate diplomacy. As objectives of the study, I intend to offer an in-depth account of the basic components of Bangladesh's climate diplomacy, to explore the areas of weakness and strength that have developed over time, and thus to ultimately find out whether or not there is a correlation between the development and the implementation phase of Bangladesh' climate diplomacy. The development phase that includes scholarly development, administrative capacity-building, and mobilization of diplomatic expertise is the independent variable, while the implementation phase that includes bilateral negotiations, building alliances, and global representation is the dependent variable. The hypothesis of the study is that the development phase has influences on the implementation phase. Therefore, it is an alternative hypothesis. Since the study does not probe into any cause-effect relationship between the variables and is an initial inquiry into the hypothetical idea, it is exploratory in nature. The qualitative approach is followed to conduct the study and it uses secondary sources of data under the descriptive method. A number of relevant government documents, academic books, journal articles, newspaper reports, and scholarly websites have been scrutinized, sorted out, and studied in a systematic manner to collect the secondary data. General and basic techniques like organizing data of similar categories have been followed in order to ensure proper content analyses. Collected data are accumulated in the analysis section in a way that can help to have answers to the following questions.

   i.   What are the scholarly status of the climate change preparedness of Bangladesh, and what more can be done in this area?

  ii.   What is the present status of the administrative capacity of Bangladesh to exercise climate diplomacy?

 iii.   How can diplomatic expertise be mobilized in Bangladesh to prepare better for climate diplomacy?

iv.   What are the bilateral climate negotiations that Bangladesh has taken part in?

v.   What are the actual status and potential scope for Bangladesh in building climate alliances?

vi.   What are the major achievements and limitations of Bangladesh in representing the small states in the global climate forums?

5. **Data Analysis:** *Findings of the Study*

Data analysis of the study is divided into two sections. The first section deals with the development phase of Bangladesh's climate diplomacy, while the second section discusses the implementation phase of the same.

Discussion on the scholarly development of Bangladesh's climate diplomacy starts with the research initiatives conducted to calculate the types and extent of risks as result of climate change and the avenues of opportunities to adapt to them. But it is a fact that scientific research on climate change risks is directly dependent on advanced technological support, trained personnel, and massive budgetary allocations, areas where Bangladesh with only 15.20% allocation to education and technology in the annual national budget surely lacks[28]. Besides, expertise in policy research is also limited in Bangladesh although it has 2554 NGOs including 233 INGOs from 27 foreign states[29]. As a result, number of studies assessing and evaluating the effectiveness of climate adaptation at both local and national levels is small[30]. Rahman et al. (2018) identifies 14 theme that Bangladesh has climate research on[31]:

i.   Health

ii.   Livelihood

iii.   Climatology

iv.   Policy and governance

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[28]   Industrial Development Leasing Company (IDLC), *Monthly Business Review*, (July, 2019). https://idlc.com/mbr/article.php?id=260 (retrieved August 26, 2019).

[29]   Muneer, Khalid Ibn, *NGO-isation of Bangladesh*, Geopolitica, (July 1, 2017).   https://www.geo-politica.ru/en/article/ngo-isation-bangladesh (retrieved August 26, 2019).

[30]   Ford JD, Berrang-Ford L, King M, Frugal C, "Vulnerability of aboriginal health systems in Canada to climate change." *Global Environmental Change* 20(4) (2010): 668–680. https://doi.org/10.1016/j.gloenvcha.2010.05.003 (retrieved August 26, 2019).

[31]   Rahman, H.M. Tuihedur, Hickey, Gordon M., Ford, James D. and Egan, Malcolm A. Egan, "Climate change research in Bangladesh: research gaps and implications for adaptation-relat-ed decision-making." *Regional Environmental Change* 18 (2018): 1535–1553. https://link.spring-

   v.   Food and food security

  vi.   Wildlife and ecosystem conservation

 vii.   Gender

viii.   Agriculture

  ix.   Fisheries

   x.   Livestock

  xi.   Forest

 xii.   Technology and infrastructure

xiii.   Non-natural resource economic activities, and

xiv.   Environmental quality

Climate change research in Bangladesh is based on local-level information that fails to explain the climate change patterns and consequences and that also makes the research authoritative and technocratic[32]. Despite these research gaps, climate change research increased in Bangladesh in the last few years[33].
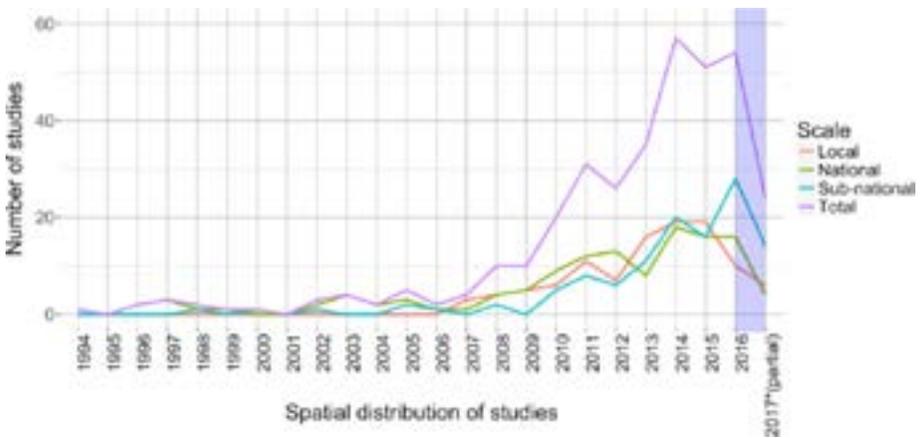
Figure 2: Contemporary Climate Change Studies (research) in Bangladesh[34]

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er.com/content/pdf/10.1007%2Fs10113-017-1271-9.pdf (retrieved August 26, 2019).

[32] Ayers, Jessica M., Huq, Saleemul, Faisal, Arif M., and Hussain, Syed T., "Mainstreaming climate change adaptation into development: a case study of Bangladesh." *Wiley Interdisciplinary Reviews Climate Change* 5(1) (2014): 37-51. https://onlinelibrary.wiley.com/doi/epdf/10.1002/wcc.226 (retrieved August 27, 2019).

[33] Mcdowell, Graham, Ford, James and Jones, Julie, "Community-level climate change vulnerability research: trends, progress, and future directions." *Environmental Research Letters* 11(3) (March, 2016): 033001. https://doi.org/10.1088/1748-9326/11/3/033001 (retrieved August 27, 2019).

[34] Rahman, H.M. Tuihedur, Hickey, Gordon M., Ford, James D. and Egan, Malcolm A. Egan,

However, initially focused on economic impacts like agricultural consequences, Bangladesh's climate change research is gradually widening its area of interest to various socioeconomic and socioe-cological impacts now[35]. Besides, the country is also attracting more foreign scientists to research on the impacts of global warming on it; the Action Research for Community Adaptation in Bangladesh (ARCAB) and 'Gobeshona' conference are two good examples of that[36]. The government has formulated Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2009, which is revised and updated from its previous version of 2008[37]. Along with that, the government has taken a number of national policies to advance climate adaptation capacities at the local level across the country but efficiency, equitability, and effectiveness of the policies have also been doubted at times[38, 39]. Differences in scale in the multi-level decision-making process poses another strategic anomaly in the climate adaptation mechanism of the country, which sometimes also results in a mismatch between the local level needs and the national policy responses[40, 41]. One of the pillars of BCCSAAP is institutional strengthening, but Bangladesh seems to lack in this sector. Ministry of Foreign Affairs (MoFA) of Bangladesh government provided a course on climate change to the young officers of the ministry last year so that they become climate literate and get fundamental

"Climate change research in Bangladesh: research gaps and implications for adaptation-related decision-making." *Regional Environmental Change* 18 (2018): 1535-1553. https://link.springer.com/content/pdf/10.1007%2Fs10113-017-1271-9.pdf (retrieved August 27, 2019).

[35]   Ibid.

[36] Baillat, Alice, "*Bangladesh as a Weak Power Climate Leader*," International Centre for Climate Change and Development (ICCCAD), (January 8, 2018). http://www.icccad.net/bangladesh-as-a-weak-power-climate-leader/ (retrieved August 27, 2019).

[37] *Bangladesh Climate Change Strategy and Action Plan 2009*, MoEF, Government of the People's republic of Bangladesh (GoB). https://www.iucn.org/downloads/bangladesh_climate_change_strategy_and_action_plan_2009.pdf (retrieved August 27, 2009).

[38] Huq, S., Khan, MR, Equity in National Adaptation Programs of Action (NAPAs): the case study of Bangladesh, in Adger, WN, Paavola, J, Huq, S and Mace, MJ (eds.), *Fairness in adaptation to climate change* (Cambridge: MIT Press, 2006), 181-200.

[39] Ayers, J., "Resolving the adaptation paradox: exploring the potential for deliberative adaptation policy-making in Bangladesh." *Global Environmental Politics* 11(1) (2011): 62-88. https://doi.org/10.1162/GLEP_a_00043 (retrieved August 27, 2019).

[40] Gibson, Clark G., Ostrom, Elinor and Ahm, Tae Kyu, "The Concept of Scale and the Human Dimensions of Global Change: A Survey." *Ecological Economics* 32(2) (2000): 217-239. https://www.researchgate.net/publication/222552538_The_Concept_of_Scale_and_the_Human_Dimensions_of_Global_Change_A_Survey (retrieved August 27, 2019).

[41] Juhola, Sirkku and Westerhoff, Lisa, "Challenges of adaptation to climate change across multiple scales: a case study of network governance in two European countries." *Environmental Science and Policy* 14(3) (2011): 239–247. https://doi.org/10.1016/j.envsci.2010.12.006 (retrieved August 27, 2019).

training on climate diplomacy, and the course was appreciated and popular[42]. The ministry also arranged a two-week diplomatic course including climate change and geopolitical components for junior and mid-level diplomats from ten Asian countries in 2018[43]. The government agencies, universities and other academic institutions, as well as research organizations and think tanks from the private sector, need to continue such kind of training programs for government officials, for those in the foreign service in particular. Some bright junior foreign service officers might also be sent for higher studies on climate negotiations. However, another administrative area where Bangladesh needs to build capacities is the management of climate funds. Following figure presents the percentile distribution of funds of Bangladesh Climate Change Trust Fund (BCCTF), Bangladesh Climate Change Resilience Fund (BCCRF), and Pilot Program for Climate Resilience (PPCR) as an example.
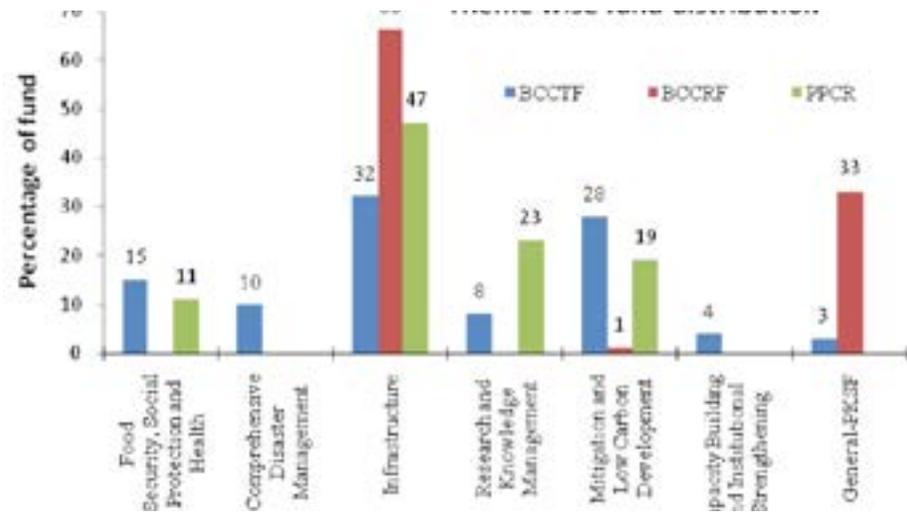
Figure 3: Distribution of Climate Fund in Bangladesh, 1991-2010[44]

[42] Huq, Saleemul, *Climate change diplomacy is now the challenge*, ICCCAD (July, 2019). http://www. icccad.net/climate-change-diplomacy-is-now-the-challenge/ (retrieved August 27, 2019).

[43] *Specialised International Diplomatic Course for Foreign Diplomats at Bangladesh Foreign Service Academy*, MoFA, Government of the People's Republic of Bangladesh. https://mofa.gov.bd/ site/press_release/69741cf3-a95b-45a9-a726-2e86871a14ee/Specialised-International-Diplo- matic-Course-for-Foreign-Diplomats-at-Bangladesh-Foreign-Service-Academy   (retrieved August 27, 2019).

[44] Khan, Md. Zakir Hossain, *Review of Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009: Scope of Prioritization*, (October, 2012). https://www.ti-bangladesh.org/files/ CFG/Review%20of%20Bangladesh%20Climate%20Change%20Strategy%20and%20Ac-

From the figure, it is evident that all three organizations made uneven allocation of the fund to infrastructure. Although it is true that climate resilience needs strong infrastructural support, it also raises a question about why it is prioritized before sectors like food security, social protection, or low carbon development, which are more important for the country, at the same time. The suspicion gets worse as people know that infrastructural development is one of the most corrupted sectors in the country, and all governmental and private climate funds put up with the same administrative system of the country, where corruption remains very common. Finally, mobilizing diplomatic expertise for climate diplomacy remains another big challenge for Bangladesh. The state still misses an organized climate envoy led by expert and experienced diplomats. Junior foreign service officers, even when trained, should not be expected to put up a good show on the climate diplomacy table where veteran climate diplomats of the large emitter states bargain in their full capacities. Proficient academics, experienced researchers, and senior, even retried, diplomats might be a good choice in this respect.

However, the implementation phase of Bangladesh's climate diplomacy starts with bilateral climate negotiations that the state takes part in. On March 19, 2013, Bangladesh and Japan signed a document on Bilateral Offset Credit Mechanism (BOCM) titled "Low Carbon Growth Partnership between the Japanese side and the Bangladeshi side," which has led them to introduce the Joint Credit Mechanism (JCM)[45].
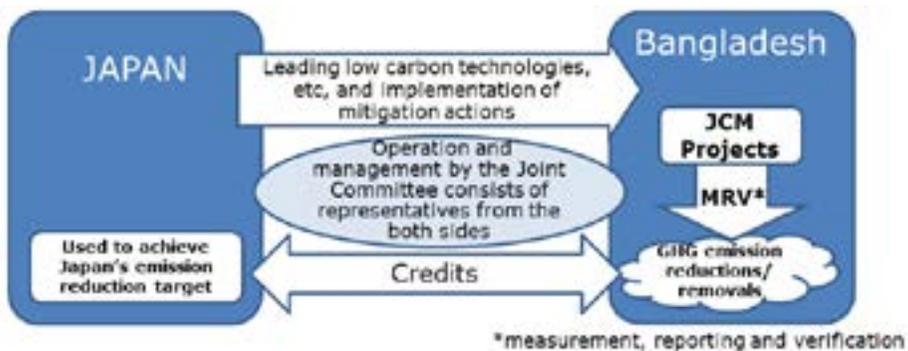

Figure 4: Joint Credit Mechanism (JCM) of Bangladesh and Japan[46]

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tion%20Plan%20(BCCSAP)%202009%20Scope%20of%20Prioritization_Z_H_Khan_CFGP_TIB.pdf (retrieved August 27, 2019).

[45]   *Bangladesh – Japan*, JCM. https://www.jcm.go.jp/bd-jp (retrieved August 28, 2019).

[46]   Ibid.

JCM is intended to encourage Japanese private sector to invest in low carbon development activities of Bangladesh and diffuse cutting-edge technologies, services, and infrastructure from Japan to Bangladesh and thus assist Bangladesh's climate mitigation and sustainable development initiatives, and under the agreement, Japanese government gives incentives to its private sector for this[47]. Besides, Bangladesh also persistently initiates and joins in bilateral talks with India over the 54 shared rivers issues including its climate impact on Bangladesh. However, it has not yielded any notable progress yet because of India's apparent lack of interest to cooperate. On the other hand, Bangladesh has shown remarkable success in participating in and leading three significant international climate alliances. The first one is LDCs representing the least developed states in the UNFCCC, where Bangladesh has changed its climate narrative from the worst climate victim to the leading climate resilient state. The second one is the Climate Vulnerable Forum (CVF), a bloc of 48 states, which Bangladesh has already chaired once during 2011-2013. CVF adopted a 14-point Dhaka Declaration in 2011, which stressed on the fast release of the climate fund of USD 30 billion, a balanced allocation of the fund, proper implementation of the Kyoto Protocol, and rehabilitation of the displaced people in the member states[48]. Moreover, Bangladesh is also a significant member of the Vulnerable Group 20 (V20) Finance Ministers, a climate forum of 59 states whose economies are systematically vulnerable to climate change[49]. Starting its journey from the Costa Rica Action Plan of the CVF during 2013-201, V20 outlines its purposes as follows[50].

- *Promote the mobilization of public and private climate finance;*

- *Share and exchange best practices on economic and financial aspects of climate action;*

- *Develop new and improved approaches to climate finance; and,*

- *Engage in joint advocacy and other collective actions.*

Finally, the global climate representation of Bangladesh, particularly in the COPs, is the most frequently discussed topic about the climate narrative of Bangladesh in the international community. As a Non-Anex I member state of

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[47]   Ibid.

[48]   Amin, Khairul. *CVF adopts 14-point Dhaka declaration*, (November 14, 2011). https://www.ti-bangladesh.org/climatefinancegov/CVF_Dhaka%20Declaration%202011-1.pdf   (retrieved August 28, 2019).

[49]   *About*, V20. https://www.v-20.org/about/ (retrieved August 28, 2019).

[50]   Ibid.

the UNFCCC, Bangladesh has ratified both the Kyoto Protocol and the Paris Agreement in 2001 and 2016, respectively. The country has been attending the ordinary meetings of COP since 1995. In COP 9 in Italy, 2003, Bangladesh highlighted the need of increased participation of the underdeveloped and developing stakeholders, evolving from statistical data to generally understandable information, and translating policies into actions[51]. In 2011 COP 11 (CMP 1[52]) in Montreal, Bangladesh stressed on the operationalization of climate adaptation of and special climate fund for the LDCs[53]. Bangladesh warned the international community about millions of potential climate refugees in the low-lying countries in the Asia-Pacific as a result of the rise in sea level in COP 12 (CMP 2)[54]. A CDM[55] project selected by the Danish government for the brick industry in Bangladesh was introduced in COP 15 (CMP 5) in Copenhagen as an alternative technology that offsets GHG[56] emissions[57]. In COP 16 (CMP 6, Cancun), the country underscored that although mitigation is the ultimate solution for climate change, immediate need adaptation must be realized in case of LDCs, SIDCs[58], and African states[59]. It also emphasized that all climate actions should be country-driven and expressed its dismay about the unclear situation of the global long-term climate vision in general and the same of the Kyoto Protocol in particular[60]. In COPs 17 and 18, Bangladesh

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[51] *Special Report on Selected Side Events at UNFCCC COP-9*, International Institute for Sustainable Development (IISD), (December, 2003). http://enb.iisd.org/climate/cop9/enbots/ (retrieved August 29, 2019).

[52] CMP stands for Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.

[53] *Eleventh session of the Conference of the Parties to the Climate Change Convention and first meeting of the Parties to the Kyoto Protocol*, International Institute for Sustainable Development (IISD), (December, 2005). https://enb.iisd.org/climate/cop11/nov28.html (retrieved August 29, 2019).

[54] *Statement at the high-level segment at COP 12, CMP 2*, UNFCCC, (November, 2006). https://unfccc.int/news/statement-at-the-high-level-segment-at-cop-12-cmp-2 (retrieved August 29, 2019).

[55] CDM stands for Clean Development Mechanism.

[56] GHG stands for Greenhouse Gas.

[57] *A Climate Neutral COP15*, UNFCCC. https://unfccc.int/files/secretariat/environmental_responsibilities/application/pdf/a_climate_neutral_cop15_brochure.pdf (retrieved August 29, 2019).

[58] SIDS stands for Small Island Developing States.

[59] *Joint High Level Segment of the Sixteenth Session of the Conference of the Parties (COP) 16 & Sixth Session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP 6)*, UNFCCC, (December, 2010). https://unfccc.int/files/meetings/cop_16/statements/application/pdf/101209_cop16_hls_bangladesh.pdf (retrieved August 29, 2019).

[60] Ibid.

floated the issues of legally binding outcome and planned relocation of climate change induced displacement and migration as important respectively[61, 62]. Bangladesh prepared and presented its national position paper on climate change and participated in constructing an effective 2015 Agreement under the Convention in COP 20 in Lima, 2014[63]. In the conference, Bangladesh led the G77 and China coalition as well. In COP 21, Paris, Bangladesh drew international spotlight on her by submtting its new national climate action plan to the UNFCCC as its Intended Nationally Determined Contribution (INDC) along with other 73 states[64]. Bangladesh Prime Minister flagged two specific issues in COP 22 in Marrakech, 2016[65]:

i.   Water security: safe drinking water and sanitation for all by effective water governance

ii.   Climate induced migration: addressing this issue in order to achieve the Sustainable Development Goals (SDGs)

Sharing the experience stories of untimely floods that caused insecurity in food sector and unusually heavy rainfall that caused landslides claiming hundreds of lives, Bangladesh reinforced the importance of implementing the Paris Agreement in COP 23 in 2017[66]. In COP 24 in 2018, Permanent Secretary of the Ministry of Environment, Forest and Climate Change in Bangladesh inform the UNFCCC member states that to fight climate change, the state has so far dedicated USD 410 million as climate change trust fund and has been spending USD 1 billion every year for the last decade[67]. UNFCCC mandated

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[61] *Statement by Bangladesh Leader of Bangladesh Delegation at the High Level Segment in COP 17*, UNFCCC, (December, 2011). https://unfccc.int/files/meetings/durban_nov_2011/statements/application/pdf/11208_cop17_hls_bangladesh.pdf (retrieved August 29, 2019).

[62] *High Level Segment, Statement by Dr. Hasan Mahmud, MP Hon'ble Minister, Ministry of Environment and Forests, Bangladesh*, UNFCCC, (December, 2012). https://unfccc.int/resource/docs/cop18_cmp8_hl_statements/Statement%20by%20Bangladesh%20(COP).pdf (retrieved August 29, 2019).

[63]   *A Note from Bangladesh Delegation in Lima Climate Conference*, GoB, (November, 2014).

[64] Bangladesh Submits its Climate Action Plan Ahead of 2015 Paris Agreement, UNFCCC, (September, 2015). https://unfccc.int/news/bangladesh-submits-its-climate-action-plan-ahead-of-2015-paris-agreement (retrieved August 29, 2019).

[65] *22ⁿᵈ Session of the Conference of the Parties (COP 22)*, UNFCCC, (November, 2016). https://unfccc.int/files/meetings/marrakech_nov_2016/statements/application/pdf/bangladesh_cop22cmp12cma1_hls.pdf (retrieved August 29, 2019).

[66] *Bangladesh National Statement at the High Level Segment in COP23 to UNFCCC*, UNFCCC, (November, 2017). https://unfccc.int/files/meetings/bonn_nov_2017/statements/application/pdf/bangladesh_cop23cmp13cma1-2_hls.pdf (retrieved August 29, 2019).

[67] *Twenty-fourth session of the Conference of the Parties to UN Framework Convention on Climate*

COP 25, 2-13 December 2019, Madrid, to resolve three issues in particular[68]:

i.   Partially meeting domestic climate change mitigation goals through a market mechanism like carbon markets according to Article 6 of the Paris Agreement

ii.   Public registries for the INDCs, and

iii. Communications of climate adaptation efforts

Prime Minister of the country headed the Bangladesh delegation, and she joined a roundtable on National plans to increase ambition by 2020 and participated in a dialogue between governments and civil society titled 'Enhancing Action Together'[69]. However, the global representation of Bangladesh on climate change issues is not limited to COPs. The country has signed and/or ratified several international agreements and treaties that relate to climate change issues. Following is a list of such agreements and treaties.

Title	Number of Signatories
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	53
Cartagena Protocol on Biodiversity to the Convention on Biological Diversity	172
Convention on Biological Diversity (CBD)	196
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	183
Convention on the Conservation of Migratory Species of Wild Animals	129
Environmental Modification Convention (ENMOD)	48
International Convention for the Prevention of Pollution from Ships (as modified by the Protocol of 1978) (MARPOL 73/78)	158
International Convention on Oil Pollution Preparedness, Response, and Co-operation (OPRC)	112

Change (COP 24), UNFCCC, (December, 2018). https://unfccc.int/sites/default/files/resource/BANGLADESH_cop24cmp14cma1-3.pdf (retrieved August 29, 2019).

[68] *COP25 Climate Change Conference*, World Health Organization (WHO), (December, 2019). https://www.who.int/news-room/events/detail/2019/12/02/default-calendar/cop25-climate-change-conference (retrieved December 15, 2019).

[69] *PM returns home after joining COP25*, The Daily Star, (December 23, 2019). https://www.thedailystar.net/country/news/pm-returns-home-after-joining-cop25-1835548 (retrieved December 23, 2019).

International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION 1969)	174
International Plant Protection Convention (IPPC)	183
Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia	33
Paris Agreement	187
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat	171
Stockholm Convention on Persistent Organic Pollutants	183
United Nations Framework Convention on Climate Change (UNFCCC)	197
United Nations Convention to Combat Desertification	197
Vienna Convention on the Protection of the Ozone Layer	197

Table 1: International Climate-Related Agreements and Treaties of Bangladesh

These participations and representations, altogether, established Bangladesh as one of the most acknowledged climate leaders in the world.

6. Concluding Remarks

Bangladesh is one of the worst actual and potential victims of climate change in the world. The country has been experiencing unexpectedly and unprecedentedly increased number of natural calamities for the last few decades, and hundreds of her people are losing their lives as a result. But at the same time, Bangladesh is acknowledged as one of the leading climates resilient states and a climate leader for the developing world. But for this, people of the country should be accredited first because sitting right on the problem for generations has made them sturdy enough to recover incredibly fast. The government agencies, particularly the concerned ministries, are also working to mainstream climate concerns, but widespread corruption like in any other sector of the country is a massive obstacle in this respect. There is a lack of cooperation and an information gap between the government and the research community in the climate matters that result in the slow and partial scholarly development in the sector as well. Many universities of the country have department and institutes that relate to the knowledge on environmental protection and climate resilience, but they need to concentrate more to accommodate this issue in their syllabuses and curricula. Climate training

facilities for the diplomats are still very limited, and their climate literacy is basically based on first-hand experiences without sufficient theoretical knowledge; this area must be addressed immediately. To establish a separate climate change ministry should also be in consideration in this regard. Though not plentiful, the country has some climate expert diplomats, academicians, and researchers, but they are working in a more or less scattered manner. The government should collaborate with them to develop effective capacity-building in the climate sector. The role of the mass media, particularly the private media houses, also lags to build public awareness about climate change impacts and how to adapt to that. In the implementation and exercise, the bilateral international climate negotiation of Bangladesh is yet to go beyond the core development partners like Japan and India. Climate-diplomatic outreach should work harder to discover new avenues and partners in the field. In terms of building climate coalitions, Bangladesh is still binding its knot with the least developed and developing states and thus has built for its own an image that might look pernicious from the First World perspective. But the country should try not to alienate the developed nations in its climate struggle because it is finally them who influence the global climate regime and decision-making most. Bangladesh should try to build climate-diplomatic relations with some of them as well. While it comes to COPs, although Bangladesh has shown much maturity in dealing with the big states but it also should be noted that its international fame in climate leadership perhaps started when the Prime Minister herself had come to front and took charge of the endeavor. However, the preparedness of Bangladesh in terms of climate negotiations seems to have still a long way to go in the field of climate diplomacy, and therefore, the materialization of all its bright potentials in climate negotiations depends on how much smarter the country grows in preparing, deciding, and acting in the climate regime.

Digitalisation and Smart City Management
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Abstract

The rise in global urban population craves for smarter, safer, healthier and more efficient environments that better serve their residents. Today, in the era of the Fourth Industrial Revolution, advancements and convergences of emerging technologies pave the way for rapid progress of the development of smart cities that utilises the development of technologies such as the Internet of Things (IoT) as well as network infrastructure to deliver new urban and social objectives, which includes the optimal efficiency of a city's operations and services, among others. China, the United States of America and ASEAN are among nations who have experimented in creating smart cities of their own towards developing digital economies and ultimately smarter societies. Malaysia has carried out several smart city initiatives such as in Kuala Lumpur, Penang and Kota Kinabalu. Some of the projects leverage on regional collaborations. For example, Kota Kinabalu, under the ASEAN Smart Cities Network, is collaborating with the South Korean government and public enterprises in realising its potential as a smart city. Even though smart cities bring many positive outcomes, some negative impacts have come to the fore such as cyber security and environmental issues. Developing smart cities also create some 'side effects' – inequality and the exclusion of some communities. This paper aims to discuss the challenges faced by Malaysia in carrying out these

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initiatives, and is proposing several ways to move forward. Among the challenges identified are the importance of soft infrastructure, awareness and education in using smart technologies optimally as well as cooperation and collaboration with external partners. Moving forward, several solutions in terms of encouraging inter-country cooperation and collaboration, managing cybersecurity risks as well as privacy concerns, will be explored.

Introduction

A smart city generally refers to an innovative city that promotes the convergence of information and communications technology (ICT) and other means to improve the quality of life, efficiency of urban operations and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects. Today, cities are becoming "smarter" than ever before, with various functions which include among others improving government services (smart governance), creating a sustainable environment through reduced greenhouse emission and low carbon lifestyle (smart environment), and increasing public transportation accessibility and efficiency, people mobility and intelligent traffic management (smart mobility).

Smart cities development could leverage on the combination of advanced technologies with sustainable urban development. In the age of the fourth industrial revolution (4IR), technological revolution will fundamentally alter the way we live, work and relate to one another due to the advancement and convergence of emerging technologies which include the Internet of Things (IoT), Artificial Intelligence (AI), cloud computing and big data analytics. Building smart cities is also part of the 2030 Agenda for Sustainable Development, where Goal 11 reads "Make cities and human settlements inclusive, safe, resilient and sustainable". It provides various targets and indicators to be met by 2030, which include improvements in housing, transportation system, protection of cultural and natural heritage as well as reduction of environmental impact of cities.

Global Landscape

In 2019, a study by the University of Glasgow found that the vast majority of those who made it to the ranking of the world's leading smart cities were mostly capital cities or cities listed as "world cities.", with London, Singapore and Barcelona making the top three of the ranking (Joss, Sengers, Schraven,

Caprotti, & Dayot, 2019). The study also found the 'smart city' hype of the last decade is largely correlated towards improving the management of a city to create a more joined up approach, less so about technological applications and innovations implemented within the cities. Further, the development of smart cities is associated with a city's global outreach and engagement (Joss, Sengers, Schraven, Caprotti, & Dayot, 2019).

One of the leading countries in terms of smart city development is China. According to a Deloitte report in 2018, about 500 of the approximately 1,000 smart cities pilot projects globally are in China (Anderlini, 2019). However, cities in China were not listed among the top ten smart cities in the study above, and contrary to the trend of those listed, the smart cities development in China seems to focus on emerging technologies. Leveraging on 5G and IoT, some of smart city applications featured in China are autonomous driving and smart stores. In February 2019, China's telecommunication and expressway operators agreed to launch the country's first 5G-based smart highway project in central Hubei province (Yang, 2019). Meanwhile, the application of smart stores, which involves the customisation of recommendations to customers, uses data gathered on consumer preferences and AI technology (Li, 2019). These stores are currently being built in several areas in China including Shanghai, Beijing, Jinan and Chongqing. To ensure the smooth development of smart cities, RMB 500 billion (US$74 billion) of public and private investments have flowed into such projects under a five-year plan until the end of 2020, though a bulk of them have been poured into surveillance, which includes vast networks of camera and facial recognition technologies (Anderlini, 2019).

In the region, ASEAN member states established the ASEAN Smart Cities Framework (ASCF), which is a platform for cities to work together towards the common goal of smart and sustainable urban development. Under the ASCF, a smart city in ASEAN aims to find three strategic outcomes – a competitive economy, sustainable development and high quality of life while the two key enablers identified are technological and digital solutions, and partnership and funding (ASEAN, ASEAN Smart Cities Framework, 2018). There are 26 pilot cities in the ASEAN Smart Cities Network (ASCN) under the ASCF and four of those cities are in Malaysia – Kuala Lumpur, Kota Kinabalu (Sabah), Kuching (Sarawak) and Johor Baharu (Johor) (ASEAN, ASEAN Smart Cities Network: Smart City Action Plans, 2018).

Malaysia's Smart City Initiatives

Malaysia began its smart city journey in 2006, when it focused on the need for sustainable urban development planning that emphasised on a balanced

physical, environmental, social and economic development through the National Urbanisation Policy 2006, which was reflected in the Eighth and Ninth Malaysia Plans. In the Eleventh Malaysia Plan Mid-Term Review, smart city was mentioned as a means to enhance digitalisation for the purposes of major cities being growth catalysts as well as being a sector or subsector of the Fourth Industrial Revolution (Mid-Term Review of the Eleventh Malaysia Plan 2016-2020, 2018).

As such, smart city initiatives in a whole or in parts have begun taking shape with technological innovations being brought in often through government actors or in partnership with local and international private actors. For example, cloud computing, which refers to the provision of remote computing power as a service, has been utilised in recent times to reduce cost and optimise city services, tackling issues such as congestion. Alibaba, through Alicloud, is working together with the Kuala Lumpur City Council (DBKL) to deploy a cloud-based traffic management system called City Brain to assist in making live traffic predictions, optimise traffic flow and detect traffic incidents in Kuala Lumpur (Hao, 2018). This is the first time that Alibaba has used its cloud computing technology outside of China.

In terms of IoT, the Malaysia Digital Economy Corp (MDEC) and Telekom Malaysia partnered with LoRa Alliance to improve low-power wide-area network technology in the Klang Valley to drive the integration of digital technologies, hence providing a conducive environment for smart city development and initiatives (The Star, MDEC, TM team up with LoRa Alliance for Internet of Things ecosystem, 2016). With 5G technology being a key component towards smart city development, Malaysia has also ventured and begun trials on this. Communications and Multimedia Minister Gobind Singh Deo announced that Cyberjaya and Putrajaya would be the first smart cities in Malaysia to receive 5G technology facilities (Bernama, 5G pioneer test in Cyberjaya, Putrajaya beginning April, 2019). Major telco company Maxis has subsequently proceeded with testing the technology in Cyberjaya, the first 5G live trials in the country, in collaboration with China's Huawei (Khoo, 2019). In the nation's administrative capital Putrajaya, it has come up with the Putrajaya Smart City Blueprint which identified key domains and policies towards transforming itself from a Garden and Intelligent City into a Green City by 2025. (Perbadanan Putrajaya, 2017)

Beyond the Klang Valley, there have also been other smart city initiatives taking place. Aside from Kota Kinabalu, Kuching and Johor Baharu being listed as part of Malaysia's smart cities in the ASCN, the Smart City Iskandar Malaysia framework and pilot programme was endorsed and given the

mandate to venture into smart-related projects based in the Iskandar development region in the Johor state. It is aimed at providing ease of doing business and improving the quality of life through six dimensions, which are smart economy, smart governance, smart environment, smart mobility, smart people and smart living (Smart City Iskandar Malaysia, 2016). Other states such as Selangor, Malacca, Penang, Sabah and Sarawak have come up with initiatives and blueprints in relation to smart and smart city initiatives to leverage on new technologies towards improving the quality of life of their citizens.

While much of the focus of smart city initiatives and development have been on major cities and urban areas, Malaysia has also put some emphasis on the implementation of smart technology in smaller urban and rural areas in the country. The government implemented smart communities and smart village programmes in 2014 to reduce regional disparities and encourage more equitable growth between Malaysia's major cities and smaller, lesser-development towns as well as remote rural communities including ethnically indigenous communities. Rural areas such as Kampung Padang Rumbia, Pahang have been identified and used as pilot projects where villages would be outfitted with tech-based solutions such as smart flood management systems towards achieving the vision of "Intelligent Community", which is to improve safety and the economy across rural Malaysia (Basu, 2016). Other smart village initiatives have also focused on more basic facilities such as internet access centres, tech training programmes, electrification of villages and smart or aqua farming.

Key Aspects of Development for Malaysia

For the successful delivery of smart city initiatives and development in Malaysia, there are prerequisites that must be in place as enabling factors. Notably, ICT development is a necessity due to their capacity to gather, process, analyse and disseminate considerable amounts of data to increase the efficiency of city functions in terms of resource consumption, services and lifestyles. The convergence of technologies such as mobile broadband, IoT, advanced robotics, artificial intelligence and big data analytics from telecommunications, broadcasting and multimedia sectors is a key enabler towards a successful smart city development. As such, ICT serves as a fundamental base in supporting the vision of a smart city to increase the quality of life of citizens.

From the Malaysian perspective, ICT development has been a priority with two key areas being focused on for smart city development. The first is on the development of IoT, where it is crucial to act as a catalyst towards merging the physical and virtual worlds through the internetworking between devices such as sensors and actuators that interfaces physical objects with the powerful and disruptive computing world by virtue of their connectivity via the Internet. This leads to novel scenarios such as intelligent buildings, real time predictive analytics and control, smart manufacturing, autonomous vehicles, personal assistants and robots, high quality speech recognition and others.

The second key area of development is cheaper and faster Internet. Prior to 2018, prices for mixed broadband had been expensive due to the lack of competition within the telco industry. It was noted by the World Bank that Telekom Malaysia (TM) had "an outsized presence in the international connectivity" market and had "used its market power to restrict access by other domestic companies". (World Bank, 2018). Under the Pakatan Harapan government, the Ministry of Communications and Multimedia has attempted to level the playing field under the motto of "double the speed, half the price" in the form of the implementation of the National Fiberisation and Connectivity Plan (NFCP) 2019-2023 and the Mandatory Standard on Access Pricing (MSAP).

The NFCP is "a plan that aims to put in place robust, pervasive, high quality and affordable digital connectivity for the well-being of the people and progress of the country." (Malaysian Communications and Multimedia Commission, National Fiberisation and Connectivity Plan (NFCP), 2019). It focuses on providing funding for fiberisation and connectivity activities, optimising digital infrastructure development and deployment nationwide, extensive connectivity of regional and international networks with domestic networks, and the enhancement of connectivity in high impact socio-economic sectors. The MSAP regulates the price and terms for alternative Internet service providers to access wholesale broadband capacity provided by TM (Yunus & Jalil, 2019). It also requires Malaysian telco companies to submit access agreements that will result in the reduction in fixed broadband prices to their regulator Malaysian Communications and Multimedia Commission (MCMC) (Malaysian Communications and Multimedia Commission, Commission Determination on the Mandatory Standard on Access Pricing, 2017). These new policies have had a positive impact, where according to a study by the World Bank, Malaysia's average fixed broadband speed has increased by more than 300 percent in over a year, from 22.2 Mbps to 67.2 Mbps. Broadband prices have also fallen by 44% in the same period (Yunus & Jalil, 2019).

Looking towards the future, 5G technology has often been hailed as the gamechanger in the 4IR and smart city development. In Malaysia, several 5G pilot programmes have been carried out including in Putrajaya and Cyberjaya and are expected to be expanded to other cities and states. Many of these 5G programmes are done in collaboration, especially with Huawei as the country's national technology research and development agency MIMOS has a partnership agreement with the Chinese company. NFCP also has a 5G task force that looks into studying and recommending to the government a holistic 5G implementation strategy from the perspectives of business, infrastructure, spectrum management and allocation and regulation.

Issues and Challenges for Malaysia

While Malaysia continues to push for more rollout of smart city initiatives, there are issues and challenges that need to be highlighted and solved to ensure the acceleration of such development and that the quality of life of citizens are elevated. A central issue is the lack of awareness and understanding on smart cities and what they entail. Many including government officials, experts and civil society members are still trying to comprehend the complex and ever-expanding nature of smart cities and the different technologies required for them. It is insufficient to merely provide the technology and infrastructure for the purposes of smart cities, as poor awareness may lead to misunderstandings and mistrusts on the operations of these technologies.

The continued rapid urbanisation is another factor of consideration, bringing about issues in relation to public health and wellbeing, safety and security, infrastructure, and quality environment. This would include Internet speed and affordability, which is crucial for smart technology adoption. While Malaysia has improved on this aspect, there is more that needs to be done. For example, according to Speedtest Global Index which ranks mobile and fixed broadband speeds from around the world on a monthly basis, Malaysia ranked in 37th place with a fixed broadband download speed of 78.82 Mbps in October 2019 (Speedtest, Speedtest Global Index: Malaysia, 2019). However, The top three countries in that category have fixed download speeds in excess of 150 Mbps, with Singapore topping the rankings at 194.09 Mbps for October 2019 (Speedtest, Speedtest Global Index: Global Speeds, 2019).

Governance at the national and local levels remains a challenge to be resolved as there is insufficient coordination and integration between horizontal and vertical levels of institutions, affecting the implementation of smart city policies and initiatives. There is also no proper policy on open data, which is

crucial towards facilitating smart city development, with some information only available to select institutions and are not shared widely.

Asia is at risk when it comes to cyber security, as a security threat report stated that eight of the ten countries most at risk of cyber-attacks came from the continent, with Malaysia being among one of the eight countries (Akamai, 2013). These risks are very real and there are concerns as to whether Malaysia has the resources or know-how to ensure that IoT and related networks are secure. There are also uncertainties on the resources and infrastructure available to deal with the risks and consequences arising from smart technology.

In addition to that, there are ongoing concerns about the impact of smart cities and technologies on societies particularly in the aspect of inclusivity. If smart development is delivered in a manner seen to be elitist and beyond the means of those with less capability to adopt smart technology, this may exacerbate the issue of inequality in the country. From an environmental perspective, increased utilisation of smart technology may have unintended consequences, namely increased electricity usage and extraction of minerals needed for technological material and development.

At the individual level, the adoption of smart technology conjures the question of data privacy, chiefly the abuse of personal information of citizens. While the Personal Data Protection Act (PDPA) 2010 was enacted to regulate the processing of personal data, it only affects commercial transactions and not the government, which is a cause for concern on potential abuse of personal data. This feeds into the people's skepticism in accepting the use of smart technology, widening the trust deficit between people, institutions and technology.

Case Study 1: Cyberjaya

As a case study, we look at Cyberjaya, where before it was established in 1997, it was an undeveloped 7,000 acres rubber estate. Under then (and current) Prime Minister Mahathir Mohamad, the government undertook a decision to clear the plantation and start the Multimedia Super Corridor (MSC). The transformation of Cyberjaya spearheaded Malaysia's goal to revamp from an agriculture-dependent economy to a digital and innovation-led economy. Among the efforts and strategies to make Cyberjaya a success was the establishment of the Multimedia Development Corporation, which was later renamed to MDEC. It advises the government on legislation, policies and standards for ICT and multimedia operations. They are also mandated to ensure the development of the MSC Malaysia initiative, which is a platform to

nurture and spur the growth of local technology companies, in addition to its latest mandate to catalyse Malaysia's transition towards a developed digital economy.

In recent years, Malaysia acknowledged the importance of smart city functions, as per above and especially in the Eleventh Malaysia Plan (Eleventh Malaysia Plan 2016-2020, 2015), declaring Cyberjaya as a smart city model. Among the first smart city initiatives implemented was a Smart Traffic Management System – which leverages on analyses of traffic situations to reduce waiting time at the lights (Smart Traffic Lights on Cyberjaya streets, 2015). Further, in May 2017, then Prime Minister Najib Razak announced 11 major projects and initiatives with Cyberview to drive the tech hub in the city (Bernama, Najib announces 11 projects, initiatives to turn Cyberjaya into smart city, 2017). The development of Cyberjaya as a smart city focused on three major areas, which are the application of IoT, enhancing innovation capabilities as well as uplifting the development of financial technologies (fintech). Among developments that could be observed in Cyberjaya is it becoming the birthplace for innovative activities and strengthens the start-up ecosystem, being the testbed for cashless society through various piloting efforts as well as the low-power and long-range technology networks that supports IoT demands (Chong, 2016) (Digital News Asia, 2016).

However, despite the many efforts in developing Cyberjaya, it has thus far achieved mixed results, with many suggesting it has failed to live up to its initial expectations. After the Fourteenth General Election that saw Mahathir return to power as Prime Minister, he described Cyberjaya as just an "ordinary development", due to its lack of applications (The Star, Dr Mahathir to Revive Cyberjaya and Multimedia Super Corridor (MSC), 2018). Among the challenges faced by Cyberjaya is the lack of "soft infrastructure, which is necessary to maintain the economic, health, cultural and social standards of a population. Besides being a challenge to attract and retain talent to work in Cyberjaya, investors also view Kuala Lumpur, which is located approximately 40 kilometres away, as the more attractive financial and social capital of Malaysia. Further, Cyberjaya also faces increased competition from other locations in Malaysia, coupled with similar benefit and incentive structures meant that Cyberjaya's attractiveness as an investment destination has reduced. Moving forward, there are plans by the government to revive Cyberjaya, where it is suggested that there could be a second wave of development in the MSC, driven by technological advances in the digital era. (The Star, Dr Mahathir to Revive Cyberjaya and Multimedia Super Corridor (MSC), 2018)

Case Study 2: Forest City

Forest City is situated in the southernmost tip of Peninsular Malaysia, bordering Singapore. Its car-free green design, renewable energy infrastructure, eco-centric architecture and various technologies make it a model city for smart city development. It has already twice won the Global Model of Green Building Industrial Park award from the Global Forum on Human Settlements (Hammim, 2017). The project aims to build four man-made islands, a golf resort and an industrial park (Forest City, Design & Concept, n.d.). The city, which Forbes names as one of "five new cities that are set to shake up the future", aims to house about 700,000 residents (Forest City, Forest City Malaysia Completes New Homes, Introduces Connected Smart City, 2019). The mega-project is also estimated to have a gross development value in excess of US$29 billion in a span of 20 years (Emmanuel, 2019). Among Forest City's smart city functions are smart security systems to ensure its residents' safety, including smart doors and elevators that use facial and fingerprint recognition, as well as invisible electric fencing. Further, using the Forest Lift App, residents can access a variety of community services, a cloud-based community digital library and even multilingual support and welcome guides. (Forest City, Forest City Malaysia Completes New Homes, Introduces Connected Smart City, 2019) In 2019, Smart City won the Top Smart City Project for Smart Buildings - IDC Annual 2019 Smart City Asia/Pacific Awards (SCAPA) (Onag, 2019).

However, the project does not come without issues and challenges. There were questions raised on the issues of inequality and exclusion as well as environmental impacts. Smart cities, especially manufactured ones, can seem to be designed to fit the lifestyle of the wealthy population. The starting price for a smallish, two-room apartment was around US$170,000, a price most Malaysians are unable to afford. In late 2018, Prime Minister Mohathir Mohamad banned foreigners from buying properties there, which prompted much speculation and uncertainties (The Star, Dr M: Foreigners cannot buy residential units in Forest City, 2018). From a social perspective, the fishing community has found reduced catches as well as growing petrol costs due to the extra mileage incurred by the causeway and more distant fishing grounds (Ourbis & Shaw, 2017). The project has also received pushbacks concerning the impacts it will bring to the environment. One in particular that faces direct impact is the ongoing reclamation works at the Tanjung Kupang intertidal seagrass meadow, the largest of its kind in Malaysia. (Ourbis & Shaw, 2017)

Moving Forward

In order for Malaysia to attain and enjoy the benefits of smart cities, the issues and challenges highlighted above need to be addressed comprehensively from policy and implementation perspectives, which includes better coordination and cooperation between government and non-government stakeholders. Moving forward, issues of data privacy and cyber security need to be prioritised. There is a need to ensure that the data and privacy of citizens are safeguarded, and that the state does not abuse such data for its own vested interests and the oppression of the people. This will require the strengthening of the personal data protection laws such as the PDPA, including widening its scope to cover non-commercial activities and make the government accountable for its own citizens' data.

Cyber security is growing as a new national threat that demands strong attention, where no country can claim to be resistant to it. For example, although it boasts of a robust cyber security system, Singapore still suffered a massive data breach affecting 1.5 million people including its own prime minister (Berlinger, 2018). Although Malaysia has established the National Cyber Security Agency (NACSA) in February 2017 as the lead agency for cyber security matters, there is much improvement to be made to strengthen the country's resilience in facing these non-traditional security threats. This would include mandating all institutions, companies and organisations to enhance their respective cyber security management, with authorities needing to be more vigilant against all forms of cyber threats domestically and from abroad. International cooperation on this front would also be crucial considering that cyber security threats are often virtual and borderless.

As a whole, Malaysia should look towards inter-country cooperation and collaboration that can help facilitate better implementation of smart cities. Besides implementation, there needs to be attention towards addressing and compensating the downsides of smart city development and large-scale deployment of smart technologies. This would also be an opportunity to increase cooperation between different ASEAN member states particularly via the ASCN, as well as APEC. Both ASEAN and APEC have developed smart city initiatives such as the ASCN and the APEC Research Centre for Smart City Initiatives in Changzhou (APEC, 2014). Malaysia can play a role in helping to consolidate these efforts as well as take advantage of them in bringing these frameworks and expertise to be adapted and implemented in the country. Regional smart city cooperation could also help facilitate the development of infrastructure and technology, as well as the transfer in specialised knowledge and skills to help Malaysia deal with risks and consequences that come with

smart technologies.

All of these are vital steps to be taken to shore up confidence among the people of the reliance on smart technologies, therefore encouraging them to adopt them as well. This would assist in better awareness and management of these new technologies and systems, further enhancing the development of smart cities for a better quality of life for all.

Conclusion

In the age of the 4IR, the advancements and convergence of technologies are paving the way for the development of smart cities. Although smart cities bring many benefits to improve the quality of life for urban people, they could also inflict other issues and side effects. Cyber security issues, user acceptance and trust deficit, the lack of cooperation and collaboration between relevant parties, are among the issues and challenges faced in smart city development and management. Cyberjaya and Forest City are smart cities in Malaysia that served as examples of the issues faced in relation to smart city development. While the challenge in developing a smart city in Cyberjaya could be due to the fact that it is far from the capital and lack soft infrastructure to retain talent, Forest City on the other hand faces issues related to inequality and environmental impacts.

Moving forward, there needs to be a balance in smart city development as well as efficient ways to mitigate the issues and challenges to ensure the success of those smart cities built. Smart cities also need to be developed based on the needs of the specific nation or city, and not based merely on application and implementation of technologies without considering local needs. Among areas of improvement is to prioritise issues related to data privacy and cyber security, heighten collaboration and cooperation between relevant parties domestically and internationally, as well addressing issues and challenges that may arise such as lack of soft infrastructure and limit the threat to environment. At the end of the day, smart cities are supposed to bring benefits for the people, and not the other way around.

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The Evolution of Cyber War: The Actors and Strategies Shaping the Internet of Today
Khaled Nasir[1]

Abstract

The modern world is powered by the information technology and connectivity. Information super highway has opened up a Pandora's Box, ushering in a new era of cooperation and collaboration. The evolution of warfare has been evolving around new technologies and it is as old as warfare itself. Both at the strategic and tactical level, the evolution of cyber weapons took place. Both state and non-state actors involving themselves in the development of weapons that can be used to degrade the abilities of an adversary provide capacity to repel an attack and ensure anonymity of the attackers. For these numerous advantages, state and non-state actors are rapidly adapting to cyber weapons to their growing array of arsenals. This paper will look into the actors and strategies that are driving a new arms race that is revolving around the cyberspace of today.

Introduction

Warfare is almost as old as the Human history and empires were created through wars between nations and states. Like evolution of the Human civilization, the tactics and strategies were constantly adapted according to the reality of the conflicts. The realm of the cyber war, addresses the ability of

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one party attacking the cyber infrastructure of another. As the world becomes more dependent on the cyberspace, the intricate networks of computers got connected worldwide through information super highway, popularly known as the internet. Revolutionary advances in technology enabled militaries to engage in combat activity to achieve objectives. This had been one of the hallmarks of great powers across the civilizations. The cyber realm is no different as people across the world depending on connecting to each other and share information, conducting financial transaction and treating cyberspace as a source of information. The cyberspace has also become a reflection of the real life. Whether related to social uproar, protest and revolution, crime, terrorism, espionage or military operations, people had found their ways into cyberspace. Now-a-days, governments, private companies and even terrorist organisations are engaged in constant struggle in the cyberspace, trying to access information, to compromise, undermine or damage systems, or gain a financial, political or strategic advantage of some kind. Cyber power has become a great equalizer as it serves the anonymity and deniability on the attacker's part. The minimal cost of connecting to the internet and different groups getting hands on the cyber weapons are gradually becoming a reality.

Definition of Cyberspace

Since the mid-1990s, a number of authors have offered useful insights that have helped shaped thought on this issue, and the definition proposed in this chapter draws heavily from them. Several consistent threads run through these insights, including the role of electronics, telecommunications infrastructures, and information systems[2].

A crucial yet a useful perspective was offered by "the 2003 National Strategy to Secure Cyberspace", which defined cyberspace as the "nervous system—the control system of the country . . . composed of hundreds of thousands of interconnected computers, servers, routers, switches, and fiber optic cables that allow our critical infrastructures to work"[3].

Two additional official definitions issued in early 2008. One came out of the White House, with President George W. Bush's signature of National Security Presidential Directive (NSPD) 54/Homeland Security Presidential Directive 23, "Cybersecurity Policy," on January 8, 2008. While it was previously classified,

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[2]   Winn Schwartau, "Information Warfare: Chaos on the Electronic Superhighway", 2d ed. New York: Thunder's Mouth Press, 1996

[3]   White House, ''The National Strategy to Secure Cyberspace", Washington, DC: The White House, 2003

its definition of cyberspace is not: "Cyberspace means the interdependent network of information technology infrastructures, and includes the Internet, telecommunications networks, computer systems, and embedded processors and controllers in critical industries"[4]. Whatever, the strengths and weaknesses of this definition, it is important to consider that it issued within the context of a specific issue, the safety and security of military and government information networks.

Cyber Power

Giulio Douhet, according to the Airforce magazine[5], who is considered as a prophet of air, was not enough to clearly definecyber power, although he created elaborate scenarios to demonstrate its impact on future warfare. Nor did Billy Mitchell, one of the pioneers of American airpower, was able to define it in detail, although his pithy statement that "airpower is the ability to do something in the air" captures several critical aspects of any form of power. Yet it, too, suffers from the same narrow perspective as Mahan's definition and ignores, for example, the huge economic impact of American dominance of the civilian airliner market for many years.However, many scholars begin to understand cyber power through a different prism. According to Joseph Nye, power transition from one dominant state to another is a familiar historical event, but power diffusion is a more novel process. The dilemma of today's information age is that more things are happening outside the control of even the most powerful states. In the words of a former State Department director of policy planning, "the proliferation of information is as much a cause of non-polarity as is the proliferation of weaponry"[6].

Power based on information resources is not new; cyber power is. There are dozens of definitions of cyberspace but generally "cyber" is a prefix standing for electronic and computer related activities. By one definition: "cyberspace is an operational domain framed by use of electronics to exploit information via interconnected systems and their associated infrastructure"[7]. This analysis of

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[4]   White House Cybersecurity Memo Title: FY 2010 Reporting Instructions for the Federal Information Security Management Act and Agency Privacy Management, https://epic.org/privacy/cybersecurity/presidential-directives/cybersecurity.html, April 21, 2010

[5]   Robert S. Dudney, "Douhet", Airforce Magazine, April 2011, https://www.airforcemag.com/PDF/MagazineArchive/Documents/2011/April%202011/0411douhet.pdf

[6]   Joseph S. Nye, Jr,"Cyber Power", BelferCenter for Science and International Affairs, 3-4, May 2010

[7]   Daniel T. Kuehl, "From Cyberspace to Cyberpower: Defining the Problem," in Franklin D.

the definition implies following reality. Power depends on context, and cyber power depends on the resources that characterize the domain of cyberspace.

Cyberspace is increasingly now being used as a theater of conflict as political, economic, and military conflicts are ever more often mirrored by a parallel campaign of taking place in the real world. Cyber-attacks can rapidly go global as covertly can be acquired or through hacked computers and servers throughout the world. The services used by millions of people can be out of commission,with the result that many nations might quickly draw in.

Historical Perspective on Evolution of Technology

Modern communication and advanced weaponry are always deemed as essential tool for achieving victory and armies across the continents, strived for acquiring an edge on an enemy. During World War I, there was widespread use of wireless/ radios for civilian communications as well as military transmission of combat information. This new technology deemed as extremely valuable as wireless radios were less susceptible to damage from enemy artillery barrages when compared with wired telephone lines. Technology soon would be used to exploit the enemy communications, assessing capabilities and intelligence gathering. Examples can be drawn from the British Intelligence, as they were able to crack the code used for messages to and from the German station, and in this way intercepted the infamous German "Zimmerman telegrams" to Mexico, which invited Mexico to attack US territory. Technological advances in espionage uncovered one of the crucial pieces of information that would eventually bring United States of America into the war[8]. In 1925, the German Army purchased several examples of a commercially produced cipher machine called the ENIGMA, manufactured first by Chiffriermaschinen Aktiengesellschaft, a company owned by Arthur Scherbius, and later by Chiffriermaschinen Gesellschaft Heimsoeth und Rinke. After some modification, the Army adopted the machine for extensive use[9]. The standard military ENIGMA used three 26-point wired metal and black plastic rotors selected from a set of five to eight. Each rotor was a cylinder

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Kramer, Stuart Starr, and Larry K. Wentz, eds., "Cyberpower and National Security", Washington, D.C.: National Defense UP, 2009

[8] A concession to private commercial demand for and access to the telegraph made by the War Department, which articulated that, the possession of the telegraph lines was "not intended to interfere in any respect with the ordinary affairs of the companies or with private business." Joshua R. Clark, Emergency Legislation Passed Prior to December 1917, Collected, Annotated and Indexed Under TI1e Direction of The Attorney General, Current Emergency Legislation.

[9] David Kahn, "The Codebreakers", New York: Macmillan, 1967, 421-22.

with a large, moveable-notched wheel on one end with an alphabet (or numbers) around its circumference. One face of the cylinder had twenty-six spring-loaded copper pins protruding from it, and the other face had twenty-six flush copper contacts. The practice of cryptology, the method of changing text so that it is unreadable to others, was not a new idea in World War II[10]. Although ENIGMA was the best single cryptography equipment out there, many leaders, thinkers and generals around the world had used cryptography at the time of war and peace. One early coding systems was developed by Julius Caesar to conceal messages. Various ciphering techniques were used in the Franco-Prussian War, the Boer Wars, and World War I. During the World War I, methods of encrypting messages centered on words, syllables, phrases, and code words. After the war, code breaking was mechanized employing mathematical knowledge and ciphers or the method of substituting individual letters in a message. The radio transmissions of the German military and government in World War II enciphered on a machine named the Enigma. Resembling a typewriter housed in a wooden box, the Enigma later became one of the best-known cipher machines of the time. Over the course of the war, Germany used over 80 variations of codes, all enciphered on the Enigma machine.The German army and navy realized the potential of the Enigma machine and officially adopted it to encode classified messages by 1928[11]. During the Second World War, a 34-year-old British madea breakthrough, while he was a Cambridge mathematician. He was able to decipher the encoded messages that sent by the Germans. This considered as a work of a genius that improved the machine further and eventually became the earlier version of the modern day computer. In the year 1988, there was a major change in how computer professionals and the public viewed the security of the Internet. The event was known as the 'Morris Worm' Incident or the first ever internet worm. The worm named after its creator and releaser, Robert Tappan Morris, Jr. This worm would crash thousands of computers and infected several networks. The worm also affected the way computer security perceived, right from the formation of CERT to people being more cautious and thoughtful about security. Some people even term the episode as the big bang of cyber security[12]. Morris created the self-replicating, self-propagating worm ever known.Throughout the history, arms races revolving around technological

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[10]   Rudolf Kippenhaun, "Code Breaking: A History and Exploration", New York: The Overlook Press, 1999, 31.

[11]   Joseph E. Persico, "Roosevelt's Secret War: FDR and World War II Espionage", New York: Random House, 2001, 107

[12]   Jajoo, Akshay, "A study on the Morris Worm", Department of Purdue Computer Science, 2011

advances in war are hardly a new phenomenon. Technological developments have consistently transformed the way wars conducted as well as the nature of the risks to both combatant and civilian populations. The demand for more precision weapon systems would ultimately give further development of cyber weapons that would soon be a part of research and development of nation states across the world. Precision technologies would increase the distance between combatants at the cost of subjecting civilian populations to new risks, the kind of risks that combatants no longer face.

Evolution of Cyber War

Operation Olympic Games issued in a new era in national defense. As former CIA Chief Michael Hayden reportedly remarked, "This is the first attack of a major nature in which a cyber-attack was used to effect physical destruction." By David E Sanger a renowned expert in cyber security, in his book 'Confront and Conceal'[13].

There are several motives for states to wage cyber wars. Cyber weapons allow countries to conduct wars without declaring wars. The promise of anonymity and deniability makes cyber warfare very useful for militaristic purposes. An important example can be drawn from the incident when Russia used a cyber-weapon called "Ouroboros" or Snake against the government communication systems in Ukraine[14]. The weapon had the ability to conduct surveillance and physically destroy computer networks. Russia has repeatedly denied direct involvement in the Ukraine crisis and using such tactics. Another militaristic use is intelligence gathering. The hack of the Office of Personnel Management (OPM) has affected more than 21.5 million people in USA. The OPM conducts background checks on people applying for federal jobs. The breach exposed very sensitive information about federal employees and contractors, including several stationed in China. The US authorities had to evacuate some employees from China due to the leakage of compromising information[15].

The lack of a universal treaty or agreement regulating the cyber space makes this situation all the more dangerous. This absence has sparked an arms race between all the major global players to develop the most advanced

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[13] David E Sanger,"David E Sanger", London: Crown Publishers, 2012

[14]   The Christian Science Monitor, "Russia's Cyber Weapons Hit Ukraine: How To Declare War Without Declaring War", N.p., 2014. Web. 14 Dec. 2015

[15]   Perez, Evan. "U.S. Pulls Spies From China After Hack". CNNMoney.N.p., 2015. Web. 14 Dec. 2015

cyber-attack and defense capabilities. The development of a comprehensive framework would have the benefit of allowing states to worry less about potential attacks from one another and to focus more energy and resources on curbing cybercrimes and apprehending cyber criminals[16].

For this paper, we will have four categories of potential authors: (1) hackers, (2) hacktivists, (3) organized criminals, and (4) states. Individual hackers penetrate computer systems to demonstrate technical capacities or their skills. The stereotype of a basement-dwelling teenager hacker may be outdated, but the capacity of hackers with sufficient expertise to cause significant losses remains[17]. "Hacktivists" differ from hackers in that they pursue cyber insecurity to advance a specific cause, whether concerning a country, government, ideology, or issue. For example, hacktivists targeted Estonia with the 2007 DDoS to punish that country for its perceived mistreatment of Russia. Like hacktivists, cybercriminals have organized into groups, but the author cyber exploits and attacks primarily for the promise of financial gains. Cybercriminals notoriously operate transnationally, taking advantage of territorial constraints on the ability of states to prescribe, let alone enforce, criminal laws beyond their borders[18].

Exploring the Threat Landscape

In order to understand the threat landscape, we first need to understand how espionage industrial sabotage and intelligence gathering operations carried out. We would unveil two primary concepts of Advanced Persistent Threat (APT) and Zero Days Exploits. Cyber security breaches are on the rise, and almost every kind of information we use or create are now being digitalized, stored and distributed through an intricate network of computers connected worldwide while more internet-enabled devices enabling people to be connected to the cyberspace while being on the move. The control and analysis of information is becoming essential, for researching consumer behavior or one state conducting espionage operations on an industrial scale on another. It is evident that the control, distribution and ability to manipulate information is one of the major goals for gaining power in the cyberspace.

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[16]   Mueller, Benjamin. "Why We Need A Cyberwar Treaty", The Guardian. 2014.

[17]   Kim Zetter, "Feds Say That Banned Researcher Commandeered a Plane", WIRED, https://www.wired.com/2015/05/feds-say-banned-researcher-commandeered-plane/, 2015

[18]   Kaveh Waddell, FBI's Most Wanted Cybercriminals, Atlantic, http://www. theatlantic.com/technology/archive/2016/04/the-fbis-most-wanted-cybercriminals/480036/,Apr. 27, 2016

The influence of the state in the cyberspace has considerably grown worldwide. According to experts, many states are now considering cyberspace almost as important as other military capacities. The recent **blackout in Ukraine** is a living testimony of the growing cyber capability of the state actors, the ability to attack the critical infrastructure of an enemy state[19]. The famous story of the cyber-attack on the infrastructure of a country definitely is the story of **Stuxnet**, the computer worm that was responsible for disrupting the nuclear facilities of at **Natanz, Iran**[20]. Cyber capability of these kind gives the nations the ability of 'clean deterrence' as the malfunction of the particular equipment might appear as a technical error, thus giving the attackers the anonymity and deniability –furthering the interest of one state without showing any form of external aggression to another.

Cyberspace has also become the new battleground for the non-state actors with competing radical political ideologies, amplified through cleaver use of social media[21]. Examples can be drawn from the Syrian civil war as both government forces and the rebels use cyber warfare tactics alongside the conventional war. Religious extremist groups are busy spreading cyber Jihad; providing instructions, offering motivational support, encouraging donation for the cause and even becoming a fertile recruitment ground. In recent time, the ISIS, the terrorist organization demonstrated their ability to draw young, disgruntled yet highly motivated transnational fighters into Syrian civil war.

Advanced Persistent Threat (APT)

The term cyber security has become a popular term in the IT industry and the problems of cyber security and of protecting internal networks of various organisations discussed widely, not only in everyday life, but also in various business sectors. Advanced Persistent Threat (APT) represent a different type of attack is little known as realm of cyber security that continues to evolve. Many countries and businesses across the world are being affected by different APT. APT were included among the biggest cyber threats of the modern world, and their character requires a different approach than the one usually in use

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[19] Reuters Report,"U.S. Government Concludes Cyber AttackCaused Ukraine Power Outage**",** http://www.reuters.com/article/us-ukraine-cybersecurity-idUSKCN0VY30K**,** 2016

[20] Kim Zetter, Wired Magazine, "An Unprecedented Look at Stuxnet, the World's First Digital Weapon", 2014

[21] Natalie Johnson, The Daily Signal, "How ISIS Is Waging a 'War of Ideas' Through Social Media",   https://www.dailysignal.com/2015/06/08/how-isis-is-waging-a-war-of-ideas-through-social-media/, 2015

when comes to understanding cyber security through a holistic approach. A definition of the US National Institute of Standards and Technology (NIST), states that an APT is: 'An adversary that possesses sophisticated levels of expertise and significant resources which allow it to create opportunities to achieve its objectives by using multiple attack vectors (e.g., cyber, physical, and deception) according to a recent report from Trend Micro, a leading firm in the field of cyber security[22].
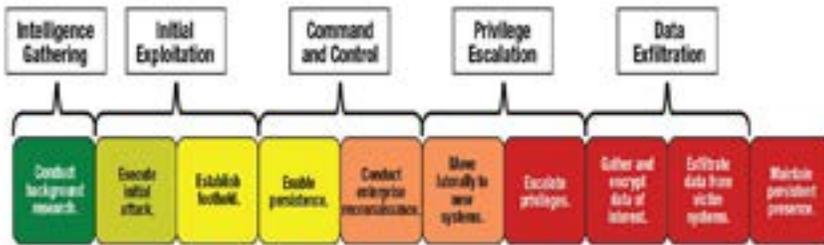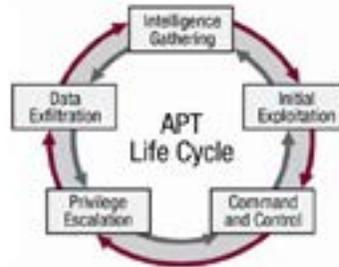
An APT is an attack in which an unauthorized user gains access to a system or network and remains there for an extended period without detection. APT are particularly dangerous for enterprises, as hackers have ongoing access to sensitive company data. This type of attack generally does not cause damage to company networks or loca l machines.

Instead, the goal of advanced persistent threats is most often data theft. APT typically have several phases, including hacking the network, avoiding detection, constructing a plan of attack and mapping data of a particular network or organisation to determine where the desired data is most accessible, gathering sensitive company data, and exfiltration that data to the controllers or handlers. This is why APTs are defined as a new and more sophisticated

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[22] Trend Micro Report, "Advanced Persistent Threat Awareness", 2013

version of multistep attack scenarios and motivation behind launching such sophisticated attacks is to achieve a specific goal, most often espionage or attacking critical infrastructure of an enemy[23].

Attack	Entry Method	Date	Classification
Aurora Operation	Malware	2007	Espionage
Stuxnet	Malware	2009	Sabotage
Energetic	Malware	2011	Espionage
RAS Breach	0day, Malware	2011	Espionage
DigiNotar	Compromised network access	2011	Sabotage
Luckycat	Spear phishing emails, 0day, malware.	2011	Espionage
Flame	Malware	2012	Espionage
Shamoon	Malware	2012	Sabotage
Operation Ke3chang	Malware	2010 . 2013	Espionage
Operation SnowMan	Water hole attack (weakness in vfw.org).	2014	Unknown (suspected to be Espionage)
Heartbleed	Malware	2014	Espionage
Darkhotel	Malware, spear phishing, 0day.	2014 . 2015	Espionage

Timeline of Cyber Weapons (2007-2015)

The key factors in fighting the newest cyber threats, including APTs, are constant risk evaluation, implementing offensive security means, and training staff to appropriate responses among other measures.

Zero Days Exploits

Espionage and cyber warfare are becoming ever more blurry and more prevalent as the security posture of nations and states are more relying on cyber realm to reach their objectives and national interests. The cyberspace is

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[23] Gajewski, M., "Cyberatakitypu APT nowymfrontemwojny", Chip.pl, 2013, http://www.chip.pl/news/bezpieczenstwo/lukibezpieczenstwa   /2013/03/cyberataki-typu-apt-nowym-frontem-wojny

gaining momentum as new attack vectors evolve. New advance threats such as Stuxnet, Ramnit, polymorphic worms, flame, ransomware, and the like, are typical examples of threats dominating the cyberspace. Both Software and hardware vendors periodically release updates and upgrades as a means of making their products foolproof towards a particular vulnerability.

However, security updates are released only for identified vulnerabilities in a software or hardware product. When such vulnerabilities are not detected early enough, they can pose serious security concerns for any particular company or a nation state. When no prior information is available,a malicious user exploits such vulnerability. Vulnerability of this kind is referred as zero day exploit, as the vendors of particular software or hardware will have zero days to patch the vulnerability.

The life of a Zero Day vulnerability
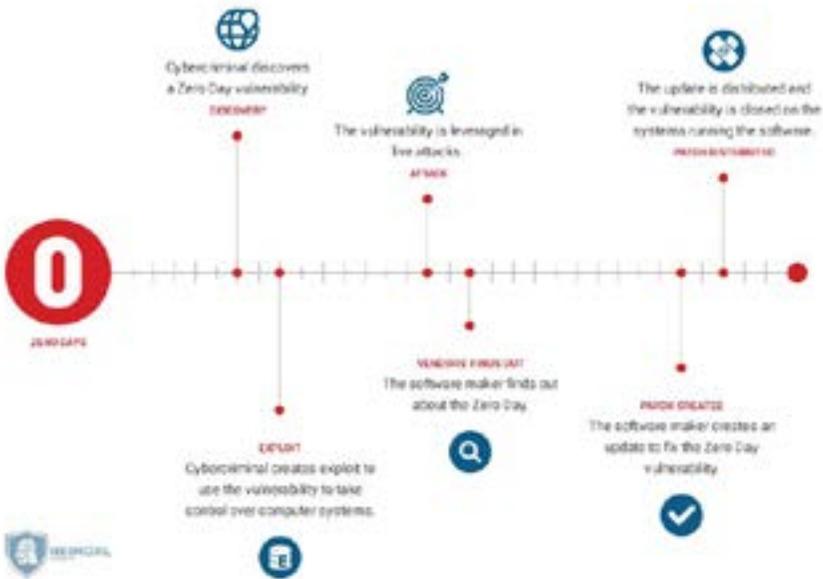
Responding to a zero day has posed to be a significant task. Since no known patch or fix is available at the time of a zero day exploit, it is pertinent to have an efficient security framework that can reduce its impact. Having a robust security framework or architecture comes with strategic planning that is a product of national readiness for any cyber-aware nation.The situation of an unready nation may as well be characterised by frequent cyber incidents, which are likely to compromise the confidentiality, integrity and availability

of critical national infrastructure. Discovered in the year 2010, Stuxnet is a sophisticated worm designed to target only specific Siemens SCADA (industrial control) systems, utilizing a number of zero day exploits.

Zero-Day Threat
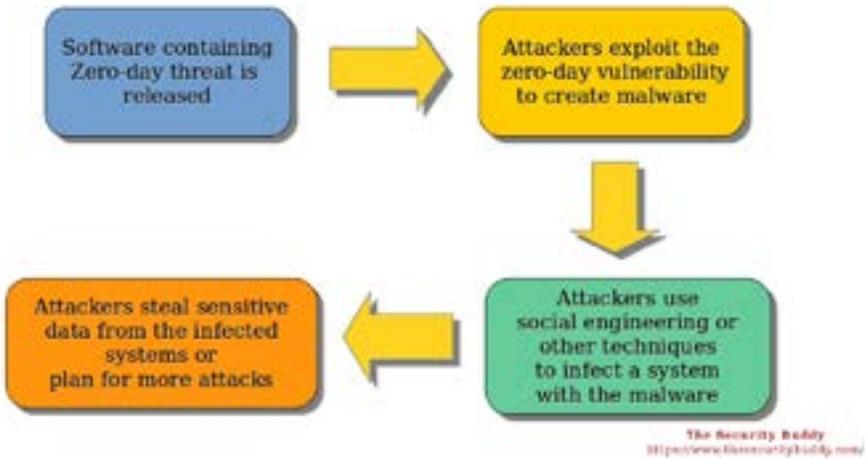
Stuxnet, reportedly compromised Iranian Nuclear programme. An early version appeared a year earlier. It is widely suspected of targeting Iran's uranium enrichment program, since it is rather specific about what it attacks, and this matches the Iranian Natanz enrichment plant[24].

The Terrorist use of Cyber Space

Social media provides ISIS with a flexible and streamlined set of tools for creating and distributing videos, images, and other content. ISIS routinely uses multiple social media platforms to broadcast anti-United States propaganda[25].

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[24] Symantec Security Center Report, https://www.symantec.com/security-center/write-up-print/2010-071400-3123-99, 2010

[25] P.W. Singer and Emerson Brooking, "Terror on Twitter" Popular Science, http://www. popsci. com/terror-on-twitter-how-isis-is-taking-war-to-social-media,December 11, 2015

Interstate Conflict	Intrastate Conflict	Non-Conflict Operation Areas
Russia-Ukraine	Iraq Syria Libya Egypt Anonymous	Bin Laden raid Al Baghdadi raid

Social Media and conflicts around the world

ISIL and other groups aligned with it have also started moving secure activities to other social media websites such as Diaspora[26]. Diaspora is a decentralized social network with data stored on private servers (called pods) not controlled by Diaspora's staff. This leaves the removal of ISIL (and ISIL-related) content up to the owner of the pod. These additional platforms do not allow for the widespread dispersal of propaganda of Twitter and Instagram, however, it does let them operate with more impunity. In addition, ISIS appears to have a growing awareness of digital operational security. Although many of the group's operations have employed open, unencrypted communications, researchers from the Combating Terrorism Center (CTC) at West Point located a 34-page operational security manual originally drafted by a Kuwaiti firm as advice to journalists and activists in Gaza, which ISIL now uses as an essential training tool[27].

Terrorist groups such as ISIS would use the social media network as an echo chamber for rallying up the supporters for their cause. Only a few organisations came close to strategic messing and social media campaign undertaken by ISIS. ISIS had effectively used the social media platforms as a vehicle for their PR campaigns, recruit and even encourage lone wolf attacks across the globe. Cyber technology and cyber operations then include a variety of different operations such as viral messaging on social media platforms, building internal messaging apps, intragroup operational security, deploying Distributed Denial of Service (DDoS) capabilities or even the deployment and use of advanced offensive cyber capabilities to achieve physical effects.

In many respect both social media operations and cyber operations share common elements. First, they both heavily rely on building up skilled human capital. Thus, many terror organisations are focusing on propaganda and

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[26]   Dave Lee, "Diaspora Social Network Cannot Stop IS Posts," BBC News, August 21, 2014

[27]   . Kim Zetter, "Security Manual Reveals the OPSEC Advice ISIS Gives Recruits", Wired, November 19, 2015

using social media platforms as recruiting tool. Second, they both involve some degree of technical or computer knowledge.
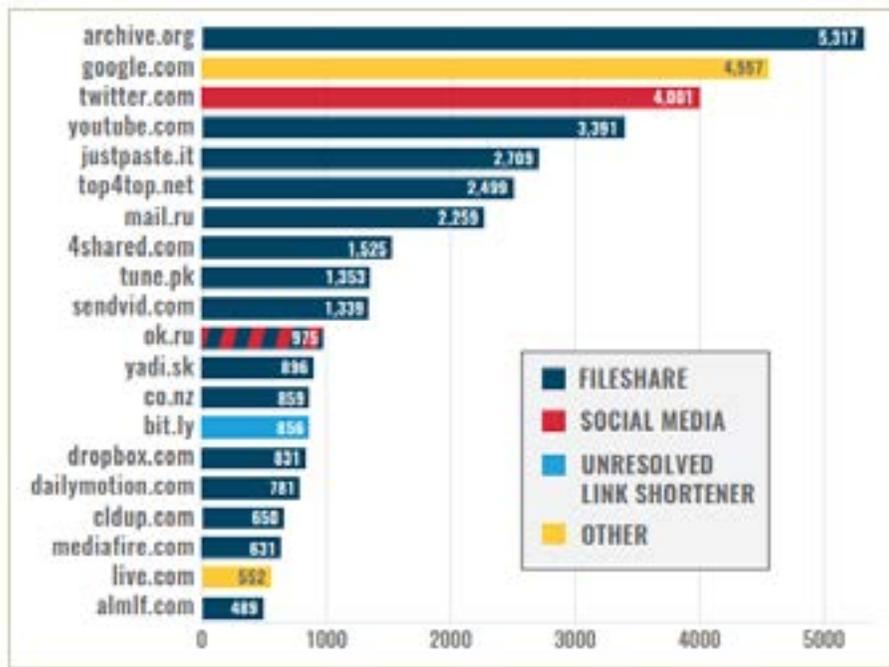
In recent years, many terror outfits have extensively used experienced hackers to carry out their missions. Third, they both involve some knowledge of network effects. The primary goal here is to capitalize on the viral nature of the social media. Fourth, they both involve elements of working in real time. Fifth, they both involve working within limitations set by a system. In the case of social media operations, these limitations set by the specific platform being used. In the case of cyber operations, the limitations are primarily dictated by the target's systems and the nature of the specific vulnerability that is being exploited.

Social media sites are primary source of Metadata[28]. Metadata collection activity is not as demanding activity as direct data collection, but can reveal important details regarding a population or target's location. This may also include the time of day that the target is active, the target's social graph, that includes network connections, specific applications that the target is using

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[28] GUY J. Golan, JoonSoo Lim, "Third Person Effect of ISIS's Recruitment Propaganda: Online Political Self-Efficacy and Social Media Activism", Syracuse University, USA

to access services, whether the target is using a mobile device, and in some cases even the specific hardware and software configuration of the device that the target is using. This is why the social media outlets had become a source of data collection in terms of recruitments and verifying a target's identity. As a part of the psychological warfare, hacking various official social media accounts of a number of organisations, a tactic widely used by ISIS. According to a report[29], pro-IS channels and groups can be categorized into five primary functions: forum, shout-outs, instructional, core and distribution. Distribution channels are the largest category within the sample and serve to proliferate all types of pro-IS content without regard to their origin. Across all channels in the sample, IS sympathizers use three primary tactics to ensure community resiliency: proliferating join links, exploiting Telegram's internal file-sharing capabilities, and observing basic cyber security measures. The majority of the sample is comprised of private groups and channels, only accessible through URL keys but public channels play an important role as key nodes for entry into the private network. Examples can be drawn from ISIS use of Telegram messenger application. Telegram is an online instant messaging service that is available via client applications for smartphones, tablets, and computers. On August 14, 2013, Telegram's founders Pavel and Nikolai Durov launched the first version of the application, which is available today on dozens of platforms[30].Telegram's distributed data infrastructure allows it to dodge subpoenas, it displays little interest in cooperating with governments on data requests, and it has no shareholders or advertisers for governments to leverage. Even in the case where government pressure on Telegram is successful, all it would accomplish is forcing extremists to find new platforms to disseminate media and communicate[31].

Telegram is relatively user-friendly with easy to navigate graphical user interface; creating an account only requires a working phone number, and all that is needed to access pro-IS content is either a search for public groups and channels. The app also offers basic security, including by restricting access to channels and groups to users with valid join-links, providing relative anonymity, offering encryption features, and guaranteeing that information shared on private groups and channels will not be disclosed to third parties.

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[29]   Bennett Clifford Helen Powell, "Encrypted Extremism:Inside the English-Speaking Islamic State Ecosystem on Telegram", 2019

[30]   "Telegram F.A.Q." n.d. Telegram, https://telegram.org /faq, February, 2019.

[31]   Alkhouri, Laith, and Alex Kassirer. "Tech for Jihad: Dissecting Jihadists' Digital Toolbox." Flashpoint.https://www.flashpoint-intel.com/wp-content/uploads/2016/08/TechForJihad.pdf, 2016

IS media outlets continuously attempt to influence a shift away from Telegram towards other platforms. ISIS outlets like Nashir News Agency and Amaq News Agency urged followers to diversify from Telegram, either by exploiting new, upstart social media and file-sharing platforms or attempting to move towards more technologically sophisticated or secure options.The multi-channel mode of communication gave the terror outfits to create reusable contents, thus ensuring the portability of content, achieving goals through different means.

The both implicitintent of efforts to counter terrorist exploitation of digital communications technologies is to completely eliminate terrorists' accounts and content online through takedowns, namely through account suspensions and content removal. This approach heavily mirrors offline counterterrorism efforts such as leadership decapitation and kinetic operations against command and control structure, source of funding and propaganda machineries. However, this approach has some limitations[32].

Conclusion

It is crucial to understand the link between the evolution of cyber technology and the role of both military and civilians in modern day conflicts. Although the cyber deterrence capacity has become an important issue, regarding the cyber security of a state, the attackers might still have the upper hand. The limited effective cyber deterrence tools and options that exist for the state apparatus is simply not enough to prevent the numerous cyber-attacks launched every single day. However, adapting to the evolving nature of the cyber threats and espionage tactics are crucial. As more states around the world are becoming more dependent on the cyberspace and information technology (IT) infrastructure, the security of the secrets and interest of the governments is increasingly becoming target of the cyber-attacks. The threats to national security are increasingly coming primarily from non-state actors such as terrorist groups. Under this circumstance, it will be reasonable to anticipate the proliferation of technologies of war where the barriers of entry are low. Such is the case with cyber war, members of al-Qaeda or ISIS may be particularly likely to turn to cyber weapons to compensate for the capabilities they lack. This will bring an unprecedented wave of conflicts in the world stage. Governments as private entities must take steps to prevent and repel new wave of cyber attacks in the years to come.

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[32]   J.M. Berger,"Taming ISIS on Twitter: More than a game of whack-a-mole", April 2, 2015

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Curbing the Spike of Death Wish among Islamic Militants in Bangladesh: Government Response and the Public Perceptions

Mohammad Ahsan Uddin[1]

Abstract

Violent Extremism poses an existential threat to every civilized nation. By building capacity, in the incubation zones of violent extremism, it is expected that the significant threat posed by violent extremism will be incrementally reduced. It is evident from recent extremist violence, that Bangladesh is facing a grave crisis. The atrocities included murder of foreign nationals, law enforcement personnel, religious personalities, attacks on religious places and killing of bloggers. The attack on 1st July, 2016 has highlighted the gravity of the threat. The present article aims to consolidate knowledge base of key steps taken by the government of Bangladesh for Countering Violent Extremism (CVE) and the public perceptions regarding the government initiatives taken so far. In order to know about the perception of the common people about countering violent extremism, a quantitative survey was conducted in Dhaka City. The study also used content analysis of secondary sources (newspaper, internet publications) and interviews with Bangladeshi experts. The study findings reveals that the existing CVE mechanism tends to be limited to law enforcement involvement. However, a comprehensive CVE strategy depends on the involvement of all the key stakeholders. CVE is not the issue of only law enforcing agencies, it is the business of law enforcing to eliminate extremists; but the ground works should be done by teachers, parents and guardians.

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Imams and priests have important role to play in this regard and they must collaborate in this noble effort.

1. Introduction

It is evident from recent extremist violence, that Bangladesh is facing a grave crisis. The attack on 1st July, 2016 has highlighted the gravity of the threat. The responsibilities for many of the attacks have been claimed by the so called Islamic state (IS) and Al-Qaeda in the Indian Subcontinent (AQIS). The atrocities included murder of foreign nationals, law enforcement personnel, religious personalities, attacks on religious places and killing of bloggers. The indulgence, knowingly or unknowingly of the elite society – student, teachers and businessmen – in terrorism, has uncovered a new dimension of threat. The threats of further attack remain substantial. Without long term significant actions against terrorist attacks, the threat will expand further. The present article aims to consolidate knowledge base of key steps taken by the government of Bangladesh for Countering Violent Extremism (CVE) and the public perceptions regarding the government initiatives taken so far.

In order to know about the perception of the common people about countering violent extremism, a quantitative survey was conducted in Dhaka City. In this survey, 100 people from different areas of Dhaka City were interviewed with structured questionnaire. Profession, age, area and religion were considered while selecting respondent, in order to get a representative sample. The study also used content analysis of secondary sources (newspaper, internet publications) and interviews with Bangladeshi experts.

2. Violent Extremism in Bangladesh

The first terrorist outfit appeared in 1992 under the name of Harkat-ul-Jihad-al-Islami Bangladesh. This unlawful force started attacking secular elements of the nation and society first experienced an orchestrated and planned attack on Udichi, a secular cultural body in 1999. Violent extremism first captured attention in Bangladesh with a string of increasingly spectacular attacks throughout the early and mid-2000's. The bombing on the Bengali New Year celebration at Ramna Botomul in 2001 carried special significance.

The incident of the **10-Truck Arms and Ammunition Haul** took place in Chittagong, Bangladesh, on the night of 1 April 2004, when police and Coast Guard interrupted the loading of 10 trucks and seized extensive illegal arms and ammunition at a jetty of Chittagong Urea Fertilizer Limited (CUFL) on the Karnaphuli River. This is believed to be the largest arms smuggling incident

in the history of Bangladesh. Investigators believed that delivery was intended for the United Liberation Front of Asam (ULFA), a militant group seeking independence of Assam from India.

On 21 May 2004, British High Commissioner in Bangladesh Anwar Choudhury was targeted, he was wounded and two bystanders were killed. The grenade attack on Sheikh Hasina, the then Opposition Leader of the Bangladesh, at Bangabandhu Avenue on 21 August 2004 was one of the most dreadful terrorist acts in the world. At least 13 highly powerful grenades were hurled on her podium from the rooftops of nearby buildings. The attack left 24 dead and more than 300 injured.

On January 27, 2005, five people, including former Awami League finance minister Shah AMS Kibria, were killed in a grenade attack carried out in a rally in Boidyer Bazar of Habiganj. Bangladesh has come a long way since August, 2005 when Jamaat-ul-Mujahideen Bangladesh (JMB), an indigenous extremist organization carried out a string of 500 homemade bombs attacks which happened within a time-frame of 30 minutes in 63 of Bangladesh's 64 districts. Though the perfectly synchronized explosions killed only two, JMB's dramatic display of religious militancy captured global attention within no time.

Since 2013, assailants—often operating on behalf of local al-Qaeda and ISIS affiliates—have murdered dozens of activists, secular bloggers, religious minorities, and foreigners. The first such murder dates back to February 2013, when assailants killed Bangladeshi blogger Ahmed Rajib Haider. At least one person was killed and about 87 others were injured in homemade bomb explosions in front of Hossaini Dalan in old Dhaka on October 24, 2015. The blasts happened at around 1:30 am when members of Shia community were gathering at the building, to bring out a Tajia procession from there to mark the holy Ashura.

Indeed, the Holey Artisan Bakery attack on July 1, 2016, which resulted in 28 deaths, including 20 civilians (mostly foreigners), two Security Force personnel, and six militants, was the worst ever terror attack in Bangladesh in terms of fatalities. It has shaken the tolerant social fabrics of Bangladesh and added a new dimension to violent extremism. It was followed by a second attack on Sholakia Eid congregation in Kishoreganj District. On 7 July 2016, before the beginning of prayer, a bombing at the site killed two police officers and a civilian.

3. Curbing Religious Militancy & Terrorism: Law Enforcement

The crackdown against violent extremism in Bangladesh began in 2005 and the Rapid Action Battalion (RAB), spearheaded the assault. The force was set up to tackle all crime and it remains very popular among the country's population—despite its record of excess and abuse. The Government of Bangladesh has demonstrated its commitment to combating domestic and transnational terrorist groups, and its counterterrorism efforts made it harder for transnational terrorists to operate in or establish safe haven in Bangladesh.

(a) Laws

In 2009, Bangladesh enacted for the first time, specific law designed to combat terrorism: the Anti Terrorism Act 2009. To bring this anti terror legislation in line with the UN's Action Plan on Counter Terrorism Strategy and other resolutions, it has been amended twice subsequently. The broad language of the legislation provides several mechanisms by which Bangladesh can implement UN Security Council Resolution (UNSCR) 2178, which requires nations to address the foreign terrorist threat. In 2011, the government formulated the "National Counter Terrorism Strategy". In August 2011, Bangladesh acceded to the Palermo Convention Against Transnational Organised Crimes.

(b) High-level committees

To better coordinate efforts to prevent and counter terrorism and violent extremism, the government in 2009 formed a 17-member "National Committee on Militancy Resistance and Prevention", headed by the Minister for Home Affairs and comprising of representation from relevant ministries and security agencies. By the same token, the government also formed an eight-member "National Committee for Intelligence Coordination," with the Prime Minister as the Chairperson, to coordinate between law enforcement and intelligence services as regards to terrorism and violent extremism.

(c) Banning extremist groups

Since 2009, the government has banned six extremist outfits, namely, Jama'atul Mujahideen Bangladesh (JMB), Jagrata Muslim Janata Bangladesh (JMJB), Harkat-ul-Jihad al-Islami (HUJI-B), Hizb-ut-Tahrir (HT), Shahadat-e-Al Hikma and Ansarullah Bangladesh Team (ABT). Apart from these known local groups, all terrorist groups designated as such by the UN Security Council Committee have also been banned.

(d) Counter terrorism units

In December 2015, Bangladesh formed a 600-member police unit specializing in combating terrorism and violent extremism. The "Counter Terrorism and Transnational Crime" unit has been formed to combat terrorism, cyber crimes, terrorism financing and mobile banking related crimes. The unit, led by a Deputy Inspector General (DIG) of Police, has been formed with members from Special Weapons and Tactics (SWAT), bomb disposal unit, and dog squad. The unit collects information and data of terrorists and transnational criminals at home and abroad, monitors their activities, and arrest them.

(e) Judicial actions

Seven members of an Islamist militant group in Bangladesh were handed death sentences on 27th November, 2019 by a special court in Dhaka. They were accused of their role in a 2016 attack on holy artisan café in the capital in which 22 people were killed, mostly foreigners. The Anti-Terrorism Special Tribunal of Dhaka ordered the deaths by hanging for their role, which included training the attackers and supplying arms to them and funds. Eight people were on trial, accused of planning the attack and supplying weapons. One man was acquitted. The seven convicted men belonged to Jamaat-ul-Mujahideen Bangladesh (JMB), a home-grown Islamist group outlawed in the country. One of the suspected masterminds of the attack, Nurul Islam Marzan, was killed in a shootout with anti-terrorism police in January 2017.

(f) Controlling terror financing

Bangladesh has enacted a number of laws for preventing financing of terrorism and violent extremism, including the Money Laundering Prevention Act 2012 and the Mutual Legal Assistance Act 2012. Banks have been equipped regarding the procedure for handling money laundering and terrorism financing matters. In July 2013, Bangladesh secured membership of Egmont Group and became a member of the Asia Pacific Group on Money Laundering. In February 2014, owing to Bangladesh's successes, the Financial Action Task Force (an inter-state organization comprising 34 developed countries and two regional organizations) removed Bangladesh's name from their "grey list".

4. Curbing Religious Militancy: Operations against Terrorism

Operation Clean Heart: It was started on the 17th October 2002 as a drive against growing crime; the army took the lead along with others under the banner of "*Operation Clean Heart*" to cleanse the cities of Bangladesh of rampant corruption and crime. It involved about 40,000 members of the armed forces

deployed in the country's largest cities and shopping malls.   After completion of the operation the troops were called back. Just after two weeks there was a fresh surge in violent crime activities, which left more than 200 people dead.

Operation Thunderbolt: On 1 July, 2016, Bangladesh conducted a major operation to neutralise seven militants and rescue hostages from inside the Holey Artisan Bakery in Dhaka. This was named 'Thunderbolt'. 'Operation Thunderbolt' successfully managed to neutralise six of the total seven militants present inside the Holey Artisan Bakery. One militant was caught alive. He was detained and later arrested.

Operation Storm 26: On 26 July, 2016, a special police drive termed 'Operation Storm-26' was conducted against terrorist hideout in Dhaka's Kallyanpur area, where 9 terrorists were killed and 2 detained. The militants first attacked the police during the raid after which the police cordoned off the area and informed the bomb disposal unit, RAB and SWAT. Police took time to secure the area before operation, so that no side causality takes place.

Operation Hit Strong 27: On 27th August, 2016, a special counter terrorism raid termed "Operation Hit Strong 27" was conducted against a hideout in Paikpara, Narayanganj which saw 3 terrorists, including the mastermind of the Gulshan attack Tamim Chowdhury, killed by the law enforcement agents, who themselves came under attack.

Operation Twilight: On 24th March 2017, Bangladesh Army conducted operation in Atia Mahal in Sylhet. The Para Commandos took time before operation because of the high risk involved as the militants have planted a huge stash of Improvised Explosive Devices (IEDs) in the building, mostly on the ground floor. In this operation 2 police officers including head of intelligence of RAB and 6 common people were killed.

Operation Hit Back: On 30th march 2017 SWAT team conducted 'Operation Hit Back' at Nasirpur "militant hideout" in Moulvibazar Sadar upazila amid rough weather . Seven to eight suspected militants, including women and children, have reportedly killed themselves by detonating bombs during the two-day operation.

5. Curbing Religious Terrorism: Developing Platform & Raising Awareness

Bangladesh government is fully aware that terrorism, which has become a regional and global challenge, could not be fought only at the domestic level. Following the Gulshan attack, the government had sought cooperation from

Bangladesh's close allies especially the United State and India in sharing intelligence to prevent terror attacks in future. Dhaka and Washington agreed to enhance cooperation between the intelligence and law enforcement agencies of the two countries. The US has been actively engaged with Bangladesh in recent years in streamlining the South Asian country's counter-terrorism structure. Also Bangladesh and India agreed to enhance cooperation in fighting terrorism. Keeping in mind the common threats faced by India and Bangladesh, a comprehensive counter-terror pact will be mutually beneficial.

In mid-March 2017, Dhaka hosted a three-day conference of international chiefs of police to discuss efforts to combat terrorist violence. Interpol Secretary General Jurgen Stock pledged support against militancy in BD. Essence of the conference is to find ways to (a) strengthen existing relationship among the law enforcement agencies and relevant organizations of the world, (b) craft a regional strategy to combat violent extremism and other types of transnational crime, (c) increase the practice of exchanging information and sharing of best practices among law enforcement agencies and (d) Develop a common platform to cooperate in prompt, and prolific manner at times of need to fight terrorism and transnational crimes.

From 1-5 April, 2017, Dhaka hosted a five-day meeting of parliamentarians from 134 countries to adopt a collective strategy for countering terrorism, among other mutual concerns. The IPU conference was hosted amid tight security in Dhaka and the strategy for countering violent extremism was discussed, highlighting the transnational threat posed by terrorism.

In 2010, the government formulated a strong anti militancy National Education Policy, which highlights the need for reforming the Madrasah curriculum. The government also introduced anti extremism chapters in academic text books. Additionally, the Ministry of Education has been organizing awareness programs against terrorism in different schools and colleges. Anti-terrorism sermons are being delivered in mosques across the country since 1 July, 2016. Headed by Bangladesh Awami League, committees have been formed in every district to spearhead the social movement against terrorism and violent extremism. In 2014, Bangladesh became a board member and pilot country for the Global Fund for Community Engagement and Resilience (GCERF), a public-private global fund to support local, grassroots efforts to counter violent extremism.

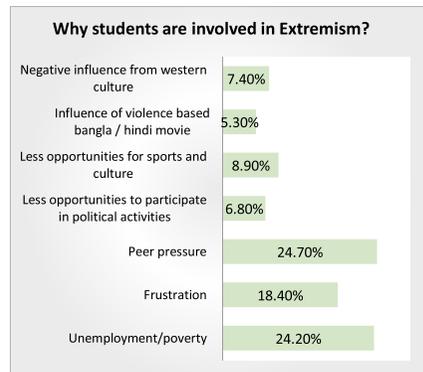# 7. Curbing Religious Militancy: Public Perceptions

7.1 Reasons for violent extremism

About one-third (31.1%) of the respondents said that the violent extremism in Bangladesh is a part of international terrorism, while little more than one-fourth (26.8%) think that it is happening due to increased financing in extremism. Again, 14% of the respondents said rising of religious leaders is responsible for increasing violent extremism.

Reasons for Violent Extremism

Category	Percentage
Other reasons	4.90%
Rising of vested terrorist group	14.00%
Foreign influence	9.10%
Terror financing	26.80%
A part of international terrorism	31.10%
Rising of religious extremist leaders	14.00%

7.2 Student involvement in extremism

Peer pressure is the main reason for involvement of students in radicalization and violent extremism, as one-fourth (24.7%)of the respondents claimed this, while another one-fourth (24.2%) of respondents blamed poverty and unemployment. It is noticeable that 18.4% respondents said that students get frustrated due to different reasons and involved in extremism. There are some other reasons, insignificant number of respondents were in favor of those reasons, which are shown in the figure.

Why students are involved in Extremism?

Category	Percentage
Negative influence from western culture	7.40%
Influence of violence based bangla / hindi movie	5.30%
Less opportunities for sports and culture	8.90%
Less opportunities to participate in political activities	6.80%
Peer pressure	24.70%
Frustration	18.40%
Unemployment/poverty	24.20%

7.3 Involvement of Professionals in extremism

According to Half (50%) of the respondents professionals (who are in job) involve in extremism due to misinterpretation of Jihad, while more than one-fourth (28%) think it happens due to lack of proper social and religious values among the professionals. Again, motivation by the extremists is a significant factor, as nearly one-fifth (19%) mentioned this.

Why Professionals involve in Extremism ?

- Lack of proper social and religious values
- Accepting misinterpretation of Zihad.
- Being motivated by extremist
- Others

Category	Percentage
Others	3%
Accepting misinterpretation of Zihad	28%
Being motivated by extremist	50%
Lack of proper social and religious values	19%

7.4 Influence of social media on extremism

More than two-thirds (70%) of the respondents agreed that social media has a very significant role in spreading of extremism, since the extremists use social media for their activities. But nearly one-third (30%) of the respondents disagreed with this opinion, they have their own arguments. More than one fourth (28.8%) of the respondents said that pictures and videos of terrorist activities in social media attract young generation. Again,

How social media is used in extremism

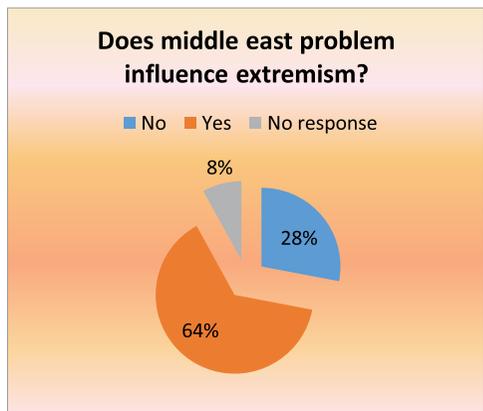| Category	Percentage
Comments and discussion on terrorism news in social media motivates the young generation...	22.10%
Pictures and videos of terrorist activities in social media attract the young generation	28.80%
Extremists can organize their activities easily using social media	23.10%
Extremists can invite common people easily to support them and join with them	26.00%

another 26% said that extremist can invite common people easily to support them using social media. Another group of 22.1% respondents noticed that comments and discussion on terrorism news in social media motivates the young generation.
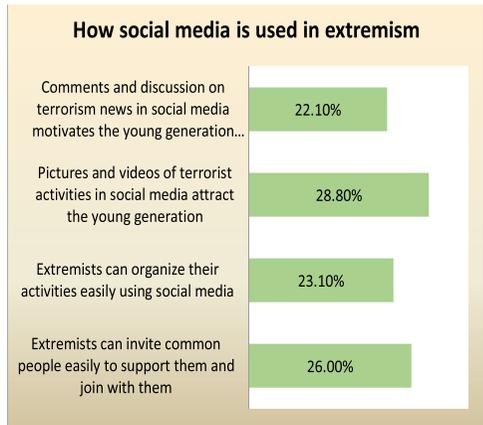
7.5 Influence of Middle East crisis & Madrasah education on extremism

Nearly two-thirds (64%) of the respondents believe that unstable situation in the muslim world especially in the middle east countries have significant influence on the violent extremism in Bangladesh, that is Bangladeshi youths are motivated by the events of middle east. Again, 28% of respondents have different belief, they do not agree with this. Also 8% respondents do not know the answer to this question. Most of

Does middle east problem influence extremism?

Legend: No, Yes, No response

Response	Percentage
No	28%
Yes	64%
No response	8%

the participants strongly said that it is a Myth that Madrasah proliferates radicalization or extremism, since it is found that students of English Medium institution and University are also involved in extremism; 88% of the respondents disagreed that Madrashah education influences extremism. Only 10% of the respondent said that Madrashah education influences extremism to grow.

7.6 Social factors influencing extremism

Lack of social values is the 1st significant factor influencing extremism, as 23.3% (highest among the responses) of the respondents claimed this. Lack of community bonding is the 2nd significant facto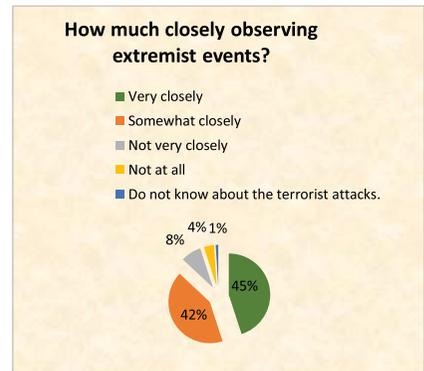r, as 22.7% (2nd highest among responses) of the respondents said. Social discrimination is the 3rd significant factor, mentioned by 19.9% of the respondents. The 4th significant factor is the lack of family bonding, as mentioned by 18.8% respondents.

Social factors influencing extremism

Factor	Percentage
Cultural clash	10.80%
Lack of social values	23.30%
Social discrimination	19.90%
Lack of social inclusion	4.50%
Lack of community bonding	22.70%
Lack of family bonding	18.80%
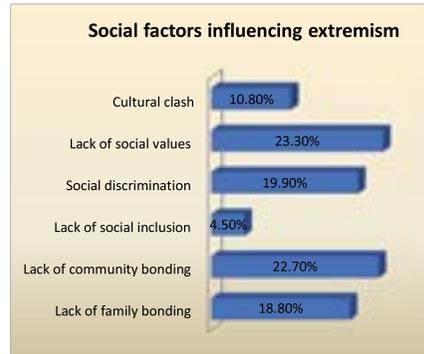
7.7 How much worried about extremist events

The study findings show that 45% of the respondents were observing the recent extremist events in Bangladesh very closely while another 42% were observing somewhat closely. In total 87% of the respondents were very careful about the extremist events. There is insignificant number of respondents who do not care this. Respondents were asked how much they are worried about being the possible victim of extremist attack. In response to this query nearly half (47%) of the respondents said that they are somehow worried, one-third (33%) of the respondents said that they are very worried, and the rest one-fifth (20%) said not worried.

How much closely observing extremist events?

- Very closely
- Somewhat closely
- Not very closely
- Not at all
- Do not know about the terrorist attacks.

45%, 42%, 8%, 4%, 1%

7.8 Increase of Radicalization

More than half (54%) of the respondents believe that radicalization is spreading in Bangladesh in different ways, while 42% disagreed with this opinion. There are 4% respondents who did not answer to this question. Nearly two-thirds (62%)

Does Radicalization increases in Bangladesh?

- Yes
- No
- No response

54%, 42%, 4%
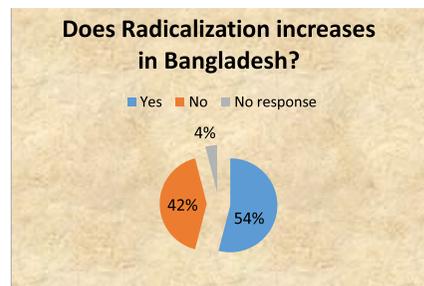
of the respondents consider the extremism problem as a very big problem for Bangladesh, while nearly one-fourth (24%) consider it a moderately big problem for the country. Also there are insignificant number of respondents who do not consider it an important problem.
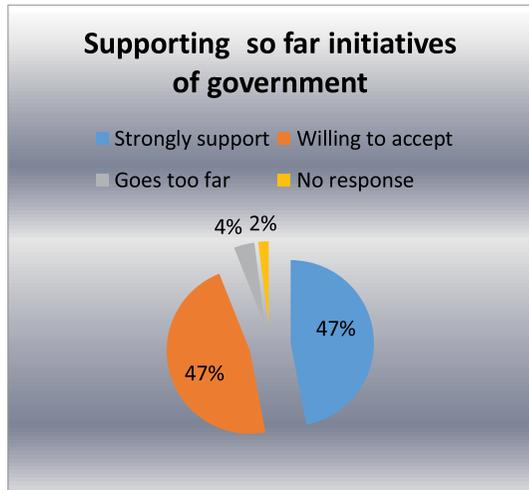
7.9 Reasons for attack on Bloggers

One-third (33%) of the respondents agreed that bloggers were attacked due to the fact that they hurt peoples' religious feelings, while 17.6% said bloggers lack respect to other religion while another 16.5% said bloggers have no knowledge about religion and they do not have respect for differing opinion. Most (93%) of the respondents said that Islam do not allow extremism, while only 6% said that Islam allows extremism, only 1% said they do not have knowledge about this.

Reasons for attack on bloggers

Bloggers have lack of respect to different opinion	16.50%
Bloggers have lack of respect to other religion	17.60%
Bloggers have lack of knowledge about religion	16.50%
Bloggers hearted peoples religious feelings	33.00%
Bloggers insulted religion	16.50%

7.10 Supporting Government initiatives

More than three-fourth (78%) of the respondents are satisfied with the government efforts to control/stop extremist incidents in the country, they said government has taken a great deal of efforts, only 14% of the respondents said government has taken a fair amount of efforts. The rest 8% of respondents were unhappy with government efforts. Most of the respondents support government initiatives taken so far for controlling/stopping violent extremism, as 47% of the respondents strongly support the initiatives and another 47% willing to accept those government initiatives. Only 4% think that those initiatives go too far.

Supporting so far initiatives of government

- Strongly support
- Willing to accept
- Goes too far
- No response

4% 2%
47%
47%

7.11 Monitoring social media

One-third (34%) of the respondents suggested framing strict law to check spread of extremism through social media, while another 30% suggested for banning some specific websites related to extremism and another 20% respondents suggested for stopping some accounts which spreads extremism.

What should govt. do to stop spread of extremism by social media?

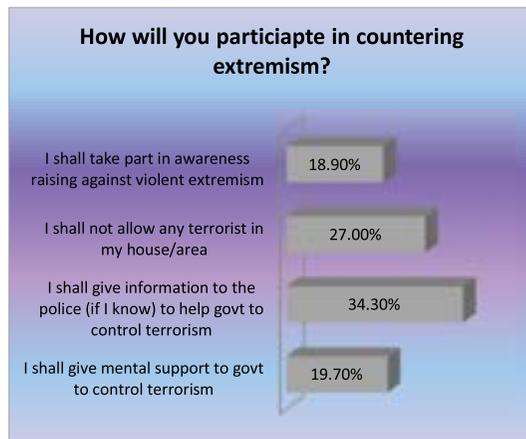| Category	%
No response	6%
Provide an alternative narrative in social media	8%
Set strict law on spread of extremism through social media…	34%
Stop some account which spreads extremism	20%
Stop some specific website related to extremism	30%
Stop social media	2%
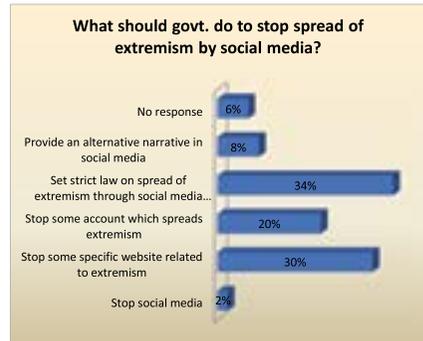
7.12 Stopping financing in extremism

Among the respondents 29.7% were in favour of enforcing strict rule against terror financing, followed by another 29% in favour of monitoring of bank transactions. Again, 26.9% of the respondents suggested taking actions against those who were involved in terror financing and the rest 14.5% suggested for monitoring money transfer through other channels other than banking channel.

What to do for stopping terror financing

| Category	%
Taking action against those who were involved in terror…	26.90%
Setting strict rule against terror financing to stop terror…	29.70%
Increasing monitoring of money transfer in other channel…	14.50%
Increasing monitoring of bank account to stop terror financing	29.00%

7.13 Public participation in CVE

Almost all of the respondents agreed to participate in CVE program, though the format varies. Among them 34.3% expressed the view to help police by providing information, 27% said they will not allow extremist in their house or locality, 19.7% said they shall provide moral support to CVe program while the rest 18.9% agreed to participate in awareness raising program.

How will you particiapte in countering extremism?

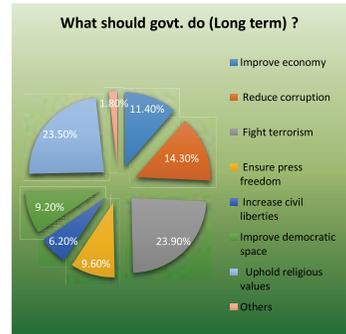| Category	%
I shall take part in awareness raising against violent extremism	18.90%
I shall not allow any terrorist in my house/area	27.00%
I shall give information to the police (if I know) to help govt to control terrorism	34.30%
I shall give mental support to govt to control terrorism	19.70%

7.14 Short term strategies

The respondents were asked about what can government do in the short run, in response 32.2% of them suggested for raising social awareness, 30.1% suggested to set strict law against violent extremism, 19.9% suggested to give punishment to violent extremists through court and 17.1% suggested for conducting operation against the extremists.

What should govt. do (Short term)?

Category	Value
Need not to do anything	0.70%
Conduct operation against the violent extremists	17.10%
Give punishment to the violent extremists through court	19.90%
Set strict law against violent extremism	30.10%
Raise social awareness against extremism	32.20%
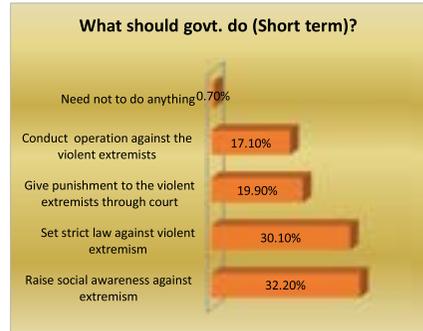
7.15 Long term strategies

In the long term strategies government should fight against terrorism, as 23.9% (highest among the responses) of the respondents suggested this, while 23.5% (2nd highest among responses) suggested for upholding religious values. Among other suggestions the significant are- improving the economic condition, reducing corruption, improving democratic space, ensuring press freedom and increasing civil liberties.

What should govt. do (Long term) ?

- Improve economy
- Reduce corruption
- Fight terrorism
- Ensure press freedom
- Increase civil liberties
- Improve democratic space
- Uphold religious values
- Others

1.80%, 11.40%, 14.30%, 23.90%, 9.60%, 6.20%, 9.20%, 23.50%

8. Conclusion and Policy Recommendations

The existing CVE mechanism tends to be limited to law enforcement involvement. However, a comprehensive CVE strategy depends on the involvement of all the key stakeholders. CVE is not the issue of only law enforcing agencies, the business of law enforcing IS to eliminate extremists; but the ground works should be done by teachers, parents and guardians. Imams and priests have important role to play in this regard and they must collaborate in this noble effort. Providing counter narrative is an important adjunct of CVE, counter terrorism strategy is incomplete without a directive on counter narrative; because "force only" is not the answer. It should be kept in mind that CVE is a battle of mind, by providing counter narrative we can prevent violent ideologies and can stop them from crossing the line towards actual violence. Counter narrative should be given, but government should decide an organized body to negotiate this.

Violent Extremism poses an existential threat to every civilized nation. By building capacity, in the incubation zones of violent extremism, it is expected that the significant threat posed by violent extremism will be incrementally reduced. Effective awareness programs must be initiated to increase awareness against the odds of extremism. Allegation against particular institutions that finance/support extremism should be regularly examined and appropriate remedial measures should be taken. Size of counter terrorism unit should be expanded, long run plan to counter terrorism is necessary. Identifying, arresting and bringing the guilty to justice and punishment should not be compromised. The state agencies have the capacity to absorb training and development, by better collection and collation of intelligence inputs and making the necessary linkages to operational plans, the responders will be able to better formulate and execute CVE operations in the future.

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About BIPSS

Bangladesh Institute of Peace and Security Studies (BIPSS) is a leading institute in Bangladesh for informed analysis on all aspects of broad spectrum of peace and security studies in the region and beyond. It is a non-party, nonprofit organisation and independent think tank which provides significant platform for the leading strategic thinkers, academics, members of civil society, former members of the foreign and armed services and media persons to chalk out a comprehensive framework for peace and security issues. The Institute is headed by the President of BIPSS, Major General ANM Muniruzzaman, ndc, psc (Retd). He directs and coordinates all research and administrative activities of the Institute. A team of highly qualified full-time research-ers with varied social science background conduct research activities. BIPSS also maintains a pool of affiliated experts whom we engage frequently for different assignments.

BIPSS has also established two specialised centres within its frame-work named Bangladesh Centre for Terrorism Research (BCTR) and Bangladesh Centre for China Studies (BCCS). BCTR is the first centre of its kind in Bangladesh dedicated to the study and research on terrorism related issues. The Centre is headed by Mr. Shafqat Munir who has been engaged with various specialized centres on terrorism in the Asia Pacific region as well as other parts of the world. BCTR has been working in partnership with a number of international centres on terrorism research in South Asia, South East Asia, Europe and USA. On the other hand, Bangladesh Centre for China Studies (BCCS) has been established to understand, study and analyse Chinese Foreign Policy and Chinese strategic and security posture. It also aims to study Chinese economic advancement with a view to advocating greater economic and development cooperation between Bangladesh and China as well as China and the greater South Asian region.

BIPSS maintains an interactive website to inform, share and exchange knowledge and ideas to enrich the people who have a greater stake in peace and security. You are cordially welcome to visit our website at www.bipss.org.bd. You can also write to us to express your opinion via email atatinfo@bipss.org.bd.