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CONTENTS

ROLE OF INDONESIA IN THE EVOLUTION OF ASEAN 1
Annamaria Artner

APT(ADVANCED PERSISTENT THREAT)S AND INFLUENCE: CYBER WEAPONS AND THE CHANGING CALCULUS OF CONFLICT 39
Marc R. DeVore / Sangho Lee

THE CHANGING PATTERNS OF COMMUNIST PARTY-STATE RELATIONS IN CHINA: COMPARATIVE PERSPECTIVE 65
Dingping Guo

AN ASSESSMENT OF NORTH KOREAN CYBER THREATS 97
Hyeong-wook Boo

ROLE OF INDONESIA IN THE EVOLUTION OF ASEAN

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Abstract

The study aims at examining the past and possible future role of Indonesia in the development of cooperation within the framework of the Association of Southeast Asian Nations (ASEAN). After the description of the main steps and achievements of building a regional community both in the field of politics and economy, the author seeks to identify the reasons of difficulties to deepen economic integration, with special regard to the interests and policy of Indonesia. She concludes that by now Indonesia has not ceased to be interested in the security political cooperation within ASEAN and continues to be counter interested in deeper economic integration because of competitiveness reasons. The new leadership of the country since 2014 has taken a broader than ASEAN regional view in its foreign policy spectrum and for this Indonesia may pay less attention to the cooperation within ASEAN what may hinder the development of the South-East Asian organization.

Key words: ASEAN, Indonesia, regional integration.

INTRODUCTION

Since the 2008 global crisis, the world economic and political order has got into a rather chaotic transition period. The old superstructure has proved to be unable to solve the multidimensional crises that emerged with the burst of the financial bubble in 2008 and the outlines of a new structure have been as yet out of sight. Although after the 2008 crisis the neoliberal way of economic management, that was unchallengeable for decades, has been widely criticised, it could preserve its hegemony due to lack of any alternative in the economic thinking. The least one can say is that the European Union, flagship of regionalisation, social rights and welfare for decades, has reached a stalemate with the unsolved Greek crisis and Brexit round the corner. But even irrespective of the difficulties of integration, there is a turmoil in Europe. It is enough to think of the tensions with Russia, the situation in Ukraine, the intensifica-

tion of migration, the terrorist attacks like the one in Nice or the coup attempt in Turkey. All these, of course, are in close relations with the North African Spring and its consequences, especially with the emergence of Islamic State among them, which themselves are in strong relations with the geopolitical changes that have recently taken place. Furthermore, the development problems of Africa, inherited from its colonial past, always result in newer and deeper conflicts, famine and bloodsheds, most recently in South Sudan. Looking at the other part of the world, the Latin American integration, UNASUR is forced to be preoccupied with the management of crisis in Venezuela instead of focusing on its own development.

All in all, the current global political and economic reality is not favourable to the regional cooperation in the same way as a decade ago. It is reflected in the problems of regional integrations in general, but also in the developments of other regional initiatives including the Association of Southeast Asian Nations (ASEAN).

This paper aims at presenting these changes after a short introduction of the economy of ASEAN and the main steps of development of regional cooperation with special regard to the difficulties of economic collaboration. The next chapter presents first the place of Indonesia within ASEAN, then, after a brief historical overview, describes the Indonesian approach of economic and political integration. The last section before the conclusions deals with the newest developments in the Indonesian foreign policy that may have a negative effect on the future development of regional integration.

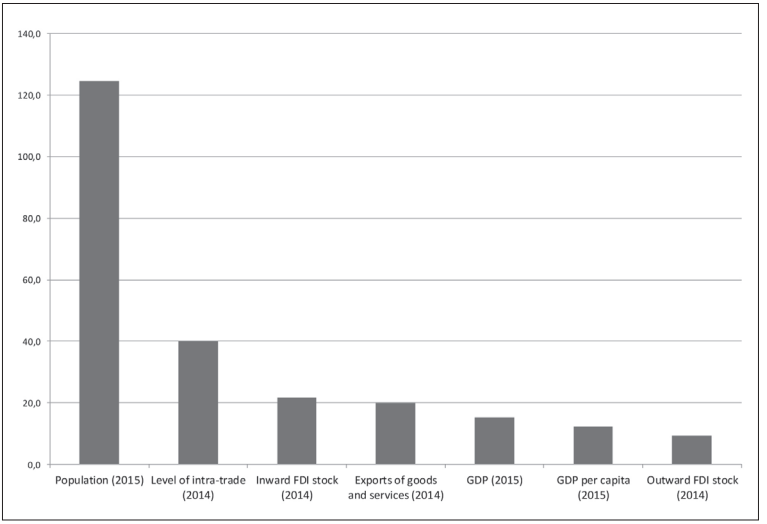
ECONOMY OF ASEAN IN GLOBAL CONTEXT

ASEAN consists of 10 countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. Their total land area is 4.4 million km^2, about the same

size as the EU-28 and in 2015 the total population of the ten countries reached 632 million, 8.6 percent of the world's population. In 2015 their aggregated GDP amounted to 2,453 billion USD at current prices being equal to 3.3 percent of the world's GDP.[1]

For further comparison, Figure 1 gives the ratios of certain indicators of ASEAN in relation to those of the 28-member European Union. The figure shows that except for the size of the population, ASEAN represents only a fraction of the economic potential of the EU. The level of intra-ASEAN trade (24.3% for exports and imports together) is only 40 percent of the intra-EU-28 trade (60.1%), a figure which clearly reflects the big difference between the depths of economic integration of the two organizations.

Figure 1. Statistical indicators of ASEAN in percentage, compared with those of the EU28 in 2014 and 2015 (USD at current prices and current exchange rates)



Source: Own calculations based on UNCTADstat, Data center.

[1] UNCTADstat, Data center, Economictrends, National accounts.

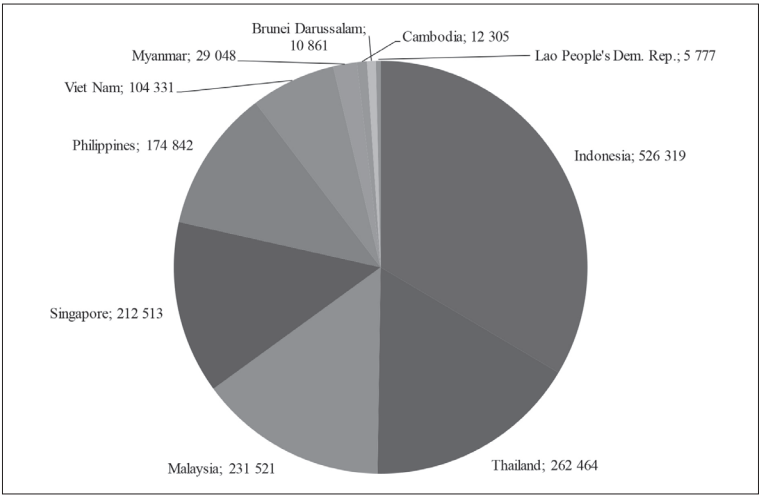
ASEAN comprises very diverse states including large and small, developed (for example Singapore) and developing countries as well. The differences between the GDP/capita of the poorest and the richest members, the largest and smallest numbers of populations or the size of territories are larger than those in the European Union (Table 1 and Figure 2).

Table 1. Basic indicators of ASEAN, 2015

Country	Total land area	Total population	Population density	Annual population growth	Gross domestic product at current prices	Gross domestic product per capita at current prices		International merchandise trade			Foreign direct investments infow	
								Exports	Imports	Total trade		
	km^2	thousand	persons per km^2	percent	US$ million	US$	US$ PPP	US$ million	US$ million	US$ million	US$ million	US$ million
	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2014	2015
Brunei Darussalam	5,769	417.2	72	1.3	12,909	30,942	87,117	6,350	3,042	9,392	568	171
Cambodia	181,035	15,405.2	85	1.5	18,463	1,198	3,578	8,839	10,838	19,676	1,727	1,701
Indonesia	1,913,579	255,461.7	133	1.3	857,603	3,357	11,108	150,282	142,695	292,977	21,810	16,073
Lao PDR	236,800	6,902.4	29	1.4	12,639	1,831	5,466	3,714	3,049	6,763	913	1,079
Malaysia	330,290	30,485.3	92	0.7	294,390	9,657	26,515	199,869	175,961	375,830	10,875	11,290
Myanmar	676,577	52,476.0	78	1.9	65,392	1,246	5,275	11,432	16,844	28,275	946	2,824
Philippines	300,000	101,562.3	339	1.7	289,503	2,850	7,241	58,648	70,295	128,944	5,815	5,724
Singapore	719	5,535.0	7,697	1.2	291,938	52,744	85,021	366,344	296,765	663,109	74,420	61,285
Thailand	513,120	68,979.0	134	0.5	395,726	5,737	16,064	214,396	202,751	417,147	3,720	8,027
Viet Nam	330,951	91,713.3	277	1.1	193,407	2,109	6,083	162,014	165,730	327,744	9,200	11,800
ASEAN	4,488,839	628,937.3	140	1.3	2,431,969	3,867	11,009	1,181,889	1,087,970	2,269,859	129,995	119,975

Source: ASEAN Statistics, Selected Key Indicators, Table 1. http://asean.org/?static_post=selected-key-indicators-2

Figure 2. Distribution of GDP of ASEAN in 2015, millions of USD at constant prices and exchange rates (2005)

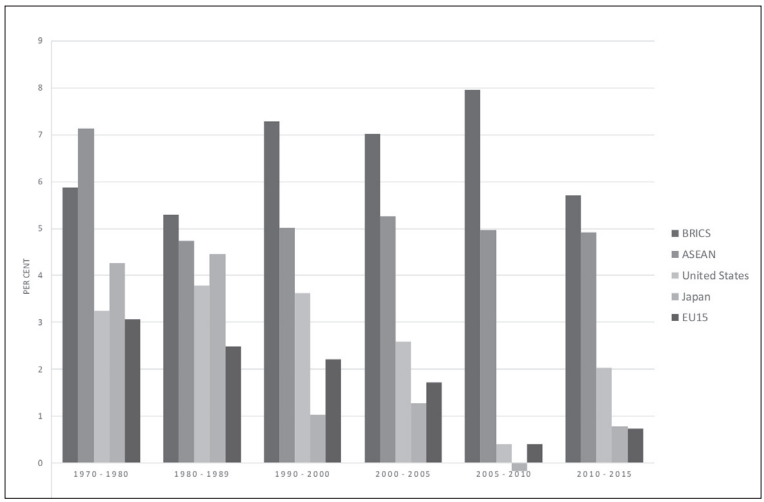


Source: UNCTADStat Data center, Economic trends, National accounts.

The annual average economic growth of ASEAN countries on aggregate level was especially high, above seven per cent in the 1970s. The growth rate fell under five percent in the next decade, which was still high in international comparison. Since the 1990s ASEAN as a whole has been growing by over five percent a year on year average that is slower than the rate of BRICS[2] but considerably faster than that of the most advanced countries, the US, the EU15 or Japan, as Figure 3 clearly indicates this. Although in the very end of 2015 the ASEAN declared that it established a single market (the ASEAN Economic Community), i.e. the free movement of goods, services, capitals and labour, the economic integration is far from being developed. The reason for this is the diverging interests of the member states, mainly the counter interests of Indonesia in deeper economic integration –we will discuss it later.

[2] Brazil, Russia, India, China, South Africa.

Figure 3. GDP annual average growth rate, 1970-2015, in percentage



Source: UNCTADStat Data center, Economic trends, National accounts.

In the last ten years ASEAN members have been increasingly integrated into the global economy, but the Southeast Asian financial crisis broke this development. The average GDP/capita of ASEAN fell by 8.6 percent in 1998 and the exports lost its dynamism. While until the crisis the exports to GDP ratio had increased in most ASEAN-countries, this trend ceased to continue or started to decrease in the majority of the member states after 1998. On aggregate level the exports to GDP ratio of ASEAN rose from 49 to 80 percent between 1992 and 1998. In the following decade, it fluctuated between 75 and 83 percent. Due to the 2008 global economic crisis, the ratio fell to 64.5 percent in 2009 and could not rise from this level in the following years either.

On the other hand, the intra-regional integration of ASEAN has not become much deeper in the last decades. The external trade of most of the member states has been oriented more significantly towards third countries than ASEAN. Between 1995 and 2007 the intra-regional trade of ASEAN has somewhat strengthened, mainly on the import side (the share of intra-regional imports in the total

imports rose from 18 to 25.8 percent), but the most dynamic export and import markets were the non-ASEAN countries of South and East Asia, first of all China. Between 2007 and 2014 the weight of intra-regional imports to total imports declined again. (The most important trade partners of ASEAN are China, US, Japan, and South Korea.)

THE EVOLUTION OF REGIONAL INTEGRATION

The ASEAN was founded on 8 August 1967 in Bangkok by the ASEAN Declaration (also known as the Bangkok Declaration). The five founding members were Indonesia, Malaysia, Philippines, Singapore, and Thailand. Brunei Darussalam joined in 1984, followed by Vietnam in 1995 and Lao Republic and Myanmar (Burma) in 1997. Cambodia became the tenth member in 1999. With the widening of the community, its main goals have been somewhat altered and extended as well.

Foundation by political reasons

At the time of its foundation, during the Second Indochina War, in a period when the communist ideology has been increasingly popular in the world and so in East Asia, the main ASEAN's main objective was to avoid the "domino effect", according to which communism would expand in Southeast Asia if not contained (Keling et al., 2011, p. 179). Besides, there were several conflicts between the countries of the region (e.g. between Malaysia and Indonesia, Malaysia and the Philippines) that had to be reconciled. For all these reasons the foundation of ASEAN and its first decade was clearly characterised by political considerations (Shimizu, 2004). This was summarized by the slogan 'to ensure the political stability and peace' in the 1967 ASEAN Declaration.

The ASEAN Declaration is a very short document, no longer than 2 pages and contains five articles only. Although the cooperation of Southeast Asian nations was urged by their fear of the spread of communism, they have already expressed their will in the founding document to cooperate with each other on a broad basis. Besides the promotion of peace and stability the five founders express their intention to accelerate socio-economic and cultural progress, facilitate collaboration in the economic, social, cultural, scientific, technical and administrative fields, provide assistance for each other concerning education and training, improve and use more effectively member states' resources in all fields of socio-economic activity, raise the living standard of people and promote Southeast Asian studies while maintaining cooperation with international and regional organizations having similar objectives.

Efforts to develop economic cooperation

The economic collaboration was addressed already in the first years of ASEAN when the United Nation prepared a study ('Economic Cooperation among Member Countries of the Association of Southeast Asian Nations' – the so called Kansu-Robinson Report named after the leaders of the working group), which was discussed by the ASEAN Ministerial Meeting in 1972 and laid the foundation for a series of collaboration initiatives. According to the spirit of the period, the Kansu-Robinson Report represented a view which could be described as "protectionist developmentalism". It suggested "collective import-substitution" concentrating in the heavy and chemical industries and restrictions on foreign direct investments. The leaders of the then five member states accepted this approach and formulated the regional cooperation on this basis. The ministers of economic affairs first met in 1975 in Jakarta (Senior Economic Officials Meeting – SEOM), which was followed by the first ASEAN Summit in February 1976 in Bali. Here a more efficient organisa-

tional structure was established, five committees of different levels were created (Head of Ministers, Foreign Ministers, Economic Ministers, Other Ministers and the Secretariat), the Treaty of Amity and Cooperation was signed and the ASEAN Industrial Projects (AIPs) were decided as well. In the following year, cautious trade liberalization was launched within the framework of the ASEAN Preferential Trade Arrangement (PTA).[3]

Under the aegis of AIPs, joint companies would have been created in order to produce certain products for the whole ASEAN market. The idea would have better fit planned economies – like the COMECON[4] countries of Eastern Europe – as it turned out to be a failure in the case of market economies of ASEAN members especially during the 'crisis years' of the 1970s. The next experiment to promote industrial cooperation and economic development was the establishment of ASEAN Industrial Complementation Scheme (AIC) in 1981. AIC was planned specifically for the manufacturing of automobiles. In the same year, to help industrial cooperative projects like AICs, the ASEAN Finance Corporation (AFC) was founded as a co-operative venture of the commercial banks, but the first years of its activity were not very successful. The concept of the AIC was that the different parts of cars would have been produced in different ASEAN countries, so the member states together would have produced an 'ASEAN Car'. However, neither this method of cooperation proved to be successful, because every member state wanted to build their own automobile industries (mainly in cooperation with Japanese manufacturers). To circumvent this problem and still encourage production cooperation in 1988, the leaders of ASEAN have given up the idea of a "community car" and replaced AICs

[3] On the development of industrial cooperation and trade liberalization in the first decades of ASEAN see Soesastro (2002).

[4] Council for Mutual Economic Assistance. It was created by six Eastern-European countries in 1949. Five other socialist countries joined COMECON later on. The organization was dissolved in 1991.

with the so-called Brand-to-Brand Complementation (BBC) Scheme, which guaranteed the use of corporate brands for the manufacturers of automobile parts (Shimizu 1999).

The ASEAN Industrial Joint Ventures (AIJVs) project, launched in 1983, was more flexible than the AIP or AIC but still could not reach its goals, because ASEAN companies have preferred to form joint ventures with foreign companies of developed countries (mainly Japan) instead of their ASEAN counterparts.

The above-described initiatives were sufficient to express a wish for a closer collaboration among the member states but were insufficient to deepen their economic integration and stimulate their economic growth. By the 1980s, the import substitution strategies have been exhausted and became outdated everywhere in the world. The 1980s brought the introduction and spread of neoliberal policies with the leadership of the IMF and the World Bank, powerful financial institutions that have assisted the indebted developing countries on the basis of ideas of the 'Washington Consensus' (Williamson, 1990). The economic policy of ASEAN members changed in these years as well. This was made clear by the third Summit (Manila) in 1987, where the foundations of a new strategy were laid down. The ASEAN countries got rid of the import substitution logic, turned towards liberalization and began to pursue a collective export-oriented and foreign direct investments-depended strategy (Völgyi – Lukács, 2014).

In 1987, the member states signed an agreement on the mutual protection and promotion of investments. This agreement was modified in 1997, when the number of ASEAN members was nine already. A major step along this way was the establishment of ASEAN Investment Area (AIA) by a Framework Agreement in October 1998. The aim of AIA was to enhance the attractiveness of the region for foreign investors from third countries and also to encourage mutual investments in the member states through, among others, the reduction or elimination of regulations, while liberalizing the

flow (repatriation) of capital in order to – as the joint press release said – make 'ASEAN an attractive, competitive, open and liberal investment area' (cited by Thanadsillapakul, [s.a.])

Trade liberalization

The encouragement of capital investments would not have been successful without trade liberalization. The realization that a deeper economic integration would be needed was first officially articulated by the Framework Agreement on Enhancing ASEAN Economic Cooperation on the Fourth Summit in Singapore in 1992. This paved the road to the earliest key liberalization agreements. Among the latter the first was the 'Agreement on the Common Effective Preferential Tariff (CEPT) Scheme for the ASEAN Free Trade Area' (AFTA – from 2010 on 'ASEAN Trade in Goods Agreement' or ATIGA) that was signed on the same summit. After that, trade liberalization has begun with a gradual reduction of tariffs on manufactured products (ASEAN Secretariat, 2015).

The following years are also known as the period of liberalization all over the world. In April 1994, the World Trade Organization was established and in 1995,it began its activity. In November 1994, in the so-called Bogor Declaration, the Asia-Pacific Economic Cooperation (APEC)[5] agreed to liberalize the flow of goods and capital among each other by 2020. In May 1995, at the ASEAN-EU Senior Official's Meeting, the Prime Minister of Singapore proposed to strengthen relations between the two regions (Europe and Asia) by organizing a summit. This was welcomed by the EU having a 'New Asia Strategy' since 1994. As a result, the Asia-Europe Meeting (ASEM) was launched in 1996 (Bangkok)[6]. Since then summits with

[5] APEC was founded in 1989 (Canberra, Australia) as a consultation forum between 10 Asian countries, among them the then six members of ASEAN, the USA and Canada. By now, APEC has 21 member states.

[6] The initial ASEM partnership in 1996 consisted of 15 EU member states and 7 ASEAN

the participation of leaders of member states and representatives of the two integrations and other European and Asian countries have been held in every two years and ministers with different portfolios (economy, finance, culture) have met regularly too. After the strong USA-EU connections and the cooperation between Asia-North America in the form of the APEC, the ASEM has become the "missing link" in the connections of the Triad (North America, Western Europe and Asia). In the frame of these forms of cooperation, the liberalization of trade and investments continued in the 1990s, and the ASEAN members have speeded up the liberalization of their intra-regional trade as well.

The next important step on the way towards a more integrated inner market was the creation of the ASEAN Industrial Cooperation (AICO) scheme in 1996 that replaced the AIJV and the Brand-to-Brand Complementation (BBC) Schemes. AICO retained some of the features of AIJVs and BBC but offered more in terms of tariff and non-tariff incentives. AICO aimed to encourage cross border intra-regional investments and trade between ASEAN-based companies in the technology-intensive industries, offering import duties reduction to the participants. The overwhelming majority of the projects that fulfilled the requirements (40% ASEAN-content, a minimum of two participating companies in two different ASEAN countries[7]) and thus could enjoy the benefits of the scheme belonged to the automobile industry. Although the Japanese companies could benefit a lot from the reduced import duties, the AICO scheme could be considered quite successful from the viewpoint of ASEAN member states as well, inasmuch as it helped to increase

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member states plus China, Japan, Korea and the European Commission. Due to the enlargement of both integrations and the involvement of other states from Europe and Asia, the number of dialogue partners is already 53 today. (About the Asia-Europe Meeting (ASEM). http://www.aseminfoboard.org/about)

[7] ASEAN Industrial Cooperation Scheme. ASEAN website. http://asean.org/?static_post=asean-industrial-cooperation-scheme.

the level of regional integration of automobile production. As, however, tariff reductions in the framework of AFTA was no longer available from 2010 onwards (with the exception of the four more recent members, Cambodia, Laos, Myanmar and Vietnam, which joined the ASEAN after that AFTA had been launched and hence were allowed to reduce their tariffs over a longer period), AICO ceased to offer extra advantages to most of the member states and was terminated and superseded by ASEAN Trade in Goods Agreement (ATIGA) (Sim, 2011).

Endeavours for financial cooperation

The trade liberalization and the different production cooperation schemes have been sufficient only to maintain the level of intra-regional economic ties but could not deepen economic integration significantly. However, the financial turmoil in 1997 and 1998 had a serious knock-on effect on the biggest nations of ASEAN (Thailand, Malaysia, Indonesia, and the Philippines) and also on South Korea.[8] The positive yield of this crisis for ASEAN was the recognition of the need for regional financial cooperation at state level in order to prevent and/or successfully manage similar crises in the future. Japan provided loan to the troubled countries and proposed to formulate an Asian Monetary Fund in order the replace the role of the IMF in the region. The idea of self-reliance in financial matters was not completely new to the founding members of ASEAN which had agreed to establish reciprocal currency or swap arrangements as early as in 1977. However, the volume of these deals (200 million USD from 1978 on) was far from being sufficient during the East Asian financial crisis.

This assumption has led to the expansion of regional coopera-

[8] The evolution of the financial cooperation in Southeast Asia after the 1997-98 financial crisis was described in more detail bySeung-Cheol (2004).

tion in East Asia. The crisis-hit ASEAN invited the leaders of China, Japan and South Korea to their summit in November 1997, then again in 1998, in Hanoi, where China proposed that central banks of the "ASEAN+3" should meet on a regular basis. Next year in Manila the leaders of ASEAN+3 issued a formal statement on their wish to cooperate in several fields, including financial matters. This process led to the formulation of a financial cooperation in Chiang Mai, Thailand, in 2000. In the so-called Chiang Mai Initiative (CMI) the partners agreed to establish a regional monitoring framework, facilitate regional surveillance, create swap networks and conduct common research and training personnel.[9] Since then the financial cooperation has been strengthening thanks first of all to China's efforts towards community building in East Asia (Lee 2010, Sussangkarn 2010).

In 2009 the CMI was 'multilateralized' (CMIM) with the creation of a fund of 120 billion USD (20 percent of this amount was contributed by ASEAN, 16 percent by South Korea and 32 percent by China together with Hong Kong and 32 percent by Japan). The amount was doubled in 2012 and a CMIM Stability Found was introduced (more precisely, it was separated within the 240 billion USD fund) to provide short-term liquidity support in case of temporary liquidity problems. Other modifications have also been made. Nonetheless, CMIM remained highly inefficient for managing the financial problems of the region. The money in CMIM only amounts to 1.5 percent of the GDP of ASEAN+3 (the European financial safety net that served similar goals was much larger both in absolute and relative terms, being equal with 750 billion euro or 8 percent of the then Eurozone GDP). For this reason, CMIM can be neither a supplement nor even a partner of the IMF in the region as yet (West, 2014).

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[9] The Joint Ministerial Statement of the ASEAN+3 Finance Ministers Meeting (6 May 2000, Chiang Mai).

Single market – an unfeasible dream?

The formulation of a single market has been on the agenda of ASEAN since the 1997-1998 financial crisis. According to the original plan ("Vision 2020" – Kuala Lumpur 1997) the economic community should have been achieved by 2020 (The establishment of the ASEAN Investment Area in 1998, mentioned earlier, was also part of this plan). On the ninth summit (2003, Bali, Indonesia) with the Declaration of ASEAN Concord II, also known as Bali Concord II, the ASEAN made a 'historic step toward regional integration'. This document, which was inspired by Indonesia (see later), declared that the member states would establish the ASEAN Community by 2020 and specified the three pillars of this community: Political-security, Economic and Socio-cultural.

During the 12th summit (Cebu, Philippines, 2007) the member states agreed to accelerate the procedure of economic integration and decided that it should be realised until 2015. On the 13th summit (Singapore, November 2007) the leaders signed the 'constitution' of ASEAN, the ASEAN Charter, that was ratified by the member states in a year and could enter into force on 15 December 2008. The Charter declared that the purpose of ASEAN is to establish a single, economically integrated market, the free flow of goods, services and investment by 2015. It created, among others, the position of a secretary-general and permanent representatives of ASEAN and increased the number of summits from one to two per year.[10] The Charter is a legally binding agreement that provides legal status and institutional framework for ASEAN and codified the values and rules for it.

On the basis of the Charter, ASEAN gained its new institutional structure that manages the three pillars (political and security, economic and socio-cultural community), the development of which

[10] The ASEAN Charter. http://www.asean.org/storage/images/ASEAN_RTK_2014/ASEAN_Charter.pdf.

should lead to a more integrated community. The ASEAN Community Councils comprise the Council of the three pillars of ASEAN. The relevant ASEAN Sectoral Ministerial Bodies are under the supervision of the Community Councils.

The ASEAN Secretariat is the main administrative body of ASEAN. At the top of it is the Secretary-General, as the Chief Administrative Officer, who is appointed by the ASEAN Summit for five years, selected from among nationals of the ASEAN Member States based on alphabetical rotation. Between 2013 and 2017, the Secretary-General of ASEAN is Le Luong Minh from Vietnam.

Under the ASEAN Secretary-General there are four departments serving for 1) the Political and Security Community (APSC), 2) the Economic Community (AEC), 3) the Socio-Cultural Community (ASCC) (the three pillars) and 4) for the Community and Corporate Affairs (CCA). APSC is divided into two directorates (Political and Security Directorate and External Relations Directorate), while the other Departments work with three directorates each. Under the AEC Department an ASEAN Integration Monitoring Directorate, a Market Integration Directorate and a Sectoral Development Directorate operate. ASSC has an Analysis and Monitoring, a Human Development and a Sustainable Development Directorate. A Corporate Affairs, a Legal Service and Agreements and a Community Affairs Directorate belong to the CCA. Every Directorate is subdivided into two to seven Divisions.[11] The ASEAN has got the institutional structure that is suitable for managing a single market.

The global crisis of 2008 influenced the economic performance of the member states through the weakening demand on the world market, but otherwise they could weather the worst crisis years basically well. At the end of December 2015 the completion of ASEAN Community was declared as by then the goals described in

[11] For more details see ASEAN Secretariat Organizational Structure. http://asean.org/asean/asean-structure/organisational-structure-2/.

the ASEAN Charter have been achieved. For example, the free trade area has been virtually established, the import duties in ASEAN have already been practically eliminated by 2010 (Remo, 2015), and the remaining tariffs have been reduced to less than five percent leading to a4.5 percent average tariff rate by 2015.

However, tax reduction is equal neither to free trade nor with economic integration. The weight of intra-regional trade has not increased much (it is still about one quarter of the total) and the number of non-tariff-measures swelled from 1,634 in 2000 to 5,975 in 2015 (Ing et al. 2016, p. 21.). So there is a lot to do until the markets of the ten members become really integrated. The tasks are described in the ASEAN Economic Community Blueprint 2025.[12]

Despite the achievements described above, ASEAN has remained an intergovernmental organization with much weaker intra-regional economic relations than that of the European Union. The reasons for this are to be found in the big differences between the size, competitiveness, culture and governance systems of member states and the diverging interests deriving from these. The well-structured but loose, politically non-binding character of ASEAN institutions is also a consequence of and at the same time a reason for this situation, in which Indonesia has always been the decisive factor.

INDONESIA WITHIN THE ASEAN

Relative importance of Indonesia within ASEAN

By its GDP per capita, today Indonesia is a middle income[13], middle developed country both in international and ASEAN com-

[12] ASEAN Economic Community Blueprint 2025. http://www.asean.org/storage/images/2015/November/aec-page/AEC-Blueprint-2025-FINAL.pdf.

[13] According to the classification of the World Bank, Indonesia belongs to the group of 'lower middle income' countries.

parisons. In 2015 its GDP per capita was 11,100 PP$ (purchasing parity standard), No 132 out of 229 countries of the world and the fifth largest among the ten ASEAN countries (Table 1).[14] In the Global Competitiveness Index 2015-2016of the World Economic Forum Indonesia was ranked 37th out of 140 economies, fourth within ASEAN after Singapore (which wasNo.2 in the Global Competitiveness ranking), Malaysia (No. 18) and Thailand (No.32) (WEF 2015, p. xv.). Indonesia is also less 'globalized' than most of its ASEAN partners. In 2015 the country exported less than not only Singapore, but Malaysia, Thailand and Vietnam as well and gave 13 percent of the total exports of ASEAN in 2015.[15]

Having the largest domestic market within ASEAN, Indonesia has always been less reliant on foreign markets than other member states of the organization. The openness of Indonesian economy is among the lowest in ASEAN: the ratio of exports of goods and services to GDP was 23.9 percent in 2013[16] higher only than that of Myanmar out of the ten members. Besides, the share of FDI stock to GDP (29.8 percent in 2014[17]) is the third lowest after Myanmar and the Philippines – again within the ASEAN.

In spite of this relative middle-position of the advancement of Indonesian economy within the ASEAN, Indonesia occupies a central place in the community, being the biggest nation out of the ten members regarding its territory, population and GDP as well (see Figure 1 and 2). Besides, Indonesia has the largest Sunni Muslim population in the world (87.2 percent of the inhabitants are Muslim). Furthermore, in the pastyears, Indonesia has become the

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[14] CIA The World Factbook, Country comparison: GDP per capita (PPP). https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html#id.

[15] Author's own calculations based on ASEAN External Trade Statistics. Table 17. http://asean.org/?static_post=external-trade-statistics-3

[16] UNCTADStat, Data Center, Trade indicators, Goods and services (BPM6): Trade openness indicators, annual, 2005-2014.

[17] UNCTADStat Data Center, Foreign direct investments.

second most attractive location of transnational corporations within ASEAN after Singapore. Recently in absolute terms more foreign direct investments flowed to or were reinvested in the country than in other member states, except for Singapore, and the share of Indonesia in the total FDI stock of ASEAN reached 15 percent in 2014.[18] The increase of FDI-inflow is likely to continue under the new President, Joko Widodo (elected in 2014) as he has launched deregulation and shortened the 'negative investment list' that contains the names of sectors to which foreign investment restrictions apply (Tang, 2016.)

Because of this duality – the largest but only less globalized and less competitive economy of ASEAN – Indonesia has always played an ambiguous role in the evolution of East Asian cooperation. To understand this ambiguity one must cast a glance to the history of the country.

Short historical overview

Like many other colonial territories, Indonesia achieved its independence by years of struggles and became independent in 1949. Its first president was Sukarno, who in 1957, after years of parliamentary democracy, introduced a new political system called 'guided democracy'. He intended to reconcile the three main ideologies of Indonesia and the social forces behind them: nationalism (the army), religion (the Islamic groups) and communism (the Communist Party of Indonesia). The latter enjoyed increasing popularity in that time both worldwide and in Indonesia as well. As a consequence, Sukarno's regime had a strong anti-imperialistic, nationalistic and increasingly socialistic character – similarly to North Korea, for example. Sukarno made meaningful steps to alleviate poverty and increase the standard of living of country's population (devel-

[18] UNCTADStat Data Center, Foreign direct investments.

opment of the educational and health systems, labour protection rules etc.), but in financing these measures the country has become increasingly dependent on foreign (American and Soviet) financial aid.

In the middle of the 1960s, Indonesia faced a severe economic crisis – not independently from the fact that because of Sukarno's increasingly communist-friendly political line the US withdrew its financial assistance from the country (Mehr 2009, p. 70). Although there is not clear evidence, certain historians still believe that the United States (the CIA) was involved in the elimination of the Sukarno regime (Scott 2015, Simpson 2015). Sukarno's 'old order' was swept away by its Muslim and military oppositions and General Suharto's strong assistance through a massacre between October 1965 and March 1966, when 500,000 – or, according to some estimations, even three million – communists, alleged communists and Chinese were killed.[19] This event was welcomed by the United States (Mehr 2009, Simpson 2015). The person who followed Sukarno in the presidency directed the historical development of Indonesia towards a capital market economy.[20] To ensure this 'new order", Suharto, first as military leader (between 1965 and 1967, in the period when also the large-scale killings occurred), then as the President (1967-1998) of Indonesia was the engine of political block-building that aimed at peace and security (i.e. curbing communist influence) in the region. The foundation of the ASEAN would not have been possible without Indonesia, the largest nation of the region in terms of population, territory and economy as well. Under the Suharto era (1965-1998) ASEAN was important in the Indonesian foreign policy, and the country was proactive in the ASEAN at least concerning political (security) cooperation, and promoted its own image as the leader nation within the community

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[19] Al Jazeera (2012), Cribb (2004, p. 133).

[20] NSA EBB (s.a.).

or the 'primus inter pares' among the members (Heiduk 2016a). Following Suharto's regime, the importance of ASEAN in the Indonesian foreign policy has fluctuated. It increased in the first few years after Suharto, then, during and after Megawati's presidency (2001-2004) increased, while since 2014 it has seemed to lower again. This we will discuss in Section 3.4 and 3.5 in more detail. Before that, we devote a section to the question of economic integration, that has never been so important for Indonesia as the political cooperation.

Indonesian approach of economic integration

The Indonesian political leaders, but also the academics of the country have always feared the export competition from other ASEAN -countries like Singapore. Besides, they have held the opinion that smaller countries like Brunei or Singapore would benefit from it more than the larger ones as small countries would gain access to the markets of large countries.

For this reason, Indonesia was reluctant to accept the conditions of AFTA in 1992 and agreed only after gaining a fifteen-year delay in the implementation of liberalization. In spite of this, however, the country has implemented all its commitments in due time, by 1 January 2002. Indonesia also had reservations in connection with the bilateral free trade agreements (AFTA plus) that the ASEAN has signed with third countries in the region (China, Japan, South Korea, India and New Zealand) from 2002 onwards. Similarly, Indonesia has been reluctant to liberalize its aviation and taken a conservative position in connection with the liberalization of labour mobility and in other issues as well (see Heiduk 2016a for further details). There is also a hesitation in Indonesia about joining the US-led Trans-Pacific Partnership (TPP), which would mean further liberalization and according to some estimations would worsen the Indonesian balance of trade (Sahu, 2016).

The fears have been well founded. The course of liberalization in

the 1990s has hit hard the labour-intensive industries of Indonesia, which lost their competitiveness on their export markets that resulted in unemployment and increasing poverty (Chowdhury, 2007). The 'open' unemployment rate increased from below 3 percent in 1992-1993 to over 11 percent or close to 12 million in August 2005 and began to decrease only after that year, when the world economy was dynamic due to the financial bubbles of the core countries (United States and the European Union) and the growth of China. The unemployment rate continued to fall even during the global crisis of 2008 and in February 2016 it was 5.5 percent.[21]

If, however, we take into consideration the underemployment (or 'hidden' unemployment) as well, the labour market situation is much more problematic. The Indonesian underemployment is hard to precisely assess. There are numbers between 30 to 47 percent. In the period of 1994-1997, 23 percent of labour force worked less than 25 hours and 38 percent worked less than 35 hours a week, and only a tenth of these underemployed were looking for a job (Dhanani, 2004, p. 23 and 30). The underemployment has been typical of the traditionally extended informal sector. Although there have been some improvements in this field in the last years, still an estimated 53.6 percent of the employed worked in the informal economy in February 2014 (ILO 2014, p.2).

Not independently from the above-mentioned facts, poverty is still high in Indonesia. Between 1970 and 1996, the number of people living in poverty fell considerably, from 70 million to 22.5 million. The following years, however, brought the East Asian financial crisis – the product of global speculative capital – and the Indonesian economy collapsed. In 1998 the GDP contracted by 13 percent[22], unemployment increased and inflation soared. The latter

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[21] BadanPusatStatistik (BPS-Statistics Indonesia), Unemployment Rate (UR) by Province, 1986 - 2016https://www.bps.go.id/linkTabelStatis/view/id/981

[22] UNCTADstat, Date center, Economictrends, National accounts.

development hit the poor especially hard and their number rose sharply, reaching 49.5 million in 1998. After that year poverty has been somewhat alleviated, but the number of people living under the poverty line (about 30 USD per person per month in 2013) was still 28 million in March 2016[23] – higher than almost two decades earlier. Besides, in 2013, 43 percent of the country's population lived on less than 2 USD a day (Mietzner, 2014, p. 113), the Gini coefficient (measuring inequality) reached a record high 41 percent in 2011 and has remained constant since then.[24] The social dissatisfaction triggered by these developments made people receptive to the 'pragmatic, moderate, and inclusive populism' (Mietzner, 2014, p. 115) that Joko Widodo represented in the next presidential elections in 2014.

To escape poverty, many Indonesians have been seeking work in the Middle East (first of all Saudi Arabia) and in the surrounding countries (first of all Malaysia). The government has helped hundreds of thousands of labour migrants to go abroad every year since the 1990s. In 2006, 2.7 million Indonesian citizens or 2.8 percent of the countries' workforce worked legally abroad (IOM, 2010). There is an unknown but likely significant number of illegal workers as well especially in Malaysia (The estimated number of all migrant workers in the whole ASEAN-region is 14 million. IBON 2015).

To strengthen the economy and prevent the exploitation of (mostly illegal) migrant workers in the host countries of the region, Indonesia has been interested more in building a political community (for example protecting 'human rights') than in free trade with its ASEAN partners. This is one reason why Indonesia has not become an engine of the economic integration.

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[23] BadanPusatStatistik (BPS-Statistics Indonesia), Number of Poor People by Province, 2013-2016, https://www.bps.go.id/linkTableDinamis/view/id/1119

[24] BadanPusatStatistik (BPS-Statistics Indonesia), Gini Ratio byProvince, https://www.bps.go.id/linkTableDinamis/view/id/1116

Under Suharto (1965-1998) the primary goal of the Indonesian foreign policy was to reach regional stability and cooperation without too much economic liberalization because of the above-mentioned lack of sufficient competitiveness in relation to some ASEAN partners and asymmetric gains from liberalization. Heiduk (2016a) adds three other factors that explain why ASEAN has not evolved to a strong economic union. First the lack of economic interdependence between Indonesia and its ASEAN-partners; second, Jakarta's orientation towards ex-regional partners in economic cooperation and third, the diverging interests of ASEAN-countries regarding key aspects of regional integration. The latter means that, while Malaysia, Singapore and Thailand would like to see deeper economic integration, Indonesia prioritises political goals, first of all, security (Heiduk, 2016a, p.8). The weight of Indonesia within ASEAN, its reluctance towards deeper regional market integration, together with the ASEAN way of consensus decision making, have all resulted in that ASEAN has failed to create supranational institutions and preserved its strictly intergovernmental character (Heiduk, 2016a, p.7). We must add, however, that Indonesia has not been the only country that has curbed the deepening of the economic cooperation. Singapore, Malaysia, Thailand have also been more integrated into the world economy than into the ASEAN. Besides, Singapore has been the only member of ASEAN that has been competitive enough to gain from trade liberalization, while other members of region have been rightfully reluctant to open their markets to foreign producers.

Interests in security political cooperation

After the terrorist attack against the World Trade Centre in the United States in September 2001, the issue of security was brought into focus worldwide. Indonesia was especially affected by the problem as the country was hit by a number of terrorist attacks (for

various reasons) in the first years of the 2000s. The most serious was the attack in October in Bali, when 202 people, mostly foreign tourists, were killed by Islamic extremists. For this reason, it is not surprising that it was Indonesia that proposed the establishment of an ASEAN Security Community in 2003. We have to remember that until that year, the economic liberalization and cooperation have made some progress and in the given circumstances it became clear that without security cooperation the economic integration cannot be continued. Consequently, other member states, less affected by terrorism and being more interested in economic than political aspects, were also open to the establishment of closer ties within the framework of ASEAN. Especially because the Indonesian proposal aimed at a broader than military cooperation of member states in order to save peace and be able to avoid intervention by extra regional forces (like in Iraq) in case of political destabilization in the region. This proposal and the discussions over that led to the infamous Declaration of ASEAN Concord II (Bali Concord) in October 2003, which declared the formation of the ASEAN Community with its three pillars (security, economic, socio-cultural).

By initiating the security community, which has become the first pillar of ASEAN Community, Indonesia acted as an engine for further development of ASEAN. Besides, Indonesia makes efforts to reform the traditional (consensual) decision making process of ASEAN, to make sanctions possible in cases of non-compliance of agreements, and also, to increase financial contributions of member states to the ASEAN Secretariat. However, these initiatives failed because of the resistance of other member states. As far as the economic integration is concerned, in the history of ASEAN Indonesia has not initiated any measures or policies, what is more, the country has tended to block or delay measures that aimed at deepening economic cooperation (Heiduk, 2016a, pp. 8-9). These efforts and the lack of efforts represent that within the frames of its own interests and only within those, Indonesia would welcome stronger

institutions in ASEAN.

After a more than three-decade long stable political rule and high economic growth, the Southeast Asian financial crisis swept away President Suharto's regime in 1998. The successors (first Habibie, then Wahid, both for short periods, and Megawati between 2001 and 2004) ruled amidst a very difficult economic and political situation (e.g. riots in Aceh province, departure of East-Timor, terrorism). In 2004, SusiloBambangYudhoyono (also known as SBY) came to power and served for two terms. In spite of the natural disasters that affected the country under his presidency (tsunamis in 2004 and 2010, earthquakes in 2009 and an eruption of Mount Merapiin 2010) the economy performed relatively well: the annual growth rate of GDP per capita was three to five percent and poverty alleviated too. Thanks to its large domestic market and low dependence on export, Indonesia was among the few ASEAN members that did not suffer from recession due to the global crisis in 2008.

During Suharto, the military effectively controlled the ministry of foreign affairs and the generals' influence on foreign policy has been maintained for several years after Suharto as well. SBY, however, although he has been a senior military officer, he has successfully delinked the military and the ministry of foreign affairs and professionalized foreign policy. Until the end of SBY's second term, the attitude of Indonesia towards ASEAN has somewhat changed. There has been a shift in foreign policy orientation with third countries gaining more attention. This has been reflected in the redefinition of foreign policy as "all direction foreign policy" and the identification of Indonesia as a country that has 'thousands (in SBY's second term: millions) of friends and zero enemies' (Connelly, 2014 p. 2, Yudhoyono, [s.a.]). This, however, did not mean a turning away from ASEAN. Instead, SBY sought to maintain warmer relations with its neighbours and in the same time improve relations with China, the United States and other powers in and outside the region as well.

Turning away from ASEAN?

In 2014, SBY was succeeded by Joko Widodo ("Jokowi") and speculations have emerged that the Indonesian foreign policy and the place of ASEAN in it would change. These speculations were based on the fact that Jokowi represents a basically new type of political carrier in Indonesia– he has been compared by the media to Barack Obama –, which is likely to determine how he looks at the world. All the previous presidents of Indonesia have been military persons or (as in Megawati Sukarnoputri's case) had strong relations with the army. Jokowi, however, has neither military nor political elite background. He is of humble origins who used to live with his family in illegally built shacks in much of his childhood. He began to work at twelve years of age in his father's small business. In 1985, he obtained a degree in forestry engineering at GadjahMada University in Yogyakarta. Then he worked for a state owned pulp mill company in Aceh province before establishing his own furniture factory. He has been exporting furniture for 24 years, travelling a lot to Europe, the United States and Australia. Although Jokowi has got knowledge about the world beyond Indonesia, he has not become a member of the cosmopolitan business elite that is equipped with good political relations. He served as a Mayor of Surakarta (his hometown in Java with 500 thousand inhabitants) from 2005 until 2012, then as a Governor of Jakarta between 2012 and 2014.Jokowi's strength is domestic policy. He plans to stimulate economic growth by upgrading the infrastructure (which he performed successfully in Surakarta) and attracting foreign investors to the country. On domestic political field, he identified curbing corruption as one of its top priorities. As to social policy, he wants to improve public services and help the poor with other measures as well (Connelly 2014 pp. 4-5, Hollar [s.a.]).

Jokowi's foreign policy guidelinescan be summarized as follows (Connelly, 2014, Pandu, 2015, Shekhar – Liow, 2014): Indonesia is

primarily an archipelagic state that can enhance its global role by pursuing a middle power diplomacy and expanding its influence in the Indo-Pacific region('We want Indonesia to become the world's maritime axis' – Jokowi said already as a presidential candidate in June 2014, Ramadhani – Marbun 2014); the economic diplomacy has to gain stronger positions and for this reason the foreign ministry is to be reformed. In the first month of Jokowi's presidency, analysis stated that as Jokowi lacked foreign political and strategic skills and diplomatic experience, as opposed to SBY, he would not be able to pursue such a 'streamlined' and outward-looking internationalist foreign policy and he would neither be able to preserve the independence of foreign ministry from the influence of the army. Consequently, the observers predicted that Jakarta would turn away from ASEAN and take a more nationalistic path in its foreign policy (see Connelly 2014, Prashanth 2015a and Qin 2015). The assumptions were so sound that Jokowi and its cabinet had to refute it repeatedly (Prashanth, 2015b).

The fears might be exaggerated but not completely unfounded. Jokowi intends to increase defence spending up to 1.5 percent of GDP (Parlina 2016) and stop illegal fishing by sinking foreign vessels that enter territorial waters of the country. He reintroduced the death penalty for drug smugglers that caused diplomatic problems as well after Brazilian and Dutch citizens were executed in early 2015 (Today, 2015). Furthermore, one of Jokowi's foreign policy advisers, Rizal Sukma, has declared that ASEAN is no more 'the' cornerstone of the Indonesian foreign policy, it is only 'a' cornerstone of that (Prashanth, 2014). The Jokowi administration, although aiming at encouraging foreign investments, also increased tariffs for a set of consumer goods and introduced new tariff and non-tariff trade barriers in order to protect local producers (Heiduk, 2016b).

Furthermore, it seems that the anti-imperialists rhetoric returns with Jokowi to some extent – albeit in a 21st century form. Jokowi is a member of the Indonesian Democratic Party of Struggle which

is led by Megawati Sukarnoputri, daughter of the first President of Indonesia, Sukarno. Six months after his inauguration, at the Asian-African Conference (that was initiated by Sukarno is 1955), Jokowi openly criticized the United Nations (in connection with its Palestinian policy), the International Monetary Fund and the policy of global superpowers in general, stating that the idea that global problems can be solved by the West is "obsolete" and a new economic order is needed, where emerging powers also have a say "to avoid the domination of certain groups of countries" (Today, 2015).

All these do not mean that ASEAN would have ceased to be the base of the regional stability and security for Indonesia. The Jokowi administration will likely continue similar policy than its predecessors in connection with the cooperation in issues like migration, terrorism, the Islamic State and also disaster management. In the latter cases Indonesia is interested in and forcing even closer cooperation in ASEAN. The reluctance of the Indonesian leaders towards deeper economic cooperation with other ASEAN members, as we have discussed it above, is not a new phenomenon. It has been characteristic of the Indonesian ASEAN-policy from the very beginning. What can be identified as a turning away from ASEAN is the passivism in regional affairs. As we saw, Indonesia has always been a driving force for the development of regional cooperation by pursuing active policy concerning security. It seems, however, that this activism has been set aside by Jokowi's administration (Heiduk, 2016b), as it has other priorities as well. If so, the development of the regional cooperation within ASEAN will likely to stall.

CONCLUSIONS

The ASEAN has come a long way since its foundation by a short declaration in 1967. By now, it has a Charter that summarizes its so-

cio-economic and political goals and specifies its institutional structure. However, despite repeated efforts, ASEAN has never been so successful in economic integration as the European Union has been or even the integration of the Eastern European countries (COMECOM) was earlier. At first glance, the reason for it is the diverging interests of member states of ASEAN because of the differences in their competitiveness and the possible asymmetry of gains from liberalization. This is, however, not unique for ASEAN, as there have always been countries of different development levels within the much more integrated European Union as well. Looking for more satisfactory explanation for the difference in the depth of economic integration of the two organizations, we can find the different attitudes of leading nations of integrations (Germany in the case of EU and Indonesia in the case of ASEAN) on the issue. This difference between the respective attitudes of Indonesia and Germany can be further explained by the difference of their competitiveness in comparison to other members of their organizations. Having a relatively weak economy, Indonesia has had to fear regional liberalization, while the very developed Germany has not.

On the other hand, Indonesia has been traditionally interested in security cooperation in the region and by actively supporting this, the country has been a driving force both of the foundation and the development of ASEAN. With President Jokowi, however, an old-new style of political leadership emerged in 2014. Growing up in poverty, having personal experiences as a worker, businessman and Mayor of Surakarta and Governor of Jakarta, and according to the traditional political stance of his political party, led by Sukarno's daughter, Jokowi occupied a more globalization-critical platform than his predecessor. Jokowi has been following a populist-nationalist path that defines Indonesia as a middle power or a 'global maritime axis' that has to be more active in the Indo-Pacific region.

It does not mean that Indonesia under Jokowi will turn against

Western powers or turns its back on ASEAN. Instead of this, the Jokowi administration has been maintaining the traditionally very good relations with the US, from which Indonesia has got billions of dollars in the past decades, and continues to look at ASEAN as its most important partner for preserving regional peace and security. The shift of emphasis in foreign policy towards a broader than ASEAN regional political role, however, may result in a durable decrease of activity within the Association of Southeast Asian Nations that would halt the deepening of cooperation within this organisation.

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APT(ADVANCED PERSISTENT THREAT)S AND INFLUENCE: CYBER WEAPONS AND THE CHANGING CALCULUS OF CONFLICT

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Abstract

APT(Advanced Persistent Threats)s are the most sophisticated form of cyber weapon that exists. APTs are reshaping the balance of military capabilities in unpredictable and disruptive ways. Unlike simpler attacks, such as distributed denial of service (DDoS) operations, APTs are customized and designed to the systems they are to infiltrate. Therefore, states, rather than hacktivists or terrorists, are the only entities likely to possess the necessary resources and expertise to develop APTs. Prominent international examples of APTs include the American/Israeli Stuxnet worm and Flame virus employed to disrupt Iranian Uranium enrichment capability and China's Shady Rat operation designed to steal data from foreign defense contractors. The increasing use of APTs is potentially destabilizing for the international system especially in East Asia, where the distribution of cyber attack capabilities and vulnerabilities is highly asymmetric. China and North Korea are both important cyber powers and they are extremely active. China leads the world in terms of the number of hostile cyber incidents attributed to it. They are two of the most capable and likely actors to use cyber capabilities during a conflict and have strong incentives to employ APT to cripple, for example, the United States ability to respond to a crisis in the Taiwan Straits and/or Korean peninsula. One of the most potentially destabilizing characteristics of APTs is their offensive nature that incentivizes states to start a war rather than temporize during international crises situations. APTs are highly capable weapon of surprise but are limited by its short-term, single-use nature of their impact. All of this creates acute incentives for a state in possession of superior cyber weapons to attack while its capability exists. APTs are reshaping the balance of military capabilities in unpredictable and disruptive ways as cyber weapons are undeniably an increasingly important component of states' military power.

Key words: APT(Advanced Persistent Threats), Stuxnet, Cyber attack, China and A2AD , North Korea' cyber capability

INTRODUCTION

Few technological developments can potentially shape the international balance of power than the emergence of cyber weapons. Cyber operations enabled Russia to interfere in the United States' 2016 elections, China to steal blueprints for the United States' F-35

fighter, and the United States to disrupt Iran's nuclear program. This increasing prominence of cyber operations has given rise to a debate between cyber "optimists" who argue that states are more likely to practice restraint than fully exploit their capabilities and "pessimists" who view cyber warfare's facility as destabilizing the international order. In this article we will examine the possible applications of one particular form of cyber weapon—advanced persistent threats (APT). Our analysis of inherent APT characteristics leads us to steer a mid- course between cyber "optimists" and "pessimists" since APTs exacerbate the risk of pre-emption in the midst of crises by running the risk of escalation from minor cyber incidents to full-scale cyber war.

APTs are the most sophisticated form of cyber weapon that exists. Unlike simpler attacks, such as distributed denial of service (DDoS) operations, APTs are customized and designed to the systems they are to infiltrate. The need for customization means that APT developers need access to precise technical intelligence on the systems they intend to attack and sizeable numbers of software developers. As a consequence, states, rather than hacktivists or terrorists, are the only entities likely to possess the resources and expertise to develop APTs.[1]

The long time frames needed to develop and implement APTs, meanwhile, demand that they be integrated into long-term foreign and military strategies. Indeed, some APTs have been detected remaining concealed for up to 205 days or even 2,982 days.[2] The costs for developing individual APT also vary, from $10,000 to $100 million, depending on their sophistication, meaning that the most complex APTs bear price tags equivalent to individual major con-

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[1] Brandon Valeriano and Ryan Maness, *Cyber War Versus Cyber Realities: Cyber Conflict in the International System* (Oxford: Oxford University Press, 2015), 164-87.

[2] M-Trends@ 2015: A View from the Front Lines, p.1.

ventional weapons systems.[3]

Prominent international examples of APTs include the American/Israeli Stuxnet worm and Flame virus employed to disrupt Iranian Uranium enrichment capability and China's Shady Rat operation designed to steal data from foreign defense contractors. South Korea itself has been subjected to several APTs, including the 2011 Nonghyup Bank Hack, the IceFog espionage campaign initiated in 2011, the 3 March 2013 attacks, and the Kimsuky anti-think tank campaign.[4] While APTs have thus far been used in peacetime for either sabotage or espionage purposes, their real potential lies in their ability to disrupt or subvert major electronic systems, such as power grids or military communications.

To assess APT's likely impact on the international system we first examine the arguments that cyber "pessimists" pose about how cyber capabilities are allegedly rendering international conflict more likely and then assess whether these apply to APTs. Although we find that the "attribution problems" and "cyber escalation" are less acute for APT than less sophisticated cyber weapons, we argue that APTs create incentives for pre-emption during international crises. We then examine two scenarios—China/United States and North Korea / South Korea—to illustrate this use of APTs in crisis scenarios. To preview our conclusions, policymakers and security professionals must take APT seriously because the timely use of APT could temporarily shift the military balance in the midst of a crisis and also incentivize states to engage in attack rather than temporize.

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[3] David Gilbert, "Cost of Developing Cyber Weapons Drops from $100M Stuxnet to $10K IceFog," *International Business Times* (16 February 2014) available at: http://www.ibtimes.co.uk/cost-developing-cyber-weapons-drops-100m-stuxnet-10k-icefrog-1435451 (consulted 4 March 2017).

[4] *Malware Analysis* (Soon Chun Hyang University Industry-Academic Cooperation Foundation, 2014), p.12.

THE APT *PROBLÉMATIQUE*

Anticipating new technologies' impact on warfare is always a fraught process. Such is particularly the case with cyber weapons, where the novelty of the tools and the medium has led to widespread disagreement. To assess APTs' likely impact on warfare we will analyze three arguments for why cyber weapons are a destabilizing element, namely that they are alleged to be un-attributable, prone to escalation and favor the offensive. We find that, regardless of whether the arguments apply to simpler cyber warfare techniques, attribution problems and risks of cyber escalation are minimal with respect to APT. The third hypothesis, that APTs incentivize more offensive military operations, including preemptive and preventative attacks, is much more plausible.

Perhaps no aspect of cyber warfare has attracted more attention that the so-called attribution problem. The attribution problem is an alleged product of the fact that cyber attacks do not occur in physical space and that cyber attackers can therefore route malware via servers in uninvolved countries to cloak their actions under a veil of anonymity. This problem led authors such as Richard Clarke and Robert Knake to envisage a dystopian future where the United States economy is destroyed and large numbers of people killed in a cyber attack where the attacker's identity remains entirely unknown.[5]

While attribution may be problematic for less sophisticated and capital intensive cyber operations, such as DDoS attacks and the employment of commercially available malware, attribution is much less problematic for APT. One reason for this is APTs' sophistication and capital intensiveness. In other words, the number of potential attackers, and thus the attribution problem, is limited due to the

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[5] Richard Clarke and Robert Knake, *Cyber War* (New York: Ecco 2010), 33-68.

fact that only a limited number of states can develop APT. APTs' capital and labor costs, meanwhile, incentivize states to use them only against their geopolitical rivals. Consequently, the number of potential perpetrators for any APT attack can easily be reduced to one or two by posing the question of *cui bono*.

Cyber attribution, finally, has empirically proven simpler than oftentimes asserted. Since APT developers need intensive training and work in teams, they generally develop coding patterns that are forensically detectable after an attack. This simplifies the task of attributing specific attacks to states. Such, was the case in several North Korean attacks, where malware coders employed *Hangul*, and Russia's manipulation of the 2016 US election, where FSB and GRU hackers reused computer code their organizations had previously employed. Thus, although the problem of attribution has been raised frequently, no major cyber attack to date actually remains un-attributable.[6]

In addition to the attribution problem being minimal with APT, unwanted escalation is equally unlikely. Certain experts argue that low-level cyber intrusions, such as espionage or DDoS attacks, will escalate into states crippling one another's critical infrastructure with APTs.[7] Such fears of escalation, however, are both analytically unlikely and empirically unjustified in light of the current evidence.

APTs' cost and impact means that policymakers rightfully regard them as qualitatively different from simpler forms of cyber attack. They are therefore no more likely to respond to irritating DDoS attacks or data thefts with anti-infrastructure APTs than states are to respond to physical espionage or harassment with air strikes. Brandon Valeriano and Ryan Maness, indeed, demonstrate

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[6] Thomas Rid and Ben Buchanan, "Attributing Cyber Attacks," *Journal of Strategic Attacks* 38:1-2, 4-37.

[7] Timothy Junio, "How Probable is Cyber War? Bringing IR Theory Back in to the Cyber Conflict Debate," *Journal of Strategic Studies* 36/1 (2013), 125-33.

that empirically states respond to low level acts of cyber aggression in a restrained manner and a norm of "cyber restraint" may indeed be emerging.[8]

If cyber pessimists' predictions about the attribution problem and escalation are unlikely to be realized in the area of APTs, then we must address the cyber pessimists' final hypothesis; cyber warfare is destabilizing because it incentivizes offensive operations.

APTS AND OFFENSIVE ADVANTAGES

A detailed analysis of APTs' inherent characteristics reveals, regrettably, that they do indeed incentivize attacks in conjunction with aggressive conventional military actions. Three factors contribute to APTs' offensiveness: 1) their single-use nature, 2) the short-term nature of their impact, and 3) their capacity for surprising opponents.

One factor that compels states to reserve sophisticated APTs for major military operations lies in their single-use nature. The most sophisticated APTs rely on weakness detected in an opponent's computing infrastructure, including the so-called zero-day vulnerabilities, which are software weaknesses that are unknown to their creators, yet exploitable by hackers. The Stuxnet worm, for example, relied on four distinct zero-day vulnerabilities.[9]

The act of using an APT offensively for the first time enables defending states and cyber security firms to expeditiously fix the vulnerabilities that the APT exploited. APTs are thus best conceived as single-use weapons in disputes amongst well-resourced states. To

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[8] Valeriano and Maness.

[9] Dale Peterson, "Offensive Cyber Weapons: Construction, Development, and Employment," *Journal of Strategic Studies*, 36/1 (2013), 120-124.

make matters worse, using APTs reveals their underlying code, enabling adversaries to re-employ elements in crafting their own malware. This form of cyber blowback was evident in Iran's reemployment of elements of the Stuxnet code in their own APT, Shamoon, which they used to attack financial services in Saudi Arabia.[10]

In sum, employing an APT and thereby revealing its characteristics enables opponents to both develop means of neutralizing that APT and re-employ elements of its code in crafting their own attacks. This single-use nature of complex APT incentivizes states to reserve their best cyber weapons for use in conjunction with conventional military operations.

While APTs' single-use nature drives states to reserve their use for warfare or crisis situations, their short term impacts incentivize states to use them in support of high tempo operations. Most analysts regard infrastructure and communications as the two military-relevant targets most vulnerable to APT because these systems possess multiple vulnerable nodes and are difficult to isolate from the internet.[11] Attacking such targets, including civilian transportation infrastructure, can hobble a state's military operations by hindering military units' ability to deploy and degrading their communications systems. Cyber defenders can, however, circumvent or fix vulnerabilities if given the necessary time. Such APTs therefore are most effective when combined with conventional plans that aim to swiftly achieve a military objective.

Finally, the very purpose of APTs is to surprise the adversary. APT developers must identify vulnerable information systems in peacetime that will be critical to military operations if they are to impact future battlefields. If an adversary knew of an APT's pres-

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[10] François-Bernard Huyghe et al., Gagner les Cyberconflits: au-delà du technique (Paris: Economica, 2015), 109-10.

[11] Chee-Wooi Ten et al., "Cyber-Vulnerability of Power Grid Monitoring and Control Systems," *Power Infrastructure Cybersecurity Laboratory* (Ames, Iowa: Iowa State, n.d.).

ence within their computer infrastructure they would rapidly patch vulnerabilities and develop other means of mitigating the damage. APT developers must therefore move by stealth, identifying zero day events, collecting intelligence on their targets and potentially employing human operatives to infiltrate their malware into the targeted systems.

APTs designed to disable command-and-control systems and disrupt infrastructure are therefore, by definition, weapons of surprise.[12] Warning opponents of their existence or gradually escalating their employment are therefore antithetical to the nature of the technologies in question. APTs will therefore likely be employed in a massive scale at the onset of a conflict, rather than being brandished to deter a potential conflict or employed incrementally. This, in turn, will render crises more prone to escalation. As Thomas Schelling predicted, "If surprise carries an advantage, it is worthwhile to avert it by striking first. Fear that the other may be about to strike in the mistaken belief that we are about to strike gives us a motive for striking."[13]

In short, APTs incentivize offensive warfare whenever inter-state relations cross the threshold into open conflict. States reserve their most potent cyber weapons for such scenarios because employing them for lesser goals compromises their code and invites cyber blowback. APTs' utility for attacking transportation and command-and-control systems meanwhile favors their use in conjunction with high tempo operations, rather than more gradual ones. Finally, APTs, by their very nature, favor surprise attacks.

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[12] Huyghe, 132-35.

[13] Thomas Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard UP, 1960).

CASE SELECTION

The remainder of this article demonstrates our central argument that APTs are most likely to be employed in a massive fashion in conjunction with conventional military operations. To this end, we examine the hypothetical conflict scenarios: 1) Chinese APT employment to cripple the United States ability to respond to a crisis in the Taiwan Straits, and 2) North Korean APT attacks on the Republic of Korea during a crisis. These cases have been selected based on two criteria: their importance and the quality of data on their likely operations.

Firstly, China and North Korea are both important cyber powers. Valeriano's and Maness' cyber capability ranking assesses China as possessing the world's second best offensive capabilities and North Korea as the world's sixth most significant (military) cyber power overall.[14] These states are also extremely active. China leads the world in terms of the number of hostile cyber incidents attributed to it. North Korea, meanwhile, ranks fourth according to the same scale.[15] China and North Korea are, in other words, two of the most capable and likely actors to use cyber capabilities during a conflict.

In addition to being formidable cyber powers, China and North Korea are states that have strong incentives to use their capabilities because their offensive capabilities are not matched by concomitant cyber vulnerabilities. North Korea's absence of a modern network economy, or indeed any civilian connectivity to the broader internet, renders cyber attacks on North Korea a nugatory prospect. Although less pronounced, China's requirement for internet access to pass through Chinese routers, which are monitored by Chinese internet

[14] Valeriano and Maness, 25.

[15] Ibid, 90.

police, renders China comparatively resistant to cyber attacks.[16]

Besides being potent cyber actors, China and North Korea are, secondly, also states whose cyber activities are amply documented. The governments of the United States and Republic of Korea have put in considerable efforts to document Chinese and North Korean cyber activities. Cyber security firms and think tanks have contributed to other pertinent studies on this matter. This enables us to build realistic scenarios about how these states will likely design their APT attacks for use in wartime.

CRISIS IN THE TAIWAN STRAITS

Few states possess cyber capabilities equivalent to China's and none has arguably proven so willing to use those capabilities more than China. Since 2010, Mandiant, Fire Eye, Kaspersky and other organizations specializing in international security identified China as the origin of a substantial number of APT intrusions.[17] Mandiant, indeed, identified China in 2013 as the world's principle source of APTs.[18] China's People's Liberation Army (PLA) maintains its own sizable cyber force. The PLA's 2nd Bureau runs cyberwarfare units, including the Unit 69138, whose activities have attracted considerable international attention.[19]

The PLA also operates through proxies, such as the groups that employed APT-30 against Southeast Asia countries and hacked biometric data from 5.6 million US government employees.[20] The United States consistently protests against this activity and Presi-

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16 Ibid.

17 The defector's personal information cannot be shown, due to threat of exposure.

18 MANDIANT. APT1, Exposing One of China's Cyber Espionage Units (2013.02).

19 Ibid.

20 'APT30 and the Mechanics of a Long-running Cyber Espionage Operation' (2015.04).

dent Barack Obama brought up the topic in his bilateral meetings with China's President Xi Jinping.[21]

China's peacetime cyber activities have enabled it to amass considerable data on vulnerabilities in the United States' information infrastructure. As already mentioned, a hack attributed to China obtained biometric data on 5.6 million US federal employees.[22] China likewise used a spear-phishing attack, employing a malware-infected Microsoft Exel file, to collect internal network manager information from EMC Corporation's Security Division. The SecureID certificate information that was extracted was then used to hack Lockheed Martin, stealing data on the F-35 fighter aircraft.[23]

Operations such as these demonstrate that China is both capable of infiltrating sensitive American systems and also suggest that China has gathered the preliminary information needed to implant APTs in critical US systems for use in wartime. China supplements the data it has collected with cyber espionage with decades of more conventional intelligence gathering on the United States' military presence in the Asia-Pacific Region. Thus, China has employed its hitherto low-intensity APT activities to lay the groundwork for disruptive attacks in the event of a war. Experts and unclassified reports, indeed, assume that Chinese malicious code has created "back doors" and "trap doors" in critical American systems, and also implanted "logic bombs" that they will activate during a conflict.[24] China's focused research and development on hacking advanced rootkits and the Basic Input / Output System (BIOS) has furthermore prepared it well to exploit these weaknesses.

Chinese doctrine emphasizes that the PLA will use its cyber

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21 "U.S. Government 5,6 million civil servants' fingerprint information have been leaked in a hacking attack. Information authorities suspect a connection with China."

22 'APT30 and the Mechanics of a Long-running Cyber Espionage Operation' (2015.04).

23 Chinese Capabilities for Computer Network Operations and Cyber Espionage (2013.03).

24 Northrop Grumman Corp, Field Report p 34.

capabilities against the United States as an integral portion of its Anti-Access Area Denial (A2AD) doctrine, which is designed to prevent American military forces from effectively intervening in an East Asian conflict. Since 2012, American experts and policymakers have anticipated that cyber A2AD operations would disrupt and delay American operations by targeting the complex sequence or activities, which partly rely on civilian infrastructure, required for the United States to rush adequate forces to the theater of conflict.

A conflict in the Taiwan Strait is both the most likely and suitable theater for China to employ offensive cyber operations in this way. Taiwan's political status, which precludes a permanent American military presence, renders America's contribution to Taiwan's defense highly contingent on its ability to rapidly deploy forces. Since a peacetime deployment to Taiwan would be highly provocative, American forces would moreover need to rush to the island and its bases in the region (Guam, Japan and Korea) once combat is imminent.

The PLA will also most likely have sufficient lead-time to activate its anti-American APT due to the likely ways a hypothetical Taiwan Straits crisis would develop. Historically, crises over Taiwan have been sparked by clear events with predictable time scales. The 1958 Crisis, for example, was sparked by China's ultimatum over Quemoy and Matsu, while the 1995 Crisis evolved in step with Taiwan's elections, which a nationalist party was slated to win. A future Straits crisis would also likely evolve in a similar manner, triggered by an ultimatum, referendum or election. This would enable the PLA to prepare its APT operations several weeks in advance of the onset of conventional military operations.

China will likely exploit this warning period when the United States cannot yet politically deploy forces, to initiate cyber operations. PLA cyber units would begin aggressively by penetrating into Pentagon contractors' networks and insufficiently secured armed forces networks exploiting vulnerabilities and passwords that they

have already obtained. The Department of Defense's (DoD) NIPRNET would be a target of particular attention as this network is less secure than United States military networks, yet constitutes the primary platform wherein the DoD interacts with contractors.[25] Including NIPRNET, 90% of the United States military's interactions with contractors occurred over commercial networks and unclassified DoD networks.

China would step up with these operations as the conflict escalates, activating more destructive malware to disrupt the flow of ammunition and supplies to the theater of conflict. It would do this by attempting to disable for router traffic, or 'BACK REV', and Basic Input / Output Systems (BIOS).[26]

PLA cyber attack efforts would focus on other critical, yet vulnerable systems. Aerial refueling constitutes a primary example of such a system. The United States' military response to a crisis in East Asia will depend heavily on its aerial refueling capabilities. At present, the United States possesses over 400 airborne refueling tankers and leverages this fleet and its ability to coordinate them to swiftly strike targets at great distances and rapidly deploy forces to crisis environments. Aerial refueling, moreover, plays a critical role in American efforts to mitigate the danger of Chinese conventional missile strikes on American airbases. Refueling will enable American aircraft to operate from a wider-array of dispersed facilities and deploy to bases further from the area of conflict.

PLA cyber attacks will likely disrupt this critical capacity, significantly undermining the United States' war-making effort. American aerial refueling depends on a web-based application, the Air Refueling Management System (ARMS), through which aerial refueling requests are received, prioritized and executed. ARMS data is

[25] https://en.wikipedia.org/wiki/NIPRNet.

[26] Northrop Grumman Corp, Field Report p 34.

reportedly transmitted via the internet. Such a distributed system, with many nodes and connected units, is inherently vulnerable to Chinese infiltration. Chinese cyber warriors are doubtless aware of this state of affairs and ARMS' internet-based structure is nearly impossible to defend with total confidence.

Spear-phishing and keystrike logging programs will (or have) likely exposed ARMS' IP address and operating system password. Other techniques, such as SQL injection and cross-site scripting, can also be applied.[27] While PLA hackers can employ an array of techniques to access ARMS, only one must succeed in order for them to remotely upload CnC malware. Corrupting or disabling ARMS during a crisis will cripple the United States' ability to respond to a crisis or conflict.

In sum, Chinese APT capabilities can incentivize China to preemptively strike in the event of a crisis, such as could occur in the Taiwan Straits. Even though many crucial American systems are air-gapped and therefore resistant to cyber attacks, certain critical systems are nonetheless tied to the internet. ARMS and NIPRNET are two such cases of crucial systems that can be remotely accessed. Attacking two systems such as these will impede the United States' ability to respond to a fast tempo crisis, potentially meaning the difference between strategic success and failure.

CONFLICT ON THE KOREAN PENINSULA

No other state possesses cyberwar capabilities that are highly disproportionate to the overall condition of the state than North Korea. North Korean strategists understood the potentials of cyber weapons relatively sooner than other countries and began investing

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[27] Northrop Grumman Corp, Field Report p 34-36.

in them. Today, North Korean cyber warfare forces are estimated to be around6,000 personnel, including 2,000 hackers. These cyber forces are divided amongst four organizations: the General Reconnaissance Department (GRD), the International Liasion Department, the United Front Department and the Central Party Examination Department.[28]

Since their foundation, North Korean cyber forces have focused on identifying and preparing to exploit the Republic of Korea's (ROK) cyber vulnerabilities. The GRD-associated Institute 110 has therefore conducted cyber espionage operations against ROK military and strategic targets. Amongst the North's exploits have been the 2013 hacking of the ROK's military tactics and command-and-control tactics. Cyber operatives, at this point, compromised critical systems, including the Aegis air defense systems' source codes, details of the ROK's joint tactical data links and technical parameters for identification friend-or-foe (IFF) equipment.[29] North Korean hackers succeeded, even more impressively, in hacking the ROK military's cyber command in 2016. These operations demonstrate both the North Korean hackers' ability to penetrate ROK systems and suggest that they thereby collected information of further vulnerabilities susceptible to damage by APTs.

North Korean sizeable human intelligence assets in the Republic of Korea raise the likelihood of substantial synergies with its burgeoning cyber forces. Human agents and unwitting accomplices indeed offer North Korea substantial opportunities for obtaining security information for hacking secure networks and infiltrating USB sticks into air-gapped networks.

North Korea is likely leveraging this capacity to develop and im-

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[28] Seong Kyu Ahn, Asan Column, *Cyber Cancer – can we prepare for APT(Advanced Persistent Threat).* (2015.08.05)

[29] Joongang Ilbo, 2015.09.10, 'Aegis, KF-16 joint operations and core secrets were hacked. http://news.joins.com/article/18631228

plant APT attacks that it would activate in the event of a war. North Korean cyber warriors will likely begin preparing their wartime APT operations in four distinct ways.

First, one weak point in the ROK's military cyber infrastructure that the North is likely to pursue in peacetime is the outside contractors upon which the armed forces depend. The ROK's armed forces, particularly the air force, depend on regular software updates and changes that contractors provide over supposedly secure USB sticks. North Korean intelligence services will likely attempt to infiltrate these software supply chains and thereby insert infected USBs into the air forces' supply chain. If successful, they can embed malware in critical systems, such as the ROK's air defense network.

Second, North Korean cyber forces will - also likely employ "shellshock" attacks to seize control over selected web servers in the ROK. North Korean cyber warriors can then embed an "exploit kit" into the captured website and modify its source code (e.g. Angler, Orange, CK VIP, etc.) and the URL's tag (e.g. iframe, script, etc.).

Third, North Korea is likely to use "watering hole" infiltration tactics whereby North Korean cyber forces will seek to identify and then infect websites that ROK armed forces and critical infrastructure providers will likely connect to. This technique will enable North Korea to implant malware on systems that they cannot directly penetrate and will function even vis-à-vis ROK targets that are schooled to avoid phishing attacks.

Finally, North Korean intelligence may install "logic bombs" on critical ROK systems should they anticipate a crisis in inter-Korean relations. Logic bombs are fragments of malicious code programmed to initiate themselves once certain conditions are met, such as the arrival of a date or time. The North Korean cyber force will seek to implant such logic bombs should the state's leadership plan a provocation that might escalate into war (i.e. by conducting an atmospheric nuclear test, provoking battle over the Northern Limit Line, or announcing an ultimatum). Logic bombs are partic-

ularly potent because they can disable air-gapped systems on cue provided that North Korean intelligence manages to infect a laptop that will be connected with the targeted system or dupe a human agent into inserting an infected USB stick.

North Korea's cyber forces thus have ample scope for preparing wartime APT attacks in peacetime. Indeed, it can prepare its future cyber battle by; targeting vulnerable contractors, initiating "shellshock" attacks, exploiting "watering holes" and implanting logic bombs. North Korea's ability to conduct such preparatory operations is greatly enhanced by their leaders' ability to pick the time and location of their military provocations, and their comparative invulnerability to cyber counter attacks.[30]

North Korea will therefore probably be well prepared to launch substantial cyber attacks on the ROK provided that it chooses a crisis' timing in advance. Under these circumstances, they stand to benefit from a cascade of devastating APT attacks that will disable key ROK systems at the precise time when the conflict breaks out.

One particularly tempting target will be the ROK's Army Tactical Command Information System (ATCIS). The ATCIS is a C4I (command, control, communications, computers and intelligence) network designed to automatically combine data from tactical military units and share them in real time. ATCIS has been critical to ROK military doctrine since 2008 and is projected to continually evolve with new hardware and software upgrades being added to the system until at least 2020.[31]

While ATCIS may indeed improve the ROK armed forces' efficiency, it has also been criticized for reducing subordinate commanders' initiative and introducing increased complexity to the armed forces command structure. These factors, detracting from

[30] Valeriano and Maness, 25.

[31] 2013, IT professionals develop implementation plans for the digital battlefield.

the ROK Army's ability to tactically implement mission command, will have a downright catastrophic effect if North Korea disables or corrupts the ATCIS system. Research indeed suggests that ATCIS is remarkably unsecure for such a critical system.[32] Certain experts venture so far as to suggest that a worm-type attack that exploits zero-day vulnerabilities can completely incapacitate ATCIS in a very short time.[33]

Even if North Korea failed to develop an APT capable of disabling ATCIS in it's entirely, it could attack ATCIS in other ways or portions of the system that are more vulnerable than the network as a whole. Three particular aspects of ATCIS will be particularly tempting to an attacker; the anti-artillery Kairos DBMS subsystem, ATCIS' window-based operating systems, and the increasing connectivity between ATCIS and the Korean Joint Command and Control System (KJCSS).

One component of the ATCIS that may be particularly susceptible is the Kairos DBMS, which was added to ATCIS comparatively recently to improve anti-artillery warfare. North Korea's artillery poses a sizeable and growing threat to the ROK. This threat has grown even as the North's other conventional capabilities declined. Within this context, the North Korean leadership's threat to transform Seoul into a "sea of fire" achieved concrete form with the construction of 500 hardened artillery sites (HARTS) within 5kms of the DMZ and the deployment of more unsheltered artillery within that zone in 2010-11.[34]

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[32] 2008, field automation information system operational measures carried out research for the future SNW (Incorporated 21st Century Military Institute).

[33] 2008 conducted Study on Simulation-based Army Tactical Information Systems worm damage assessment.

[34] Joseph Bermudez, *The Armed Forces of North Korea* (London: I.B. Tauris, 2001), 165-66; and Joseph Bermudez, "M-1978 and M-1989 170mm Self-Propelled Guns, Part II," *KPA Journal* 2/7 (2011), 1-8.

Kairos DBMS achieves this objective by rapidly processing data on enemy artillery units and connecting that data to ROK assets capable of shooting back. Kairos accomplishes this by retaining frequently accessed data in each node's random access memory (RAM), thereby avoiding the data processing delays that occur when database information is recorded on discs.[35] Kairos is exceedingly vulnerable because of this reliance on RAM since APTs can increasingly recombine malicious code in RAM memory and therefore are not bound by the need to infect file systems.[36] Kairos' many nodes facilitate North Korea's task by enabling them to inject the APT simultaneously and the malicious code can then manipulate data within the system.[37]

Another ATCIS weakness that can be exploited lies in its protocols for distributing information throughout the military command structure. ATCIS therefore, in principle, enables commanders at every echelon to quickly apprehend battlefield developments and coordinate their responses to them. Commanders at the platoon level carry individual PDAs while divisional commanders are equipped with laptops that enable access to ATCIS.

These systems, however, all employ windows-based operating systems and the nodes in each major unit (i.e. army corps) are connected to one another. Furthermore, PDAs and laptops contain a pre-prepared disc image so that a unit's systems can rapidly be reset following exercises and command post exercises. These systems' characteristics—windows-based operating systems and high levels of connectivity—render it easy for North Korean cyber warriors to infect a units' nodes with malicious RAT(Remotely Activated Trojan)s. This would enable North Korean forces to extract the location, strategy and tactics of ROK military units in real time.

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[35] www.realtimetech.co.kr/mil4/ (Real Time Tech: Kairos RDBMS).

[36] 2014, The Inception Framework (Blue Coat)

[37] 2014, The Inception Framework (Blue Coat)

North Korean attackers can also potentially take advantage of the growing connectivity between ATCIS and the armed forces' higher echelons and join Korean Joint Command and Control System (KJCSS) to disrupt ROK military operations to an even greater extent. While units that employ ATCIS can seamlessly coordinate their activities, it actually became more difficult for those units to cooperate with units and functions that were not connected to the network when ATCIS was initially rolled out.[38] The ROK's Defense Ministry addressed this problem in ATCIS' second-phase performance improvement program, which increasingly tied ATCIS to the web and introduced greater connectivity with KJCSS.

This performance improvement enhanced interoperability among the ROK's different command and control systems. Experts have, however, identified numerous weaknesses in the system's increasingly complex architecture. Attackers can, for example, infect an ever greater number of system components via each infected laptop or access the network in SPIDER through any certified ATCIS device. North Korea cyber warriors can potentially also mount a variety of attacks (SQL injection, XSS, Remote-code injection, weak section management attack, HeartBleed, etc.) to remotely control a node and access the network. Furthermore, by manipulating the ATCIS database in peacetime, North Korean cyber warriors can induce wartime chaos via KJCCS because the two systems will synchronize in wartime.

North Korea can, in sum, employ a combination of logic bombs and attacks on ATCIS to substantially degrade the ROK's ability to respond to a crisis or fight a war. The need to set specific date or activation criteria will likely oblige North Korean cyber warriors to coordinate their logic bombs with their leadership's broader foreign and military crises. The regime will, in other words, prepare cyber

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[38] 2008, Field Automation Information System Operational Measures Carried Out Research for the Future SNW (Incorporated 21st Century Military Institute).

attacks in advance to coincide with the crises and provocations that are premeditated by its leadership.

CONCLUSION

As we demonstrated, APT capabilities are changing the international distribution of power and the prospects for crisis stability. These two East Asian cases indeed suggest that APTs are potentially highly destabilizing.

In a prospective Taiwan Straits Crisis, China's offensive cyber capabilities can potentially negate the United States' overall military superiority. Such is the case even though the United States also possesses significant offensive cyber capabilities that likely equal or exceed Chinese capabilities. The reason for this is that the United States' need to deploy forces at greater distances and reliance upon allies renders American forces asymmetrically sensitive to disruption by cyber assault. Within this context, lower-security American systems such as NIPRNET and ARMS may prove the Achilles heel.

A prospective crisis on the Korean peninsula reveals similar asymmetries. Within this context, the ROK's dependence on digitized command-and-control systems such as ATCIS and KJCCS, and its reliance on civilian infrastructure to mobilize reservists, provides opportunities for North Korean cyber forces to disrupt ROK military operations. The ROK's efforts to leverage technology to enhance military effectiveness have, thus, created weaknesses North Korea is targeting. North Korea's less sophisticated forces possess no equivalent vulnerabilities that the ROK can exploit.

While APTs can potentially change the course of a conflict or crisis, they also create incentives for crises to escalate into war. There are three reasons for this that lie in the weapons' intrinsic characteristics, namely: 1) their greater utility for attacking than ei-

ther deterring or coercing, 2) the inflexible nature of certain tactics, such as logic bombs, and 3) the short-lived nature of the advantages that certain cyber weapons will confer, which creates ephemeral windows-of-opportunity for revising the international status quo.

Cyber weapons are undeniably increasingly important components of states' military power. States cannot, however, wield cyber weapons to coerce or deter in the same way as they do with more conventional weapons. Whereas states can conduct military exercises and launch missiles to communicate their military power and resolve to potential opponents, they cannot display their cyber power in a similar manner. Demonstrating an APT will reveal its code and therefore enable defenders to neutralize the threat before it can be used. APTs are therefore weapons that are much useful as offensive means than at achieving states' military objectives through means short of war.

Certain APTs, such as logic bombs, have the added drawback in that they oblige the attacker to decide ahead of time when it will activate. This, in effect, drives governments to script crises well in advance. Furthermore, if a potential cyber attacker has infected key systems with logic bombs programmed to activate at a specific time, the states' government will have an added incentive to cross the threshold into war at that time.

Finally, states that possess superior cyber weapons will have an incentive to fight now rather than later. Whereas most conventional weapons systems, such as tanks and warships, have life spans of decades, cyber weapons exploit particular software and hardware systems, and rely on undetected vulnerabilities. These characteristics mean that cyber weapons have comparatively short life spans. If not used, they naturally expire as the designated target updates software and fixes vulnerabilities. All of this creates acute incentives for a state that possesses superior cyber weapons to attack while capability exists.

APTs are, in sum, reshaping the balance of military capabilities

in unpredictable and disruptive ways. The very nature of these weapons, furthermore, incentivizes states to attack, rather than temporize, during international crises. Nowhere are these trends more potentially destabilizing for the international system than in East Asia, where the distribution of cyber attack capabilities and vulnerabilities is highly asymmetric. Korean experts and policy-makers should integrate this phenomenon as they manage future crises involving North Korea, China and the United States.

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THE CHANGING PATTERNS OF COMMUNIST PARTY-STATE RELATIONS IN CHINA: COMPARATIVE PERSPECTIVE

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Abstract

While the party-state relations in western democracies have been analyzed in great detail during the past decades, little attention has been paid to the Communist party-state relations in China simply because China has been regarded as a party-state in which the Chinese Communist Party (CCP) has had monopoly of the state power. This paper is designed to explore and explain the different patterns of relations between the CCP and Chinese state by analyzing the legislative developments and changing relations between the CCP and People's Congresses (PCs). The author argued that the great achievements have been made in legislative development during the past decades of state-building, and a new pattern of strong party-strong state has been emerging since the late 1990s in China. Especially, there has been increasing number of Communist party secretaries, who serve as the chairpersons of Provincial People's Congress (PPC) standing committee. The emerging pattern provides a clue to an effective way of combining Communist leadership, rule of law, and democracy.

Key words: China, Party System, Democratization, Typological Construction

INTRODUCTION

The party-state relations in western democracies have been analyzed in great detail since Richard S. Katz and Peter Mair published their seminal research article on the emergence of the cartel party in 1995 (1995: 5-28). The political parties have not been weakened by the massive economic and social changes, but strengthened because of their closer relations with the state, and parties have now become semi-state agencies (Mair, 1998: 105-6). Consequently, scholars have discussed many issues of party-state relations, such as the parties' legal existence, their access to public resources, state subventions to political parties, regulation of party finance and campaign behavior (Müller and Sieberer, 2006: 435-43; Karl-Heinz Nassmacher, 2006: 446-55). Nicole Bolleyer even raises the most fundamental question, namely whether intensifying party-state interpenetration form part

of a broader societal development or whether it is only party-specific (2013: 231).

Many remarkable changes have taken place in Chinese politics since the reform and opening policies were adopted in the late 1970s. Scholars of Chinese politics have studied different kinds of political reforms and political developments during the past three decades, yet many China experts take it for granted that the Communist Party-state resists any changes. In sharp contrast to the increasing interests in the party-state relations in western democracies, little attention has been paid to the Communist party-state relations in China simply because China has been regarded as a party-state in which the Chinese Communist Party (CCP) has had monopoly of the state power, the party organizations have deeply penetrated the state apparatus and the party leadership has tightly controlled the state bureaucracy. As Hannah Arendt pointed out, it is perfectly true that 'even an expert would be driven mad if he tried to unravel the relationships between Party and State' in the Third Reich (1976: 395). Therefore, it is believed that it is of no theoretical and practical significance to distinguish the party from the state and discuss the party-state relations in China. One important exception is Shiping Zheng who tried to distinguish the party from the state and provided the comprehensive analysis of the tensions between the CCP and the Chinese state (1997: 9-12). Unfortunately, he identified three patterns of the party-state relations (either party or state; both party and state; and party supersedes state) and inevitably failed to explain political resilience since he treated both party and state as some kind of monolithic structure.

This paper is designed to explore and explain the different patterns of relations between the CCP and Chinese state by analyzing the legislative developments and changing relations between the CCP and People's Congresses (PCs). While many scholars have made great contributions to the studies of Party-government relations in China, the author tends to regard the CCP-PCs relation as a

more important and promising field of study when we discuss the Communist party-state relations in contemporary China not only because the PCs are the state organs in Chinese constitutional structure, but also because great achievements have been made in legislative development during the past decades of state-building. The whole paper will be divided into four parts as follows. First, some important literature will be reviewed and a new theoretical framework of analysis of party-state relations will be introduced. Second, the legislative developments and changing patterns of Communist party-state relations will be analyzed in my theoretical framework. Third, the new pattern of Communist party-state relations emerging since the late 1990s in China will be studied, especially the recent developments about the increasing number of Communist party secretaries, who serve as the chairpersons of Provincial People's Congress (PPC) standing committee, will be described and discussed in detail. In concluding remarks, the author will discuss the implications of the changing patterns of Communist party-state relations for the future state-building and democratization in China from comparative perspective.

COMPARATIVE FRAMEWORK FOR PARTY-STATE RELATIONS

In comparative political studies, several different theoretical frameworks have been used to compare and classify political systems and political party systems. For example, according to Maurice Duverger's classic typology based on the numbers of parties, there are the two-party system, the multi-party system and the single party system; Fascist and Communist single parties have been discussed as the single party system (Duverger, 1954: 206-63). Giovanni Sartori criticized Duverger's criterion of classification and

formulated a more sophisticated framework by dividing political party systems into two broad types, competitive and non-competitive, and then discussing all subtypes, among which totalitarian one-party system, authoritarian one-party system and pragmatic one-party system have been analyzed in the broad non-competitive one-party category (Sartori, 1976). Based on the existing frameworks of comparative analysis, Chinese Communist party-state has been scrutinized either as the single party system or as the non-competitive political system because the CCP does not tolerate any opposition party and therefore there is no substantial political competition in contemporary China. While some important developments are happening at the local levels, including elections for local committees and congresses, any meaningful political reforms have not been undertaken and any fundamental changes have not taken place at national level in order to promote democracy characterized by the western multi-party competition. Therefore, it is widely believed that the biggest hindrance to true liberalization and democratization on a national scale is the dominance of the CCP, and especially the lack of separation between party and government in almost all public affairs (Green and Luehrmann, 2003: 354). As Minxin Pei pointed out, post-Mao political reform is a series of tentative, partial, and superficial measures most likely to fail because they in no way challenge, limit, or undermine the Communist Party's political monopoly. A democratic transition under the rule of the CCP thus seems a distant, or even unrealistic, prospect (Pei, 2006: 7).

If the multi-party competition is identified as the hallmark of true democracy and used as the sole criterion to evaluate the Chinese Communist Party-state, it is no doubt that China is not a democracy and there are no substantial political reforms aimed at democracy. However, it does not mean that there is no change in the Chinese Communist Party-state because it is a huge and complicated state apparatus in which there are many different parts existing and interacting. The Chinese Communist Party-state is not

a monolithic structure. Therefore, if the dual or even pluralistic perspective replaces the monistic view of the Communist Party-state, the political developments taking place recently in China can be explored and explained more clearly and completely. Based on the historical experiences of party development and democratization, the following patterns of party-state relations will be discussed first and then applied to analyze the recent developments in the Chinese Communist Party-state. Here, the strength and weakness of the party or state will be considered in terms of institutional level, organizational capacity, political status and policy influence.

1. The first pattern of strong state-weak party.

This is the typical pattern in the democratic states all around the world. All political parties advocate their policies and conduct their activities in order to win political power and exercise it under the constitutional rules within the state. This pattern of strong state-weak party has evolved in many western countries because the modern nation-states had been established first as a result of a series of revolutions and the modern political parties developed with the rise of parliamentary groups and electoral committees. As Duverger said in his classic study of political parties, 'on the whole the development of parties seems bound up with that of democracy, that is to say, with the extension of popular suffrage and parliamentary prerogatives' (1954: xxiii). Along with the emergence of the cartel parties, there are closer relations between the parties and state and most of the parties act as governors within the state. In the third wave of democratization beginning from the mid-1970s, great changes took place in the party-state relations and the pattern of strong state-weak party was formed in many new democracies. Samuel Huntington pointed out: 'after democratization a former monopolistic party is in no better position than any other political group to reinstate an authoritarian system. The party gives up its

monopoly of power but not the opportunity to compete for power by democratic means' (1991: 120). In most cases, the new constitution was adopted and a new republic was established according to it. All political parties must act under the new constitutional order.

2. The second pattern of strong party-weak state.

This pattern has been prevailing under the totalitarian systems such as Nazism and Stalinism. According to Hannah Arendt, the struggle for total domination of the total population of the earth, the elimination of every competing non-totalitarian reality, is inherent in the totalitarian regimes themselves (1976: 392). In both Nazi and Stalin regimes, the constitutions were disregarded and the sole ruling party was regarded as the ultimate and supreme authority. Although the Nazis never bothered to officially abolish the Weimar constitution, it never constituted the restraint of the party. The Nazis showed no concern about their own legislation. In the Soviet Union, the regime had paid scant attention to constitutional questions during the period of revolutionary change. Although the constitution of 1936 was hailed as the conclusion of the revolutionary period, it turned out to be the new beginning of the gigantic super-purge. The constitution of 1936 played exactly the same role the Weimar constitution played under the Nazis regime: it was completely disregarded but never abolished. At the same time, two sets of offices in the State and Party had been established, but the relationships of authority between state and party is one of ostensible and real authority, so that the government machine is usually pictured as the powerless façade which hides and protects the real power of the party (Arendt, 1976: 395). To some extent, the second pattern of strong party-weak state also existed in Singapore and Taiwan during the 1960-70s. Under the leadership of the People's Action Party (PAP) and its charismatic leader Lee Kuan Yew did Singapore become an independent state, but the PAP has dominated the Singa-

porean Parliament uninterrupted from the early 1960s until today. It has determined the entire nature and course of politics, and the direction of socio-economic change in the country. It views itself and is seen by many Singaporeans as the unchallenged national party (Vasil, 2000: 17). After the Republic of China under the leadership of the Nationalist Party (Kuomingtang or KMT) retreated to Taiwan in 1949, because of its failure in the civil war with the CCP, the constitution of 1946 adopted in mainland China continued to govern Taiwan, but between 1948-1991 it was superseded by temporary provisions (the Provisional Amendments for the Period of Mobilization for the Suppression of the Communist Rebellion). In May 1949 the KMT imposed martial law on the territories under its control at that time, which included Taiwan and the offshore islands. After the emergency regulations of 1947 banned the formation of new parties, the KMT faced no organized opposition until the 1970 and remained the ruling party without interruption until 2000 (Dickson, 2000: 76-8).

3. The third pattern of strong state-strong party.

This is a transitional pattern in the political history as epitomized by the Republic of India and the Republic of China during their early periods. At this special time, the state and the party advocated their own independent and separate sources of legitimate authority and declared their highest status in the new republics. As a result, the coexistence and conflict of party and state is inevitable. During the late Qing dynasty, with the rapid decline of imperial authority, many parties or groups had been organized in order to spread new ideas and save old China. Sun Yat Sen and his comrades argued for violent political revolution so as to overthrow the Qing imperial state and establish a democratic, constitutional republic. By contrast, Liang Qichao and many other elites feared that a violent political revolution would destroy the Qing monarchy and weaken

China, therefore he argued that China initially be governed by an 'enlightened autocracy'. As a result of a series of military struggles against the Qing dynasty, the old imperial system was overthrown in the 1911 revolution and the new Republic of China was established in 1912. The coalition of victorious revolutionaries did not have the organizational capabilities to forge a new and lasting republic based on Sun's political designs. After several rounds of negotiations between the revolutionary leaders and old bureaucratic elites, the resulting compromise had the Legislative Assembly elect Yuan Shikai, to replace Sun Yat Sen as the next president of the first constitutional Republic of China, who promised to force the Manchuria ruler to abdicate. Political parties began forming and reforming in preparation for the upcoming elections for the National Assembly, consisting of a Senate and a House of Representatives. As Yuan seized political power and some party leaders tried to use National Assembly as their base to check and balance Yuan's power, the conflict of party and state escalated. By the spring of 1913, Yuan had decided to end the political gridlock between his presidency and the National Assembly by destroying the renegade KMT forces, crushed pockets of resistance in some localities and dismissed provincial officials who opposed him (Myers, 2000: 43-6). During the early years after India's independence, there were similar coexistence and conflict of the party and state, but totally different results (Kochanek, 1968). Since the Indian National Congress had struggled for independence and established its great reputation for a long time under the leadership of Mahatma Gandhi, it enjoyed high popularity and authority after the Republic of India was established in 1947 as a result of negotiations between the Congress party leaders and British colonial authority. In the process of coexistence and conflict of Congress party and state, Jawaharlal Nehru, during his long tenure as India's prime minister (1947-64), made great efforts to transfer party power to the new state and therefore enormous contributions to the development of Indian democracy (Diamond,

2008: 156). Interestingly, a new pattern of strong party-strong state is emerging in some western democracies when the political parties move closer to the state and act as the governors along with the state.

4. The fourth pattern of weak state-weak party.

This is a common pattern under the personal dictatorship in the developing countries. As Paul G. Lewis put it, 'a dominant leader may rise above party and state and exercise a general dictatorship over both' (2006: 472). After the founding of the People's Republic of China in 1949, the state structure was set up step by step under the leadership of the CCP which included the central and local government, the national and local people's congress, the judicial system and military system. At the top of the political hierarchy was Chairman Mao Zedong, not granted any great powers by the various party constitutions, but fortified by a 1943 decision giving him final say within the Secretariat, and more importantly by his enormous prestige. When his prestige rose explosively due to great military success in the civil war or his authority declined because of his catastrophic failure in the Great Leap Forward movement, Mao Zedong responded by ignoring all state and party constitutional limitations and even destroyed the whole state and party structure. During the Cultural Revolution (1966-76), Mao Zedong himself mobilized and supported the masses, in particular the young students, to criticize and discredit his fellow Communist leaders and topple and dismantle the Communist state and party structures. All state institutions and party organizations collapsed and even ceased to exist, some of them were broken, their functions weakened. As Frederick C. Teiwes observed, all bodies such as the Political Bureau, its Standing Committee and Secretariat basically ceased functioning during the heyday of the Cultural Revolution from 1967 to 1969, when the Cultural Revolution Group dominated by Mme Mao, Jiang Qing, assumed a leading role in pushing the movement forward,

more importantly, vague 'supreme directive' from the Chairman Mao himself became the guiding principles of the state (Teiwes, 2000: 112-4).

As discussed above, there are at least four basic patterns of party -state relations in the political history (see Table 1). All of them are the ideal types. Since there is a continuum from strong to weak party and from strong to weak state in reality, there must be a huge sum of combinations between party and state and varieties of party -state relations certainly do exist in the world. In the following sections, this comparative framework will be applied to analyze the recent developments in the Chinese Communist Party-state.

Table 1: Patterns of Party-State relations

Political Systems		Political Party	
		Strong	Weak
State	Strong	Transitional Politics	Liberal Democracy
	Weak	Totalitarian System	Personal Dictatorship

Note: Drawn up by the author.

LEGISLATIVE DEVELOPMENTS AND STATE-BUILDING

In the studies of the Chinese Communist Party-state, most scholars usually pay little attention to the role of China's legislature, that is, the People's Congress. For example, as David Shambaugh pointed out, the post-Mao Chinese state (like its predecessor) is comprised of three pillar institutions: the CCP, the State Council, the People's Liberation Army (PLA), and their respective constituent elements (2000: 166). Therefore, when discussing the party-state relations in China, both communist leaders and academic researchers

tend to emphasize the importance of the relations between the CCP and government with the State Council at the center. An important reason is that the People's Congress system ceased functioning only three years after it was established in 1954 because of a series of political movements, such as the Anti-Rightists movement beginning from 1957. Many of the legislators had been criticized and some of them sent into labor camp or put into prison. During the Cultural Revolution, the People's Congress system was suspended from 1966 until 1975. The National People's Congress (NPC) and its Standing Committee remained in name, but did not hold any sessions or meetings, and lost its authority as it did not play its role as the highest state power organ (Cai, 2003: 64-5). As a result, the People's Congress had been marginalized in Chinese politics and almost disappeared from the public's eyes.

According to the Constitution of the PRC, the People's Congress is the highest state power organ and the fundamental political system. Since the Communist leadership is upheld as an absolute political principle, the party-state relation should be first and foremost the relation between the CCP and the People's Congress. In September 1954 the PRC adopted a state constitution and established the system of people's congresses formally as the highest organ of state power, which theoretically appointed government administrative bodies at each level. These administrative organs were legally responsible to the congresses that appointed them and to higher-level administrative organs (Teiwes, 1997: 50-1). The constitution of 1982, approved by the National People's Congress on December 4th reflected a clear rejection of the ultra-left philosophy of the Cultural Revolution and a reversion to a more institutionalized form of socialist legality, closely akin to the system originally established in 1954. It emphasized the creation of orderly, accountable, legally regulated governmental institutions and procedures. Toward this end, the legislative functions and powers of the NPC and its standing committee were augmented (Baum, 1997: 349-50).

After the reforms and developments of the People's Congress system during the past three decades, the legislative growth has become a salient feature in the political developments and state-building in China, compared with the authoritarian regimes in other East Asian countries and areas. After authoritarian rule was established in South Korea and other East Asian countries, one of the common institutional characteristics was that the powers and functions of the executive branch were extended while the powers and functions of the representative body were weakened and restrained. For example, under the 'Yushin System' established in 1972 in the Republic of Korea, the basic principle of a system of checks and balances of power was violated and the powers of the President were greatly strengthened, while the powers of the National Assembly were diminished (Lee, 1990: 195-230). As China's People's Congress system had been seriously damaged during the anti-rightist struggle in the late 1950s, especially during the Cultural Revolution, more attention has been paid to democratic development and the legal system since the Third Plenum of the 11th Central Committee of CCP at which reform policy was advocated and adopted in December 1978. Strengthening and perfecting the People's Congress system has become an important element of the ongoing political reform and an integral part of the state-building. Its basic objective is to make the People's Congresses and their standing committees at all levels the true legislative organs with the highest authority. After more than 30 years of reform and practice, the People's Congress system has been significantly improved. The status and influences of People's Congresses and their standing committees at all levels in the process of political decision-making have gradually increased (Pu, 1999: 78-81). Local provincial people's congresses have now become indispensable actors in the political process because of their rising status and improved quality of delegates.

The last 30 years have witnessed a series of new developments in the People's Congress system, such as the specialization, differ-

entiation, institutionalization and professionalization of the People's Congresses (Chao, 2004: 118-9). In February 1979, the NPC set up a Committee on Bills and Proposals and a Committee on Minorities with the authority of drafting and revising regulations. The 1982 Constitution of the PRC further established six permanent committees on Law, Nationalities, Finance and Economics, Education, Science, Culture, and Public Health, Foreign Affairs and Overseas Chinese Affairs. In April 1988, the Committee on Internal and Judicial Affairs was created. In March 1993, the Committee on Environmental Protection was set up at the Eighth NPC Congress. At the Ninth NPC Congress in March 1998, the Committee on Agriculture and Villages came into existence. These committees gained the rights to draft legislative proposals and to examine bills and inquiries referred by the NPC or NPCSC. At the same time, it was decided that all NPCSC members join different committees based on the division of labor. Similarly, the structure and function of the local People's Congresses have been improved greatly during the past decades. As a result, the People's Congress emerged as a strong player in China's political process. For example, there are several cases in which the candidates nominated by the Communist Party Committee of the People's Congress failed to be elected during elections, but the candidates nominated by individual delegates were elected successfully; the People's Congress and its Standing Committee decided to remove unsuitable government officials from office; the People's Congress did not pass relevant decision based on its evaluation of an unsatisfactory report on the work of the people's courts (Xia, 2000: 191; Tang, 2000: 191-228). China's legislature has become increasingly assertive of its constitutional prerogatives and gained considerable political stature.

Another obvious evidence for the legislative developments is that the higher Communist leaders have been selected as the Chairman of the NPC's Standing Committee. During the past time when the NPC was weakened and even wiped out, the chairman

of its Standing Committee was only ceremonial and honorary, and occupied by the semi-retired former Commander-in-chief, General Zhu De, for a long time. From the late 1970s after the NPC and its Standing Committee were given substantial legislative power, many high-level Communist leaders have served as its Chairman, such as Peng Zhen, Wan Li, Qiao Shi, Li Peng, Wu Bangguo and Zhang Dejiang (Table 2). Qiao Shi, who was the third-ranked member of the Politburo Standing Committee, took over as the Chairman of the NPC Standing Committee in 1993. Because he ranked higher than Jiang Zemin in the Shanghai underground works in the late 1940s and continued to have much influence in the security apparatus in which he had built his career, Qiao turned the NPC into a base of support and used it to consolidate his own power and challenge Jiang's authority as the General Secretary of the CCP. After Qiao took his office he had declared that, 'democracy must be institutionalized and codified into laws so that this system and its laws will not change with a change in leadership, nor with changes in individual leaders' viewpoints and attention' (Fewsmith, 2008: 170). In January 1995, even as Jiang Zemin was stressing democratic centralism and the role of the leadership core, Qiao chose to stress political reform and democratization. When Jiang emphasized the need to 'talk politics', Qiao challenged him by promoting rule of law and democracy. Qiao stepped up the pace of legislation and incorporated greater expertise into its formulation. After Qiao Shi stepped down, Li Peng took over as the Chairman of the NPC Standing Committee as the number-two ranking on the Politburo Standing Committee (Fewsmith, 2008: 184-203).

Table 2: The List of Chairpersons of NPC Standing Committee

NPC	Name	Age	Ranking on CCP
1st (1954)	Liu Shaoqi	56	2
2nd (1959)	Zhu De	73	4
3rd (1965)	Zhu De	79	9
4th (1975)	Zhu De	89	4
5th (1978)	Ye Jianying	81	2
6th (1983)	Peng Zhen	81	Politburo Member
7th (1988)	Wan Li	72	Politburo Member
8th (1993)	Qiao Shi	69	3
9th (1998)	Li Peng	69	2
10th (2003)	Wu Bangguo	62	2
11th (2008)	Wu Bangguo	67	2
12th (2013)	Zhang Dejiang	67	3

Note: Drawn up by the author based on Junzhi He, Cong Suweiai Dao Renmin Daibiao Dahui Zhi (From Soviet to the People's Congress System), Fudan University Press, 2011, p. 214.

Adapting to the new environment has consolidated the Communist leadership and adjusted the new social and political forces so that the power and function of the People's Congress have been strengthened. Its status and influence have been enhanced, and a new pattern of the Communist Party-state relations emerged in which the two authorities of party and state coexist and their relations are more institutionalized.

First, the CCP has adopted the cardinal principle that all parties and groups must abide by the laws and act under the constitutional order. Drawing from the lessons of Mao Zedong's personal dictatorship and its total failure in the Cultural Revolution, the CCP has taken initiatives to limit its powers and regulate its behavior. All party organizations are prohibited from issuing governmental or legal orders and decrees, required to respect the independent power of the people's congresses, asked to handle correctly the relations

between party leadership and democratic election, and banned from intervening in the democratic procedures and changing the electoral results (Chen, 2008: 327). The Fifteenth Communist Party Congress made great contributions to the continued efforts of the CCP to move towards a Socialist legal system and democracy by emphasizing the respect and protection of human rights and the building of a socialist state based on rule of law, instead of rule by law. This formulation seemed to presage a new era in state-building and an acceptance of limitations on the arbitrary use of power. While promoting the state-building based on the rule of law, Chinese President Xi Jinping emphatically pointed out, the people of all ethnic groups, all governmental agencies, the armed forces, all political parties and public organizations, and all enterprises and public institutions in the country must take the Constitution as the basic standard of conduct and regard it as a duty to uphold the dignity of the Constitution and ensure its implementation (Xi, 2014, 152-153).

Second, the NPC is moving toward its official position and constitutional status as the highest organ of state power. Since the market-oriented reforms were introduced and implemented in China, the Chinese state has retreated from many social and economic affairs, and reduced its authority from its former all-intrusive and hegemonic roles in the life of the nation. At the same time, the Chinese state-building has been promoted. Consequentially, the use of state power has been more rationalized and institutionalized. The legislative developments have contributed very much to this process and progress, and also constituted an integral part of state-building during the past several decades. As Andrew J. Nathan noted, the NPC has become progressively autonomous, initiating legislation and actively reviewing and altering the proposals for legislation presented to it (Nathan, 2003, 12).

Third, a new pattern of strong party-strong state is emerging because of the party-building and state-building during the past three decades. This pattern is totally different from the traditional

totalitarian regime in which the Communist party dominated and directed all state structures and governmental organizations, and the personal dictatorship of Mao under which both state structure and party organization collapsed and ceased functioning during the Cultural Revolution. Since the beginning of reform and opening up to the outside world, the Communist leadership has been consolidated and legislative developments have been promoted to a great extent. While the CCP is playing a leading role in China, the People's Congresses have exerted more and stronger influence in Chinese politics. Conflict and cooperation coexist in this new pattern of strong party-strong state relations.

A SPECIAL PATTERN OF LOCAL PARTY-STATE RELATIONS

It is widely believed that the Chinese local states have contributed greatly to the developmental miracle in China. The great dynamics of local state originated from the reforms and developments of the central-local relations. The relationships between the central and local government in post-Mao China are different from other East Asian countries and areas. Most of the other East Asian countries and regions are small in terms of territory and population. They adopted centralized rule in order to promote economic development. For example, the 'Act of local Autonomy' was promulgated in 1949 in South Korea, but never really implemented. After Park Chung-Hee started a military coup d'état in 1961, the local system in which local leaders were elected directly by local residents was abolished. Park subdued the principle of autonomy and self-government with militaristic control through a highly centralized administrative system. After that, South Korea's local self-government system was suspended for 30 years (Ahn, 2005: 26). China's reforms are fol-

lowing a different path. Decentralization of power from the central government to the local regions has been a major trend and obvious feature during more than 30 years of reform in China. Although the decentralization of powers has been mainly implemented in the economic field, it also has political significance due to the special institutional environment in China. For example, the decentralization of central financial power to the local regions had a significant impact on the behavior of local governments and directly influenced the relationships between them. Of course, decentralization is not only confined to the economy, but decentralization of legislative power and expansion of local legislative power is another important aspect of political development in China. In regard to the decentralization of political power, many measures have been taken in the reform of the cadre management system. For instance, local states have more powers over personnel management in the state-owned local enterprises and other economic units; local organizations of the CCP have more control in managing local party and government cadres; local residents have greater influence on the selection of local leaders (Wu & Zheng, 1995: 170).

As a result of decentralization and local economic development, the Provincial People's Congresses (PPCs) have become increasingly active and assertive along with their structural and functional improvements. As Samuel Huntington pointed out, 'The level of institutionalization of any political system can be defined by the adaptability, complexity, autonomy, and coherence of its organizations and procedures' (1968: 12). Judged by this criteria, the process of institutionalization is obvious in the system of the PPCs over the past decades. The legislative branch has become an important component in China's political system. In the PPCs, there are at least three distinctive parts that have different status, powers and functions. As we move from the Plenary Session, to the Standing Committee (SC), and then to the Chairpersons' Group and the chairperson, we come to see these bodies get more institutionalized and more powerful. The

powers of the Chairpersons' Group and the SC have been enhanced enormously. As Ming Xia said, 'After years of institutionalization, the PPCs began to consolidate and routinize their power. The newly expanded powers of the PPCs stemmed from China's economic marketization and the PPCs' own institutional adaptations, as well as the interaction between these two processes' (2008: 65-66).

The growing powers of the PPCs have brought about some interesting and surprising consequences in Chinese local electoral politics. Elections in China include elections of Representatives to the People's Congress at all levels, elections of senior government officials by the People's Congress, elections within the Communist Party, and elections at local grassroots organizations. Keeping in mind elections from 30 years ago, then they were largely 'arranged' by the Communist party-state with electoral methods such as single-candidate election in place to ensure the election of party-state appointees to state and party offices. Over the years, planned and managed experiments with new electoral methods saw the introduction of competitive elections at the selected levels of public offices. There are initiatives in electoral reforms to transform appointment without competition to appointment by electoral competition (Guo, 2011: 170). As the result of electoral reforms, the PPCs used their powers to reject the candidates nominated by the CCP local committees and the conflict of local party-state intensified in some local areas during the late 1980s and early 1990s. As reported by an expert on the People's Congress, there were 9 people nominated as vice-gubernatorial leaders by the Chairpersons' Group together with the local Communist committees, but rejected by the local representatives in the PPCs elections during the late 1980s, including 5 vice-governors of Hebei Province, Shanxi Province, Gansu Province, Qinghai Province, Guangxi Autonomous Prefecture, 1 director of Guangdong People's Court, and 2 People's Procurator of Henan and Shanxi. At the same time, there were 12 persons nominated by ten ordinary representatives and successfully elected to the vice-

gubernatorial positions in Hebei, Jiangxi, Hunan, Gansu, Ningxia, Tianjin, Shanghai, Anhui, Zhejiang, Henan and Jiangsu. Although during the early 1990s, after the Tiananmen democracy movement in 1989, some limitations were imposed on the electoral process, the Communist central leaders were shocked by the fact that two candidates for the governors in Zhejiang and Guizhou nominated by the Communist Center were rejected by the PPCs and they failed to be elected (Cai, 2003: 350-1).

In order to respond to the increasing pressure from the PPCs and reconstruct the institutionalized relation of local party-state, a new pattern of local party-state relation was introduced and implemented from the early 1990s. That is, there are most of the local Communist secretaries who concurrently occupy the PPCs' chairperson positions. This is because the Communist leaders began to emphasize the relation between the ruling party and state as the most important and fundamental political power relation. Just as Jiang Zemin, then General Secretary of the CCP, pointed out in his speech,

> 'It is consistent to strengthen the Communist leadership and to let the state power organ play its own role. When upholding the Communist leadership on political affairs in China, the most substantial thing is to organize and support people to govern by themselves. The People's Congress system is the popular democratic institution under the Communist leadership. Only under the Communist leadership can the People's Congress exercise its power and perform its duty. Strengthening and improving the People's Congress system will contribute to the realization of the Communist leadership. The Party led the Chinese people to establish Chinese state organ, and the Party must lead and support the state organ to fully perform its functions and realize people's will. In doing so, the Communist leadership will be strengthened, and not weakened' (1991: 942-3).

Based on this new idea, the People's Congress becomes the major and main channel between the Party and people, and an important approach to realize the Communist leadership. Therefore, many local Communist Party secretaries have been sent to serve as the Chairperson of the PPCs.

After the 1993 elections at the central and local levels, while Qiao Shi as the number three member of the CCP Politburo Standing Committee occupied the position of the Chairman of the NPC Standing Committee, 10 local provincial Party secretaries concurrently held the Chairpersons of the PPCs. This dramatic change did not only mean that the Chairpersons of the PPCs had improved in terms of their political experience and status in Chinese political system, but also showed that the CCP had changed its policy of separation of the Communist Party from the PPCs and started embedding their major leaders into the PPC system. After the 1998 elections, there were 13 Chairpersons of the PPCs who served simultaneously as the provincial Communist Party secretaries. After the 2003 and 2008 elections, there were 23 and 24 Chairpersons respectively of the PPCs who served concurrently as the Communist Party secretaries. It has been an institutional arrangement for the local Communist Party secretaries to hold the Chairperson position of the PPCs since the early 21st century (see the details in Table 3). Clearly, from 2003 on, a new pattern of local party-state has been introduced and implemented, in which almost all Communist party secretaries hold the Chairpersons of the PPCs at the same time. It is certain that this is a new policy, but not a coincidence.

Table 3: The number of the Communist Party secretaries serving as the PPCs' Chairpersons

Year	Number	Provinces and Autonomous Prefectures
1993	10	Inner Mongolia, Liaoning, Jilin, Heilongjiang, Zhejiang, Fujian, Jiangxi, Hubei, Guizhou, Shanxi (Xi'an)
1998	13	Tianjin, Hebei, Inner Mongolia, Jilin Jiangsu, Zhejiang, Jiangxi, Hunan, Hainan, Sichuan, Guizhou, Shanxi (Xi'an), Qinghai
2003	23	Hebei, Shanxi (Taiyuan), Inner Mongolia, Liaoning, Jilin, Heilongjiang, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Henan, Hunan, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Shangxi (Xi'an), Gansu, Qinghai, Ningxia
2008	24	Hebei, Shanxi (Taiyuan), Inner Mongolia, Liaoning, Jilin, Heilongjiang, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Henan, Shangdong, Hunan, Hubei, Guangxi, Hainan, Sichuan, Guizhou, Yunnan, Shangxi (Xi'an), Gansu, Qinghai, Ningxia
2011	24	Hebei, Shanxi(Taiyuan), Inner Mongolia, Liaoning, Jilin, Heilongjiang, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Henan, Shangdong, Hunan, Hubei, Guangxi, Hainan, Sichuan, Guizhou, Yunnan, Shangxi (Xi'an), Gansu, Qinghai, Ningxia
2015	24	Hebei, Shanxi (Taiyuan), Inner Mongolia, Liaoning, Jilin, Heilongjiang, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Henan, Shandong, Hunan, Hubei, Guangxi, Hainan, Sichuan, Guizhou, Yunnan, Shangxi (Xi'an), Gansu, Qinghai, Ningxia

Sources: (1) Xinhua Yuebao (Xinhua Monthly), Number 8, 1993, p. 43;
(2) Liao Wang (Outlook, weekly magazine), Number 23, 1998, pp. 4-8;
(3) Liao Wang (Outlook, weekly magazine), Number 9, 2003, pp. 44-48;
(4) 2008 Difang Huanjie Huifang (Looking back on the 2008 local elections), Please see: http://news.xinhuanet.com/local/2008-02/01/content_7541221.htm;
(5) For the provincial leaders in 2015, please see: http://www.guancha.cn/politics/2014_02_15_206237.shtml

About the impact of this new pattern on Chinese local politics and governance, there are different evaluations and dividing visions among the Chinese Communist leaders and scholars. While some people criticize and denounce it as a new step to higher concentration of political power on the Communist Party secretary, many others believe that this institutional arrangement contributes to local democracy and governance. As Ming Xia reported in his study of this political phenomenon, there are conflicting opinions even

among the Communist leaders who have held simultaneously two political posts. For example, Sun Weiben in Heilongjiang province said, 'we should take advantage of occupying the two posts to transmit Party's intentions and policies more quickly to the PPCSC (PPC Standing Committee) through organizational channel, and to transform them into the state's will through legal procedures; at the same time, to transmit timely the opinions, demands, and concerns from the PPCSC, the PDs (People's Deputies) and ordinary people to the Party; to coordinate the relationships between the Party Committee, the PC, government, and the court and procurator; and to provide timely help to the difficulty and solutions to the problems that the PC has encountered'. Guan Guangfu from Hubei province also said, 'Although I also personally paid attention to the important issues in the PC work, the daily routine work was delegated to the executive vice-chairperson to take care. For the PC work, I place emphasis on giving support when I was both the party secretary and PPCSC chairman.' However, according to Lin Ruo in Guangdong, some party secretaries held two posts, but did not devote energy and time to the PC work. Therefore, this practice strengthens the PC work in surface, but weakens it in reality. After reviewing and reevaluating all comments, Ming Xia drew his conclusion: 'Generally speaking, the presence of the party secretary in the PPCs strengthens, rather than weakens, the standing of the PPCs in the entire power structure.… As for the long-term impact upon Chinese political development, this practice may indicate the convergence of the de facto power center and the *de jure* power center' (Xia, 2008: 121-3).

IMPLICATIONS FOR STATE-BUILDING AND DEMOCRATIZATION

For most of the developing countries, both state-building and democratic transition are two basic and fundamental goals in their political development and modernization. In comparative studies of political development and democratization, there exist debates on sequencing problems. While some scholars emphasize the priority of state-building based on the rule of law, many others think that democratization is more important and should be promoted without any preconditions. As a strong supporter for democracy promotion, Larry Diamond believes that the fate of democracy is not simply driven by abstract historical and structural forces; it is a consequence of struggle, strategy, ingenuity, vision, courage, conviction, compromise, and choices by human actors; there is no intrinsic economic, cultural, or religious obstacle to democracy and democracy is becoming an increasingly universal value (Diamond, 2008: 4, 315). Many others challenge the theory of democracy promotion (Mansfield & Snyder, 2005; Chua, 2004). For example, Edward Mansfield and Jack Snyder argued that it is dangerous to push states to democratize before the necessary preconditions are in place and that prudent democracy-promotion efforts should pay special attention to fostering those preconditions (Mansfield & Snyder, 2007: 5). Francis Fukuyama also insists on the potential contradiction between state-building, and not just democracy, but liberalism as well. According to his analysis, state-building necessitates the development of many state institutions including armies, police, taxing authority, and agencies providing various sorts of public goods; both the liberal rule of law and democracy, by contrast, involve limiting the central state's authority to coerce, first by putting it under a set of transparent and universal rules, and second by ensuring that the exercise of power reflects the popular will (Fukuyama, 2007: 11).

China is no exception. In the process of political development and modernization, there have been several rounds of debates over the state-building and democratization. When the policy of reform and opening up to the outside world was adopted during the late 1970s, the chief architect of this policy, Deng Xiaoping, paid special attention to democracy, and said, 'we must attach special importance to democracy at this time… to guarantee people's democracy, the rule by law must be implemented; we must promote the institutionalization and legalization of democracy' (Deng, 1993: 144-6). But many problems arose in the process of political developments. Frequent debates unfolded over the preconditions for democratization and the sequence about state-building and democratic transition. For example, as some scholars put it, there are not enough preconditions for developing democracy in today's China. The democratic transition can only be promoted when all preconditions such as high level of economic development and civic culture are in place after several decades (Yang & Shi, 2010: 120). Some others argue that the rule of law would take precedence over democracy in reality and should be the prerequisite for democratic development and could guarantee the effective working of democracy (Yang, 2009: 123). By absorbing the fruits of academic researches and discussions, the Chinese Communist leaders have designed a holy trinity for the ultimate goal of promoting political reform and building socialist political civilization (Lin, 2009: 67). That is, the combination of Party leadership, rule of law, and people's democracy.

The puzzle remains, how can we explain the mechanism of the combination and what are the institutional arrangements for such a combination? Our findings have indicated that China has made great progress toward the combination by improving the structure and function of the Peoples' Congress and especially embedding the Party leadership in China's constitutional order.

By combining the Communist new ruling philosophy about rule of law and the new practice of redefining and reconstructing par-

ty-sate relations, the following three points are clear:

(1) Both as initiatives for the party-building and as reactions to the challenges posed by the growing social forces, the structure of the Communist leadership has been reformed and improved to a great extent. Especially from the late 1990s, after the rule of law was established as the task for state-building at the Fifteenth Communist Party Congress, the Communist leaders put forth the ruling party theory, meaning that the CCP should transform itself from a 'revolutionary party' into a 'ruling party' based on the rule of law. Thus, the People's Congress has become a great channel to embed the real power center (the Party) into the legal power center (the PC), contributing greatly to state-building in China. The CCP began to embed itself into the state structure and exercise its overall leadership within the institutional framework of state power, thus consolidating the institutional foundation and strengthening the legal guarantee for the Communist leadership.

(2) The growing role of the People's Congress in Chinese political system has encouraged more and higher political participation and political competition. Democracy as a form of government consists of many complex and interdependent institutions. One outstanding democratic theorist, Robert Dahl believes there are at least five standards for a democratic process: ① effective participation; ② voting equally; ③ enlightened understanding; ④ control of the agenda; ⑤ inclusion of adults (Dahl, 1998, 37-38). Moreover, as he discussed, these five criteria can also be differentiated into a number of specific institutional arrangements. Therefore, the democratic system and process contain a large number of complicated elements, and the growth and accumulation of these elements constitutes the process of democratization. The minimal requirements for democratization are the introduction of competition mechanism and the expansion of political participation. The increasing importance and assertiveness of the People's Congress will speed up the process of democratization in the near future in China.

(3) The new pattern of strong party-strong state relation has not only provided a practical solution to the dilemma in which the CCP has increasingly faced the more assertive People's Congress, but also give a clue to find a effective way of combining the Communist leadership, rule of law, and popular democracy. The CCP has placed special emphasis on the legislative development and created a stronger People's Congress as a state organ since the late 1970s. Therefore, a strategic, creative and cooperative party-state relation has been constructed based on the three notions of the Communist leadership, rule of law, and People's democracy.

While great achievements have been made in legislative development and a new pattern of party-state relation has been taking shape gradually, many problems and uncertainties exist in Chinese political theory and practice. Although there are stronger tones in political rhetoric on democracy, such as 'there is no socialism without democracy, and there is no socialist modernization without democracy… democracy is the lifeblood of the party', the Communist leadership has been unswervingly upheld as one of the cardinal political principles in China. Although the rule of law has been established as the fundamental goal of party-building and state-building, there is a long way to fully implement it in political process. Moreover, the party-state relation remains uncertain and sometimes the Communist Party uses its political power and violates the legal procedures, for which the frequent conflicts between the Party and state have been reported. Therefore, in order to ensure the peaceful and gradual transition from authoritarianism to democracy in China, many more measures must be taken in political reforms and political developments in the future.

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AN ASSESSMENT OF NORTH KOREAN CYBER THREATS

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Abstract

In this article, North Korea's cyber attacks incidents were analyzed and findings previous studies regarding North Korean cyber capabilities were aggregated. The author emphasizes North Korea's intention of posing cyber threat against South Korean and other parts of the World. North Korea is developing its offensive cyber capabilities as a way of offsetting its inferior conventional military capabilities. North Korea launched cyber attacks many times when the security situation of Korean Peninsula was highly volatile, which made North Korea's sabre-rattling capabilities be seen more conspicuous. The author also provides experts' evaluations on North Korea's cyber capabilities as well as his own assessment and evaluates South Korea's capacity in responding North Korea's cyber threat. Having discussed these issues, the author concludes that North Korean cyber threat should be regarded seriously and suggests that researchers and practitioners should think unthinkables and provide possible scenarios and policy direction to the government and the military.

Key words: North Korean Cyber Threat, Cyber Warfare, Cyber Preparedness, Cyber Weapon, Cyber Security, Cyber Attack

INTRODUCTION

North Korea is one of the hardest intelligence targets for a government. It is a chauvinistic country endorsing the *Juche* ideology. It is one of the poorest countries in the world. Its cyber infrastructure seems to be very rudimentary and one can hardly expect public Wi-Fi or cloud services in North Korea. When Eric Schmidt, CEO of Google returned from North Korea in 2013 after his short visit, he said there were only a few thousand computers connected to internet in North Korea. Even from the perspective of cyber, North Korea is surely a hermit kingdom.

Meanwhile, we have witnessed that North Korea launched highly sophisticated cyber attacks to South Korea and United States. Start-

ing from simple DDoS attacks toward popular websites and e-mail hacking, their cyber offensive operations adopted advanced technologies, the so called APT[1] (Advanced Persistent Threat). Recently, North Korean hackers tried to expand their playing fields from PC platforms to mobile platforms as in the recent attack that compromised smart phones of several influential politicians.

Witnessing North Korean cyber attacks and its infrastructure, people raised many questions. How can a country like North Korea pose such serious cyber threats?[2] Some skeptics argued that the computer security industry exaggerated North Korea's cyber capabilities and the magnitude of the threats for the promotion of their business. With these questions in mind, there is a growing need to assess North Korea's cyber capabilities and the reality of the threat correctly. However, it is a very difficult task to assess North Korea's cyber capabilities and its intent. Even though we have analyzed North Korean-made malwares and human intelligence[3], we don't know much about what is happening in North Korea.

In this study, I tried to aggregate information about North Korea's cyber capabilities and assess them objectively. To do this, an analysis of North Korean cyber attack cases, discussion on the findings in the area of North Korean cyber threats, and responses against North Korea's cyber threats will be evaluated in the following sections.

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1 An advanced persistent threat (APT) uses multiple phases to break into a network, avoid detection, and harvest valuable information over the long term.

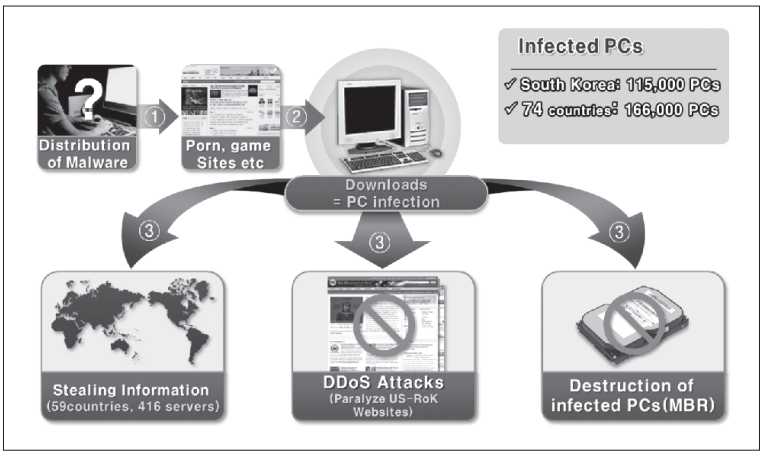
2 Professor Libicki, a renowned cyber security expert, responded to the question in e-mail communications with me. His position is as follows; "North Korea is poor but North Koreans are not primitive (people starve because North Korea's leaders prefer to pursue many other goals that compete with making sure people are fed). It did develop atomic weapons, something primitive countries cannot do. Developing the cyberwar capability (of the sort that North Korea has) is not surprising for a country that can develop atomic weapons."

3 Currently, there are almost 30,000 North Korean refugees in South Korea and some of them provide valuable information about North Korean cyber capabilities.

NORTH KOREAN CYBER ATTACKS CASES

Even though cyber terrorism and cyber warfare became buzz-words these days, the social discourse on cyber security has a very short history in South Korea. Experts see that North Korean cyber attacks began around 2004, however, it was 7.7 DDoS attack in 2009 that triggered the general public's concerns regarding the cyber threats posed by North Korea. Most cyber attacks before 7.7 DDoS were e-mail hacking incidents employing basic techniques.

Figure 1. 7.7 DDoS cyber attack



After 7.7 DDos attack, North Korea launched cyber attacks against South Korea more often, and the impacts of attacks have been getting worse. In this context, journalists like Baek(2015) of *Monthly Chosun* introduced a speculation that there seemed to have been relations between the increase of North Korean cyber attacks and the debut of heir-apparent, Kim Jong-un at that time. Despite some criticisms on the argument[4], it is evident that there has been a

[4] Experts like M. Libicki argues that it's hard to say whether the increase in cyber-activity

surge of North Korean cyber attacks in Kim Jong-un era.

Several well-known incidents after 7.7 DDoS attacks are as follows; In July 7, 2010, North Korea launched DDoS attack on ROK government and private-sector websites. They disseminated malwares through P2P sites, chat-rooms, web-hards, and free vaccine program sites. The malwares infected PCs and turned them into zombie PCs. North Korean hackers took control of the resources, thousands, if not millions, of zombie PCs around the world. When they decided to launch cyber attacks, those zombie PCs sent huge amount of data packets to designated websites and inundated capacities of the website servers. Sometimes DDoS attacks caused severe damage to a society, however, this kind of cyber attacks just caused paralysis of websites and other esthetic damages such as defacement of websites. It didn't require advanced technologies even though North Korean technical sophistications of DDoS attacks improved and sometimes they even erased data in the servers as they paralyzed the websites.

In 2011, North Korean hackers demonstrated enhanced cyber attack capabilities. On March 4, North Korea launched DDoS attacks on 40 ROK public, governments, military, and private websites including USFK. About a month later, North Korea caused the paralysis of Nonghyup internet banking system. The bank servers were disrupted and data were erased. This incident happened on April 12, 2011. After close evaluation of the attack, experts concluded that North Korean hackers seemed to have employed the APT technique to the internet banking system maintenance staff. It seemed that North Korean hackers spent a lot of time and energy to identify

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from North Korea has resulted from the new ruler's accession. They see that all the trend lines everywhere else are going up except that China's visible activity, particularly against corporations, seems to be going down. In this regard, the frequency of North Korea's cyber attacks seems to be a part of the recent trend. However, it seems that the frequency of North Korea's cyber attacks has been way over the general trends of cyber attacks cases in other parts of the world.

the maintenance technician and injected malwares into his PC. Unaware of this, the technician connected the PC to the Nonghyup internet banking system for routine check-ups and the malware was simultaneously injected into the system. And that was the beginning of the entire story.[5]

Other notorious cyber attacks occurred in 2013. On March 20, 2013, MBR(Master Boot Record)[6] wiper attacks shut down 32,000 computers of banks and media agencies. The affected banks include Nonghyup, Shinhan Bank, and Jeju Bank. Media agencies include YTN, KBS, and MBC. This incident was named 3.20 cyber terror of 2013. Five days after 3.20 cyber terror, North Korean cyber warriors also attacked DailyNK, Free North Korea Radio, and NKnet. These are public media agencies run by defected North Korean intellectuals and they were trying to disseminate wrongfulness of North Korean regime via those media agencies. Another cyber attack organized by North Korea occurred on June 25, 2013. It was DDoS attacks on 16 government and media agency websites and DNS servers of those websites were also targeted.

In November 2014, North Korea got even more audacious and launched an MBR wiper attack against Sony Pictures Entertainment. Sony Pictures hacking incident drew extraordinary concerns and anger towards North Korean cyber threat. In December 2014, there were cyber attack attempts against the information system of South Korean nuclear power plant corporation, Korea Hydro and Nuclear Power. They intended data theft, extortion, and MBR wiper attack. This incident was also considered a serious one because it seemed that North Korea was trying to be seen as if they can cause real and

[5] It took Nonghyup a month to normalize banking services (http://www.itworld.co.kr/news/73444?page=0,1; retrieved Aug 25, 2016)

[6] A master boot record (MBR) is a special type of boot sector at the very beginning of partitioned computer mass storage devices.

physical damages through cyber attacks.[7]

The year of 2015 was a relatively quiet period in terms of North Korea's cyber attacks even though there were so many 'physical' military provocations. Entering 2016, however, North Korean cyber threats became an issue again. According to Min-ho Kim of Jetco Technology, North Korea launched at least ten cyber attacks during the first half of 2016. North Korea increased cyber attacks after the fourth nuclear test. By the end of June 2016, South Korea identified sixteen attack servers in Ryukyung-dong, Pyongyang. Analyses of 33 malwares which were allegedly used by North Korean hackers in those cyber attacks are underway.[8]

Reviewing North Korean cyber attack incidents, one can find several features that draw our attention. First, it became their usual attack patterns, compounding traditional security threats with non-traditional threats. It seems that elites of North Korea's hacking organizations received order from the above to coordinate cyber attacks with other military provocations such as the fourth nuclear test. North Korea's intent is to shatter the minds of South Koreans and, to attain this goal, hackers disseminated misinformation and propaganda etc. Some e-mails were sent with malign contents of President Park. For example, North Korean hackers sent mass e-mails and criticized current government's approaches to the North Korean nuclear issues. They tried to make those e-mail more convincing by sending them from stolen accounts of influential scholars or broadcasting companies (for example, MBC and SBS).

Second, North Korean cyber warriors expanded their domain of operations to the mobile area as in the incidents where North Korea

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[7] It also triggered widespread concerns regarding nuclear power plants safety of South Korea. In this regards, it caused psychological damages. (http://www.zdnet.co.kr/news/news_view.asp?artice_id=20150317160750&type=det&re=; retrieved Aug 25, 2016)

[8] Experts said that there are repeated command lines in malwares that North Korean hackers developed. Many North Korean made malwares are named 'Kimsuky series' because 'kimsuky' is repeatedly used in malwares' codes.

hacked smart phones of several politicians and high level military personnel. They tried to intercept text messages, recorded telephone conversations, and contacts information. The third aspect is that North Korea had intents to compromise mass transportation management system which would end up in large scale chaos. Indeed, there were hacking attempts on Seoul Metro, a subway system of Seoul and it rendered ominous sign to the general public of South Korea foreshadowing transportation disaster triggered from cyber. Lastly, there was a hacking attempt on defense-related corporations in 2016. They stole maintenance manuals of F-16, photos of South Korean drone parts, and other sensitive documents. Authorities estimated 42,600 documents had been stolen. It is a new phenomenon and it renders an impression of North Korean hackers being more military-oriented in their purposes of attack.

NORTH KOREAN CYBER THREATS: SOME FINDINGS

Entering the 2010s, many South Korean security experts participated in the discussion of cyber warfare and cyber terrorism. Many experts looked at the issues from various perspectives and the following are some of the important arguments. First, one of the most popular topics is analyzing the intents of North Korean cyber attacks. Experts see North Korean cyber attacks as its implementation of asymmetric strategy. In fact, cyber threats have become a synonym of asymmetric threats. It enables poor countries to have chances to harm a rich nation's ICT(information and communications technology) assets with low costs. If a nation is highly wired with advanced ICT networks as in the case of South Korea, an attack to the target infrastructure of the nation can cause cascading confusion.

With the decades-long economic hardships, North Korea had

to give up arms race with South Korea especially in the area of conventional weapon. Thus, going nuclear was a bold attempt to offset its inferiorities and developing sophisticate cyber weapons was the other option. We can name it North Korea's offset strategy[9] and cyber is an important part of it. With the employment of cyber means, North Korea can cause widespread chaos in the networked society as in the case of Seoul Metro cyber attack. In military sense, North Korean hackers will try to encroach upon military networks, such as sensors-shooters complex and integrated command-control systems of US and South Korean military. Therefore, ROK-US combined forces may face difficulties conducting network-centric warfare if North Korea's cyber warriors are successful.

Second, North Korea has employed cyber attacks a political means that can turn security situations of the Korean peninsula into a grey zone, a zone where threats are significant and evident, but there is almost no way to normalize the situation by using military measures. That is, North Korea tried to shatter the political terrains of the peninsula by adopting various means such as missile tests, nuclear tests, limited military attacks to remote islands or DMZ, and cyber terrors. Moreover, North Korea usually mixed the types of provocations that resulted in good tactical moves. This is why experts including myself have tried to find out regularities of North Korean cyber attacks from the perspective of compound crisis, a situation mixed with different kinds of crises. A preliminary finding is that cyber terrors, if compounded with other provocations, can be used as good tools for generating greater tension and North Korea always took advantage of them. (Boo and Choi, 2014). Indeed, North Korea has used cyber threats as a means of enhancing the political impact of its military provocations and its propagandas. North Korea usually launched cyber attacks before or after major

[9] An offset is some means of asymmetrically compensating for a disadvantage. Offset strategy is usually understood as a game-changing strategy.

military provocations such as long-range missiles tests and nuclear tests. Experts also see the utility of cyberspace in that North Korea can take advantage of cyber means in fulfilling its intent of dividing South Korean society into two extreme opinions regarding how to deal with North Korea.

Another hot topic is the evaluation of the technological level of North Korean cyber threats. Researchers and writers have evaluated North Korean capabilities and tried to compare its capabilities with other countries. There were some findings. Even though some experts even estimated that North Korea's ability of cyber warfare would be almost equal to that of CIA, North Korea's cyber attack capacity seems to be in mid-level[10] but its defending capacity is very high since there is almost no way to penetrate North Korean system because of its lack of internet connections. This ironic situation makes North Korean cyber threat formidable.[11]

Table 1. Comparison of Cyber War Capabilities among Nations

Nations	Cyber Offense	Cyber Dependence	Cyber Defense	Total
U.S.	8	2	1	11
Russia	7	5	4	16
China	5	4	6	15
Iran	4	5	3	12
North Korea	2	9	7	18

Source: Richard A. Clarke and Robert K. Knake, "Cyber War : The Next Threat to National Security and What to do about it", ECC 2010 p.149.

[10] When it comes to the attack behaviors, the North Koreans hackers are exceptionally aggressive. When we have discussion regarding North Korean cyber attack capacities, professor Libicki said "While most other nations break into computer systems to steal information, the North Koreans also break into computer systems to break them."

[11] According to Professor M. Libicki of Naval Academy of United States, North Korea is more sophisticated than many other countries are (e.g., Spain, Lebanon) in terms of cyber capabilities. He believesthat North Korea is probably as sophisticated as many cybercrime organizations are (and such organizations specialize in going after soft targets). It is not that hard for a moderately competent hacking group to break into a system that is open to the outside world, and runs a normal Windows operating system.

Table 2. Coleman's Comparison Results

Nations	Intent	Offensive Capabilities	Intelligence Rating	Total
China	4.2	3.8	4.0	4.0
U.S.	4.2	3.8	4.0	4.0
Russia	4.3	3.5	3.8	3.9
India	4.0	3.5	3.5	3.7
Iran	4.1	3.4	3.4	3.6
North Korea	4.2	3.4	3.3	3.6
Japan	3.9	3.3	3.5	3.6
Israel	4.0	3.8	3.0	3.6
South Korea	3.5	3.0	3.2	3.2
Pakistan	3.9	2.7	2.6	3.1

Source: Coleman, K., The Weaponry and Strategies of Digital Conflict, in Armstead, E. L (eds.), The Proceedings of the 5th International Conference on Information Warfare and Security, (The Air Force Institute of Technology, Ohio; 2010). p. 498.

Even though there is not much information about North Korean organizations for cyber warfare or institutions for education, we came to know that General Bureau of Reconnaissance has been deeply involved in cyber attacks toward South Korea. Kim Heung-kwang, a defected North Korean intellectual and chair of NKnet provided information about core North Korean cyber units; He argued that Unit 121 was established in September 1998 by Kim Jong-il and launched more than 30,000 cyber attacks toward South Korea ever since. Many news sources reported that Kim Jong-il himself stressed the importance of enhancing the ability of waging cyber war. For example, he said, "the 20th century's war was a war of oil and bullets, but the 21st century's war is intelligence war." Experts believe that North Korea's notion of intelligence war includes the cyber war. Reflecting this in its operations, the Korean People's Army tried to enhance cyber warfare capability under the concept of 'electronic intelligence warfare' which includes conducting the disruption of networks, destruction of infrastructure and paralyzing

the enemy's military command-and- control systems.

As for ways of launching cyber attacks, Kim Heung-kwang of NKnet designated several secrete operation sites for cyber attack in China, such as Chilsung-gak, a North Korean restaurant in Shenyang. Sometimes, according to Kim Heung-kwang, North Korean hackers launched cyber attacks in PC cafes in Shenyan, Dan-dong, Beijing and other cities in China. Sometimes they sneakily put jumpers on the backbone of Chinese telecommunication corporation, such as China Unicom and launched cyber attacks using the compromised communication lines. Some cyber terrorists of Unit 121 even traveled to Japan, Southeast Asia, Africa and European countries to engage in state-sponsored cyber attack activities.

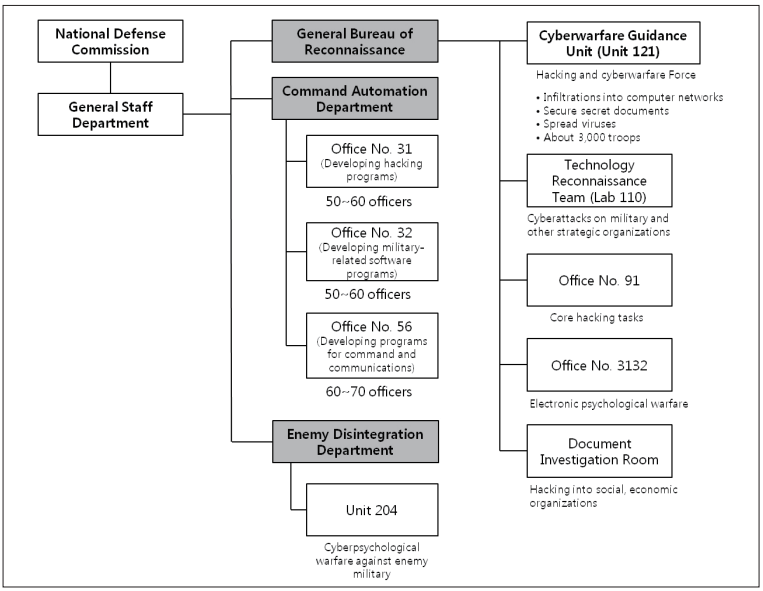
In order to raise future hackers, North Korean government has established a set of institutions that are solely for cyber warriors. North Korea has enhanced its cyber attack capabilities by training professional hackers since the mid-1980s. News sources found that North Korea established Mirim College, Moranbong College and other higher education institutions for the purpose of educating cyber warriors. These schools are closely related to the People's Armed Forces of North Korea and allegedly train hundreds of professional hackers every year. They are estimated to be top class hackers and appointed as military officials to hacking units after graduation. As for North Korea's cyber warfare organizations, experts' estimations and defected North Koreans' testimonials were used in building the organizational diagram seen in Figure 2.[12] The most notable feature in North Korea's cyber warfare organizational diagram is that hacking units are attached under the General Bureau of Reconnaissance (GBR)[13] which is controlled by National Defense Commission. As

[12] Even though I collect information as much as I can, there should be some inaccuracy because of limited information. However, Figure 2 would be very closely reflecting the reality of North Korea's cyber warfare organization.

[13] GBR is one of North Korea's intelligence agencies and responsible for secret operations against South Korea.

mentioned earlier, South Korea's Prosecution Service and National Intelligence Service have designated Unit 121 of GBR as a major suspect of numerous cyber attacks. Meanwhile, the estimated total number of North Korean cyber warriors reached 6,800 and, according to Kim Heung-kwang and other news sources, it would reach 10,000 sooner or later.

Figure 2. North Korea's Cyber Warfare Organizations



Source : Boo, Hyeong-wook et. al.. 2013. A Study on Future Direction of Defense Cyber Policy. KIDA report (in Korean). p. 94.

Meanwhile, it is a rather recent finding that North Korea is quite successful in reaping profits by the use of its cyber capabilities. According to You Dong-ryul of Korea Institute of Liberal Democracy (KILD), North Korea earns 1 billion dollars per year through cyber activities.[14] North Korean hackers established illegal cyber gambling

[14] One billion dollars is a huge sum to North Korea considering its level of official trade volume which is less than 10 billion dollars per year. The amount suggested by Dr. You

sites, engaged in online games selling rare game items to players, and dismantled the online banking system as in the case of Bangladesh etc. According to Dr. You, North Korea acquires a huge amount of foreign currencies from these kinds of activities.

RESPONSES AGAINST NORTH KOREAN CYBER THREATS AND NEW THREAT ASSESSMENTS

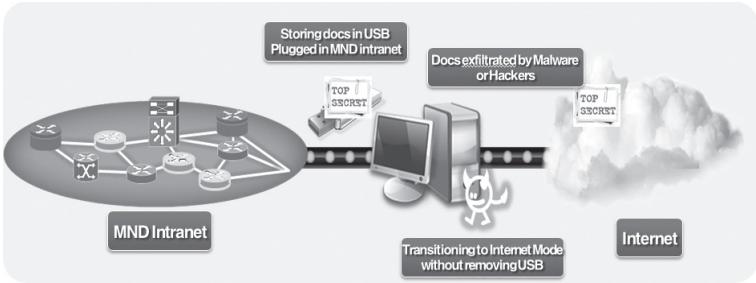
South Korea has been under North Korean cyber attacks for more than a decade as it has progressed to be one of the world's IT powers. Even though the society has strengthened cyber security, its growing network dependency inevitably exposed some vulnerability as in the cases of free and democratic societies of the world. Networks are compromised because of their inherent vulnerabilities and the enemy's enhanced offensive cyber capacities. These two factors are intertwined and have demonstrated catastrophic effects in South Korea. With North Korean cyber attacks, sometimes the damages were confined to the freezing of certain websites but there were many incidents that caused substantial societal costs. The latter cases include paralysis of internet banking, exfiltration of OPLAN 5027 from the military, theft of sensitive documents from defense related industries, and the hacking of influential politicians' smart phones. Among these, the incident where documents containing major contents of OPLAN 5027 were exfiltrated, was the most surprising. The following diagram shows how the data was extruded from military intranet.[15]

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is somewhat surprising. However, experts including myself, raised questions about the suggested amount even though they are aware of the fact that North Korea is getting some amount of money from those activities.

[15] In a sense, using the title of 'OPLAN 5027 exfiltration' may be misleading because it is not exfiltration of whole OPLAN 5027 documents but exfiltration of a summary

Figure 3. OPLAN 5027 exfiltration



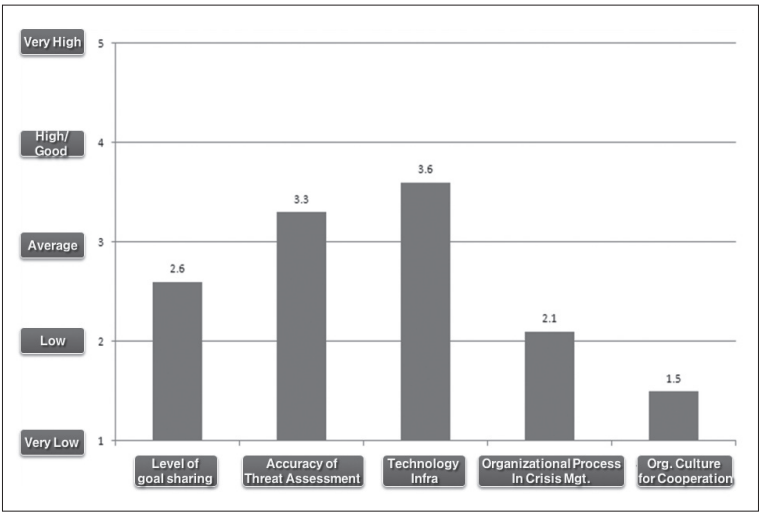
Faced with growing cyber threats, South Korea exerted multi-faceted efforts; for example, the government established the Cyber Command in 2010, sponsored cyber security related departments in universities and educated young students, and announced the Cyber Security Master Plan. However, experts argued that the government and the military should do more and proposed multi-faceted approaches in responding to North Korean cyber attacks. In this context, practitioners and researchers have showed their urgency and tried to set a momentum for the establishment of a solid cyber defense posture in South Korea. Despite the efforts of the government and opinion leaders, systems are still fragmented and very complex. Also, political support for enhancing anti-terrorism posture has been inconsistent, and international cooperation efforts are just emerging. Moreover, the general public is prone to value privacy rather than to impose limitations and regulations over cyber-

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of OPLAN which was Powerpoint file used for briefing. It happened because USB stick was used in Dual PC. Dual PCs are a PC that has two hard drives with individual operating system and used for MND (Ministry of National Defense) intranet and internet respectively. Thus, one needed to reboot a computer for MND intranet connections from internet connection, and vice versa. In fact, Dual PC is two PCs sharing every component of computers except the hard drive. OPLAN 5027 exfiltration occurred when an officer rebooted the system connected with MND intranet for the use of internet connection without removing the USB stick from the system. Again, the USB stick stored the summary of OPLAN 5027. After the incident, MND banned the use of Dual PCs (http://www.hani.co.kr/arti/politics/defense/394238.html retrieved Aug. 25. 2016).

space. Meanwhile, North Korea always tries to achieve its goal out of these conundrums. Because of various reasons, the current status of the South Korean response system against North Korean cyber threats has much vulnerability. Boo *et. al.* (2013) tried to vividly demonstrate the current status of anti-terrorism system and showed experts Delphi results. As seen in Figure 4, technology infrastructure and the accuracy of threat assessment scored well while other factors were assessed to be below average.

Figure 4. Expert Delphi Results in Evaluating South Korea's Cyber Preparedness



Source : Boo, Hyeong-wook et. al.. 2013. A Study on Future Direction of Defense Cyber Policy. KIDA report (in Korean). p. 19.

Despite the relatively high scores in technology infrastructure and accuracy of threat assessment, low scores in goal sharing, organizational process and culture foreshadow difficulties in enhancing resilience of cyber preparedness in South Korea. Meanwhile, there are some experts who argued that even threat assessment went wrong. They argue that South Korea needs to re-assess cyber threats posed by North Korea. This is somewhat surprising because

people generally accepted that South Korean government's threats assessment is quite accurate. However, scholars like Han Hee (2016) argued that MND of South Korea needs to pay attention to the invisible parts of North Korean cyber capabilities. He argues that there is a tendency within MND to see 6,800 hackers as the entirety of North Korean cyber threat. He rejected this view; MND need to focus on the potentials behind the wall. Since North Korean hackers gained control over more than thousands, if not millions, of zombie PCs, their capacity would not be reduced to the number of hackers in North Korea. With several clicks, they can launch concerted cyber attacks from all over the world. From this perspective, he argued that we need to revise our assessment regarding North Korean cyber forces; it would be a mixture of 6,800 cyber warriors, zombie PCs, and malwares that are floating in the web.

According to Dr. Han, it is important to recognize the fact that North Korea has deceived the cyber security policy community in South Korea. North Korea has tried to give an appearance of having elementary cyber technology. Experts argue that North Korea launched cyber attacks with rudimentary offensive techniques because they want to test the capacity of the South Korean society and military in responding to their cyber attacks. Since North Korea's intent is deception, it can be argued the worst scenario is still yet to come. It is true considering tactics in waging cyber war; when a cyber weapon or a malware is released, the item has no value as a cyber weapon or a malware. It is because responders will analyze it and find ways of neutralizing it. Moreover, responders will produce antidotes and provide them as countermeasures. Therefore, it would be a natural conclusion that North Korea's most valuable and potent cyber weapons were not used yet in the real world.

CONCLUSION

General Brooks who recently inaugurated the USFK commander said that North Korea has one of the world's most well-organized and able cyber forces, if not the world's best.[16] With this capacity, North Korea has launched serious cyber attacks against South Korea and the outside world. During Kim Jong-un era, there has been a surge of cyber attack incidents. Sophisticated technologies adopted for attacks and the objective of cyber operations seemed to shift from random exfiltration of information to planned and well-orchestrated attacks on critical infrastructure of South Korea. Also, North Korean cyber warriors sign-up in many SNS sites and tries to manipulate public opinions and fan the flame of conflicting perspectives within South Korean society, which can be seen as an act of waging psychological warfare. Recently, North Korea uses its cyber capabilities as means of earning foreign currency and they seem to be doing well.

For almost 60 years, arms race between the two Koreas had been taking place in the area of conventional weapons systems; the military focused on acquiring tanks, artillery, fighter jets, destroyers, submarine etc. Entering 2010s, however, things changed drastically. North Korea developed nuclear weapons and other WMDs and this changed the military balance on the Korean peninsula. The importance of modernizing conventional weapons systems became less crucial in the face of WMDs. North Korea's another strategic move has been made in the area of cyber. Developing WMDs and cyber weapons are considered as instituting asymmetric strategy.

In this article, North Korea's cyber attack incidents were analyzed and the findings of the previous studies regarding North

[16] General Brooks commented as suchat the Senate hearings for his nomination as Combined Forces Commander in April 2016 (http://news.chosun.com/site/data/html_dir/2016/04/20/2016042002453.html ; retrieved on Aug. 25. 2016).

Korean cyber capabilities were aggregated. Also, South Korea's responses and lessons learned from the response efforts are evaluated. Having discussed these issues, one can conclude that North Korean cyber threat should be taken seriously. Cyber weapons are cheap and pose serious threat to network-dependent South Korea. The worst scenario has not occurred yet. Thus, researchers and practitioners should think the unthinkable and provide analyses to the government and the military.

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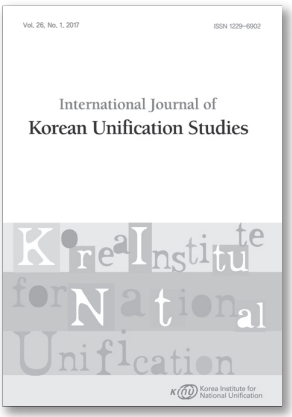
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