

**NORTH KOREAN MISSILE PROLIFERATION**

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**HEARING**

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL SECURITY,  
PROLIFERATION, AND FEDERAL SERVICES

OF THE

COMMITTEE ON  
GOVERNMENTAL AFFAIRS  
UNITED STATES SENATE

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

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# **NORTH KOREAN MISSILE PROLIFERATION**

**TUESDAY, OCTOBER 21, 1997**

U.S. SENATE,  
SUBCOMMITTEE ON INTERNATIONAL SECURITY,  
PROLIFERATION, AND FEDERAL SERVICES,  
OF THE COMMITTEE ON GOVERNMENTAL AFFAIRS,  
*Washington, DC.*

The Subcommittee met, pursuant to notice, at 9:49 a.m., in room SD-342, Dirksen Senate Office Building, Hon. Thad Cochran, Chairman of the Subcommittee, presiding.

Present: Senators Cochran and Levin.

## **OPENING STATEMENT OF SENATOR COCHRAN**

Senator COCHRAN. Good morning. The topic of our Subcommittee's hearing today is North Korean Missile Proliferation. The threats posed by North Korea and its programs to acquire weapons of mass destruction and their delivery means are formidable. North Korea has long sought to acquire nuclear weapons, and has even suggested that it may already have them, threatening in 1994 to turn Seoul into a "sea of fire" if hostilities broke out on the Korean peninsula.

According to the Defense Intelligence Agency, North Korea has a sophisticated chemical weapons program and the ability to produce biological warfare agents and weapons, and it has an aggressive program to develop and deploy the delivery means for these weapons. It has for some time possessed the ability to strike all of South Korea with ballistic missiles, and according to Admiral Preuher, Commander-in-Chief of U.S. forces in the Pacific, North Korea has already begun to deploy parts of No-Dong missile systems that are capable of reaching Japan.

But there is another aspect of the North Korean proliferation problem that is perhaps even more worrisome. In addition to being a recipient of technology for weapons of mass destruction and their delivery systems, North Korea is also a supplier, providing ballistic missiles and their production technology to other states.

For example, North Korea acquired 300-kilometer-range Scud-B missiles in 1981, taught itself in a few short years how to produce them, and then sold them to Egypt, Iran and Syria. It used the experience gained with the Scud-B to produce the 550-kilometer-range Scud-C, which it tested in 1990 and sold to Iran, Syria and Libya. In 1993, it tested the 1,000-kilometer-range No-Dong 1, which Pentagon officials have reportedly said is a basis for Iran's longer-range Shahab missiles which could give Iran the capability to strike as far as Central and Western Europe.

Because North Korea has exported every missile it has built, in some cases even before it has deployed them, it is not unreasonable to assume that it will export the two long-range missiles it is now developing, the 2000-kilometer Taepo-Dong 1 and the 6,000-kilometer Taepo-Dong 2. The Taepo-Dong 2's 6,000-kilometer range will make it capable of hitting the United States from North Korea.

North Korea presents a new wrinkle to the problem of missile proliferation, one that is different from the other proliferants this Subcommittee has examined this year. In addition to the missiles themselves, North Korea has made a practice of selling the technology needed to produce these weapons. In doing so, it has created a missile trade among other states, creating a bootstrap effect in which other states are becoming self-sufficient with respect to ballistic missile technology. We can only hope that the North Korean example hasn't created a template for rogue states.

This phenomenon is likely to continue because North Korea is desperately dependent on the hard currency generated by the sales of these weapons. An estimated 30 percent of North Korea's export income is generated by arms sales, with ballistic missile technology accounting for a high percentage of those sales. Ballistic missiles are essentially North Korea's only cash crop. Because of its dire economic situation, it is not likely that North Korea will be dissuaded from marketing that crop.

This hearing, then, will examine the extent of the North Korean ballistic missile proliferation problem. We have with us two witnesses who are former North Korean government officials and who have unique insights into the views of the North Korean government.

Colonel Ju-Hwal Choi is the highest ranking military defector from North Korea and served in the Ministry of the People's Army. Mr. Young-Hwan Ko is a former North Korean diplomat who served in the Ministry of Foreign Affairs. Both are now at the Research Institute for North Korean Affairs in Seoul and will be testifying today with the assistance of an interpreter.

Mr. Robert Einhorn, Deputy Assistant Secretary of State for Nonproliferation, was scheduled to testify today, but is unable to be here because he is in China preparing for next week's summit meeting. We will therefore submit questions to Mr. Einhorn for the record.<sup>1</sup>

We want to introduce, as well, the translator, Mr. Kim, and welcome him and our two witnesses to the hearing today. But before receiving your statements, I want to call upon and yield to my good friend, the distinguished Senator from Michigan, Senator Levin.

#### **OPENING STATEMENT OF SENATOR LEVIN**

Senator LEVIN. Thank you, Mr. Chairman, and let me add my welcome to our witnesses today. This hearing concerns an interest of considerable importance to the United States, and that is the North Korea missile production and proliferation.

This missile production in North Korea is a problem that is at least two-fold for us, as the Chairman mentioned. First is the in-

<sup>1</sup> Questions and responses from Mr. Einhorn submitted by Senator Cochran appears in the Appendix on page 33.

digenous efforts in North Korea to develop ballistic missiles for its own possible use. We have heard a great deal about these efforts in recent years as North Korea has worked on both No-Dong and Taepo-Dong classes of missiles with longer and longer ranges.

But the other dimension is the problem that is created by North Korea's efforts, and successful efforts, to sell its missiles and missile technology to other nations, including nations with hostile policies toward the United States and our allies. North Korea has supplied missiles and technology to a number of such nations, motivated probably by the need to earn hard currency or any kind of assistance, such as oil supplies, that will help a failing economy. Today's hearing offers us an unusual opportunity to hear from two former North Korean officials, and their information is an important piece of a larger picture that we are trying to develop on North Korea.

And I am glad that we will be submitting questions to Mr. Einhorn. It would have been helpful if he had been able to be here, actually, to answer those questions, and perhaps, in addition to submitting questions for the record, at a later date, Mr. Chairman, someone from the State Department might be called at a hearing to give us some fuller information about the North Korean nuclear weapons program; the framework agreement, how that is working out, as well as the missile technology and the missile issue itself.

So I want to thank you, Mr. Chairman, for this important hearing. It does give us an unusual opportunity to get a window on a part of the world that has been closed to us.

Senator COCHRAN. Thank you very much, Senator Levin, and I agree with you that it is important for us to have testimony from the State Department and maybe other administration officials, other departments as well on this subject, and we will endeavor to get that information for our hearing record.

Let me call on now our distinguished witnesses. Thank you for being here. First, we will hear from Colonel Choi, and the way we propose to provide the Subcommittee with testimony is for them to introduce themselves and have the translator read into the record the statement that they have prepared.

Welcome, Colonel Choi.

**TESTIMONY OF JU-HWAL CHOI, FORMER OFFICIAL, MINISTRY OF THE PEOPLE'S ARMY, NORTH KOREA; ACCOMPANIED BY B.J. KIM, INTERPRETER**

Mr. CHOI. It is a great honor to be able to testify here. It is a great honor for myself. I entered the North Korean Army in 1968. I became an officer in 1972. I worked as an officer for the external affairs bureau of the People's Army from 1972 until 1994.

From January 1995, I worked for Yung-Seong Trading Company that belongs to the People's Armed Forces. I was a colonel at the time of defection.

Thank you very much.

Senator COCHRAN. Thank you.

Our other witness, Mr. Ko, we can proceed to hear your introduction.

**TESTIMONY OF YOUNG-HWAN KO, FORMER OFFICIAL, MINISTRY OF FOREIGN AFFAIRS, NORTH KOREA; ACCOMPANIED BY B.J. KIM, INTERPRETER**

Mr. KO. It is also my great honor to be able to be here. But I have to confess that I do have a mixed feeling. Right now my brother inside North Korea is in the political prisoners camp because of my defection, and what I will say today, a large part of it will be coming from what he told me before, and, therefore, through—because of my testimony here, I am worried whether he will have to bear more pain and suffering from now on.

I worked for the Ministry of Foreign Affairs from 1978 until 1991. At the time of my defection, I was the first secretary working for the North Korean Embassy in Congo.

Thank you very much.

Senator COCHRAN. Thank you.

Mr. Kim, if you would proceed to read the statements, we would appreciate that. And we would hear Colonel Choi's statement first.

Mr. KIM. Yes, that is correct.

[Mr. Kim reading Colonel Choi's statement]

I would like to describe North Korean weapons of mass destruction.

It is widely known inside North Korea that North Korea has produced, deployed, and stockpiled two or three nuclear warheads and toxic material such as over 5,000 tons of toxic gases. The North Koreans also know that North Korea has developed and deployed rockets with a range of 1,000 kilometers. The North Korean people also know that the North is at the final stage of developing rockets with a range of 5,000 kilometers. North Korea acquires powerful and destructive weapons with political and military purposes in mind. By having these weapons, the North is able to prevent itself from being slighted by such major powers as the United States, Russia, China, and Japan, and also they are able to gain the upper hand in political negotiations and talks with those superpowers.

On the military front, North Korea can deal a blow to the 40,000 U.S. forces stationed in the South, and they can target the U.S. defense facilities and the Japanese defense facilities inside Japan, thereby effectively destroying supply bases in times of war. With these weapons, the North Korea can attack the U.S. homeland, starting with Alaska, in a war where there will be no victor or no loser.

Since the mid-1970s, the North Korea has launched its efforts to build rockets by itself. As part of the effort, the North build rocket facilities for Soviet-designed and -produced Scud missiles, and they began R&D activities for rocket production in the military academy in Youngseung area of Pyongyang. As a result, the North was able to produce SS rockets with a range of 250 to 300 kilometers by the end of the 1980s. According to Vice Marshal and former First Deputy Minister of People's Armed Forces Kim Kwang-jin, the North succeeded in developing and producing rockets with a range of more than 4,000 kilometers. He said that once the North Korea develops rockets with a range of 1,000 kilometers, it is not so difficult to develop rockets with a range of 5,000 or over 10,000 kilometer range. He mentioned this when he visited China as the head of the North Korean military delegation.

There are a number of rocket facilities inside North Korea. They include the 125 Factory in Pyongyang, the Number 26 Factory in Kangkye of Jakangdo area, the Yakjeon Machinery Factory in Mankeyungdae, and January 18th factory in Kagamri, Kaecheon-kun area in the south province of Pyongahn.

The Number 125 Factory was open to the military delegation from Iraq—I'm sorry—military delegation from Iran and Egypt. The delegation inspected rocket assembly lines.

Since the North uses mostly mobile rocket launchers, not fixed ones, it is assumed that the North does not have fixed rocket launchers.

However, as far as I know, there are intermediate-range rocket bases in Sangwon-kun in Pyongyang and Hwadae-kun in the north province of Hamkyung.

North Korea has been engaged in a plan to develop missiles jointly with Egypt. At the request of Egyptian President Mubarak, Kim Il-sung in the early 1980s transferred missile technology to Egypt and dispatched a group of North Korean experts to the country. The two countries seem to have maintained this relationship continuously. As a result, Egypt during the mid-1980s was successful in manufacturing 400-kilometer range surface-to-surface missiles. I confirmed this fact in 1989 when I met the chief of the General Bureau of External Cooperation in the Second Economic Commission in his office located in Botonggang-kuyok in Pyongyang. At that time I visited the office on a business related with Vice Marshal Choi Kwang's scheduled tour to Egypt. Choi at that time was the chief of the General Staff of the People's Army. He was later named the Minister of Armed Forces.

North Korea has been exporting missiles to Iran since before the Iran-Iraq War. North Korea has exported a large amount of surface-to-surface and surface-to-air missiles to Iran.

The Chemical Bureau in the Armed Forces Ministry once boasted that North Korea has been able to complete the chemical warfare preparation thanks to Kim Joung-chan.

All officers, including general-level officers, are obligated to participate in anti-nuclear and anti-chemical warfare training twice a year, in spring and during the fall. During this training the experiments are conducted: a dog and a rabbit are put in separate glass tubes and a poison gas is blown in, then these animals will die within 20 seconds. These gas bombs are designed to be delivered by rocket launchers or howitzer.

Some Americans believe that even if North Korea possessed the ability to strike the United States, it would never dare to because of the devastating consequences. But I do not agree with this idea. If a war breaks out in the Korean Peninsula, the North's main target will be the U.S. forces based in the South and Japan. That is the reason why the North has been working furiously on its missile programs. Kim Jong-il believes that if North Korea creates more than 20,000 American casualties in the region, the U.S. will roll back and the North Korea will win the war.

Thank you very much.

Senator COCHRAN. Thank you. Mr. Kim, I believe that page 5—4 may have been omitted. It starts out, "The Production of Chemical Weapons (The 5th General Bureau)."



Mr. KIM. Yes, I am sorry. Page 4 was mixed in. I missed it. Could I add page 4?

Senator COCHRAN. Please do it now.

Mr. KIM. Thank you very much.

The Hamhung Branch and three other institutes under the Second Natural Science Academy are responsible for research and production of chemical weapons, and seven factories scattered throughout the country are manufacturing these weapons as well as various anti-chemical equipment. The Germ Research Institute in the military medical department under the General Logistics Bureau of the Armed Forces Ministry is responsible for developing biological weapons.

North Korea is currently producing various kinds of poison gases, including nerve gas, blister gas, among others. These agents are produced at various factories inside the North Korea.

Kim Jong-chan, a major who served as an assistant military attache at the North Korean Embassy in East Germany in late 1970s, is said to have obtained the technical data for manufacturing extremely poisonous gases from Germany. Based on this new technology, North Korea has begun to manufacture new kinds of poison gases since the mid-1980s.

It is said that Dr. Li Sung-gi, who is known to have developed vinalon, which is a synthetic fiber made from limestone, have participated in the project to develop the new gas. Kim Jong-chan made a quick advancement, thanks to his achievement. He was promoted to the rank of colonel in 1984 and was named the chief of External Business Affairs Bureau, which is a position usually occupied by a general-level officer, in the Armed Forces Ministry.

[The prepared statement of Mr. Choi follows:]

#### PREPARED STATEMENT OF CHOI JU-HWAL

##### NORTH KOREAN MASS DESTRUCTION WEAPONS

I am Choi Ju-hwal, I served in the Ministry of People's Army from 1968 to 1995. I defected from my post as Colonel and Chief of joint venture section of Yung-Seong Trading Company under the Ministry of People's Army. I would like to describe North Korean weapons of mass destruction.

It is widely known in North Korea that North Korea produces, deploys and stockpiles two or three nuclear warheads and toxic material such as over 5,000 tons of toxic gas. It also developed and deployed rockets such as Nodong 1 and Nodong 2 with a range of 1,000 Km. The North Korean people know that the North is at the final stage of developing Taepodong rockets with a range of 5,000 Km. North Korea acquires powerful and destructive weaponry with political and military purposes in mind. By having the weapons, the North is able to prevent itself from being slighted by such major powers as the U.S., Russia, China and Japan and also to gain the upper hand in political negotiations and talks with them.

On the military front, the North can deal a blow to the 40,000 U.S. forces stationed in the South and target the U.S. defense facilities and the Japanese defense facilities in Japan, thereby effectively destroying supply based in times of war. With the weaponry, the North can wreak havoc on the U.S., including Alaska, in a war where there is no victor nor loser. The 2nd Economic Committee, which is in charge of its defense industry, is run by the Party Central Committee. In the Party Central Committee, Secretary Chun Byung-ho is in charge of the defense industry and runs the Department of Machinery Industry. The 2nd Economic Committee is located in Kangdongkun of Pyongyang and consists of eight General Bureaus and one bureau, the 2nd National Science Institute, and one trading company for material. The 4th General Bureau and the 5th General Bureau produce rockets and chemical weapons.

## PRODUCTION, DEPLOYMENT AND SALES OF ROCKETS (THE 4TH GENERAL BUREAU)

*Production of Rockets*

Since the mid-1970's, the North has launched its effort to build rockets by itself. As part of the effort, the North built rocket factories for Scuds from the Soviet Union and began R&D activities for rocket production in the National Defense Institute in the Yongseung Area of Pyongyang. As a result, the North was able to produce SS rockets with a range of 250 to 300 Km by the end of 1980's. According to Vice Marshal and former First Deputy Minister of People's Armed Forces Kim Kwang-jin (Vice Marshal of Armed Equipment), the North succeeded in developing and producing rockets with a range of more than 4,000 Km. He said that once the North develops rockets with a range of 1,000 Km, it is not so difficult to develop rockets with a range of 5,000 Km to over 10,000 Km. According to him, the range of rockets depends on propellants and fuel. This is what he mentioned when he visited China as the head of the North Korean military delegation.

*Rocket Factories*

There are a number of rocket factories in North Korea. They include the "125 Factory", which is commonly referred to as "Pyongyang Pig Factory," in the Hyengjesan Area of Pyongyang, the Number 26 Factory in Kangkye of Jakangdo, the Yakjeon Machinery Factory in Mankeyungdae and the 118 Factory in Kagamri, Kaechonkun in the southern province of Pyongahn.

"Pyongyang Pig Factory" (Number 125 Factory) was open to the military delegation from Iran and Egypt. The delegation inspected rocket assembly line.

*Rocket Deployment*

Since the North uses mostly mobile rocket launchers, not fixed ones, it is assumed that the North does not have fixed rocket launchers.

However, as far as I know, there are intermediate range rocket bases in Sangwonkun in Pyongyang and Hwadae-kun in the northern province of Hamkyung.

*The Export of Missiles*

North Korea has been engaged in a plan to develop missiles jointly with Egypt. At the request of Egyptian President Mubarak, Kim Il-sung in the early 1980's transferred missile technology to Egypt and dispatched a group of North Korean experts to the country. The two countries seem to have maintained this relationship continuously. As a result, Egypt in the mid-1980s was successful in manufacturing 400 Km range surface-to-surface missiles. I confirmed this fact when I met the chief of the General Bureau of External Cooperation in the Second Economic Commission in his office located in Botonggang-kuyok in Pyongyang in 1989. That time I visited the office on a business related with Vice Marshal Choi Kung's scheduled tour of Egypt. Choi at that time was the chief of the General Staff of the People's Army. He was named the minister of Armed Forces later.

North Korea has been exporting missiles to Iran since before the Iran-Iraq War. North Korea has exported a large amount of surface-to-surface and surface-to-air missiles to Iran.

## THE PRODUCTION OF CHEMICAL WEAPONS (THE 5TH GENERAL BUREAU)

The Hamhung Branch and three other institutes under the Second Natural Science Academy are responsible for research and production of chemical weapons, and seven factories scattered throughout the country are manufacturing these weapons as well as various anti-chemical equipment. The Germ Research Institute in the General Logistic Bureau of the Armed Forces Ministry is responsible for developing biological weapons.

North Korea is currently producing various kinds of poison gas including nerve gas, blister gas, among others. These factories include the Kangye Chemical Factory in Jangang Province, the Sakju Chemical Factory in North Pyongan Province, the "February 8" Vinalon Factory in Hamhung, North Hamgyong Province, the Ilyong Branch of the Sunchon Vinalon Factory in South Pyongan Province, the Factory No. 297 in Pyongwon, South Pyongan Province. There are other chemical factories in Bongung, Hamhung City, South Hamgyong Province, Hyesan City Yanggang Province, and Kangye City, Jagang Province.

Kim Jong-chan (major), who served as an assistant military attache at the North Korean Embassy in East Germany in late 1970's, is said to have obtained the technological data for manufacturing extremely poisonous gas from Germany. Based on this new technology, North Korea has begun to manufacture new kinds of poison gas since the mid-1980s.

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Some Americans believe that even if North Korea possessed the ability to strike the U.S., it would never dare to because of the devastating response. But I do not agree with this idea. If a war breaks out in the Korean Peninsula, the North's main target will be the U.S. forces based in the South and Japan, which is the reason that the North has been working furiously on its missile programs. Kim Jong-il believes that if North Korea brings 20,000 American casualties in the region, it would win a war.

Senator COCHRAN. That concludes the colonel's statement, and you may proceed to present the statement of Mr. Ko.

Mr. KIM. Thank you. I will make sure the numbers are correct this time.

[Mr. Kim reading Mr. Ko's statement]

I would like to describe North Korean missiles.

Recognizing the dire need for missile development, Kim Il-sung established the National Defense University in Hamheung in 1965. After the Pueblo incident in January 1968, it was moved to the city of Kangkye where defense facilities, these were concentrated. The elites of the North Korea are screened to enter the university where they study for 7 years to graduate. The first department used to be the Department of Missile Engines. My older brother, the first son of our family, graduated from the department. The textbooks he had studied ranged from designs of V-1 and V-2 type missiles to those of the Soviet-made short-range surface-to-surface missiles, commonly referred to as Frog missiles.

In 1965, Kim Il-sung said to Kim Chang-bong, who was the National Defense Minister, the following: "We must develop rockets for war. That is why I build the National Defense University." He also said, "If a war breaks out, the United States and Japan will also be involved. In order to prevent their involvement, we have to be able to produce rockets that fly as far as Japan. Therefore, it is the mandate for the National Defense University to nurture those personnel who will develop mid- and long-range missiles."

These remarks were written on the first page of the textbooks my brother studied at the university. He graduated from the university in 1972 and was sent as missile engine design expert to a design lab in the southern province on Pyongahn. The lab served as the underground factory producing engines for missiles, rocket ships, torpedoes, and tanks. According to my brother, there were over 10,000 people working in the factory. Since the end of the 1970s, this factor has begun reverse engineering of Frog missiles.

In 1981, my brother was transferred to the design labs of the maritime missile factory in Pyongyang. He often told me that he was involved in the production of missiles which can destroy the

warships of the 7th Fleet of the United States naval forces which will appear in the East Sea if a war breaks out on the Korean Peninsula.

According to him, the North conducted test firings of the missiles on the coastal areas of the Yellow Sea during the night time in order to avoid detection by the U.S. reconnaissance satellites.

In 1988, he was transferred to the missile engine design lab of the National Defense University in the Pyongyang area where he developed mostly surface-to-surface Scud missiles and enhanced their capabilities. He said that North Korean missiles had the capability to cover the entire territory of the South and the waters of the Korean Peninsula.

He said also that the North purchased the Soviet Union-made SS missiles, French Exocet air-to-ship missiles, and Stinger missiles for reverse engineering production purposes.

A number of organizations within the North Korean Government are responsible for producing and exporting missiles. The 2nd Economic Committee is responsible for the defense industry in the North and is composed of 8 general bureaus, the fourth of which is in charge of missile production. Within the General Staff, the Maebong Trading Company is responsible for importing high-tech weapons such as missiles while the Yongaksan Trading Company is in charge of exporting North Korean weapons. Another bureau under the General Staff is responsible for smuggling high-tech weapons.

According to Im Young-sun, a defector from North Korea and former leader of guard platoon in the Military Construction Bureau of the People's Armed Forces Ministry, North Korea has deployed missiles as the following: The Military Construction Bureau completed the construction of a long-range missile base in North Pyong-an Province in 1986 and another in North Hamgyong Province in 1988.

The Taepo-Dong missile base in Hwadae County is an underground factory with surface-to-surface missiles designed to hit the Japanese area. For security reasons, all residents residing in the area within the radius of 80 kilometers of this base have been ordered to move out.

The Military Construction Bureau started building a missile base in Chungganjin Province in 1990 and completed the construction in 1995. This base was targeting the U.S. troops in Okinawa.

The Military Construction Bureau started constructing an underground missile base in Kangwon Province in 1991, which was scheduled to be completed within 6 to 7 years after the commencement of the work, and this base was targeting Japanese islands and U.S. military bases inside Japan.

The Military Construction Bureau completed the construction of a missile base in Mayang Island, South Hamgyong Province, in late 1980s. Also, the Military Construction Bureau constructed a missile base designed to cover the west side of Japan.

The Military Construction Bureau completed the construction of an intermediate-range missile base on Kanggamchan Mountain located on the opposite side of Kane-po Fisheries Cooperatives in Jungsan County, which is South Pyongan Province. The time of construction was 1985. The North Korean Navy also completed the

construction of a surface-to-ship missile base in early 1990 on the same site.

I believe that MCB, Military Construction Bureau, is currently constructing a long-range surface-to-surface missile base in Doksong County, South Hamgyong Province. North Korea has given various names to the Taepo-Dong missiles, such as Hwasong-1, which means Mars, Hwasong-2; Moksong, which means Jupiter, Moksong-1, Moksong-2, and so on.

The organizations responsible for exporting missiles include the Yongaksan Trading Company and the Changkwang Trading Company under the Second Economic Commission, the 15th Bureau, which is the General Bureau of Technology, in the Armed Forces Ministry, and also Maebong General Bureau in the General Staff of the People's Army.

I heard the following from Colonel Kim Young-hwan in August 1988 when I was chatting with him at his home. Mr. Kim was one of my seniors at Pyongyang Foreign Language College. He later served as a chief of a department in the Daesong General Bureau and then as the deputy chief of Maebong Trading Company. He said the following: North Korea has been exporting missiles mainly to Iran, Syria, Egypt, and Libya. Egypt was North Korea's main counterpart for developing missiles jointly. Iran was also a counterpart for developing missiles jointly. Iran also was buying North Korean missiles, and Syria was buying North Korean missiles as well.

Colonel Kim Young-hwan also said, "The export of missiles occupies the largest portion of North Korea's total export volume, and that if North Korea is unable to export missiles to the Middle East countries, then its import of crude oil must be stopped." He also said that North Korea was earning about \$1 billion a year when the exports went smoothly.

In February 1991, when I was serving as a member of the North Korean Embassy in Congo, the Foreign Ministry office in Pyongyang sent us a telegram message which instructed us receive a roll of North Korean film and other propaganda materials from a North Korean cargo ship which sailed out from the North Korean port of Haeju and was bound for Syria. The instruction was based on the fact that the cargo ship was scheduled to stop at the Congolese port. The message also instructed us to help the cargo ship to refill fuel at the port. But around that time, the world media began to report that the North Korean cargo ship seemed to be carrying missiles, and then Pyongyang ordered the cargo ship to return home.

Later, the Foreign Ministry sent us a message saying that the cargo ship returned home for an inevitable reason, and the materials would be delivered later.

North Korean Ambassador to Congo Ryu Kwan-jin, who was a close friend of Chang Song-taik, who was Kim Jong-il's brother-in-law, told me that he once heard Chang saying that North Korea had been experiencing difficulties in exporting surface-to-surface missiles to such countries as Syria, Libya, and Iran because of U.S. reconnaissance satellites, and, therefore, North Korea was transporting major parts of missiles, important parts of the missiles, by airplanes.

North Korea has been exporting not only its own missiles but also missiles produced in third countries. Kim Yang-gon, who observed as a counselor in charge of trade at the North Korean Embassy in Zaire in April 1990, told me that North Korea had been importing silkworm missiles through railroads and then exporting it to Iran and Syria through sea routes, thus earning enormous amount of commissions. Kim Jong-il was known to be satisfied with the trade.

Exporting missiles is crucial to the North Korean economy. Kim Jong-il regime is likely to continue missile production in order to attack Republic of Korea, Japan, and the United States in the times of war and to get oil from Middle Eastern countries as well. Therefore, I would like to say that we have to work together to support Republic of Korea to improve its missile capabilities against North Korea's threat in order to keep peace inside the Korean Peninsula.

Thank you very much.

[The prepared statement of Mr. Ko follows:]

#### PREPARED STATEMENT OF KO YOUNG-HWAN

I am Ko Young-hwan. I served in the Ministry of Foreign Affairs of North Korea from 1978 to 1991. I defected from my post as the 1st Secretary of the DPRK Embassy in Congo in 1991. I would like to describe North Korean missiles.

##### *Missile Production*

Recognizing the dire need for missile development, Kim Il-sung established the National Defense University (NDU) in Hamheung in 1965. After the Pueblo incident in January of 1968, it was moved to the city of Kangkye which defense facilities are concentrated in. The Kangkye NDU is run directly by the Ministry of People's Armed Forces.

The elite in the military and the North Korean society are screened to enter the University where they study for seven years to graduate. The 1st Department was the Department of Missile Engines.

My elder brother, the first son of our family, graduated from the Department. The text books he had studied ranged from designs of V-1 and V-2 type missiles to those of the Soviet Union-made short-range surface-to-surface missiles, commonly referred to as Frog missiles.

In 1965 Kim Il-sung said to Kim Chang-bong, National Defense Minister, "it is imperative for us to develop rockets for war, which is why I built the NDU." He also said, "if a war breaks out, the U.S. and Japan will also be involved. In order to prevent their involvement, we have to be able to produce rockets which fly as far as Japan. Therefore, it is the mandate for the NDU to nurture those personnel who are able to develop mid- and long-range missiles."

This remark was written on the first page of the text books my brother studied at the NDU. He graduated from the Kangkye NDU in 1972 and was sent as a missile engine design expert to a design lab code named as "January 18th Machinery Factory" in Kagamri, Kaecheon-kun of the southern province of Pyongahn. The "Jan. 18th Factory" served as an underground munitions factory which produces engines for missiles, rocket ships, torpedoes and tanks. According to my brother, there were over 10,000 people working in the factory. Since the end of 1970's, "Jan. 18th Factory" has begun reverse-engineering of Frog missiles.

In 1981 my brother (Ko Bang-nam) was transferred to the design labs of the "Surface to Sea Missile Factory" in "Pyonayang Mankyungdae Yakjun Machinery Factory" located in Yongseong-Dong of the Yongseung District in Pyongyang.

He often told me that he was involved in the production of missiles which can destroy the warships of the 7th Fleet of the U.S. naval forces which will appear in the East Sea if a war breaks out on the Korean Peninsula.

According to him, the North conducted test firings of the missiles on the coastal areas of the Yellow Sea during the night time to avoid detection by the U.S. reconnaissance satellites.

In 1988 he was transferred to the missile engine design lab of the National Defense Institute, also referred to as the 2nd Natural Science Institute at Yongseung District in Pyongyang, where he developed mostly surface-to-surface Scud missiles

and enhanced their capabilities. He said that North Korean missiles had the capability to protect the entire territory of the South and the waters of the Korean Peninsula.

According to him, there are other missile factories other than the "118 Machinery Factory" and the "Yakjun Machinery Factory in Mankyungdae" such as the "Pyongyang Pig Factory" which is also referred to as the "125 Factory" in Joongyeedong, the Hyengjesan District of Pyongyang.

He said that the North purchased the Soviet Union-made SS missiles, French Exocet air-to-ship missiles and Stinger missiles for reverse-engineering production.

There is the 2nd Economic Committee under the Party Central Military Commission. The Committee is responsible for the defense industry in the North. Secretary Chun Byung-ho of the Party Central Committee is in charge of the 2nd Economic Committee and Kim Chul-man, alternate member of the Party Political Bureau serves as the head of the Committee. Located in Kangdong-kun of Pyongyang, the 2nd Economic Committee is composed of eight General Bureaus, the National Defense Institute and material trading companies. The eight General Bureaus produce a variety of munitions. The 4th General Bureau is in charge of missile production.

The Maebong General Bureau under the General Staff of the Ministry of People's Armed Forces is importing and exporting the parts of missiles.

#### *The Deployment of Missiles*

According to Im Young-sun, a defector from North Korea and former leader of guard platoon in the Military Construction Bureau of the People's Armed Forces Ministry, North Korea has deployed missiles as follows: The Military Construction Bureau (MCB) completed the construction of a long-range missile base in Paekun-ri, Kusong County, North Pyong-an Province in 1986. The 117th Regiment under the MCB completed the construction of a missile base in Hwadae County, North Hamgyong Province in 1988.

The Taepo-Dong missile base in Hwadae County is an underground facility with surface-to-surface missiles designed to hit the Japanese area. For security reasons, all inhabitants residing in the area within the radius of 80 Km of this base have been ordered to move out.

The MCB started to build a missile base in Chungganjin, Huchang County, Jagang Province in 1990 and completed the construction in 1995. This base was targeted at U.S. troops in Okinawa.

The 111th Regiment of the MCD started to construct an underground missile base in Ok-pyong Rodongja-ku, Munchon County, Kangwon Province in 1991. This base was scheduled to be completed within 6 or 7 years after the commencement of the work, and was targeted at Japanese islands and U.S. military bases in Japan.

The 110th and 115th Regiments of the MCB completed the construction of a missile base on Mayang Island, Mayang-ri, Shinpo City, South Hamgyong Province in late 1980. The MCB also constructed a missile base designed to cover the West side of Japan.

The MCB completed the construction of an intermediate-range missile base on Mt. Kanggamchan located on the opposite side of the Kane-po Fisheries Cooperatives in Jungsan County, South Pyongan Province around 1985. The North Korean Navy also completed the construction of a surface-to-ship missile base in early 1990 on the same site.

I believe that the MCB is currently constructing a long-range surface-to-surface missile base in Doksong County, South Hamgyong Province. North Korea has given various names to the Taepo-Dong missiles, such as Hwasong (Mars)-1, Hwasong-2, Moksong (Jupiter)-1, Moksong-2, and so on.

#### *The Export of Missiles*

The organizations responsible for exporting missiles include the Yongaksan Trading Company, and the Changkwang Trading Company under the Second Economic Commission, the 15th Bureau (the General Bureau of Technology) in the Armed Forces Ministry, the Maebong General Bureau (the Maebong Trading Company) in the General Staff of the People's Army.

The story I heard from Colonel Kim Young-hwan, one of my seniors at Pyongyang Foreign Language College who later served as a chief of a department in the Daesong General Bureau and then as the deputy chief of the Maebong General Bureau (official title abroad: vice director of the Maebong Trading Company), is as follows: North Korea has been exporting missiles mainly to Iran, Syria, Egypt and Libya. In August 1988 when I was chatting with him at his home, he told me that Egypt was North Korea's main counterpart for developing missiles jointly, Iran was also a counterpart for developing missiles jointly though the country was buying North Korean missiles, and Syria was buying North Korean missiles.

Colonel Kim Young-hwan said that "the export of missiles occupies the largest portion of North Korea's total export volume, and that if North Korea is unable to export missiles to the Middle East countries then its import of crude oil must be stopped." He also said that North Korea was earning about \$1 billion a year when the export was smooth.

In February 1991, when I was serving as a member of the North Korean Embassy in Congo, the Foreign Ministry office in Pyongyang sent us a telegram message which instructed us to take out a roll of North Korean film and other propaganda materials from Daeheng-ho, a North Korean freighter which sailed out from the North Korean port of Haeju and was bound for Syria, because the freighter was scheduled to stop at the Congolese port of Pointenoire. The message also instructed us to help the freighter refill fuel at the port. But around that time the world media began to report that the North Korean freighter seemed to be carrying missiles, and then Pyongyang ordered the freighter to return home.

Later, the Foreign Ministry sent us a message saying that the freighter returned home for an inevitable reason, and the materials would be delivered later.

North Korean Ambassador to Congo Ryu Kwan-jin, who was a close friend of Chang Song-taik (Kim Jong-il's brother-in-law) told me that he once heard Chang saying that North Korea had been experiencing difficulties in exporting surface-to-surface missiles to such countries as Syria, Libya and Iran due to U.S. reconnaissance satellites, and therefore, North Korea was transporting major parts of missiles by the planes.

North Korea has been exporting not only its own missiles but also Chinese-made missiles. Kim Yang-gon, who served as a counselor in charge of trade at the North Korean Embassy in Zaire in April 1990, told me that North Korea had been importing Chinese silkworm missiles via railroads and then exporting it to Iran and Syria through searoutes, thus earning enormous amount of commission. Kim Jong-il was known to be satisfied with the trade.

Exporting missiles is crucial to the North Korea's economy. Kim Jong-il regime is likely to continue missile production in order to attack ROK, Japan, and the United States in war time, and to get oil from Mideast countries as well. Therefore I would like to say that we have to work together to support ROK to improve its missile ability against North Korea's threat to keep peace in the Korean peninsula.

Senator COCHRAN. Thank you, Mr. Kim, Colonel Choi, Mr. Ko. Thank you very much for your testimony.

There is a phrase that is often used here in Washington to describe the impact of new information that is very important. Some say this is "just like receiving a wake-up call." Well, to me, this is more than just a wake-up call. I think it is a call to general quarters. It ought to be considered a grave matter of national security and it requires a response that is appropriate to the level of the threat. We must, in my view, try to emphasize the importance of up-to-date intelligence information and how important it is to know what is going on, not only in trade from North Korea to other states in missile technology, other components of weapons of mass destruction and the weapons themselves, but we also need to take steps to be sure that we have the capability and the systems deployed that will protect U.S. forces and U.S. interests from missile attack and other weapons of mass destruction. That to me is the lesson and why I suggest that it is probably more appropriate to say this should be a call to general quarters and not just a wake-up call.

Let me ask a couple of questions before yielding to my good friend from Michigan. You mentioned, both of you, the No-Dong missile and the possible range that these missiles have. Do you know or could you tell us what quantities of these missiles have likely been constructed and will be deployed ultimately?

Mr. CHOI. I know for sure since the late 1970s North Korea has been involved in developing and producing missiles, but, unfortu-



nately, I do not have exact numbers for quantity and amount of such missiles produced so far.

Senator COCHRAN. Do you know how many of these missiles have been deployed, or if the No-Dong missiles have been actually deployed?

Mr. CHOI. Regarding the deployment of missiles, the following is what I know: Inside Pyongyang, the Sangwon-kun area, I know there is one brigade, one missile brigade that has been deployed. Inside Hamkyung Province, Hwadae-kun area, there is also another missile brigade that has been deployed.

Senator COCHRAN. Mr. Ko, do you have responses to those questions? Do you have information that would enable you to answer those same questions about the deployment of the No-Dong missile and how many may have been constructed or are intended to be deployed?

Mr. KO. Since the 1970s, North Korea has been producing various kinds of surface-to-surface missiles, and the amount, according to what I know, has been more than the demand that is needed inside North Korea. Therefore, there have been surplus supplies that could have been diverted to exports. In terms of exact amount of these missiles, unfortunately, I do not have numbers.

As Mr. Choi said, in Hamkyung Province, in Hwadae-kun area, there is a missile base which is targeting the American armed forces inside Japan. That I know for sure, but I do not have the information on numbers of missiles.

Senator COCHRAN. The experience that we have had here in the development of missile programs is that there are extensive flight tests, undertaken before a system is deployed. Can you tell us whether or not there is such a testing practice in North Korea? Or is there a different approach to deployment? Are missiles sometimes deployed before extensive flight testing?

Mr. CHOI. Inside North Korea, first of all, the missile testing is an extreme secret, and the second point is it is very costly for them within the limited economic capability that they have. Therefore, as far as I know, they do not conduct extensive and multiple rounds of testings for those missiles.

Also, if I could add, unlike the U.S. missiles, which require capability for surgical strikes, North Korean missiles are not designed for such surgical precision. What they are seeking is impact, and what they are targeting is a general region rather than specific facilities or so. Therefore, the precision of the missiles is not a question, a great matter of importance; therefore, that also is another reason why there is no extensive testing going on inside North Korea.

And, also, another important point about missile testing is their purpose to use this as a bargaining chip during the negotiation with great powers such as the United States. So for that reason, they do not need multiple testings. One testing would be enough.

Senator COCHRAN. Mr. Ko?

Mr. KO. My elder brother once told me that United States is very confident that they can detect everything through the reconnaissance satellites, but my brother mentioned that that is a great misunderstanding.

For missile testings, because of the reconnaissance satellites, what the North Koreans do is they conduct these testings at night or cloudy days, and sometimes when no such option is available, they try to do simulated testing.

Senator COCHRAN. Thank you. Senator Levin.

Senator LEVIN. Thank you, Mr. Chairman.

You made reference, Mr. Ko, to the shipment, a ship that was being redirected home from Congo, and that was because of the fear, as I understand it, that—was that because the satellites might have detected that that freighter carried missiles? Is that what the fear was? Or was that because of some other reporting?

Mr. KO. I could try to repeat what Mr. Ryu Kwan-jin, who was the Ambassador to Congo, said to us. He said the following: The Yankees were bothering us, and that is the reason the cargo ship had to return. And inside the cargo ship, there were missiles being exported to Syria.

Senator LEVIN. According to your testimony, Mr. Ko, you said that North Korea was transporting parts of missiles instead of whole missiles because of the difficulty of exporting whole missiles and the fact that that would become known. And in your written testimony, you said that the parts of missiles were going to be transported aboard ships. Then when you testified orally, you used the word “airplanes.” I was confused as to which it was.

Mr. KIM. To clarify, there was a mistake. There was a mistake that we detected before the hearing, and what he meant to say was airplanes. Because of the reconnaissance satellites, they had to use the airplanes.

Senator LEVIN. So that the missiles then were going to be shipped in pieces from that point on aboard airplanes; is that correct?

Mr. KO. There are large parts of missiles that cannot be transported through airplanes. Those parts are exported through the ship with all the camouflage you can think of, and those parts that could be exported through—transported through the planes, they do so, as that had been mentioned. And, also, those parts that they carry on the ships, they use camouflage and try to use the nighttime.

Senator LEVIN. Why is the shipment of missiles hidden by North Korea?

Mr. KO. North Korea believes that the U.S. has placed economic sanctions on the side of North Korea, and North Korea is under great pressure. Therefore, they would like to circumvent such restrictions. In order to do so, they had to hide these missiles exports because these exports are important means of earning dollars and oil from these countries that may not be very friendly to the United States.

Senator LEVIN. He made reference to the MTCR. What was that reference?

In his answer, when he was speaking in Korean, he made reference—

Mr. KIM. Yes, I was asking what MTCR means, and they cannot provide a complete name for it, but it sounds like international norm that restricts missile productions.

Senator LEVIN. I know what it means, but when he made reference to it in his answer, you did not in your translation make reference to it.

Mr. KIM. Yes, that was my mistake. He mentioned briefly the international norm and pressure placed by the MTCR as well. That is another factor that is important.

Senator LEVIN. Mr. Ko said that his brother—let me make sure. I believe his brother said that the North had purchased French Exocet missiles, and I am wondering when and from whom those missiles were purchased.

Mr. KO. Well, as I said, my brother told me that North Korea was importing Exocet missiles from French, but better source of this information is, in 1988, September, General Mr. Li Su-yon, belonging to the 15th Bureau of People's Armed Forces, told to me that North Korea has successfully imported those French Exocet missiles directly.

Senator LEVIN. From France?

Mr. KO. I am sorry. He did not say directly. He did not identify the routes of imports. He just said North Korea succeeded in importing Exocet missiles from France.

Senator LEVIN. "From France," did he use the words?

Mr. KO. What it meant was French-made missiles, not from France.

Senator LEVIN. Not necessarily from France.

Mr. KO. Not necessarily from France.

Senator LEVIN. He made reference to a joint program between North Korea and Egypt to develop missiles, and I am wondering what he can tell us about that program and how long it lasted.

Mr. CHOI. In 1989, the Minister of People's Armed Forces, Choi Kwang, visited Egypt, and at that time I worked for the speech—transcript of the speech, draft of the speech for the combined command forces, and I worked for that script by myself.

When I was working for that draft of speech for the joint chief of staff, I had to go to the External Economic Cooperation General Bureau of the Second External Economic Affairs Committee and had to put together all the related information regarding North Korea and Egypt joint project on missile development.

According to the chief of the General Bureau, according to his words, in 1980, early 1980, based on the request from Egyptian President Mubarak and based on Kim Il-sung's approval, North Korea provided the process-related technology, production process-related technology to Egypt, and also sent a delegation of experts to Egypt.

Through these joint efforts, it was announced in 1989 that a missile with a range of 400 kilometers was developed successfully. The information that I have mentioned so far were the ones that I saw in that collective material related to the information packet that I saw while I was working for the joint chief of staff speech.

Senator LEVIN. Was that effort still ongoing when he defected in 1995?

Mr. CHOI. The Minister of the People's Armed Forces is not directly involved in such joint missile development efforts. Instead, the Second Economic Committee that belongs to the party directly

manages such efforts, so, therefore, I am not completely sure about such details.

I'd like to emphasize even the Minister of People's Armed Forces is not well informed of such dealings of missile exports and joint developments.

Senator LEVIN. What can our two witnesses tell us about exports to Iran, specifically what types of missiles, how many missiles, when were the exports, what kind of technology or production equipment has been exported to Iran? Just what, when, what types, so forth, as much specifics as they can give us.

Mr. CHOI. As far as I know, the North Korean missile exports to Iran began during the Iran-Iraq War. It began during the Iran-Iraq War. Such missile exports was one of the key reasons why Iraq and North Korea discontinued their diplomatic relationship.

The missiles that North Korea exported to Iran included various kinds of surface-to-surface missiles and surface-to-air missiles. Regarding the surface-to-surface missiles, I'm not sure what kind of missiles have been exported, for example, what kind of Scud missiles, what versions of them have been exported. But regarding the surface-to-air missiles, I know the mobile missiles, so-called Hwaseung Chong inside North Korea, which is similar to or the same as SAM-7 missiles and used to be produced by the Soviet Union, a large amount of those missiles have been exported to Iran, and I'm not—I do not have numbers for exact amount of such export.

Those Hwaseung Chong missiles, the mobile surface-to-air missiles, was believed to be used when the U.S. helicopter was shot down in December of 1994.

Of course, the Iranians were not as much interested in direct imports of the missiles, but they have been much more interested in learning this technology, and they have been quite consistent in demanding for such technology to be transferred from North Korea.

As far as I know, since 1986, Iranian—top commander of Iranian Revolutionary Forces has visited North Korea three times since 1986, and one of the key reasons for their visit is for the transferring of such missile technology from North Korea to Iran.

But as far as I know, at least until 1995, when I defected, North Korea did not respond or accept such demand of transfer of technology to Iran.

Mr. KO. In April 1988, secretary-level official named Kwosong-sun, working for the Ministry of Foreign Affairs, has told to me the following: The head of Iranian Revolutionary Armed Forces has visited North Korea repeatedly, and there is a problem because what they want is the technology and factories to produce these missiles, and what we want is selling those missiles to them. Therefore, their interests do not meet directly.

Senator LEVIN. Thank you.

Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Senator Levin.

Colonel Choi, you mentioned both the No-Dong 1 and No-Dong 2 missiles in your statement. Could you explain the differences between these two missiles and why North Korea desires to deploy them?

Mr. CHOI. I do not have details, technical details, about the difference between No-Dong 1 and No-Dong 2. All I know is, as it's well known, is the difference in the range. The reason for the deployment of these missiles, I believe, is to hit the supply bases and also naval bases located inside Japan, bases, I think United States base, as well as both Japanese and American supply and naval bases located inside Japan and Okinawa and Guam area.

The North Koreans believe that when a war occurs, it will take about 20 to 30 days for the United States to transport the necessary forces to the ship all the way to the Korean Peninsula.

Before the U.S. supplies reaches Korean Peninsula in 20 to 30 days, North Korea aims to overtake the entire area of southern side of peninsula, and I believe the missiles, such missiles will serve a very useful purpose in doing so.

In other words, those missiles will be used to prevent the U.S. supplies reaching the Korean Peninsula and, therefore, ensuring the complete victory for North Korea.

Senator COCHRAN. Thank you.

Mr. Ko, do you know what the intended targets of the No-Dong will be? Can you confirm what Colonel Choi has said, or do you have any additional information that you could add to that?

Mr. KO. It is a well-known fact to me because I heard this through my brother, as I said before—and also through the other officials, my colleagues inside the Ministry of Foreign Affairs, and also friends in the Ministry of People's Armed Forces. It is a well-known fact that Kim Il-sung, when he established the National Defense University in 19—as early as 1965, Kim Il-sung had said that North Korea should develop rockets and missiles to hit U.S. forces inside Japan. And regarding the U.S. forces inside South Korea, North Korea—it is a well-known fact that North Korea will use short-range missiles and other missiles and rockets in order to have casualties of somewhere between 10,000 to 20,000, and even more casualties in the side of U.S. forces in order to have anti-war sentiments to rise inside the United States and cause the withdrawal of U.S. forces in the time of war.

Senator COCHRAN. Although my question related specifically to the No-Dong 1 and No-Dong 2 missiles, when you're talking about using missiles on targets in South Korea, are you referring to Scud missiles as well? And if so, will these targets that you mention be the same in the use of Scud missiles in South Korea?

Mr. KO. Yes, basically what you're saying is correct. No-Dong 1 and No-Dong 2 are primarily designed to target U.S. forces inside Japan, Okinawa, and Sasebo area, and talking about the short-range missiles, yes, Scud missiles are the ones that will be used basically to hit the U.S. forces inside South Korea, and they will be also used in the multiple rocket launchers as well on the side.

Senator COCHRAN. Colonel Choi, do you have any other information about how Scud missiles may be targeted in South Korea to ports or air bases, command and control facilities?

Mr. CHOI. I cannot recall exactly the year, but I believe it was either in 1987 or in 1988 there was a delegation from the Soviet Union Air Defense Command to North Korea, and I had to be acting as an interpreter, Russian language, for the Minister of People's Armed Forces, Ojin Uh, and that was the first time for me to

be allowed into the North Korean Air Defense Command underground.

I saw a map inside the air command, underground air command, a map that covers the entire area of Korean Peninsula, and for the southern part of the map, I could see the strategical targets for air strikes.

By saying air strikes, I do not exclude missile strikes as well.

There were three main targets of attack, and they were: No. 1, Seoul and Incheon area; No. 2, Taejeon area; and, No. 3, Ulsan area. Therefore, based on what I saw on the map, I believe the main targets in using Scud missiles will be also those three areas of Seoul-Incheon, Taejeon, and Ulsan.

Senator COCHRAN. Do you know how many Scud missiles and what types of Scud missiles North Korea possesses now?

Mr. CHOI. Again, I do not have numbers for the Scud missiles produced and specific information on the kinds of Scud missiles produced. But I could tell you that since 1978, inside People's Armed Forces command ranks, there has been a position for rocket and missile-related deputy commander position that has been in place since 1978.

And, also, in 1993, North Korea opened a new university, a defense university, specifically devoted to the development of rockets and missiles, and this institute, as I said, was opened in 1993. So, therefore, I believe the amount that has been produced has to be significant.

Senator COCHRAN. Mr. Ko, do you have information about the numbers and types of Scud missiles in North Korea at the present time?

Mr. KO. I recall a conversation that took place between myself and Kang Zok Ju, the Principal Deputy Minister of Foreign Affairs. I recall the date was September 8, 1988. I asked him during the conversation, "Why are we exporting these missiles, including Scud missiles. Is it because we have enough supply here inside North Korea or is it because of some other reasons." And Mr. Kang Zok Ju replied to me, "It is obvious that we can export missiles, including Scuds, overseas because we have enough supply inside North Korea." That is the information I can tell you, but unfortunately I do not have numbers.

Senator COCHRAN. There is a statement—I think it is in Colonel Choi's prepared statement—about North Korea being in the final stages of the development for the 5,000-kilometer-range Taepo-Dong missiles. When would they be deployed, if you know, and what would be their intended targets?

Mr. CHOI. Two things. Number one, regarding the missiles with 5,000-kilometer range, it has been generally discussed and mentioned to the general public of North Korea. That is all I know about the missiles of 5,000-kilometer range.

But in 1991, Mr. Kim Kwang-jin, whom I mentioned—let me correct myself. In 1993, Kim Kwang-jin, whom I mentioned during my testimony, has specifically mentioned to me about 4,000-kilometer missiles production and development, and he told me that we are expecting a completion of such development fairly soon. Mr. Kim Kwang-jin told me that during our visit through China as a North Korean military delegation to Beijing. Mr. Kim Kwang-jin, during

the trip when he told me about these missiles with 4,000-kilometer range, did not mention specifically names such as Taepo-Dong or some other names.

One point that I would like to reemphasize which was included in my testimony is he said at that time during our conversation—Mr. Kim Kwang-jin during our trip to China said it is almost no problem to produce longer-range missiles once we reached to the point where we could produce missiles with 1,000-kilometer range. There is not much difference between missiles with 1,000-kilometer range and 5,000-kilometer range from his perspective. I do not know whether any missiles with 4,000-kilometer range have been developed and actually deployed.

Senator COCHRAN. Mr. Ko, do you have any information on that subject?

Mr. KO. Honestly speaking, I never heard about the name Taepo-Dong while I was inside North Korea, and still I do not understand where the name comes from. I imagine I first heard a name that was originated from the U.S. sources. As far as I know, naming missiles inside North Korea—they use names of planets, usually, like Hwasong-1, Jupiter; Moksong-1 and 2, like Mars, and things like that.

Senator COCHRAN. Do you know anything about the intended targets for the long-range missiles?

Mr. KIM. Mr. Chairman, are you asking the targets of the long-range missiles?

Senator COCHRAN. Yes.

Mr. KIM. OK.

Mr. KO. Regarding the targets for long-range missiles that North Korea is trying to develop or has already developed, as far as I know the primary target, number one target, is U.S. military facilities inside Japan. And the second target would be the facilities inside Guam, and as far as I know they are also seeking to strike areas such as Alaska.

Mr. CHOI. This has never been formally announced, but inside the People's Armed Forces in North Korea it is common knowledge that the ultimate goal for the development of North Korean missiles is to reach the mainland of the United States.

In discussing such ultimate goal amongst the officers of the People's Armed Forces, there are saying once we reach that ultimate goal, we should use chemical and nuclear weapons and deliver a fatal blow to the United States, to the mainland of the United States. And it is a common thing to talk about such future amongst the general officers of the People's Armed Forces.

Senator COCHRAN. Senator Levin.

Senator LEVIN. Thank you.

Relative to nuclear weapons, I guess, Mr. Ko, you were quoted as saying that you are not a hundred percent sure that North Korea has a nuclear bomb, but that they are trying to get a nuclear bomb. Do you think it is possible or likely that they have two or three weapons already, or don't you know?

Mr. KO. I think the question should go to Mr. Choi.

Senator LEVIN. Well, I would like to ask both of them. Let me start with Mr. Ko. He was quoted as saying that he is not sure that

North Korea has a nuclear bomb and I would like to know what he knows of his own knowledge.

Mr. KO. I think regarding the fact whether North Korea for sure has nuclear capability or not at this point will be only known to the supreme commander, Kim Jong-il. But during the time while I was working for the Foreign Ministry for 13 years, every year we had to deal with a so-called plan for national development and prosperity.

In that, one of the items that comes up at the beginning is mentioning that all the embassies in all countries, their primary—one of the key missions is in seeking nuclear technology and I had to deal with that every year.

Mr. CHOI. I would like to add something. From 1979 until 1982, I was a deputy military attache at the North Korean embassy in Czechoslovakia. While I was in Czechoslovakia during those years, I was getting orders to obtain the technology and equipment including some welding rods for welding the nuclear reactors, and also I was getting orders to obtain materials such as a sample of laser rod to use the laser-related weapons, which has little to do with the nuclear technology.

I carried out those orders and I got decorated because I could send, fortunately, the following. I sent about 21 different special welding rods that had to do with the nuclear reactor welding, and also I could send the documentation regarding the nuclear reactor welding technology. And, also, I was successful in obtaining the equipments relating to the laser technology.

I got so-called gas laser rod, and also small—I think it is a conductor, circuit-related conductors. The French made such conductors, circuit conductors, that had to do with the laser technology and I was able to send those to North Korea, and as a result I was decorated. The circuit conductor I was referring to was the diodes.

Senator LEVIN. Does Colonel Choi agree with Mr. Ko that only the supreme commander of the People's Army would know for sure whether or not North Korea has nuclear weapons?

Mr. CHOI. I had a lot of experience to travel with the top commanders of People's Army and had to work with them all the time. I never heard specifically how many nuclear warheads and in what kind of forms that North Korea—never heard that, whether North Korea has such capability in specific forms and numbers.

At the time of death of Kim Il-sung, Kim Jong-il had said that if war occurs and if we are about to lose, we will destroy everything on earth, and this comment has been widely shared and announced throughout North Korea. That, I believe, is another indicator for the possibility that North Korea already has nuclear capability, but nobody has seen it or can confirm it for sure.

Also, as you well know, North Korea has withdrawn from the Nuclear Proliferation Treaty. At that time, inside the People's Armed Forces, the officers, my colleagues were saying openly that the reason why North Korea joined the treaty at the beginning was to earn more time for the development of nuclear weapons. And since we have withdrawn, there is no reason to observe the treaty anymore, since we seem to have the capability and it is nonsense to remain under the obligations of the treaty. They are openly saying that.



Senator LEVIN. Does he believe that the 1993 framework agreement stopped any further production?

Mr. CHOI. I absolutely do not believe that the framework's agreement had such impact on North Korean efforts for nuclear development at all. As far as I understand, the inspection team visited North Korea based on the framework agreement. I do not think they had a chance to inspect underground facilities, and I believe they only inspected the above-the-ground-level facilities and I believe all the critical and important facilities are underground. Therefore, they didn't really see anything from my perspective. I believe those underground nuclear facilities will never be open to outsiders under any circumstances.

Senator LEVIN. And South Korea knows where they are?

Mr. CHOI. I don't know how much the South Korean side knows about this, but when I was inside North Korea I heard that such facilities were generally located around the Youngbyon area. One of the evidences to support such speculation, believing that most of the facilities are located in the Youngbyon area, is I know for a fact in 1993 the People's Armed Forces—the guarding around that area was upgraded from battalion level to brigade level in 1993. I believe such a decision was made based on the possibility of spy activities, to prevent such activities.

Senator LEVIN. And where precisely was that?

Mr. KIM. That is the Youngbyon area where the lightwater—

Senator LEVIN. No, but where near Youngbyon? Where precisely was that underground facility that had increased protection?

Mr. CHOI. The district or area inside the Youngbyon area is called Bun-gang area and that's a special district where no one from outside can enter, and my brother-in-law used to work as a part of police force guarding that Bun-gang area inside Youngbyon. My brother-in-law was in charge of inspecting the people going and coming out of the special area, inspecting what kind of documents they are carrying, whether they are carrying any secret documents.

Senator LEVIN. Is he still there in North Korea.

Mr. CHOI. Since I mentioned such factors relating to my brother-in-law at the time when I had the press conference after my defection, I do not believe he is there anymore. According to what I heard from my brother-in-law at that time when I was in North Korea, in that Bun-gang area they were developing and producing laser technology, as well as the nuclear-related technology and products.

Senator LEVIN. Just one final question. Colonel Choi, you mentioned that there are two brigades of missiles that have been deployed. Can you tell us what types of missiles have been deployed with those two brigades and what the ranges of those missiles are, if you know?

Mr. CHOI. Regarding the missile brigade that is located in the Sangwan area, the brigade commander was a good friend of mine from same school. He went to the rocket institute inside the Soviet Union. He graduated from there in 1986 and he became the commander, brigade commander, of that Sangwan missile base. Later on, he was executed with the accusation being a Soviet spy, a spy from the Soviet Union.

Unfortunately, I do not, however, have specific numbers or information regarding what kind of missiles that he had inside his missile brigade.

Senator LEVIN. He mentioned two brigades. Does he know anything about the other brigade?

Mr. CHOI. Unfortunately, I do not have any specific information about the other brigade.

Senator LEVIN. Thank you. Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Senator Levin.

Let me ask you a few questions about the export policies and programs of North Korea. Could you tell us the number of countries and the identity of these countries who have purchased Scud-type missiles from North Korea?

Mr. CHOI. All I know is that North Korea has been exporting those missiles, including Scud missiles, to Iran and Syria, mainly. But, unfortunately, I do not have specific information.

Senator COCHRAN. Mr. Ko?

Mr. KO. I know Libya also has imported some quantity, limited quantity of Scud missiles, but I know the main importers of North Korean Scud missiles have been Iran and Syria.

Senator COCHRAN. Do you have any information about how many missiles have been purchased by each country?

Mr. CHOI. No.

Mr. KO. No.

Senator COCHRAN. There were some recent news reports that Iran is building new intermediate-range missiles which are based upon the No-Dong design. Do you know if Iran has purchased the No-Dong missile from North Korea or if North Korea is assisting Iran in developing intermediate-range missiles?

Mr. CHOI. Since 1986, the delegation from the Iranian revolutionary forces have visited North Korea three times and they have been asking for—it has been well-known among the officials inside the People's Armed Forces in North Korea that they have been asking for missile technology. The consensus inside the North Korean People's Armed Forces was that it was too early and premature to hand over such production technology and factories.

But as I mentioned earlier, the Second Economic Committee inside the party is responsible for such operation and I do not know how they responded to this demand. Until the time I was there at least, I don't think North Korea was responding favorably in terms of transferring such development technology.

Senator COCHRAN. Mr. Ko?

Mr. KO. I do not have much information about that.

Senator COCHRAN. There was a report that Libya had contacted North Korea about a 1,000-kilometer-range missile. Do you know if North Korea has cooperated with Libya on the development or the sale of a 1,000-kilometer missile, and if so, what is the status of that program?

Mr. CHOI. Unfortunately, we do not have any information.

Senator COCHRAN. Mr. Ko?

Mr. KO. No.

Senator COCHRAN. How does North Korea transport its missiles to Iran, Syria and Libya? I know you have had some conversation

with Senator Levin about the use of airplanes or ships. What is the current practice, if you know, how these missiles are transported?

Mr. KO. What I mentioned to Senator Levin was what I heard before my defection, and unfortunately after my defection, I haven't had the chance to deal with such information at all.

Mr. CHOI. While I was working for the North Korean People's Armed Forces, I knew as a fact that there is an airport called Sunan Airport, and cargo planes come in for the purpose of transporting those exported items of weapons overseas. And when they come in, they usually use students from the nearby Kangun Military Academy at night so that they will avoid detection from the U.S. side.

And they use those cargo planes extensively, and as I mentioned before, the missiles—the large parts, I know for a fact, were transported through ships and some several key items that could fit into the cargo planes were transported through those cargo planes.

Senator COCHRAN. Other than receiving money for the sale of missiles and parts and components, do you know of any other things of value that North Korea has received from those whom it has sold technology and components?

Mr. CHOI. In 1994, North Korean Air Force Commander Cho Meong Loc visited Iran and they signed an agreement. According to this agreement—based on this agreement, North Korea promised to supply the Soviet—the airplane parts that have to do with the Soviet-made airplanes—North Korea will provide those parts, airplane parts, and in return Iran promised to provide the fuel for airplanes.

I recall—probably, it was late 1993, North Korea sent 28-member technical assistance team to Libya and they were supposed to help Libya in repairing the Mig-25, 23, airplanes, and also other artillery equipments produced by the former Soviet Union. And I think in return for this, that delegation dispatchment to Libya, North Korea received oil from Libya, and I think such arrangement is still going on.

Senator COCHRAN. Mr. Ko, you mentioned when you were posted in the Congo, one of the requirements of your job was to seek and try to obtain nuclear weapons, component parts, or technology, and the like. Do you recall any trades like that being undertaken between North Korea and other countries where North Korea would sell one kind of military technology in exchange for nuclear technology or any other kind of military technology?

Mr. KO. Unfortunately, I did not have a chance to hear other stories.

Senator COCHRAN. OK. Thank you.

In the case of chemical and biological weapons programs, I think you mentioned, Colonel Choi, that North Korea produces toxic gas. What kinds of chemical agents does North Korea possess, and how would they be used?

Mr. KIM. Mr. Chairman, there could be a difficulty in translating those names, but I will do my best based on what I hear.

Senator COCHRAN. Thank you.

Mr. KIM. Some of them are Korean. Some of them are based on German and different languages, but Mr. Choi has mentioned three different kinds of gases. Number one, gases that act on the nerve

system—I will give you names, chadin, choman, tifun, and vee gases—that acts on nerve system.

And, also, there are gases that act on the skin, blistering gases, eprid and luisid, or such names that were mentioned by Mr. Choi.

OK. Regarding the skin destruction, those are not necessarily gases. Any material that if it touches the skin, it could destroy the skin.

And, also, third kinds of toxic material act on human blood system, and the names he gave me was chungsun, yomashun—those are Korean names—and also several other names that acts on the blocking and destroying blood circulation system of human being.

Senator COCHRAN. How are these delivered?

Mr. KIM. Those will be delivered through missiles, rockets, and also ulterior shots.

Senator COCHRAN. Is it a part of the North Korean military doctrine to use these chemical agents in case of hostile action with South Korea or to deliver them as far as Japan or other places? Where will they be delivered?

Mr. KIM. North Korean military personnel are trained under this doctrine, or they are trained with—that they are told repeatedly that there are several nuclear—so-called nuclear backpacks, 57 of them—he happened to give me the name—nuclear backpacks and other nuclear equipments inside South Korea, provide United States, and they are also told there are several thousand tons of toxic gases, also provided by the United State, being stored inside South Korea.

They say, therefore, it is natural for North Korea to respond to the enemy that already has nuclear and these biochemical capabilities in kind, use the nuclear and biochemical weapons on the side of North Korea. It is natural for them.

And, also, the targets not only include the U.S. forces and the South Korean forces inside South Korea, but, also, they are targeting U.S. forces and also Japanese forces in Japan, Okinawa, and other parts around the area.

Senator COCHRAN. Do you know whether there is any specific doctrine about the use of a first strike, initiating hostile action with the use of chemical or biological weapons?

Mr. CHOI. I have not seen or hear such documentation on using biochemical weapons in the first strike.

Senator COCHRAN. What types of missiles, if you know, would be used to carry these weapons? What kind of warheads?

Mr. KIM. What kind of missiles?

Senator COCHRAN. Missiles that would carry warheads with weapons of mass destruction.

Mr. CHOI. The kinds of missiles that they are developing and producing will be used for delivery of such biochemical weapons and also weapons of mass destruction such as nuclear warheads.

I believe all they have to do is just change those warheads. For specific purpose and for a specific range, they just have to choose a different kind of missiles to reach the target.

Senator COCHRAN. Mr. Ko, you mentioned in response to a question asked by Senator Levin that there was a joint development program involving North Korea and Egypt in missile development. Is this a current ongoing program, or has that been terminated?

Mr. CHOI. As I mentioned, until the time of 1989, when I was working for that speech for the commander for the Army forces, I knew for sure such cooperation was going on between North Korea and Egypt.

After that, I do not have such information, but I would suspect, based on my knowledge and general relation between Egypt and North Korea—I would suspect that such cooperation for missile and other developments or effort is still going on.

To add another information, in 1989, a one-star general from the North Korean Army was working inside Egypt for that specific rocket, the missile co-development between Egypt and North Korea.

The person who was sent to Egypt at that time, 1989, he got that one-star general—military two-star general, military rank, even though he was basically a civilian. It was used. Such military rank was used to serve that specific purpose.

And there was also a colonel from the military residing inside Egypt. The importance of mission, he got—I believe he got that two-star military rank, and there was a continuous conflict between that colonel and the general, and it was quite a well-known fact.

Senator COCHRAN. I think you mentioned that there was an exchange agreement between North Korea and Iran with respect to oil and fuel for planes and military use in exchange for missiles and missile technology. Have there been any other examples of mutual assistance for military purposes with other countries? China, for example, has there been a relationship of that kind of China, or the Soviet Union or Russia?

Mr. KIM. Mr. Chairman, could I request about a 30-second break for myself and I will be right back?

Senator COCHRAN. Yes. Let's make that 5 minutes. How about that?

Mr. KIM. OK.

Senator COCHRAN. A 5-minute break. Let's have a 5-minute break.

[Recess.]

Senator COCHRAN. If we are all set, we can return to order and commence our hearing again.

Let me ask both of you, in connection with this mutual assistance relationship that exists between North Korea and some countries, has there been any success or even efforts made by North Korea to recruit missile or weapons experts from Russia or other states from the old Soviet Union to help in missile and weapons development in North Korea?

Mr. CHOI. I heard after the collapse of the Soviet Union, the collapse of the Soviet Union around the time of 1991, there were nuclear experts from Russia, two of them, who were naturalized in terms of getting North Korean citizenship, and I was told that they were residing in a house around the Taedong area inside Pyongyang, and they were using a house that used to be occupied by a well-known actress and a movie director who were kidnapped by North Korea.

Senator COCHRAN. Mr. Ko?

Mr. KO. What I would like to say to you right now may have little to do with what you ask, but it is just that I would like to tell you for your information.

In 1971, I was hospitalized in a hospital that was specifically designed for high-government officials, and there was a very well-known scientist, Dr. Li Seung-Gee, who also was hospitalized in that hospital at the same time. And he was boasting about the fact that he got a title, a hero title from Kim Il sung for developing chemical weapons—developing chemical weapons, and in return, as a reward, along with the hero title, he changed all his teeth covering with 18K gold.

Senator COCHRAN. Well, let me ask you if you know whether North Korea has imported specialized materials that it needs for producing missiles and where those materials have come from.

Mr. KO. I heard from the people who are working in the Japan section of the Ministry of Foreign Affairs that the electronic chips that were used for these missiles were mostly imported through the Chosen Soren which is an organization of Japanese Koreans inside Japan. So they were imported from Japan from Chosen Soren.

Mr. KIM. Mr. Choi does not have any information on that.

Senator COCHRAN. There was a comment you made about getting an Exocet missile from France. How was that done, and what was the purpose for getting that missile?

Mr. KO. I do not have information on the process of importing Exocet missiles. I only heard it from my colleague. Exocet missiles, I was told it was smuggled from Afghanistan through Moscow and then imported to—transported to North Korea.

Senator COCHRAN. You mentioned that North Korea had been used by China and paid a commission to sell certain cruise missiles to Iran and Syria. Do you know if China has also exported ballistic missiles or technology to other countries through North Korea?

Mr. KO. I heard at that time with regard to those missiles—when I heard that North Korea was acting as an intermediary for those silkworm missiles, I asked my superior why do we not do the reverse engineering and develop a missile, sort of like a silkworm, and I was told by my superior that we already have a missile that is better than silkworm, so there is no reason to. All we have to do is just—through those intermediary roles, but I do not have any other information about North Korea acting as intermediary for other Chinese arms.

Senator COCHRAN. How was North Korea able to reverse-engineer missiles like the Scud missile while other countries like Libya and Egypt seem to have been unable to do so? Did North Korea have special assistance in the engineering to accomplish this?

Mr. CHOI. As far as I know, there was a significant number of students, military officials as students sent to North Korea to the Soviet Union to study in these rocket and missile institutes inside the Soviet Union. That was during the 1960's, and the number was significant.

Therefore, considering the exchange programs and activities, I would presume such support from Soviet Union was, indeed, significant.

Senator COCHRAN. To what extent are there present in North Korea or in the recent past have there been present in North

Korea, technicians, engineers, scientists from China or Russia involved in a military defense institute or academies or universities that are involved in military weapons development and the like?

Mr. CHOI. I do not have any knowledge.

Mr. KIM. Mr. Ko said he did not hear anything about Chinese engineers working for rocket development or missile development inside North Korea. He did not hear that.

Senator COCHRAN. Or chemical and biological weapons.

You mentioned the one person who was in the hospital with you who got a new set of gold teeth out of the deal. Are there any other examples like that, that you know of, or any people working in that area now from other countries?

Mr. KIM. The person who got the gold teeth was a famous North Korean scientist, but I will ask.

Senator COCHRAN. Oh, I see. I thought he was from Russia.

Mr. KIM. His name was Dr. Li.

Mr. CHOI. I never heard of any foreigners working inside North Korea.

Mr. KIM. Mr. Ko said that I believe probably North Koreans are better in developing such technology by themselves other than learning from others.

Senator COCHRAN. Thank you.

Has North Korea used the U.S. Global Positioning System, called GPS, to improve missile accuracy? Do you know?

Mr. CHOI. I have not heard anything having to do with GPS system, but while I was inside North Korea, I was told that there is a Space Research Institute inside the People's Armed Forces that study stars, and they were going to use their knowledge of a constellation to control and target those missiles when they launch those missiles.

Senator COCHRAN. Do you know where this technology was coming from? Was it coming from China, or Russian sources?

Mr. CHOI. I believe there was close cooperation between the research institute and the Soviet Union.

Before the collapse of the Soviet Union, the research institute was regularly receiving the satellite images of the Korean Peninsula from the Soviet Union through the Soviet satellites, but, however, after its collapse, I am not sure where North Korea would be getting such source.

This kind of astronomical- or aerospace-related technology, North Korea also worked together with Romania.

Senator COCHRAN. We talked about the military doctrine with respect to the use of chemical agents in warfare. What is the doctrine with respect to the use of nuclear weapons? You mentioned that in your opinion, North Korea had the capacity to develop—or has nuclear weapons now. I think you said that, Colonel Choi. What is the doctrine for the use of nuclear weapons?

Mr. CHOI. I have not seen any written military doctrine on this use of nuclear weapons, but it is general knowledge and consensus inside the People's Armed Forces that it is natural for North Korea to use nuclear weapons because the opponent, the enemy, meaning the United States, has the nuclear capability.

North Korea believes in the time of attack, the United States will use a small nuclear weapon to destroy the North Korean brigade,

and such small-sized nuclear weapon will be aimed to destroy about 30 to 40 percent of the one-brigade-unit forces of North Korea, and based on this belief, they have plans to resupply these forces that will be destroyed under the U.S. nuclear attacks on these brigade units.

Senator COCHRAN. Would there be a plan to retaliate by using a nuclear weapon if the North Korean forces are attacked with nuclear weapons?

Mr. CHOI. Absolutely, yes. In that case, North Korea will respond to nuclear arms.

Senator COCHRAN. Are there any specific plans that you know about for using nuclear weapons as a preemptive measure or to surprise and to annihilate opposition forces?

Mr. CHOI. Unfortunately, since I had little to do with nuclear strategy, unfortunately, I am not in the position to tell you anything. I do not have any knowledge about that.

Senator COCHRAN. I think you or Mr. Ko may have mentioned that in the likelihood of a destruction of the regime in North Korea that they would be prepared to destroy everything, and that that is one reason why you think that there is a nuclear weapons capability in North Korea now. Are there any other reasons why you think that we should take the threat to use nuclear weapons seriously?

Mr. CHOI. When I was mentioning Kim Jong Il's words to his father, Kim Il Sung, I would like to make it clear that he did not specifically mention nuclear weapons, but everybody in North Korea, most people took his words as an indication that North Korea has a capability to "destroy"—the words in quotes.

Second is I would suppose that another important reason for North Korea seeking or in using nuclear capability is political purpose. It is a power and prestige question, and since all the powers surrounding the Korean Peninsula do have nuclear capability, China, Russia, and the United States, it seems to be critical for North Korea to have such capability in order to enhance its power position as well.

Senator COCHRAN. Do you think the potential threat to use nuclear weapons against North Korea from the U.S. or anyone else would have the effect of deterring or keeping North Korea from using nuclear weapons in the first place?

Mr. CHOI. I cannot tell you about the detailed thinking about this deterrence question, North Korea thinking, they cannot use nuclear weapons because others have it. I am not sure what they are thinking, but I could presume that North Korea, since basically the Korean Peninsula itself is a homeland, it is reluctant in using nuclear capability in a not-so-careful manner. Therefore, I think they are more inclined in using the nuclear capability as a last resort.

Officially, inside North Korea, it is being often said that Japan would not have lost the war to the United States if it had the nuclear capability at the end of World War II.

Senator COCHRAN. Senator Levin asked you some questions about the negotiations that are underway and the framework agreement that involves North and South Korea, as well as the U.S. Do you think it is likely that negotiations and agreements of that kind will actually make any changes in the North Korean will-



ingness to develop and continue to develop and possibly to use weapons of mass destruction?

Mr. KO. I do not believe the talks between the United States and North Korea will make any difference. As long as Kim Jong Il is in power, he is a person who likes to think about war all the time. As long as he is in power, I do not think that just the talks will make any difference in terms of developing and producing weapons of mass destruction.

The only way to control or limit North Korea in doing so would be strengthening the force level of the United States, the forces inside South Korea, and also strengthening the South Korean missile capabilities as well as a deterrence measure.

Mr. CHOI. I firmly believe that North Korea will not make any change in their development efforts of weapons of mass destruction only because there is a pressure from the United States. Such kind of pressure from the United States will not work for this purpose.

They will be using this question of developing and producing weapons of mass destruction in relation with the withdrawal of U.S. forces from the Korean Peninsula, meaning they will be using these issues as a bargaining chip.

They may propose that they may think about giving up such developing and producing efforts of weapons of mass destruction if the U.S. agrees to withdraw U.S. forces from South Korea, but I do like to emphasize that North Korea is interested in talks with the United States. The purpose doing so is changing—through the talks, they want to change the current armistice to a peace treaty and would like to induce the withdrawal of 40,000 U.S. forces from South Korea.

And as you may already know, on the 17th of this month, there was a kidnapping instance of civilians in the DMZ zone, a kidnapping by the North Korean armed forces. I believe such effort is an effort to have more chances to talk to the United States directly so that they can pursue the purpose of changing armistice—this is to a peace treaty, and then inducing a withdrawal of U.S. forces.

North Koreans, for sure, will continue to use these questions of weapons of mass destruction and other related issues as a bargaining chip to seek their ultimate goal, which is seeing a withdrawal of 40,000 U.S. military forces from South Korea.

Senator COCHRAN. Let me ask you this. There is obviously a serious economic problem in North Korea. I was a member of a delegation led by Senator Stevens, 6 months ago, which went to North Korea, and we had talks with a number of members of the government while we were there, and we were able to observe some of the difficulties caused by the food shortages. We were only in Pyongyang. We were not able to spend time out in the countryside, but my question is, if the economic problems continue to become worse and there is an imminent collapse in the country being faced by this regime, do you think there is a possibility or a likelihood that they might lash out with the military to provoke a war or confrontation, a military action, as an excuse for mobilizing and beginning a war with South Korea as a matter of just sheer desperation? Is that something that is possible or likely in your judgment?

Mr. KO. First of all, I do not believe the food situation in North Korea is as serious as what we used to observe in Somalia.

I believe the process of collapse, the long-term collapse has already started inside North Korea. The collapse of the system has already started, but I do not believe there will be a complete collapse in the short run because of their strong political control of the people. So we will not see an authorizing of any kind in the short run.

And I believe, as you mentioned, it is quite likely that they will resort to a war as a way to get out of desperation towards the end when they are approaching the complete collapse. It is more likely because when Kim Jung Il is looking at the situation, the political situation in South Korea, he observes that several former presidents go to jail after the completion of their term. So he will also believe that if his system collapses, he will not be left alone and safe. Therefore, there is also another reason for him to try a war at the end.

Mr. CHOI. I believe there are three likely scenarios of North Korea starting a war. The most likely one is following the withdrawal of U.S. troops from South Korea. The second possibility is if there is a large-scale war, either regional or worldwide-scale war, sort of like the Gulf War, that could divert both the attention and capability of the U.S. military forces away from the Korean Peninsula, I think it is likely. The third scenario is if South Korea experiences political turmoil or chaos that resembles to the level of the April 19th movement during the 1960's that changed regime and also the May 18th movement that also changed the regime around the 1980's, when such political turmoil occurs inside South Korea, I think it is likely that North Korea will contemplate on the possibility of starting a war.

As long as the 40,000 U.S. military forces stays inside South Korea, North Korea will be extremely careful and will be very calculating before thinking about the possibility of starting a war, but, of course, as the Chairman mentioned, towards the end, if Kim Jung Il sees no other choice, then he will just start—or he is likely to start a war under any circumstances.

Some people believe here in the United States and in Korea that North Korea's complete collapse could come in 2 or 3 years. I do not agree with such prediction. I do not think such short-term collapse is likely. The collapse will come in the long term, and, also, I cannot set aside the possibility of North Korea being revised as well, based on my knowledge about the North Korean system.

Senator COCHRAN. Thank you very much.

I have no further questions, but I do wish to congratulate you and express our deep gratitude for your assistance in our effort to understand better the threats that exist around the world against the U.S. interest. This is a very interesting hearing, a very troubling hearing, but one that we can learn from, and I hope that we can use the information to help contribute to a new era of peace and stability in the world.

Our next hearing is going to be on Monday, October 27, at 2 o'clock p.m. At that time, we will examine the safety and the reliability of the U.S. nuclear deterrent. Until then, the Committee stands in recess.

[Whereupon, at 12:57 p.m., the Committee was adjourned, to reconvene at 2 p.m., Monday, October 27, 1997.]



## A P P E N D I X

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### RESPONSES TO QUESTIONS FROM MR. ROBERT EINHORN SUBMITTED BY SENATOR COCHRAN

*Question 1.* How many and what types of Scud missiles does North Korea possess?

*Answer.* North Korea produces two variants of the SCUD missile, the Scud B, with a maximum range of 300 kilometers, and Scud C, with a maximum range of 500 kilometers.

The DPRK has a production capacity of four to eight Scuds monthly, both for export and for its own armed forces, and has hundreds of Scuds in its current arsenal.

*Question 2.* Does North Korea have Scuds armed with chemical or biological weapons? If so, in what numbers?

*Answer.* North Korea has the ability to produce large quantities of chemical agents. Since 1990, the DPRK has expanded and intensified its chemical warfare effort. The DPRK is believed to have a sizable stockpile of chemical weapons.

North Korea has pursued research and development related to biological warfare for the past 30 years. Its resources, including a biotechnical infrastructure, are sufficient to support production of limited quantities of infectious biological warfare agents, toxins, and possibly crude biological weapons.

North Korea could use a variety of means to deliver chemical or biological agents, including domestically produced artillery, multiple rocket launchers, mortars, aerial bombs, and ballistic missiles.

*Question 3.* What is the current status of the No Dong? Has it been deployed? If so, in what quantities?

*Answer.* North Korea has developed the No Dong medium-range ballistic missile (MRBM), based on Scud technology, for its own use, as well as for export.

Flight tested in May 1993, the No Dong has a range between 1,000 and 1,300 km, and will be able to strike nearly all of Japan when it is deployed. It can be outfitted with conventional or chemical warheads.

Currently, the reliability and accuracy of the No Dong are in question, due to its severely limited flight test program.

*Question 4.* What is the current status of the Taepo-Dong program?

*Answer.* North Korea continues to devote resources to the development of longer range missiles, known as the Taepo Dong 1 and 2. The Taepo Dong 1 is assessed to have a range capable of striking targets in Japan and China, while the Taepo Dong 2 could possibly reach as far as Alaska.

Both missiles are in the early stages of development. Both systems appear to represent a logical evolution of the experience gained through work on the Scud and No Dong systems. Both are two-stage systems and are likely to employ separating warheads.

North Korea has little experience flight testing its missiles and has no experience testing multistage ballistic missiles or other related technologies. This lack of test experience could complicate North Korea's ability to evaluate, improve, or repair flaws in its missile designs.

Preparations for a missile test-launch in October 1996 raised international concern over the development of North Korean ballistic missiles. The test—associated with either the No Dong or possibly the initial flight test of a multi-stage missile—was apparently cancel led because of inter-

national pressure or technical problems. Taepo Dong 1 flight testing could begin at any time.

*Question 5.* To what countries has North Korea sold Scuds? In what quantities? How important to the North Korean economy is the foreign exchange earned from these transactions?

*Answer.* See next response.

*Question 6.* To what countries has North Korea provided missile production capabilities or assistance and to what extent?

*Answer.* Despite economic and political problems, Pyongyang continues to attach a high priority to the development and sale of ballistic missiles, equipment and related technology.

The DPRK uses sales of missile equipment and technologies to generate hard currency revenues for its depressed economy and as a means of supporting continued research and development for its missile programs.

In the past 10 years, North Korea has received more than one billion dollars worth of bartered goods and services and hard currency for SCUD missiles and production technology.

North Korea has provided material and know-how for domestic Scud missile production programs, including in Libya, Syria and Iran.

*Question 7.* Has there been any cooperation between North Korea and foreign countries regarding chemical or biological weapons?

*Answer.* Although North Korea is an active supplier of missiles and related production technology, it has not yet become a supplier of nuclear, chemical or biological warfare-related technology.

*Question 8.* What is the relationship between the No-Dong and Shahab 3 and 4 missiles? Is there evidence that the No Dong is being exported to Iran or that North Korea is assisting Iran with its Shahab 3 and 4 programs?

*Answer.* Iran has made significant progress in the last few years toward its goal of becoming self-sufficient in ballistic missile production. This has been accomplished with considerable equipment and technical help from North Korea. Iran can be expected to continue its efforts to acquire equipment and technologies from North Korea, as well as China and Russia.

Further details on these missile programs cannot be provided in an unclassified paper.

*Question 9.* Is North Korea assisting any other countries with a No Dong like capability?

We are not able to respond to this question at the unclassified level.

*Question 10.* It is evident that North Korea has exported virtually every missile it has produced, from the Scud B on up to the No Dong. Is there any reason to believe it would not also export the longer-range Taepo Dong missiles now under development?

*Answer.* We are not in a position to speculate upon North Korea's future behavior.

*Question 11.* To what extent has North Korea received foreign assistance for its missile development programs? Has there been cooperation with China, the Soviet Union or Russia, Egypt or Iran?

*Answer.* This question was answered in detail in the classified House Conference Report 104-863, the semi-annual report to Congress, pursuant to Section 585 (d) of the Omnibus Appropriations for 199.

*Question 12.* According to press reports, there have been two rounds of missile talks with the North Koreans, with the latest round cancelled by them in August of this year after one of their diplomats defected. Please describe the goals and status for the missile talks and what has been accomplished to date.

*Answer.* We have been working for years to impede the DPRK's indigenous deployments and missile-related exports through export controls, sanctions, seizures of equipment shipments, and political pressure.

The 1994 U.S.-DPRK Agreed Framework provided an opportunity to augment these measures with direct U.S.-DPRK missile talks. In 1996 we initiated a bilateral missile dialogue with the DPRK aimed at bringing an end to DPRK missile exports and slowing indigenous missile development.

The first round of talks in Berlin, in April 1996, provided a good beginning. The second round took place in New York in June 1997. Despite the long hiatus, these talks were also productive. We had serious and business-like discussions, and the North Koreans appeared willing to engage in a constructive dialogue on the issues. No agreements were expected at this stage, and none were reached. This will be an incremental process. We believe North Korea may be prepared to restrain its missile exports, but we must keep pressing the DPRK to limit its indigenous missile deployments and its chemical weapons.

The DPRK agreed to a third round of missile talks in August, but cancelled it when North Korea's Ambassador to Egypt defected to the U.S. We continue to press for another round.

*Question 13.* News reports in June of 1996 stated that, according to Winston Lord, the United States had offered to lift economic sanctions on North Korea if it agreed to halt its missile export program. Is this the essence of the U.S. approach to the problem of North Korean proliferation? What do you believe is the likelihood of success of such an approach?

*Answer.* We cannot discuss the details of our negotiations with the North Koreans at the unclassified level.

It is too early to speculate on the outcome of these talks. This will be an incremental process.

*Question 14.* It is apparent that North Korea's missile program is extensive, serves important military and political purposes, and provides a crucial source of income for North Korea. How then does the United States convince North Korea to give this program up?

*Answer.* We cannot speculate about future North Korean behavior, and it is too early to speculate on the outcome of U.S.-DRPK Missile Talks.

*Question 15.* In a proliferation report, the Monterey Institute stated that the Missile Technology Control Regime was "inadequate to the task" of curtailing North Korean missile activities. Do you agree with this assessment?

*Answer.* The MTCR has been effective in impeding the flow of missile-related equipment and technology, and in complicating and limiting the technological capability of missile programs of proliferation concern.

Our MTCR Partners—especially our EU Partners—have implemented much stricter export controls (including on items not listed on the MTCR Annex) and improved information sharing on activities of potential proliferation concern.

In addition, the MTCR Partners continue to encourage supplier states, such as China and North Korea, to restrict their missile-related exports. They also encourage countries in regions of tension to exercise restraint in the development and deployment of MTCR class missiles.

*Question 16.* North Korea has reportedly stated its willingness to abide by the MTCR. How much credibility do you give such statements? Do you believe North Korean membership in MTCR is advisable, and under what conditions?

*Answer.* We are not aware that the DRPK currently is interested in abiding by the MTCR. Until the DPRK conforms to international nonproliferation norms, there is no point in speculating about the advisability of its MTCR membership.