In China’s Shadow
Exposing North Korean Overseas Networks

AUGUST 2016
About C4ADS

C4ADS (www.c4ads.org) is a 501(c)(3) nonprofit organization dedicated to data-driven analysis and evidence-based reporting of conflict and security issues worldwide. We seek to alleviate the analytical burden carried by public sector institutions by applying manpower, depth, and rigor to questions of conflict and security.

Our approach leverages nontraditional investigative techniques and emerging analytical technologies. We recognize the value of working on the ground, capturing local knowledge, and collecting original data to inform our analysis. At the same time, we employ cutting-edge technology to structure and analyze that data. The result is an innovative analytical approach to conflict prevention and mitigation.

About The Asan Institute for Policy Studies

The Asan Institute for Policy Studies was founded with a mission to become an independent think tank that provides effective policy solutions to issues which are critical to Korea, East Asia, and the rest of the world.

The Institute aims to foster wide-ranging and in-depth public discussions which are essential for a healthy society. By focusing on areas including foreign affairs, national security, public governance, energy, and the environment, it strives to address some of the major challenges that our society faces today.

The Institute addresses these challenges not only by supplying in-depth policy analysis, but also by endeavoring to promote a global and regional environment favorable to peace, stability, and prosperity on the Korean Peninsula.

In addition to policy analysis and research, the Institute undertakes the training of specialists in public diplomacy and related areas in an effort to contribute to Korea’s ability to creatively shape its own future.
Acknowledgement

This report is the product of a six-month long collaboration between the Center for Advanced Defense Studies (C4ADS) and the Asan Institute for Policy Studies to identify financial vulnerabilities of the Democratic People's Republic of Korea (DPRK) by using cutting edge data mining methodology and network-centric analysis.

North Korea’s nuclear and ballistic missiles are the greatest obstacle to the peace and stability of the Korean Peninsula and Northeast Asia. Understanding and analyzing the supply chains that enable these programs is a prerequisite to disrupting North Korea’s illicit networks and formulating smart policies that reduce the threat level.

Leveraging C4ADS’ analytical methodologies, this report reveals that the regime’s illicit weapon programs depend on sophisticated overseas networks for the procurement and financing of key components of their weapons programs. It identifies points of vulnerability that are ripe for targeted disruption of the DPRK’s secretive overseas networks.

This research was funded by a joint grant from two anonymous private foundations. C4ADS and the Asan Institute for Policy Studies would like to thank Bill Newcomb, a C4ADS fellow, and former member of the UN Panel of Experts Sanctions Committee 1718, David Asher of the Center for a New American Security, Leo Byrne of NK News, Joshua Stanton, an attorney in Washington D.C., and the many other individuals who generously provided advice and insight. This report would not have been possible without C4ADS technology partners, whose software and systems were integral to the project’s success.

They include Palantir Technologies, Panjiva Inc., and Windward for access to their unique data and analytics.

Legal Disclaimer

The mention of any individual, company, organization, or other entity in this report does not imply the violation of any law or international agreement, and should not be construed as such.
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Executive Summary

North Korea's overseas trading networks are evolving, and Pyongyang's expansive business dealings with China, its biggest trading partner, are driving changes in the character, scope, and methods of these networks. As a result of these changes, North Korea and the entire Northeast Asian region face greater instability as regime elites in Pyongyang become increasingly willing and able to procure the strategic resources they need for regime security and weapons development.

North Korea has maintained a trade deficit since at least 1990, when researchers started to compile reliable data on the country's international trade volume. Because some form of "invisible" or alternative sources of income are required to offset this deficit, this report argues that a significant portion of alternative revenue derives from overseas procurement and trade networks that have grown rapidly in size, sophistication, and scope. Wage earnings by North Korean workers overseas, revenue from various joint ventures between DPRK and foreign entities, and trafficking in weapons, illicit goods, and wildlife constitute further sources of hard currency. These illicit engagements have spanned the globe to include a range of rogue actors and proliferators, including Syria, Hezbollah, Libya, Pakistan, and Iran.

To map these growing overseas networks, this report used open source databases, including corporate registries; court filings; Equasis maritime database records; customs and trade data provided by Panjiva, a customs trade data aggregator; and real time data on ship activities provided by Windward, a maritime data and analytics platform. The compiled information was consolidated using Palantir's Gotham network analysis platform. The resulting study consists of two parts.

In Part I, we focused on building bulk datasets on companies, individuals, and ships. By using corporate and tax registries in East Asian countries, we were able to identify significant points of convergence across seemingly disparate networks and identify 562 ships, companies, and individuals within one degree of separation from known DPRK illicit and regime entities.

In Part II, we identified key nodes from our expanded dataset for a more in-depth investigation. We focused, in particular, on one Chinese trading conglomerate that has conducted over $500 million of trade with the DPRK in the past five years. Within this network, we were able to identify its subsidiary and affiliated entities that have transacted an additional $300 million with sanctioned Burmese and North Korean entities, helped maintain the cyber infrastructure of the DPRK, and traded in various goods and services that raise serious non-proliferation concerns.

Overseas networks are vital conduits of hard currency for the North Korean regime that remain exposed and vulnerable. Overseas North Korean agents and entities depend on a range of third-party facilitators for core business operations. We assess that this dependence can be leveraged and disrupted if more detailed information on the size, personnel, and modus operandi of such networks, especially the methods employed to circumvent sanctions can be generated. This report aims to bridge this gap by using open source data to map and expose the DPRK's overseas networks.
Methodology

This report constitutes a four-month pilot project that aims to demonstrate the effectiveness of using open data to map and expose DPRK overseas networks.

In Part I, we constructed a baseline dataset from the most prominent aspects of North Korea’s overseas network using an initial sample from the DPRK fleet of cargo ships consisting of 39 vessels identified by the UN Panel of Experts and Leo Byrnes of NK News. Each ship was individually investigated to discover its associated companies, including shipping and ISM managers, and registered owners. Public records were then used to uncover the directors and shareholders of these companies, and we then expanded our network to include any additional companies run by these directors and any ships associated with those companies. Individuals and entities were linked through overlapping directorships, shareholdings, common places of business, and other unique identifiers. In this manner, the initial sample was expanded into an interconnected network of over 147 ships, 167 individuals, and 248 companies. Data from this expanded sample was structured within Palantir Gotham’s network analysis platform. Significant convergence of previously identified and unidentified North Korean entities was identified within this expanded dataset.

In Part II, key entities for focused investigations were identified based on patterns and trends found within the Palantir structured data. To expand the emerging networks, public records in East Asian countries, including corporate registries, court fillings, and customs and trade data aggregated by Panjiva were primarily but not exclusively used. For key ships of interest, we utilized Windward’s Maritime Analytics System, which analyzes and organizes hundreds of millions of data points per day to make sense of ship activities worldwide. A range of other sources, including Chinese, Korean, and Japanese native-language media, civil lawsuits, and academic reporting supplemented the research. Wherever possible, the research priority lay in the identification of unsanctioned companies associated with DPRK sanctioned entities, which could represent indicators of ongoing proliferation activities and hard currency generation for the DPRK.

Throughout this research, we have prioritized using official documentation whose source and credibility can be clearly established.

Because North Korea is one of the most isolated and secretive countries in the world, there are some limitations in the report’s methodology. In many cases, there is no transaction level financial data to confirm suspected illicit activity. In addition, a large portion of DPRK trade is not prohibited. As such, unless explicitly stated, the mention of any individual, company, organization, or other entity in this report does not necessarily imply violation of any law or international agreement, and should not be construed as such.

Our objective was not to make any determinations on the existence or legality of business activities, but to provide representative case studies to demonstrate the manner in which entities and individuals in close proximity to DPRK overseas networks could operate and adapt to sanctions.

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i. Companies involved in managing ship’s crews and upholding international standards of ship safety and pollution standards.
Introduction

On March 2, 2016, two months after the DPRK’s fourth underground nuclear test, the UN Security Council passed Resolution 2270. On paper, it constitutes the international community’s most ambitious effort to pressure the DPRK’s foreign exchange earnings that are being diverted towards its military and nuclear programs. Among a range of other measures, Resolution 2270 expands the list of controlled items to include small arms, orders that nearly all DPRK planes and ships be inspected in foreign ports, mandates increased scrutiny of the DPRK banking sector, and bans the export of certain natural resources and aviation fuel.

The success of the sanctions regime will hinge upon its implementation, and in particular, the ability to precisely target the key nodes facilitating DPRK illicit activities. There is evidence to suggest targeting priorities have been previously misaligned. A Stockholm International Peace Research Institute (SIPRI) study from 2014 found a significant gap between the entities being targeted and those actually facilitating DPRK overseas illicit activity. The study found that 91% of U.S. and 84% of UN designations targeted entities inside the DPRK, but noted that 74% of the 161 entities it identified as being involved in sanctions evasion were registered in and by third country states and nationals.

Separating this illicit and restricted activity from the broader flow of licit and regular trade is particularly difficult in the DPRK context. The regime’s control over the economy has meant that revenue from even the most basic licit business dealings can be diverted to support illicit programs, including nuclear and ballistic missile development. In July 2009, the Undersecretary for Terrorism and Financial Intelligence at the U.S. Department of the Treasury, Stuart Levey, admitted as much, publicly stating that, “Because of the kind of deceptive conduct that North Korea engages in […] it is virtually impossible to distinguish between legitimate and illegitimate North Korean business.” In addition to this misalignment, enforcement of the DPRK sanctions regime is relatively limited as compared to Iran, when measured in terms of number of blocked individuals, entities, and vessels on the Specially Designated Nationals List (SDN) and other blacklists. As of March 2016, across all North Korean sanctions programs, there were only 97 entities on the U.S. SDN list and only 32 on the UN list. By comparison, even after the enactment of the Iranian nuclear deal and the removal of over 400 entities on implementation day, there are still over 400 entities on the U.S. SDN.

The tightened sanctions come at a time of relative success for North Korea’s overseas trade. Statistics from the South Korean Trade Investment Promotion Agency show that, in 2014, the DPRK’s total trade volume reached $7.6 billion, its highest level in decades. Approximately 60% of this trade consisted of imports, resulting in a structural trade deficit of $1.3 billion. Given that the DPRK has little access to international debt markets, its ability to finance such a trade deficit, and to do so consistently over several years, is a significant source of concern. It likely means that the regime has access to some source of “invisible income,” most likely coming from the various overseas, illicit schemes the regime uses to acquire hard currency.

North Korea’s external economy has increasingly assumed the characteristics of a hybrid network of licit and illicit components. These networks have grown adept at hiding their illicit activities within licit systems of global trade, finance, and transportation. They use a variety of schemes to disguise beneficial ownership, including using flags of convenience for ships, establishing shell and front companies to register their holdings, fabricating manifest and financial documents, and using multiple layers of intermediaries to conduct business. The net result, as UN Panel Expert Katsuhisa Furukawa has noted, is that various legitimate companies, including multi-national banks, shipping companies, and air carriers, are likely to be inadvertently facilitating North Korean illicit activity.
The seizure of the North Korean cargo ship *Chong Chon Gang* in 2013, discovered with 25 containers filled with military equipment while transiting through the Panama Canal, is a case in point. The *Chong Chon Gang*’s shipment, which included two Cuban MiG-21 jets and a radar system, among other weapons, was hidden underneath an unassuming shipment of sugar. In addition to serving as camouflage for the weapons, these bags of sugar were payment for a prior shipment that North Korea had sent to Cuba, whereas the interdicted weapons were to be paid for with a subsequent shipment from North Korea. The case of the *Chong Chon Gang* is a perfect illustration of how legal and illicit trades are intertwined in North Korea’s offshore economy.

With the right resources and political will, it can be possible to significantly disrupt the DPRK’s illicit overseas earnings, and in the process raise the cost of its brazen proliferation activity. As the DPRK grows increasingly dependent on its overseas networks, it creates an opportunity for the international community to leverage their financial intelligence tools to squeeze the regime’s illicit activity. While actors inside North Korea can operate with impunity, abroad they are subject to international norms. A single shipment can require significant documentation and effort, including maintaining corporate entities, processing cross-border payments, or acquiring insurance or bank letters of credit, all of which necessarily leave paper trails that can be followed. By exposing these risk points and peeling away the infrastructure of DPRK illicit overseas networks, the cost and difficulty of operating abroad could rise dramatically.

Following the money is likely to be the most effective means for the international community to coerce the Kim regime toward concessions and a cessation of their nuclear program. Getting there, however, will require significantly expanded efforts to continually investigate, monitor, and act against DPRK entities as they further evolve to evade sanctions.

This report aims to build a foundation for this effort.
shareholders. Using this information, we were able to uncover additional ships and companies owned and managed by entities within this network. The image below illustrates our investigative process.

**Figure 2: Expanded Ship Ownership and Management Structure**

Employing this methodology, our original sample of 39 ships expanded significantly to a final dataset of 562 entities, including 147 ships, 167 individuals, and 248 companies.

**MV Light: A Sample Case Study**

A key finding from the UN Panel of Experts was the observation that “While [DPRK] networks appear complex, their key nodes consist of a limited number of individuals and intermediaries…. Although shell companies can be swiftly changed, the individuals responsible for establishing and managing them have remained, often for years.”

One ship within our initial sample of 39 was the Victory 3 (IMO: 8415433).

The ship was flagged by the DPRK from January 2004 to May 2006 and was formerly owned by Korea Buyon Shipping, a North Korea-based company designated under Executive Order 13722 by the U.S. Department of the Treasury on March 16, 2016. However, the Victory 3 is best known for its activity under a previous name, the MV Light.

**Figure 3: Victory 3, Formerly Known as MV Light, Voyage Chart (Feb-April 2016)**

In 2011, the U.S. Navy destroyer USS McCampbell intercepted a cargo ship, the MV Light, en route from North Korea to Myanmar allegedly carrying missile components. Members of the U.S. Navy prepared to board the ship but, concerned the situation would deteriorate, decided against further escalatory action. After a brief standoff, the ship returned to North Korea.

At the time of the interdiction, a Chinese company, Dalian Sea Glory Shipping, reportedly operated the ship. The UN Panel of Experts’ (UN POE) March 2016 report listed the company’s directors as Chinese nationals.
Part I: The Baseline Dataset

Lu Tiehe, Fan Mintian, and Dong Changqing. According to the Hong Kong business registry, these men reportedly owned several additional companies in Hong Kong, including V-Star Ships Ltd., a company mentioned during the trial of Chinpo Shipping, a Singapore-based company. Chinpo Shipping was prosecuted in 2015 for its role in facilitating weapons shipments aboard the Chong Chon Gang on behalf of a North Korean company, Ocean Maritime Management (OMM).

The ship, seized in Panama, was found to be carrying two MiG-21 aircraft; disassembled SA-2 missiles; aircraft engines; an assorted range of light weaponry, including RPGs, small arms ammunition, antitank gun and howitzer artillery shells; and generators, batteries, and night vision equipment. Court transcripts state that communications between Chinpo Shipping and OMM requested, “OMM not…send any instructions for outward and inward remittances to and from V-Star Ships Ltd and Cuba so as to avoid being blacklisted.”

Key individuals have remained consistent across these companies. Lu Tiehe, one of the owners of Dalian Sea Glory Shipping and V-Star Ships Ltd., now appears to be the sole shareholder and director of the Hong Kong-based company Sea Star Ship Co Ltd. (Fan Mintian and Dong Changqing were shareholders but reportedly transferred their shares in October 2014).

According to Equasis records, the company also manages the ship Baoshan Rich (IMO: 9128843), which can be seen in Windward data moving back and forth between Iraq and the UAE over the course of several months.

Trend Analysis: Shipping Fleet

After expanding our dataset, we conducted a trend analysis on the 147 ships we had identified. Our findings closely correspond to a set of risk indicators, identified by SIPRI, to assess ships that are more likely to be involved in illicit activities. In their analysis of over 2,500 vessels involved in maritime trafficking of illicit goods since the early 1980s, they concluded that “illicit ships” were more likely to be cargo ships, have an average age of over 27 years, be registered in a flag of convenience state, and have been involved in previous accidents or pollution incidents.

The analysis of our dataset of ships found the following observations:

- 86% (127) of the 147 ships were registered in countries other than the DPRK.
- 79% (117) of the 147 ships in our sample are listed as general cargo ships.
- The average age of the ships is about 22 years, with the newest two registered in 2011 and the oldest registered in 1968.
- 64% of the ships are flagged in jurisdictions that are formally listed...
as flags of convenience states by the International Transport Workers Federation. Of the remaining 36%, the jurisdictions include Palau, Philippines, Sierra Leone, Togo, Tuvalu, and Singapore.

- Each ship has been registered to an average of 2.67 different countries over its lifetime.
- On average, each ship listed 2.38 different companies as registered owners and 1.69 companies as beneficial owners.
- Approximately 90% of the ships were under 10,000 tons in deadweight.

Trend Analysis: The Front Companies

To operate its shipping fleet, North Korea relies on a series of front companies to obfuscate real ownership. Within our final dataset, we identified a total of 248 companies, 160 of which were registered in Hong Kong. These 160 companies represent both ship management companies, as well as the companies managed by those companies’ directors. A large number of these companies appear to bear the hallmarks of shell companies, including an extremely small share capital, a recent incorporation date, little evidence of significant commercial activity, and obfuscated ultimate beneficial ownership.

The preponderance of Hong Kong based companies, while notable, is not necessarily a judgment on the role of Hong Kong in North Korea’s overseas networks. Rather, it is an acknowledgment that data was significantly more accessible in Hong Kong than in any other jurisdiction. Hong Kong corporate regulations mandate companies have at least one director, shareholder, and company secretary (a position often outsourced to specialized secretarial services companies). All company directors and shareholders must supply various forms of documentation, including copies of passports, bank reference proofs, and overseas residential address proof for non-resident nationals. Each company must maintain accounts that are audited annually by Certified Public Accountants (CPAs) in Hong Kong and must supply audited financial statements and annual returns to relevant agencies.

Of the 160 companies in the Hong Kong sample:
- 131 listed their respective share capital details, which ranged from HK$1 (USD $.13), which is the minimum amount required to register a company, to HK$79 million (USD $10,172,875).
- 23% of the companies in our sample had the minimum share capital of HK$1, while 30% had a share capital lower than HK$100 (USD
$64.39). 46% of companies had a share capital of up to HK$10,000 (USD $1,287.71), and only 2% or three companies had a share capital larger than HK$10,000.

• Only 3% or five of the 147 companies that listed their date of incorporation were registered before January 1, 2000. By contrast, 58% of the companies were registered in the past five years, between January 1, 2011 and December 31, 2015.

• Only one ship was owned or managed by the three companies that listed share capital above HK $10,000, while 36 ships were owned or managed by companies with a share capital of HK $1.

• Of the subset where data was available, 76% of companies based in Hong Kong listed their registered office address as that of their Company Secretary, an indicator cited repeatedly in Suspicious Activity Reports by the United States Department of the Treasury’s Financial Crimes Enforcement Network (FinCEN).38

**Trend Analysis: Nominee Incorporation Services**

Upon closer investigation, we found strong convergence between companies in our sample with regard to their company secretaries. In our extended sample, we identified 160 companies registered in Hong Kong. Of those, 82, or 51% of the companies, owning or managing 58 ships, were represented by only six company secretary firms.

According to Hong Kong law, each company is required to have a company secretary who is responsible for key financial and due diligence functions, including maintaining company accounts and registers, ensuring compliance with regulations, and advising directors on corporate governance.39 This responsibility is often entrusted to specialized firms that offer these administrative services. None of the directors or shareholders of the six Hong Kong company secretaries with strong ties to North Korea are reported to be members of the Hong Kong Institute of Chartered Secretaries, an independent body of nearly 6,000 members dedicated to the development of chartered secretaries in Hong Kong.40

Several of these company secretaries are themselves registered in secrecy jurisdictions, allowing them to further obfuscate their beneficial owners. For example, of the six company secretaries mentioned above, one is owned by an entity in Samoa, and another lists a company in the British Virgin Islands as its sole director and owner.41 A third, Winning International Consulting Group Ltd., was also identified by the UN Panel of Experts on North Korea as one of the company secretaries for Leader (Hong Kong) International Trading Ltd.,42 an entity that was sanctioned for facilitating shipments on behalf of Korea Mining Development Trading Corporation (KOMID), a North Korean weapons proliferation organization.43 Despite this, the company, according to its 2015 annual return, lists an American national as its director with an address in Los Angeles.44

This use of offshore business centers and facilitators, particularly secretarial services in Hong Kong to obscure beneficial ownership for illicit transactions, appears to be a growing phenomenon. According to data provided by researchers at SIPRI, on at least three occasions,

Hong Kong-registered secretarial companies have played a critical facilitation role, acting on behalf of three companies, including the owner of the ship that transferred vehicles adapted as ballistic missile Transporter Erector Launchers (TELs) from China to North Korea in August 2011; the owner of another ship intercepted on suspicion of transferring missile technology to Myanmar in May 2011; and the owner of a logistics company that shipped prohibited dual use goods seized en route to Syria in September 2010.45
Part II: Network Investigation

From the baseline sample we generated in Part I, we identified specific entities in the data set for targeted network examination. Using these starting points, we constructed networks and analyzed activities to provide insight into how public exposure and regulatory measures such as sanctions influence and alter DPRK overseas activity. Wherever possible, we prioritized the identification of unsanctioned companies associated with sanctioned entities, which could represent vectors for ongoing proliferation activities and hard currency generation for the DPRK. More investigation will be required to establish definitive evidence of illicit activity.

Trading Empires

It is known that the DPRK transacts billions of dollars of business abroad, but the patterns of this trade are generally not well understood. During the course of our investigation, we identified over $500 million of imports to and exports from the DPRK associated with one specific Chinese trading conglomerate. Its subsidiaries and affiliated entities have transacted with sanctioned Burmese and North Korean entities, have been associated with North Korean cyber operators, and have traded in various goods and services that could represent serious proliferation concerns.

One of the ships in our initial sample, the Pole Star (IMO: 8405309), is reportedly owned by a Hong Kong company named Hong Xiang 66 (HK) Shipping Ltd.\(^{46}\) While there is no record of a company with that exact name in the Hong Kong business registry, it is likely that the name is short for Hong Xiang 66 (Hong Kong) Shipping Ltd.\(^{47}\) According to the Hong Kong business registry, the company is solely owned by Chinese national Ma Xiaohong 马晓红.\(^{48}\) In addition to owning five Hong Kong based companies, Ma Xiaohong is the chairwoman of the Liaoning Hongxiang Group 辽宁鸿祥实业集团, a major trading conglomerate that openly states that it trades heavily with the DPRK.\(^{49}\)

The Liaoning Hongxiang Group is comprised of six companies according to its website: \(^{50}\)

<table>
<thead>
<tr>
<th>English Name</th>
<th>Chinese Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dandong Hongxiang Industrial Development Co. Ltd.</td>
<td>丹东鸿祥实业发展有限公司</td>
</tr>
<tr>
<td>Hongxiang International Freight</td>
<td>辽宁鸿祥国际货运代理有限公司</td>
</tr>
<tr>
<td>Liaoning Hongxiang International Travel Service Co. Ltd.</td>
<td>辽宁鸿祥国际旅行社</td>
</tr>
<tr>
<td>Dandong Hongxiang Border and Trade Consultant Service Co.</td>
<td>丹东鸿祥边境贸易信息咨询服务有限公司</td>
</tr>
<tr>
<td>Qibaoshan (Chilbosan) Hotel (Sino-DPRK Joint Venture)</td>
<td>沈阳七宝山酒店</td>
</tr>
<tr>
<td>Pyongyang (Liujing) Restaurant (Sino-DPRK Joint Venture)</td>
<td>柳京酒店</td>
</tr>
</tbody>
</table>

According to their Chinese business registry filings, these six companies are involved in a wide range of sectors, including industrial trading, hotel management, and consultant services.\(^{51}\) According to its own website, the Liaoning Hongxiang Group even describes itself as a “bridge between the DPRK and the world.”\(^{54}\) Dandong Hongxiang Industrial Development Co. Ltd., one of the six member companies, imports 99.9% of its goods from the DPRK, according to Panjiva aggregated customs records.\(^{53}\) Two of the companies within the group, the Chilbosan Hotel and the Pyongyang (Liujing) Restaurant are Sino-DPRK joint ventures.\(^{56}\) The offices of two of the companies within the group are located in the same complex as the DPRK consulate in Dandong,\(^{57}\) and the group has played a central role in strategically vital DPRK economic projects.\(^{58}\) According to Chinese media reports, the Liaoning Hongxiang Group was the Chinese company used to inaugurate the newest China-DPRK shipping route, from Longkou to...
Nampo, in late September 2015. The Vice Chairman of the company is a Chinese national by the name of Zhou Jianshu. The largest of the six companies in the group by registered capital is Dandong Hongxiang Industrial Development Co. Ltd., an industrial machinery and equipment wholesaler and one of the group’s two founding companies. According to trade records aggregated by Panjiva, the Dandong-based company trades heavily with the DPRK. Records show that, between January 2011 and September 2015, Dandong Hongxiang Industrial Development Co. Ltd. imported $360,543,627 worth of goods from the DPRK, which represents 99% of the company’s total imports. Over the same time period, the company exported $171,013,909 worth of goods to the DPRK, representing 78% of total exports. The $532 million of total trade volume is roughly equivalent to the $560 million earned from the Kaesong Industrial Complex since 2004, but in under half the timeframe. While no judgement is being made on the final use of these funds, trade at this volume is of particular note. By one estimate, this amount would have been almost enough to both fund North Korea’s uranium enrichment facilities, and to design, make, and test its nuclear weapons.

$500 Million in Trade

The largest of the six companies in the group by registered capital is Dandong Hongxiang Industrial Development Co. Ltd., an industrial machinery and equipment wholesaler and one of the group’s two founding companies. According to trade records aggregated by Panjiva, the Dandong-based company trades heavily with the DPRK. Records show that, between January 2011 and September 2015, Dandong Hongxiang Industrial Development Co. Ltd. imported $360,543,627 worth of goods from the DPRK, which represents 99% of the company’s total imports. Over the same time period, the company exported $171,013,909 worth of goods to the DPRK, representing 78% of total exports. The $532 million of total trade volume is roughly equivalent to the $560 million earned from the Kaesong Industrial Complex since 2004, but in under half the timeframe. While no judgement is being made on the final use of these funds, trade at this volume is of particular note. By one estimate, this amount would have been almost enough to both fund North Korea’s uranium enrichment facilities, and to design, make, and test its nuclear weapons.

U.S. Nexus

While the overwhelming majority of Dandong Hongxiang’s trade is with the DPRK, we were able to identify at least 164 shipments exported to the United States. The exports, which included over 2,491 metric tons of mostly glass products from China, were sent to at least 15 U.S. companies. To conduct these U.S. transactions, it is likely that Dandong Hongxiang Industrial
Development Co. Ltd. would have had to use dollar clearing services and U.S. correspondent accounts. It is not known which financial entities facilitated these transactions, but one of Dandong Hongxiang’s investments is an equity stake in the Bank of Dandong, an institution that *The Telegraph* reported allegedly allowed money transfers to be sent from China to North Korea in 2013 in several currencies, including U.S. dollars. Foreign money transfers would likely have cleared through North Korea’s Foreign Trade Bank, the country’s main foreign exchange institution, which was sanctioned by the U.S. Treasury under Executive Order 13382 in 2013 for its role in financing the regime’s nuclear weapons program.

Figure 8: Dandong Hongxiang Industrial Development’s Exports and Imports (Jan 2011-Sep 2015)

<table>
<thead>
<tr>
<th>Country</th>
<th>Value (USD)</th>
<th>% Share</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>$392,542,499</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Korea</td>
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<td>United States</td>
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<td></td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td>Malaysia</td>
<td>$300,658</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$41,735</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Pajjiva trade data

Dealings with Foreign Sanctioned Entities

Companies reportedly owned by the Liaoning Hongxiang Group’s Vice Chairman, Zhou Jianshu, appear in a *Forbes* investigative article from August 2014 detailing the business dealings of sanctioned Burmese tycoon, Tay Za. According to the article, the companies received payments totaling $300 million, allegedly for the supply of diesel, from two of Tay Za’s Singapore-based companies: Asia Pioneer Impex Pte Ltd. and 4G Investment Pte Ltd. According to the *Forbes* article, the transactions occurred as late as March 2011. Although Tay Za was designated by the U.S. Department of the Treasury in October 2007, Asia Pioneer Impex Pte Ltd. was not added to the Treasury SDN list until November 2012 (4G Investment Pte Ltd. remains unsanctioned). The payments were reportedly sent to five Hong Kong companies, several of which display close ties to sanctioned and unsanctioned North Korean entities.

Figure 9: Chart of Connections between Tay Za and Zhou Jianshu

Source: Palantir visualization of C4ADS data
Since 2007, Tay Za has been designated by the U.S. Department of the Treasury as, “an arms dealer and financial henchman of Burma's repressive junta.” Tay Za has extensive interests around Myanmar, including in the aviation, military equipment, and fuel sectors. Among his and his sons' business interests are a football club, one of the country’s largest banks, as well as companies that manage all cargo clearing for the country's international airports. Tay Za was also alleged to have ties to North Korea, based in large part on the testimony of a defected (and now deceased) financial manager at his Htoo Group. According to the testimony collected and reported on by the *Sydney Morning Herald*, the defector claimed that the Htoo Trading Company “organized nuclear contracts with Russia and North Korea,” including the construction of a secret military reactor in Naung Laing, Myanmar.

Five companies—Fanwell Ltd., Goldtec Trading Group Ltd., Win Trade World Wide Ltd., Ocean Wide Trading (Hong Kong) Ltd., and Fortune Sun International Trading Ltd.—reportedly received payment from Tay Za. These companies display significant overlap, and several have documented ties to the North Korean regime. Fortune Sun International Trading Ltd., for example, has been publicly identified as a front company for Tanchon Commercial Bank (TCB), a U.S. Department of the Treasury-sanctioned North Korean financial institution. Fortune Sun, according to its business registry filling, was dissolved in July 2014, but its director and sole shareholder, a Chinese national named Sun Zhengzhe, shares an almost exact residential address match with the director and sole shareholder of Goldtec Trading Group, another of the companies that received payment. The two addresses, as seen in Figure 10 in excerpts from the companies' annual returns.

Two other companies, Fanwell Ltd. and Win Trade Worldwide Ltd., are solely owned by Zhou Jianshu. According to the Hong Kong business registry, Zhou currently owns three additional companies in Hong Kong, and...
is the former owner of a sixth company, Mark Success Corporation Ltd. Business registry records show that the company’s shares were transferred to Ma Xiaohong in March 2014 (Figure 11).

One of Zhou Jianshu’s companies, Hong Kong Joint Success Co. Ltd., is the registered owner of the MV Flourishing (IMO: 8421315), a Cambodian-flagged ship. Data from the Windward system shows the ship’s activities over a 60-day period from February to April 2016, during which time it maintained a regular route between coal terminals in the Chinese ports of Rizhao and Longkou and the North Korean port of Nampo.

Figure 12: MV Flourishing Activity (Feb-April 2016)

Source: Windward Maritime Analytics System

Dealing with DPRK Sanctioned Entities

According to the Chinese business registry, in May 2009, Dandong Hongxiang Industrial Development Co., one of the six core companies within the Liaoning Hongxiang Group, entered into a joint venture with the Korea National Insurance Corporation (KNIC) to form Liaoning Hongbao Industrial Development Co. 按照中国工商登记文件，2009年5月，位于辽宁的鸿宝实业发展有限公司与朝鲜的朝鲜国保险保险公司(KNIC)共同设立辽宁鸿宝实业发展有限公司。根据朝鲜国保险保险公司，一个朝鲜国实体，已经被多次引据其在国外的可疑行为以及其与武器扩散融资的联系。在2008年，KNIC卷入了一场明显的保险诈骗，在为朝鲜国航空公司(Koryo)处理了一起保险索赔后，欧洲的几家公司因强制性协议中北朝鲜法律而被迫向朝鲜国支付了6000万美元的赔偿金。2015年，欧洲委员会制裁了KNIC的德国分公司以及公司的六名职员。委员会指出，KNIC是一个政府实体，对外国汇款有严重的外汇来源。
revenue, which was used to support the North Korean regime. The European Commission memo explicitly stated, “Those resources could contribute to the DPRK’s nuclear-related, ballistic missile-related or other weapons of mass destruction-related programmes.”

KNIC and a sister organization, the North East Asia Bank (NEAB) reportedly operated under the North Korean Workers Party Organization and Guidance Department (OGD). As stated by North Korean defector Jan Jin-sung, “The only entity that actually matters when it comes to decision-making or policy-making is the Organization and Guidance Department.” Before his 2013 purge and execution it was rumored that Kim Jong Un’s uncle, Jang Sung-taek, was in control of the OGD.

Proliferation Concerns

Information found on Dandong Hongxiang Industrial Development Group shows that in several online classified ads and databases, Dandong Hongxiang sold products that could qualify as potential military and nuclear dual use products under the U.S. Department of Commerce Bureau of Industry and Security export restrictions. These goods included at least four dual use products: 99.7% pure aluminum ingots, aluminum oxide (Al₂O₃), ammonium paratungstate (APT), and tungsten trioxide (WO₃). Information discovered using Panjiva customs records shows that Dandong Hongxiang Industrial Development Group sent two shipments of aluminum oxide worth a total of $253,219 to the DPRK as recently as September 2015. Classified ads posted by Shenyang Hongyang Fine Ceramics Co., which according to the Chinese business registry is owned by a Chinese national named Ma Xiaohong, listed “industrial spaceship” as a potential application for aluminum oxide (further investigation is required to confirm if they are the same individual).

We cannot definitively identify the end-user of such goods, but there are clear dual use applications for the products listed. According to a leaked government cable, North Korea has sought to acquire aluminum ingots in the past. The cable further states that “these commodities have dual-use applications and could possibly be linked to the North Korean nuclear program.” Ammonium paratungstate and tungsten trioxide are byproducts of separating tungsten from its ore. A U.S. patent filed in 2010 states that tungsten trioxide is one of several oxidizing agents appropriate for use in a missile design with increased aerodynamic stability. According to the U.S.
Nuclear Regulatory Commission, aluminum oxide is a component used to resist corrosion in gas centrifuges during uranium enrichment. In April 2013, a British company discovered that a firm they had been sending aluminum oxide to had links to the Iranian government’s nuclear program and immediately “ceased transactions. The article stated that “Aluminium oxide is an important material in gas centrifuges used to enrich uranium.”

Cyber Architecture

The DPRK's cyber activities are among the newest additions to the sanctions measures. The March 2016 Executive Order by President Obama specifically included cyber security among its provisions, targeting any entities known “to have engaged in significant activities undermining cyber security through the use of computer networks or systems against targets outside of North Korea.” Companies associated with the Liaoning Hongxiang Group provide services that are critical to the underlying cyber architecture of the DPRK, including the country’s primary email relay service, facilities from which hackers are alleged to operate, and IT firms producing software with possible military and regime applicability as will be discussed in this section.

The Chilbosan Hotel in Shenyang, one of Liaoning Hongxiang’s joint ventures with the DPRK, is alleged to be the staging area for Bureau 121, a group of North Korean hackers. The source of the allegations is a North Korean defector, Kim Heun Kwang, a former computer science professor in Pyongyang, who escaped from North Korea in 2004 and gave detailed testimony on Bureau 121, a group that began large-scale operations in China in 2005. The group is reported to be comprised of about 1800 “cyber-warriors” and is considered the “elite of the military.” It has been widely reported that Bureau 121 may have been responsible for the 2014 Sony hack. The Chilbosan Hotel is majority owned by the North Korean Pyongyang Economic Exchange Society, which controls a 70% share of the company. The remaining 30% is owned by Liaoning Hongxiang Group member Dandong Hongxiang Industrial Development Co. Ltd.

Internet communications are severely restricted in the DPRK. There are reportedly as few as 7,000 total Internet users in the country, and the country’s cyber architecture is controlled through tiered information access. Most North Koreans are only able to access the domestic North Korean intranet, or Kwangmyong, giving them access to a self-contained set of content, pre-filtered by the state. The Chilbosan Hotel also shares a physical address with a company called Silibank. Silibank is an email relay service that charges for sending and receiving email through servers that connect from the DPRK, through China, and then to the outside world. Established in September 2001, Silibank is reportedly the DPRK’s first ISP provider, charging for its service in USD for each kilobyte sent. The company’s domain, silibank.com, is currently registered to a Chinese company called Liaoning Zhongtian Real Estate Development Co. Ltd. Silibank has also hosted email services for a number of sanctioned entities, including Korea Ryonha Machinery Joint Venture Co. and its subsidiary Millim Technology, which list their contact information as ryonha@silibank.com and millim@silibank.com respectively. One Silibank email address is listed by the President of the Pyongyang-based weapons proliferator Green Pine Association, Ri Hak Chol, in his correspondence with the Eritrean government in an attempt to make a deal for “military and technical support.”

As evidenced by its cyber attacks, the DPRK cyber architecture is growing increasingly robust. In part, this appears to be a result of significant investment in acquiring technology and software, which, while rudimentary by
international standards, could represent a significant leap in DPRK capabilities. One key investment by the Liaoning Hongxiang Group is through its subsidiary, Dandong Hongxiang Industrial Development Co.

Figure 15: Liaoning Darong Information Technology Company Products

Source: Liaoning Darong Information Technology Company website

Note: Figure was reconstructed for clearer visibility.

The company’s listed IT products include aerial and satellite imagery, remote sensing, engineering measurement, and systems integration.

Natural Resource Shipping Fleet

According to insights derived from Windward’s Maritime Analytic System, the Liaoning Hongxiang Group is heavily involved in DPRK-related shipping. Individuals and entities within the network, including Ma Xiaohong and associated directors and officers of the group, reportedly own and operate a combined fleet of 10 ships that, according to Windward data, regularly move between China and the DPRK. Several of these ships appear to carry natural resources, particularly coal. While customs records for all of Zhou’s companies are not available, core companies of the Liaoning Hongxiang Group are heavily involved in the coal trade. Customs records for Dandong Hongxiang Industrial Development Co. Ltd. state that the company imported $231,945,423 of minerals and natural resources from the DPRK from January 2011 to December 2013.
Ma Xiaohong is reportedly the sole owner of five Hong Kong based companies that own and manage five ships, while Liaoning Hongxiang Group company officers, Ma Xiaojie and Ma Xiaobo own Hong Kong companies that manage four more (any familial relation between these two individuals and Ma Xiaohong is unknown). Zhou Jianshu reportedly owns another two, as described earlier in the paper. Details on these ships, based on Windward’s data and analytics over a 60-day period between March and April 2016, can be seen in Figure 17. Nearly all of the ships regularly transit between the DPRK and northern China. Several dock at the main cargo port of Nampo, but others travel further up to the Taedong River to the inland ports of Taean and Songnim, which are major coal and iron export hubs, respectively. As represented by the dotted lines, many appear to operate with inactive, malfunctioning, or disabled automatic identification system (AIS) transponders for long periods.

The natural resources trade, coal in particular, is known to be an especially

<table>
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<tr>
<th>Ship Name</th>
<th># of Name Changes*</th>
<th># of Company Changes</th>
<th>Flag</th>
<th>Prior Flag</th>
<th>Reported Beneficial Owner</th>
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<td>ROK</td>
<td>China Gov’t</td>
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<tr>
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<td>8</td>
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<td>Panama</td>
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</tr>
</tbody>
</table>

* Name and company (ISM, Owner, Ship Manager, Beneficial Owner) since 2000; Beneficial owner identified by Equasis
** Current location confirmed with Windward Maritime Analytic System
*** COSMOS 1 appears sold in 2015
**** Galaxy 1 appears sold in 2016
critical North Korean national industry. Coal exports alone represent over one third of annual DPRK exports.\textsuperscript{150} According to Nam Jae-joon, the Head of South Korea’s National Intelligence Service, Jang Sung-taek, the powerful uncle of Kim Jong-un, was purged partially because of his attempts to control state-run natural resources.\textsuperscript{151} Nam was quoted as stating, “Jang intervened too much in lucrative state businesses...related to coal, which drew mounting complaints from other (related) state bodies.”\textsuperscript{152} In Figure 17, Windward data indicates several of the ships docked at what appear to be coal terminals in both the DPRK and China.

The Cambodian Ship Registry

In addition to direct ownership and management of ships, companies associated with the Liaoning Hongxiang Group also reportedly play key roles in the management of the Cambodian ship registry. This type of activity is not new. A June 2015 investigation by Andrea Berger of the Royal United Services Institute (RUSI) produced evidence that North Korean overseas support networks had previously infiltrated the Cambodian ship registry. Her research showed that Leonard Lai, a key Singaporean supporter of North Korea who was designated by the U.S. Treasury in 2015,\textsuperscript{153} and his network had managerial roles in not just the Cambodian Ship Registry, but also the ship registries of Kiribati, Tuvalu, and Niue until 2002.\textsuperscript{154}

In response to this mismanagement, the Cambodian Ship registry was reorganized. Since 2003, ship flagging rights in Cambodia have been managed by a company called International Ship Registry of Cambodia (ISROC), which is a joint venture between the Cambodian government and a South Korean company, the Cosmos Group.\textsuperscript{155} ISROC has modernized and streamlined the ship flagging system in Cambodia. To increase efficiency, the system is now decentralized, with ship flagging rights assigned to a series of “deputy registrars.” On its website, ISROC lists 27 deputy registrars.\textsuperscript{156} According to the company website the deputy register role is described as follows: “For convenient and swift ship registration process, ship owners and clients can freely contact to the following Deputy Registrars’ offices officially appointed by ISROC at each important ports and countries [sic] in the world at any time.”\textsuperscript{157}

One of the 27 listed deputy registrars for ISROC is Wang Shau-fun\textsuperscript{158} of World Merge Shipping, a member of Jack Intermaritime Group, which is the manager for four of the 10 identified ships, as well as the listed “Care of” manager for two companies in the Liaoning Hongxiang shipping network.\textsuperscript{159}

A map on the Jack Intermaritime Group website shows that the group has seven offices in East Asia, including in Dalian, China. This Dalian branch is listed as Dalian Jack Shipping Management Co. Ltd. 大连杰克船舶管理有限公司.\textsuperscript{160} Classified ads posted for Dalian Jack Shipping Management Co. Ltd. record the company’s contact person as Fan Mintian 范民田.\textsuperscript{161} While further investigation is necessary to verify any connection, this name is identical to one of the owners of the management company of the \textit{MV Light}, the North Korean ship intercepted by the U.S. Navy that was suspected of sending proliferation material to Myanmar.

Figure 18: Dalian Jack Shipment Management Co. Ltd. Company Contact Person

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure18.png}
\caption{Dalian Jack Shipment Management Co. Ltd. Company Contact Person}
\end{figure}

\textit{Source: Chinese online trading list and company website screenshot}
Conclusion

The DPRK’s overseas networks are a lifeline for the Kim regime, but they also represent a key point of vulnerability. Unlike entities located inside North Korea, DPRK overseas networks are relatively unprotected, and are vulnerable to international financial and regulatory pressure. UN Resolution 2270 attempts to capitalize on this vulnerability. The sanctions mandate has expanded significantly to include mandatory inspection of all foreign-bound DPRK cargo, as well as so-called “secondary sanctions” that can deny access to the U.S. financial system to any third parties that continue to deal with DPRK sanctioned entities.

Implementation of these mandates is now required. Specific steps to enhance enforcement include:

- Enhanced financial intelligence and shorter response time from initial identification of DPRK sanctions violating entities to sanctions designation. DPRK entities rapidly change their names, companies, and ownership structures after exposure. In the absence of a sanctions guidance update, many private-sector entities, including banks, shipping companies, and traders, will be deprived of information needed to identify and block the requested transactions. UN designations are particularly important, as even close U.S. allies such as Singapore refrain from enforcing unilateral U.S. sanctions.162

- Use existing provisions such as Section 311 of the USA Patriot Act to target North Korean banks and financial institutions that represent entities of primary money laundering concern. The 2005 action taken by the U.S. against the Macao-based bank, Banco Delta Asia (BDA), is the only comparable action to date: within six days, 34% of deposits had been withdrawn in a run on the bank,163 and within six months, the institution had become a “financial pariah as according to its lawyers.”164

In today’s environment, even such a limited action could have a cascading effect by triggering a broad closure of North Korean accounts by financial institutions unwilling to risk secondary sanctions.

- Proactively monitor the DPRK’s foreign flagged fleet to ensure enforcement of the mandate to inspect all DPRK related cargo. More robust policing of environmental safety standards can be one way to weed out the DPRK fleet, renowned for its notoriously poor standards. Between January 1, 2015 and February 29, 2016, the Tokyo MoU (the Memorandum of Understanding on Port State Control in Asia-Pacific Region) revealed 334 inspections of DPRK flagged ships. Nearly all were cited for deficiencies, and 32 ships were detained, a detention ratio of 9.6%.165

- Reaffirm that the Chinese Government will more actively monitor and enforce UN Security Council Resolutions on the DPRK. While abiding by relevant resolutions against the DPRK, China has so far taken only administrative measures, such as inspection of cargo originating from the DPRK or destined for the DPRK. The Chinese government should instead apply China’s commercial law against suspicious Chinese entities involved with the DPRK’s violations of Resolution 2270.

- Request that the member states of the UN add suspicious third party entities to the existing list of sanctioned individuals and entities. This step should also be taken by the member states that have implemented unilateral sanction measures against the DPRK and its affiliates and partners overseas, independent of the actions of the UN Security Council.

Going after the DPRK’s alternative income sources is likely to be the surest
means for the international community to coerce the Kim Jong-un regime into abandoning its nuclear weapons program. Getting there, however, will require significantly expanded efforts to continually investigate, monitor, and act against DPRK entities evading sanctions.

Endnotes


4. Ibid.


11. Ibid.

pdfs/SCG-FINAL-FINAL.pdf.


25. Ibid.


37. Ibid.


51. For these companies, the author has provided English translations of the Chinese characters. These may not be the English names of these companies.

52. Ibid.


59. Ibid.


68. Ibid.


20071019a.aspx.
79. Ibid.
82. U Pyae Phyо Ta Za (12/KAMAYAN/NAING054561) is listed in the DICA Burmese business registry as a director for Mingalardon Cargo Services, and Mingalardon Cargo Services Public Holding. The former is located at No. 5, Pyay Road, Hlaing, Yangon, where many of Tay Za’s businesses are located. Additionally, Mingalardon Cargo Services lists Chan Nywin Zaw, the CEO of Elite Tech, a company connected to the Htoo Group, as its director. Conversely, Mingalardon Cargo Services Public Holding lists Tay Za himself as a board director.
85. Ibid.
89. Ibid.


123. For these companies, the author has provided English translations of the Chinese characters. These may not be the English names of these companies.


132. For these companies, the author has provided English translations of the Chinese characters. These may not be the English names of these companies.


136. For these companies, the author has provided English translations of the Chinese characters. These may not be the English names of these companies.


138. Ibid.


141. Ibid.


157. Ibid.


160. For these companies, the author has provided English translations of the Chinese characters. These may not be the English names of these companies.


164. Ibid.

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Exposing North Korean Overseas Networks

by C4ADS & The Asan Institute for Policy Studies

First edition August 2016

Publisher Hahm Chaibong
Published by The Asan Institute for Policy Studies
Registration number 300-2010-122
Registration date September 27, 2010
Address 11, Gyeonghuigung 1ga-gil, Jongno-gu, Seoul 03176, Korea
Telephone +82-2-730-5842
Fax +82-2-730-5876
Website www.asaninst.org
E-mail info@asaninst.org
Book design EGISHOLDINGS

Copy-editor Kim Kildong

ISBN 979-11-5570-177-5 93300

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Printed in the Republic of Korea