

The Park Chung Hee Model as Textbook for Kim Jong-II

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Interviewed by Kim Yong sam, associate director and edited by Lee Se yeon, reporter. O Wonchol is a former senior economic advisor to Park Chung Hee and architect of South Korea's heavy and chemical industrialization in the 1960s and 1970s.

- NK today is in many ways at the same juncture that South Korea found itself at in the aftermath of the Military Revolution of May 16th, 1961.

O Wonchol (senior economic adviser to President Park Chung-hee (1961-79)) is a technocrat who has served as assistant secretary for the department of mining, industry and electricity within the Ministry of Commerce and Industry, 2nd secretary for economic matters in Chongwadae, as well as head of planning for the expansion of the heavy-chemical industry who played a big role in the establishment and implementation of Korea's industrialization policy and in the expansion of the heavy chemical industry. Of special note, at the behest of President Park Chung-hee, O began conducting research on North Korean economic development from 1972 onwards. Park was deeply concerned over developments in North Korea, a concern that led him to request that all materials or statistics on NK that had been collected by related agencies or by the KCIA, if such materials existed, be brought to him. As a result, Mr. O was selected to undertake a thorough inside-out review on NK based on the few materials that existed at the time.

During the early 90's Mr. O presented a framework for the development of the Rajin- Sunbong economic zone to NK and of late he has been researching methods of forming an economic development plan for NK based on the growth model used in the South. I recently met this remarkable individual who played such a decisive role in the industrialization and modernization of Korea to hear his vision and strategy for the rebuilding of the North Korean economy that is

presently on the verge of collapse. The first thing Mr. O said to me was the following, "Although NK is presently faced with a very precarious situation both internally and externally, there is no reason why they cannot achieve what we have in the South."

- How do you view the situation NK faces today?

"The situation NK faces today is very similar to the social and economic situation South Korea faced in the aftermath of the May 16th Military Revolution in 1961. At that time the GNP per capita was about 80\$, not much better than that of NK today. Just like NK today, we suffered from food and energy shortages and a lack of hard currency. Out of this hopeless situation we have emerged, as a result of our miraculous achievements with regards to the industrialization and modernization of this country, as one of the 10 most powerful economies in the world. If the leaders of NK do not turn the crises they face today into an opportunity, they will be faced with a dangerous and unpredictable future."

Using China as a Benchmark

- There is much expectation that you will be able to present us today with the concrete measures that NK should carry out to resolve their inherent problems, that is their difficulty to obtain food, and energy as well as other basic commodities.

"NK must use China's successful example of economic development as a benchmark rather than try to search for an alternative plan from abroad. In the past the motto of the Chinese was Dong Fang Hong (the East is Red); a fact made all too clear by their naming of their very first satellite launched into space in April 1970 " The Dong Fang Hong". This motto represented China's desire to create the best socialist nation in the world. These days however the Chinese motto has changed from Dong Fang Hong to Dong Bang Myung Joo (The Pearl of Asia). In other words, China wants to build, 'acapitalist nation shining like a pearl.' The 468m high Oriental Pearl Tower in Shanghai serves as a clear indication for the outside world of the Chinese leaders' intentions. Didn't the last leadership congress result in the announcement that capitalists were free to join the Communist Party? Didn't NK leader Kim Jong Il after his visit to Shanghai, where the Oriental Pearl Tower is located, express his astonishment and his belief that this was a brand new world? Kim Jong Il's astonishment is surpassed only by the level to which China has opened itself to the outside world."

- There are many who argue that China's present impressive growth is due to their using of our own economic miracle as a benchmark, what do you think of this opinion?

" Since the establishment of diplomatic ties between our two countries, China has invited top bureaucrats from many fields related to the economy who served in important posts during the Park

regime and actively listened to what they had to say. They learned which policies and means Korea used to go from being a undeveloped nation to an advanced industrial nation in so short a time. Most of those in attendance were top bureaucrats who served in important posts in many fields related to the economy and industrial development, and after every lecture these individuals roundly cheered, a custom usually reserved solely for Communist Party events, and treated their guest with the highest respect. On one occasion, one lecturer received three encores!"

- Then its fair to argue that Korea's economic model was in fact the real model for Chinese economic development

"That's right. The foundation for the Chinese model of economic development; which has resulted in the Chinese economy growing in giant leaps and bounds to the point where the Chinese boastfully refer to their country as 'the world's factory', and which has made what economic specialists refer to as the 'China Shock' possible; was provided by our very own model of economic development. In addition, those countries that dream of emerging from the status of developing nations to reach the level of developed countries, such as China, Viet Nam, Cambodia, Thailand, Indonesia and Egypt have accepted the fact that they must 'follow the Korean economic development model' haven't they?"

Until the 1970 there were many debates within both the academic and economic worlds over the issue of whether there existed any pertinent theories that could be applied to solving the question of "how can developing countries achieve successful industrialization?" Such a debate was pertinent at the time because there were very few examples of countries that had managed to go from being an undeveloped country to a developed one. No less of an authority than the U.N. asserted that there was a serious shortage of strategies available to developing countries to resolve the issue of how they could achieve industrialization and reach the level of the advanced countries. However, there was one developing country that succeeded in achieving industrialization: Korea. This alone should serve as proof that the Korean economic development model is the only model applicable to developing countries and that it is the 'only proven example,' and one that many countries in Southeast Asia, including China, have now introduced. In addition, I believe that for North Korea as well, the introduction of the Korean model of economic development is the best course of action.

- Therefore, according to you, any reconstruction plan for NK should be closely based on the Korean economic development model. In keeping with this line of thought, could you please give us some background as to how Korean economic development began, and your opinion as to how and through what means success was achieved?

" During the initial period the biggest obstacle on the road to modernization and industrialization was hard currency, or in our case, the lack thereof. If one has hard currency one can easily obtain the basic necessities of life and attempt many different things. However as there was no real confidence in Korea in the international markets, very few countries were willing to take a chance and lend us money. As a result our government had to find other means through which to obtain

foreign currency. Given this dire situation we were left with no other viable options but to promote the export of our products."

Technocrats must play a leading role in the Construction of a Nation

- Mr. O recalled the following, "Immediately after the Military Revolution the only products we could afford to export; such as textiles, dolls, and wigs; were those from light industries that paid cheap wages to their employees." Moreover, he added, "As a result, our government decided to start exporting light industrial products, and make 'export based expansion' the basic framework for Korea's industrialization.

"When it came time for the government to choose which industries it would support, the most important factor was whether or not we could get hard currency by exporting the products of a particular industry. No matter how crucial and well established a business might have been, if it was judged that it did not have any export potential, it was dropped without a second thought. At the time our basic strategy was to get our hands on foreign currency by exporting our products, build factories with that money, and then start the export cycle once again. At the onset, as we lacked the technology, experience, and expertise about exporting, there was a lot of trial and error. However, this served as valuable experience for the future. Accumulating dollars little by little through exports, the government began to form a detailed plan to develop factories for export. At that juncture, the most important factor was the existence of 'an elaborate plan'. The importance of such a plan should never be underestimated."

- *Then if I follow your line of thought, it must also be very important 'who formulates the plan, how it is planned, and who carries it out.'*

"Indeed, what makes Korean industrialization special is the fact that the people that played a key role in planning and carrying out the national policy were not simple bureaucrats, but technocrats. A technocrat simply put, is an official who bases his standard to judge the management and policies of a matter from a technical standpoint, or who uses, as it is commonly referred to, the engineering approach. This does not mean that only officials who majored in science and engineering can be labeled as technocrats. For example, most officials in the Japanese Ministry of Trade and Industry are not technical specialists. However, when they decide policy, they base their decisions on the practicality and technical attributes of a particular approach; therefore, we can refer to them as technocrats. On the other hand, even though an individual is the Minister of the Ministry of Science and Technology, if he has placed political considerations ahead of practicality and technical matters when making policy, we can obviously not call him a technocrat."

- *Does President Park Jung Hee, who was the top policymaker at that time, fit the profile of a technocrat?*

"As you know, President Park was from the Japanese Military Academy and he served in the artillery corps. It is a well-known fact that in any country's Military Academy students major in science. This is the reason why when they graduate from the Military Academy, they receive a Bachelors of Science degree. Moreover, for those in the artillery corps there is a need to possess special knowledge on such subjects as the calculation of trajectories, the skill of observation, gunpowder, and explosives. President Park often would carry out on the spot inspections, and he was a leader who looked like a technocrat in that he understood the technical briefings he received and he was able to immediately explain with ease what he heard to his ministers. In Korea, the Park Chung-hee era can rightfully be called the era of the technocrats. To plan and carry out industrial policy, and form the basic framework for national policies, President Park entrusted young engineers who had graduated from the department of science and engineering rather than those who graduated from social sciences or law."

- Deng Xiaoping, the Chinese leader who was famous for his 'theory of white and black cats,' also selected many engineers from the department of science and engineering and appointed them to key national posts. Do you think that this step was taken because he also recognized the importance of technocrats?

"Deng Xiaoping, the man who is responsible for unleashing the capitalist revolution in China, was deeply aware of the fact, after having been personally humiliated during the Cultural Revolution, that it is very dangerous to entrust politicians who are skilled schemers with the full power of the nation. From that point on, whenever there was an important national project Deng selected engineers from the science and engineering departments and entrusted them with it. Today most of those who make up the top leadership group in China are individuals who majored in science or engineering that were appointed by Deng Xiaoping and Jiang Zemin. Deng Xiaoping sent officials to the U.S. to learn about the industrial structure of an advanced country, and appointed individuals such as Li Peng, Jiang Zemin, and Zhu Rongji, all of who were technocrats, as his successors. I was very surprised that Hu Jintao, Tsung Jing-hong and Wen Jiabao and others who were selected to form the 4th generation leadership group were all technocrats. In my opinion, I believe that it is fair to assert that China is following the development model used by President Park, a model that mobilized all technocrats to advance the national project."

The meaning of a Rapidly Developing Economy

- Then the reconstruction plan for North Korea should be run by technocrats, shouldn't it?

"If North Korea wishes to overcome its present difficulties, it must accept two basic principles; one is to 'make all industries into export industries' and the other is that 'they must use technocrats to help shape their industrial strategy and help carry it out.' If, as a result of pressure from political circles, or because of opposition from the military, who have a vested interest in everything that goes on in North Korea, the North doesn't entrust the technocrats to make policies, then they must accept the cruel reality that their reforms are doomed to fail. If they begin to adhere to these two

basic principles, which were practiced to by the South in the 1960's as part of their industrialization and modernization drive, there is no reason why North Korea cannot successfully develop its economy."

- People often refer to the Korean economy as a 'rapidly developing economy'. Do you think that it is possible for the North Korean economy to become a rapidly developing economy; in other words can it achieve rapid growth like the South?

" I think we first need to define the term. Watanabe Toshio, a scholar in economics, first used the concept of a rapidly expanding economy. However, most people understood the term to basically mean the same as high-powered growth. That is, they think that while it took the advanced countries 100-200 years to achieve industrialization and modernization, we did it in only 20~30years, and that this is what is meant by the term rapidly expanding economy. However, my understanding of the concept is somewhat different from this. During the 1970s~1980 there was little or no demand for the building of international level factories in Korea. So we had no alternative but to build factories that did not meet international standards. We however, had to assure that the goods that were produced in these factories were internationally competitive both in quality and in price. Such a dilemma appears impossible to overcome. Therefore, we chose a special way to implement our policy. We did not undertake any projects that were felt by one individual or another to be necessary, but rather carried out only the projects which were seen as having the biggest possible effect on the overall economy, and then carried these out in a methodical fashion based on detailed plans. Then once we had organized the necessary finance, workers, etc - put differently, once we had helped form the will of our people that would carry out the task and changed their desires into a fervent hope - the government mobilized all of its energy and pushed this task through as if it were a race to the finish. At this time the government, enterprises, and the people operated like a joint-stock company. This is what we referred to as our, 'Impact Policy'; a policy whose results led to 'high-powered growth'. Finally, in Korea there is a special intersection where ' stages of the Impact Policy' and 'stages of rapid growth' cross. That is, our economy accelerated just like the engine of an automobile, which 'contracts and expands' repeatedly to make the car move and accelerate. This is the true meaning of 'this rapidly developing economy'."

- Mr. O then presented a graph using the Hoffmann coefficient (refer to <graph1>). The Hoffmann coefficient is reached by dividing the value added of light industry by the value added of heavy industry; that is, consumer products/capital products. When we refer to Hoffmann coefficient 2, this means that the value added of light industry is two times that of heavy industry.

The following is Mr. O's explanation

<Chart1>

International comparison of the Hoffmann coefficient

1 -First stage

- 2 -second stage
- 3 -third stage
- U.S.A
- Germany
- England
- Japan
- Korea

(the Hoffmann coefficient = the value added of light industry / the value added of heavy industry)

Export	Unit	1981	1986	1991	1996	1999
Total exports	million \$	21,253.8	34,714.5	71,870.1	129,715.1	143,685.5
(L.I.+H.C.)	million \$	19,198.4	31,831.6	66,803.7	120,510.1	132,887.8
L.I. products	million \$	10,109.3	14,451.0	25,304.6	32,662.3	29,708.6
H.C .products	million \$	9,089.1	17,380.6	41,499.1	87,847.8	103,179.2
ratio of H.C	million \$	47.3%	54.6%	62.1%	72.9%	77.6%

(L.I. = light industry, H.C.= heavy chemical industry)

Value added	Unit	1981	1986	1991	1996	1999
(L.L+H.C.)	million \$	15,098,865	32,091,225	85,025,028	174,215,220	176,629,615
L.I. products	million \$	6,356,030	11,608,435	26,740,356	45,996,272	43,735,008
H.C. products	million \$	8,742,835	20,482,790	58,284,672	128,218,948	132,894,607
Hoffmann coefficient		0.702	0.567	0.459	0.359	0.329
ratio of H.C		57.9%	63.8%	68.6%	73.6%	75.2%

" A ratio of over 3.5 using the Hoffmann coefficient refers to the level at which industry is barely developed and is known as Stage 1, a ratio of 3.5~1.5 is the equivalent of Stage 2, 1.5~0.5 Stage 3, and below 0.5 Stage 4. A nation that is said to have reached Stage 4 is one in which the relative importance of the heavy chemical industries is twice that of light industries. At this level, the industrial revolution is considered over. Great Britain, the first nation to undertake an industrial revolution, entered Stage 3 in or around the 1930, and as such needed a relatively long period of time to achieve its industrial revolution. The U.S. for its part reached Stage 3 during the Civil War era; quite rapid when compared with the U.K; and despite its late start, Germany, reached that stage very rapidly as well. By the 1930s most European countries had reached Stage 3, and by the middle of the 20th century were entering Stage 4.

During the next period, Japan was the sole country that completed a successful industrialization drive, with Korea the only country to do after Japan. Now China has almost overtaken Korea. According to the graph, from its humble beginnings in the 1960s, Korea managed to reach Stage 4 in a mere 30 years. This is why people the world over refer to this phenomenon as 'the Korean miracle'.

Korea's reparation fund received from Japan was the basis for the development of the economy.

- The Park regime implemented its first 5-year plan for economic development in 1962 after having taken power as a result of the May 1961 Military Revolution. However, there were at the outset some obstacles to carrying out the economic development plan that resulted in the emergence of a chaotic situation at the end of 1963, wasn't there?

" During that period the government decided to implement an import substitution plan. However, when it came time to actually put this plan into practice, they were faced with a plentitude of uncontrollable factors. As I mentioned earlier, the biggest problem was the lack of finances, more specifically our shortage of money. The reconstruction fund received from America had made it possible to solve our food problems, provide clothing and shelter, and to build the Choungju fertilizer factory, but little else could be done with this money. Moreover, there were no other countries willing to extend loans to us. We didn't even have \$100,000,000 worth of foreign exchange reserves; basically our country was on the verge of bankruptcy. In many ways this is not very different from the state North Korea is in today. In reality, in 1963 the first 5-year plan for economic development existed only in name. To put it more clearly, this was a macroeconomic level plan used to define the economic prospects for the next 5 years (during the Kim Young Sam regime these 5-year plans were abolished and Korea became a nation without a compass).

<an example>

The first project undertaken as part of the first 5-year plan for economic development was the construction of the Ulsan oil refinery. At that time the U.S. provided free refined oil, which Korea was in desperate need of. This dependence on the U.S. for oil seriously damaged our efforts to achieve economic development. A similar example occurred during the Rhee Syngman regime. Whenever divergent views emerged or the Korean government didn't blindly obey the U.S., the U.S. intentionally delayed the supply of oil (practically mirroring the present case with North Korea). Whenever the supply of oil was stopped, transportation was affected and factories were brought to a standstill. As a result, the Korean government had no choice but to obey the U.S. wishes. For this reason, President Park decided to undertake the construction of the Ulsan oil refinery as a matter of national pride. However, this project was compromised in 1963 due to our lack of dollars."

It is rumored that President Park visited West Germany in 1964 to procure small loans and that as a result Korea was able to overcome this crisis and afford to take a small breather.

"When we first got the loan from West Germany, we had no means of providing security for the repayment of the loan. This is the reason why we sent miners and nurses to West Germany, and used their salaries as security, thus managing, just barely, to get the loan. Whenever miners and nurses remitted their money, their salaries in essence, to Korea, Korean banks paid their salaries in Won, and we used the dollars as funds for national development."

-Many people claim that it was largely due to the restoration of relations with Japan and the money we received as reparations from them that Korea was able to achieve industrial development.

"As the loan from West Germany was not large enough for us to achieve economic development with, the Korean government undertook negotiations to reestablish diplomatic ties with Japan. As a result of these negotiations, we achieved the normalization of diplomatic relations with Japan and received \$50,000,000 in reparations (\$30,000,000 in compensation, and \$20,000,000 in loans) with which we were able to achieve our goals. As a result, our economy was able to take off, which led to the U.S. and other advanced countries beginning to provide loans to Korea. As the most pressing factor in bringing about economic development was money, we were able to resolve this problem by normalizing relations with Japan. The time has come for NK to also resolve the impasse in its negotiations to bring about the establishment of diplomatic relations with Japan for this very reason. Regarding the issue of reparations from Japan, I would like to advise NK not to use this money for consumption purposes, but rather to invest it and use it to get even more money. If North Korea wishes to increase their returns on the reparations they will get from Japan there is no other way but to use that money as seed money to build factories and sell the goods produced to foreign countries. For our part, we succeeded because we built factories (for example, POSCO), and sold the goods produced in these factories to foreign countries in exchange for dollars. This is how the government began to make export a national policy. Export-led development was not limited simply to the economy, but was used as the basic national strategy in all areas, and it is still effective now.

No matter what, they must bring about 'export-led industrialization.

- You have told us how the export of light industrial products was the chief source of income during the initial phase of industrialization. Then what was the most important reason why there was a change in emphasis toward heavy chemical industrial products afterward?

"During the process of exporting light industrial products, we found that we had not developed related industries. And, as we were forced to import all the materials to make our products, there was a genuine fear that our economy might fall under the control of Japan. So under the slogan 'let's produce even production materials', we embarked on the development of the heavy chemical industry. This was part of the four basic directives of national policy developed by our government:

export-led development, the industrialization of our country, scientific development, and development of the heavy chemical industry. However these four policies were based on one overall ambition: 'the export of products from every industry'

▷ 'The policy to export products from every industry' was President Park's indomitable belief and his ruling philosophy. President Park announced on January 14th, 1973 'the development of the heavy chemical industries and the pursuit of the scientific development of all people'. It was immediately after this that he presented this plaque to 'the Heavy Chemical Industry Association'. From that point on the plaque hung on the wall of the head of Heavy Chemical Industry Association's office and stayed there until the association was dismantled.

-One of the most interesting points with regards to the development of the heavy chemical industry was that foreign banks, such as the World Bank, as well as other organizations such as the U.N., did not rate our chances of success very highly. But we did succeed. What in your opinion were the factors that brought about this success?

"While countries such as Brazil, India and Argentina who attempted to develop the heavy chemical industry based on integrated iron and steel mills failed, we managed to succeed. I think that the main reason for our success was our policy of export-led industrialization. We designed the basic framework of the heavy chemical industry to increase exports. When we built factories for the heavy chemical industry, we carried out studies to assure that we were competitive both in terms of cost and technology. Whenever we felt that there was little possibility of export for a particular industry or that we could not be internationally competitive in that field, we simply abandoned plans for that industry. Moreover, another reason was that the government provided active support to those who wished to export. As a result, whenever a factory was completed, we immediately recouped the amount invested by exporting its products. Although there are many countries that have the capability to develop heavy chemical industries such as integrated iron and steel mills or the petrochemical industry, most of them are simply unable to be competitive in the export market."

At this point of the interview Mr. O pointed out the following, "prior to the outbreak of the Asian financial crisis of 97, it was common for high positioned economic officials to assert that 'Korea had very strong fundamentals'. These fundamentals of the Korean economy include not only the manufacturing base but also the export capability of our heavy chemical industry.

- In other words, what you are saying is that when they decided to build factories, they did so with their export potential in mind, aren't you?

"Yes. We targeted only those factories that could export immediately. Thus, as soon as we finished building a shipyard it was ready to construct ships and export them, and as soon as the Pohang Steel Corporation began to operate, they were ready to export. The same holds true for the petro-chemical industry, the semiconductor industry, and the automobile industry. In the aftermath of the financial crisis it was on account of this latent energy and continuous efforts of these factories that we were able to continue exporting.

Another feature of our industrial composition is that we can produce half finished raw materials, half-finished goods, materials, and spare parts for machines solely through the import of raw materials. Our present industrial composition is such that we can produce anything simply by importing raw materials. Presently, our basic industries are industries such as the integrated iron and steel mills and the petro-chemical industry. The goods produced by these factories are basic materials that can be used in any industry. Under these circumstances we need to be internationally competitive in terms of both quality and price, and in these fields we are among the most competitive. As such, we can export and also enhance the competitiveness of those companies that use these products downstream.

<an example>

During the financial crisis the government saw the exchange rate go from 800 to 1,600 Won to the Dollar. To use POSCO as an example, as they import chiefly coal and iron ore, their costs for import doubled. However personal expenses and the price of materials, which could be supplied from within Korea, didn't increase so dramatically, even after the outbreak of the financial crisis. Let's assume that the manufacturing cost was raised by 20% when compared with the cost before the outbreak of the crisis, that is, when calculated in Korean Won, the manufacturing cost was 120% of what it was before. On the other hand the export price would be 200% higher when calculated in Won, because we still retained the ability to be paid in dollars. Then, while the export price was raised by 200%, the manufacturing cost was raised by 120%. As can be seen from this, case an increase in the exchange rate can lead to achieving a good import/export balance, and even force those countries who export the same products to lower their export price. Finally, such situations can result in raising export competitiveness to absurd levels. Thus, during the financial crisis our country saw both the exchange rate increased and international competitiveness become stronger, which in turn resulted in an increase in exports. This is how we were able to weather the financial crisis and once the storm had passed, we were able to reduce the exchange rate to around 1,200 Won to the Dollar.

This represents the real national competitiveness and fundamental strength of the Korean economy. Generally, in those countries that don't develop the heavy chemical industry, export competitiveness cannot be raised despite increases in the exchange rate. When these countries import raw materials, materials, half-finished materials, and half-finished goods under situations of an increased exchange rate, they cannot make any profits from exports. We say that such countries have weak fundamentals. NK must restructure its industrial base to become 'a country with strong fundamentals.'

The financial crisis occurred in 1997 because the governments that succeeded the Park regime neglected exports (the rate of export growth → under President Park: 40%, under Chun Doo-hwan: 9.7%, under Roh Tae-Woo: 10.5%, Kim Young Sam: 12.6%). Moreover, during the Kim Young Sam

(1993~97) administration a huge current account deficit was amassed (45.7 billion dollars). As a result, foreign exchange reserves were significantly reduced. Furthermore, during the Kim Young Sam era, the government allowed private sector enterprises to introduce foreign capital (especially short-term foreign capital) into the Korean economy. This led to the amount of foreign loans increasing suddenly. As a result, when the international financial world attempted to recollect the short-term foreign capital it had lent out, the financial crisis broke out. Thus, Korea, a country that trades for over 300 billion dollars a year, was forced to lose face because it couldn't even come up with 30 billion dollars. However, my attitude is that if we export for 5 billion dollars more a year, or reduce imports by 5 billion dollars a year, we can pay back that 30 billion in 5~6 years, can't we? This whole unsavory episode served as a bitter lesson to remind us of the veracity of the maxim that "export-led industrialization is the only way to survive."

- The steel industry, as reflected in its nickname 'the bread and butter of industry' is an important industry. Many have argued that the most difficult part of Korea's industrialization and modernization drive was the construction of an integrated iron and steel mill.

"The construction of an integrated iron and steel mill was a series of torturous events mixed with sweat and tears. The steel industry is an industrial field in which economies of scale are very important. At the time, on top of the enormous amount that had to be invested, we also needed to have production facilities that were more than minimum scale. This is so because only under these conditions can internationally competitive goods be produced. During the period when the first 5-year plan for economic development was being formed we made a plan to build a factory capable of producing 250 thousand tons of steel, and began negotiations with Japan. The Japanese government answered, "We can build a factory of that scale." However, these negotiations were based on a major misunderstanding: Japan thought that Korea was looking for a factory capable of producing 250 thousand tons a month, while Korea's goal was 250 thousand tons a year! Eventually, this plan to build a steel factory was scrapped from the first 5-year plan for economic development.

During the second 5-year plan for economic development, based on the proposal of KISA (Korea International Steel Associates), the government contacted the World Bank and the U.S. about building a steel factory capable of producing 600 thousand tons. However they were forced to abandon this idea on account that it was simply not profitable enough.

The importance of a good plan.....

"Following various studies on the viability of building steel factories, the Korean government came to the conclusion that they should try to build a factory capable of producing 1,050 thousand tons. However, in addition to a plan many other forms of support were needed. An integrated iron and steel mill is made up of smaller factories, however, KISA's plan was to produce multiple kinds of steel in small quantities, leading to high production costs. The government for its part, opted for a strategy of a 'limited kind of steel mass produced' (As an example, they used to import hot coil (material for cold strip iron), however the government decided that it would be more profitable to produce hot coil on an international scale in Korea and embarked on the construction of a factory capable of producing the hot coil needed in the domestic market as well as for exporting). From that

point on they ceased the construction of steel factories that were unable to meet international standards.

We managed to succeed in the steel industry because the government used the reparations we received from Japan as tender with the various manufacturing factories we needed to deal with. As a result we were able to purchase mostly the newest high quality production facilities by inducing competition among all the factories that were vying for the contract.

(The method undeveloped nations use to purchase machines or facilities is through what is known as "Vender's Credit". This is basically the factories producing the machines, or facilities, interceding with the bank to assure the loan. In such cases, the purchasers (in this case undeveloped countries) must absolutely buy their products from those producers who interceded to assure the bank loan. Therefore, even though the quality of the products is not so good or the price is more expensive than it should be, the purchaser has no option but to buy them. In our country's case, as can be seen from the example of the integrated iron and steel mill, we used the money we got from foreign financial institutions to place tenders. In this case, because there was such bitter competition among the bidders for the contracts, Korea was able to procure high quality goods at a low price. In the case of the integrated iron and steel mill, while KISA (the organization of the makers of machines and facilities) had taken the lead early, the Korean government eventually stepped in to secure the national interest, and as a result factories that were internationally competitive were built.)

As in the above case, once all the studies were carried out and the final preparations to build factories had been made, every governmental department from the president all the way down to the lowest ranks provided their full support, and put all their efforts into completing these factories in the shortest time possible. Cutting down the construction period for such factories is one of the most important factors in keeping costs down. Moreover, the Korean government used the reparations from Japan as capital for the construction of the Pohang integrated iron and steel mill, and thus increased the ratio of self invested capital. In addition, as the rate of interest on the public loan provided by foreign financial institutions was very low, the amount of interest to be paid out every year was much smaller than those provided by competing financial companies. Moreover, the entire infrastructure needed to construct the steel mills had been provided freely from the government budget. The result of all this was that the financial structure of the Pohang integrated iron and steel mill was strengthened, and that despite the fact that it had an initial production capacity of only 1,050 thousand tons, well below international standards (3,000 thousand tons), it was able to be internationally competitive and turn a profit from the get-go. Everything that I have explained until now is the technocrat's method to develop national production and the traditional type of Impact Policy that was used to achieve the rapidly developing economy. Once we had completed the Pohang integrated iron and steel mill, as we could export immediately, we were able to expand operations continuously and increase exports. It is only natural that the bigger the scale of the factories is, the bigger the country's competitive power becomes. The true nature of the rapidly developing economy is that precisely through this 'contraction and expansion,' like an automobile engine, the economy grows. NK must also must learn this reality and begin the monumental task of rebuilding their country."

-The heavy chemical products on which the Park government placed emphasis were those from six field of industry: the petro-chemical industry, the steel industry, the shipbuilding industry, the machine industry, the electronics industry and the nonferrous metals industry. Could you tell us more in detail how this policy was implemented?

"The government built factories for export within specific areas to try and raise their efficiency. They built large-scale industrial complexes, such as, those for the petro-chemical industry in Yeosu, Jeollanamdo, for the steel industry in Pohang, Gyeongsangbuk-do, for the nonferrous metals industry in Onsan, Ulsan, for the shipbuilding industry in Ulsan and Koje Island, for the machinery industry in Changwon, Gyeongsangnam-do, and the electronics industry in Kumi, Gyeongsangbuk-do. Let's use the development of the Changwon machine industrial complex as an example; in that case we used Hitachi, which was the finest maker of industrial machines in Japan, as our benchmark. This company, which owned the biggest industrial machinery complex in the world, produced and exported practically every kind of machinery product. In Japan there are many such industrial complexes. So we decided to possess at least one such machinery related industries set. At that time, while Hitachi factories were spread out throughout Japan, we decided to build all the related factories in one area: Changwon. The heavy chemical industry, especially machinery factories, is the type of industry that requires a lot of material and technical exchanges between companies. Therefore it is preferable to group all the related companies within one area. Thus, Changwon, based on the Hitachi example, was built as a planned city capable of housing 80,000 thousand employees and as many as 300,000 thousand people when the families of the employees were included.

- Do you think NK has the capability of making a 5-year economic development plan and implementing it like Korea did?

"Though NK has a rigid planned economic, the reality is that in most cases the workers are left to their own devices, and are responsible for everything, because the government can not provide them with the necessary support. In the case of mines, while the government provides coal quotas to be met, those who are actually on the spot must cut down trees and make mine shafts in order to produce coal. However, taken from the engineering approach, the most important thing for NK to do now is 'to form a national strategy and plan it correctly'. I would like to emphasize once again that NK must reorganize its industrial structure so that every company can export, and that this must be the core of their reforms. The leadership must consistently and willfully expand their export industry, and provide technocrats with the actual power to make things happen. Once this is accomplished, the actual rebuilding of the nation can begin."

-Mr. O stressed that, "Kim Jong Il appears to have the qualities of a technocrat."

" People who know the real situation in North Korea say that Kim Jong Il has profound knowledge of the armament industry, machinery, electronics, and the airplane and automobile industries. Kim Jong Il must have the will to be 'the Deng Xiaoping of NK' and to thoroughly put the policies needed

to open and reform the country into practice. The key point is that Kim Jong Il must overcome the opposition of those with a vested interest in keeping things the way they are, and form a new stream.

If the necessary organization is in place, the policy can be implemented

-While the planning of technocrats is important in implementing national affairs, I think the structure to carry these plans out, that is the organization, is just as important.

"President Park Chung-hee was a leader who was also proficient in organizational management. President Park provided technocrats with full discretion, not only with regards to the implementation of policy, but also concerning the organizational structure and capital needed to carry out these policies. Kim Jong Il must pay close attention to this point. The post of second secretary to the President for economic matters that I served in was in essence a task force that was in charge of defense and heavy chemical industry related matters, training technicians, and making Seoul into an administrative capital; all of which President Park had a great interest in.

As second secretary for the economy, I had the right to directly form any plan, but I didn't have the necessary organizational structure to carry out these plans. To remedy this, President Park created a planning department that, under the direct control of the prime minister, would be responsible for the defense industry, the heavy chemical industry, and for making Seoul into an administrative capital. The President then made the second secretary for the economy take on the additional post of head of this new department. Within this new department, a meeting of the assistant secretary's of the related departments was frequently held. The assistant secretary is the highest-level position within each department. If we were speaking in military terms, we could call them the chiefs of staff. It was within these assistant secretary's meetings that final decisions on the plans to be implemented were made. During these meetings, the head of the Korean Industrial Bank represented finance, the head of the Industrial Complex Corp. represented industrial complexes, and the head of Korean Electric Power Corporation (KEPCO) also participated. The important matters which had been decided upon in the assistant secretary's meeting, were passed on to the ministers' meeting and most of these were eventually passed without any changes. This occurred in such a fashion because most of these matters had already been researched by the assistant secretaries and reported to their respective ministers. As a representative from the office of the prime minister also participated in these meetings, the motions that had been passed in the assistant secretaries' meetings were reported directly to the prime minister, and then sanctioned by his office. Within the Blue House itself, the second secretary for the economy received permission for any decisions directly from the President. The money to put these decisions into practice was supplied by the national investment fund, and as soon as our decisions were approved, we also had access to funds from the Korean Industrial Bank. However, I remember that in the case of private sector companies, the Korean Industrial Bank would furnish them with 70% of their necessary investments if they came up with the other 30% by themselves. As a result, these private sector companies were scurrying to come up with 30% of the total investment! (When capital investment is composed of 30% self supplied investment and 70% loans, the debt ratio (BIS) is 233%. If we had maintained this level, we could have avoided the financial crisis of 97) I still think that even today this would be a very efficient mode of organization and operating procedure. I have no doubt that this played a big role in

the advent of a rapidly expanding economy in Korea.

Kim Jong Il must also allow technocrats to set up the plans, form the necessary organizations and structures to implement the necessary tasks, and give technocrats the ability to implement projects like we did. If in North Korea, there is a shortage of people with the necessary insight or experience, then consideration should be given to the appointment of foreigners. The planning department that I managed received significant help whenever necessary from foreign experts."

-I wonder if it would be possible for you to now present concrete ideas as to how NK can develop under the present circumstances. More specifically, the district of Rajin- Sunbong, which was the first project North Korea implemented as part of its opening up of its economy, hasn't achieved the desired results and now looks likely to be abandoned. From your viewpoint, was it doomed to fail?

"In the past, whenever I planned industrial policies, or a national development project, I got great results by applying the 'engineering approach'. Within the 'engineering approach, there are such steps as 'image', 'vision' and 'the carrying out of the plan in detail'. 'Image' refers to what the completed project should look like when the necessary tasks are accomplished. 'Vision' provides means and methods to complete the project in question; with the last step being the establishment of concrete plans to carry out this project. Let's apply 'the engineering approach' to the problem of Rajin- Sunbong. Let's first create an 'Image'. For this step, we don't need to incorporate any concept of time, but only take into consideration the potential success of any given project. This potential should be based on objective research and not on our own hopes and wishes.

First of all, when we consider geopolitics - as a result of the presence of the DMZ between South and North Korea- South Korea became in all essence, an island. There was only one way for Korea to move materials to foreign countries: through maritime transport. As a result, we had no choice but to become dependent on Japan and Europe for our trade; thus we became a maritime power. The basic structure of our economy, given our export orientation, was bound to be geared toward a free world open market. On the other hand, because of the DMZ North Korea had no land access to the south. Therefore, they had to establish relations with China or Russia. Naturally China and Russia (U.S.S.R) were North Korea's chief trading partners. However, both of these countries have now opened up their economies, becoming members of the free world open market. As such, North Korea has no other option but to open up its economy as soon as possible. Opening the country means becoming a maritime power, and that means that they need a harbor to deal with the mass quantity of goods flowing in and out of their country. However, given the geographic conditions of North Korea: the shallow and muddy nature of the West Sea makes it very difficult to construct a harbor there, and the sudden depth of the East Sea makes building a breakwater difficult, meaning that they cannot construct a big harbor there either. Therefore the harbors in Nampo in the West Sea, and in Wonsan in the East Sea have to be considered as the best available. However, neither of these can be considered large-scale modern harbors. Moreover, if North Korea wishes to carry out trade from the East to the West Sea, it must go around South Korean waters. Therefore whenever the North moves materials by ship, they must travel a distance 5~8 times what it would be if they moved it overland. In addition to move anything by sea requires more fuel and also more time. Moreover, as in the West Sea there are five islands that belong to South Korea, as well as the NLL that outlines these islands, North Korea's Haeju harbor has practically no access to the South Sea. Finally, to this point, the quantity of materials to be moved by ship is very small when compared to

South Korea. These are the main reasons why a large-scale modern harbor couldn't be developed in North Korea.

Let's talk about the problems with Rajin-Sunbong. The original objective was to construct ten industrial complexes in the Rajin-Sunbong zone. As the total size of the zone is some 7 million pyung, these would have to be middle scale industrial complexes of an average size of 7000 thousand pyung. Despite the fact, that the goods to be produced within these 10 industrial complexes are different, most of them are light industry goods for export. However, they are still at the stage where they are planning the construction of the industrial complex itself. Once the complexes are completed, North Korea will try to attract foreign companies, and produce goods for export. However, there are many problems with this proposal, more specifically that it is impossible to depend upon solely the railroad to move all materials, from raw materials to completed goods, made in a large industrial complex of 7million Pyung. The only other viable option therefore is to move things by ship. However, only in modern harbors such as Busan or Incheon can big ships ply their trade so that normal import and export can proceed. A harbor such as Rajin's, in which only small ships heading to and from Japan a few times a week come and go, cannot be a harbor for export. This kind of industrial complex for export must be constructed near big commercial harbors such as the Masan and Incheon export complexes (South Korea will be responsible for the moving of materials to and from the Kaesong industrial complex. Therefore the reconnection of the inter-Korean railroad is indispensable.) So what is to be done with Rajin-Sunbong?

In the case of South Korea, the proper area to develop a strategic harbor was in Donghae. The existing Mookho harbor was used to export cement, however it was not cost-efficient as it was too small. Therefore many cement companies wished for the creation of a 'harbor to export cement'. After surveying the quality of the soil, the government found that there was a wide sandy area to the south of Mookho that used to serve as an airport named Yangyang. Therefore, after having removed the sand from the area, the government built a large-scale artificial harbor which could hold ships of 50~100thousand tons. This harbor is known as the Bookpyung harbor and is situated in Donghae. This particular example can also be applied to the Rajin-Sunbong area. Rajin harbor can presently hold ships of 20 thousand tons, not so different from the Mookho harbor of old. To construct a coastal industrial zone North Korea needs a harbor that can hold a minimum of 100 thousand ton ships. Interestingly, Rajin also has a wide swampy which is used to raise shrimps. If they remove the sand and construct an artificial harbor like they did in Donghae, then it becomes possible to construct an industrial zone that can house a heavy chemical industrial complex. The water to be used for the industrial complex can be supplied by the Tumen River. I have long felt that the Rajin-Sunbong area is the proper area to construct a coastal heavy chemical industrial zone. I handed over my plan for the Rajin-Sunbong area to a Japanese interlocutor for him to hand over to Kim-Jung-Woo, who was the director of the Committee for International Economic Cooperation of North Korea at the time. This proposal was for the construction of a 'coastal heavy chemical industrial zone', instead of 'a light industrial export zone'. I still think that my proposal is feasible. Most of the fertilizer and steel factories and facilities in NK are out-dated and too old. Therefore, these should be torn down and replaced with new ones (In South Korea the government tore down the Choungju Fertilizer Corporation, the Naju Fertilizer Corporation, Jinhae Chemical Corporation and the Youngnam Chemical Corporation, so that at present only the Namhae Chemical Fertilizer Corporation is remains open. Despite the fact that the 4 factories that were torn down, including the Choungju Fertilizer Corporation, were constructed in the 1960~70's, they are still much newer than the Heungnam fertilizer Corporation in North Korea. The reason they were torn down was because they were no longer internationally competitive). The factories that must be scrapped in North Korea are those in the coastal areas that require large-scale harbors. For this reason the Rajin-Sunbong area

will become a very important industrial zone, once they reconstruct newer factories in the area. However, this can only come about when North Korea normalizes diplomatic relationship with Japan as the reparation money will be required to undertake such a task."

The food problem can be solved by exporting agriculture as well

-As we have seen in the media, given the mass starvation that appears to be unfolding in NK, I think that the most urgent task should be the reform of the food industry and agriculture.

"The problem of food, clothing and housing is the basic dilemma of all poor countries, and an urgent task which the leaders of these countries must solve. I think that they must approach the problem of agriculture from 'the engineering approach' as well. First of all, let's establish the 'image'. Whenever food problems appear, I wonder what is the reality of agriculture in NK. Though the size of NK is bigger than that of South Korea, both North and South Korea have approximately 2million hectares of agricultural land. Some have maintained that the population of North Korea, which was once in excess of 23 million people, has been reduced to 20 million as a result of mass starvation. Then, if this is the reality, the number of dependent people per hectare (ha=3,000Pyung) in NK is 10. The population of South Korea is 47 million, and the number of dependent people per hectare is 23,5 persons. When we think of it in such a fashion, it becomes clear that the shortage of food in North Korea has been caused by the unproductive nature of their agricultural system."

-To reconstruct the agricultural sector the development of the fertilizer industry is needed immediately, what do you think the present state of fertilizer in North Korea is?

"There is a dire need for large amounts of fertilizer, however the most serious problem right now is that most of the fertilizer they use is ammonium sulphate fertilizer. Prolonged usage of this kind of fertilizer causes the soil to acidify. As a result, the production capability of agricultural land in NK has reduced remarkably. Moreover, because the production of ammonium sulphate uses much electric power, for NK, which is in dire need of electric power, it is not practical. Thus, there is a need for the North to increase production capacity by using a composite fertilizer that contains three components: nitrogen, phosphate and potassium. NK must change their present system of fertilization that is overly-dependent on ammonium sulphate by constructing a big composite fertilizer factory, like the one in Namhae, and a chemical industry like the one in South Korea, as soon as possible".

- Mr. O added, "before talking about any reform of agriculture in NK, they must turn agriculture into an export industry." As North Korea is situated next to such large markets as South Korea and Japan, the industrialization of the agricultural sector as an export industry can lead to these countries buying their products from North Korea rather than China.

" The most important matter with regards to the industrialization of agriculture for export is to allow individuals to farm the land, thus abolishing the collective farm system, just like China did. Production in China, once individuals were allowed to farm private lots of land, increased by more than 60%. Given its geography, NK is capable of producing various grains and cereals. Should they be able to improve their seeds and begin selling them to South Korea, they could easily start competing with China in the export of this kind of product. In the northern and eastern parts of North Korea they produce much corn, thus they can expand the livestock industry; pigs, cows and chickens; by using corn as fodder and then selling these animals to South Korea or Japan. With this money earned by exporting these animals the North can buy agricultural materials like agricultural oil and chemical fertilizers. Moreover, if they import rice from Southeast Asia, or flour and noodles with this money, the starvation problem in the North can be resolved. Another problem that they must resolve is the problem of excess labor in the rural areas. The present rural population of NK is estimated at 8 ~ 8.5 million, given the size of the rural areas and the production capacity of these areas, 5 million rural residents would be sufficient (the rural population in South Korea is 4 million). As such there is a need for the North to redirect this excess labor, 3~3.5 million people, toward new industrial fields. The only way for North Korea to survive is to assure that all surplus labor is found a use. This means that they must be used to help increase export and thus earn dollars."

During the process of transmitting electricity, 50% of it is lost.

-In order to liberate manpower from agriculture, shouldn't North Korea use agricultural machines as cultivators?

"Russian tractors are useful on large farms, but in countries like NK, which has only small farm units, they are not practical. For this reason it would be better to make Korean style agricultural machines. In order to redesign agriculture in NK, there is a need to build chemical fertilizer factories and agricultural product processing factories; on top of the fertilizer factories and agricultural machine factories mentioned before, so as to turn the agriculture sector into an export industry."

-Do you think it is possible to solve the problems of clothing and housing through exports?

"Both artificial and natural fibers are used to make clothes, however in the North they use only one kind of fiber, called 'Vinyon'. It is presently important for the North to change its system towards one that exports clothing products that can be sold to the outside world. In our case, we exported clothing products and made and wore clothes made from other materials. Just by taking this simple step, the clothing problem can be seriously alleviated.

As for the housing problems we can solve them by constructing cement factories with the dollars earned by selling the agricultural or clothing products. At this juncture I would like to map out 'Deng Xiaoping and Jiang Zemin's national strategy' using the 'engineering approaching'. First of all, let's establish the 'image'. One of the most crucial factors in these two leaders philosophy was finding

ways to encourage all Chinese people to participate in the development of the economy and the country. Their decision to build a large number of cement factories, was, in my opinion, based on this consideration. In reality, the only two raw materials you need to make cement are coal and limestone; both of which can easily be found anywhere in China. Moreover, by building these cement factories and making cement more readily available they could encourage people to build more houses. As a result, there are now cement factories throughout China. Thus, whenever the leadership desires, it can build any kind of factory it wants, anywhere in the country; such as bridges, expressways, dams, hydroelectric power stations, factories, ten of thousands of buildings, apartments and housing complexes. As a result of the construction boom, the Chinese landscape is changing everyday. Modern day China in many ways resembles the Korea of the 1970's. These construction sites require a lot of manpower, and as the people are actively participating in the national construction plan, this results in their being able to take pride in their country and to look to the future with hope. The leadership group headed by Jiang Zemin may in fact owe their vast support among the population to cement. In addition, the image of China's development today looks like 'the image for China in the 2000's,' established by Jiang and his leadership group when they then opened up the country. I think the North Korean government can solve the urgent problems of food, clothing and housing by constructing many cement factories and building houses with this cement. Furthermore the time has come for NK to replace their wooden telegraph poles, railroad tracks and mine posts, with cement ones. However, as the question of electricity has emerged as a serious problem, there is a need to tackle that first."

- If we consider the growth of the export industry to be the core factor in the reconstruction of the NK economy, then we should understand the core issue in the reconstruction of NK industry to be the resolution of the electricity and infrastructure problems

"When we look at North Korea's electricity problems, we automatically assume that the biggest problem is the overall shortage. However, the most crucial problem is the percentage of electricity that is lost during the process of transmitting electricity. This is the result of North Korea's worn-out electric transmission facilities. The South Korean electric situation in the 1960s' was not much different from that of NK now. In 1961 the percentage of electricity lost during transmission was 29.35%. During the Korean War, North Korea lost air superiority early and as a result had serious damage inflicted upon it by U.N. bombing. This prompted the North to move all their remaining electrical power lines underground to avoid further destruction from the air. If these underground electric power grids are not properly managed, they can easily break and become ineffective. As it is assumed that NK is unable to properly manage their underground electric power lines, we can estimate that the rate of electricity lost during transmission is nearly 50%.

To modernize the electric transmission facilities, North Korea must erect new telegraph poles and place their electric grids above ground. Presently NK is moving in the direction of building smaller power stations throughout the country to cope with the worsening electricity situation and the gradual worsening of their electric grid system. However, if they continue to use such an approach they will never be competitive from a unit price standpoint. Only by constructing large-scale high output power stations that can supply electricity nationwide can the North significantly increase its electrical efficiency and reduce the unit cost of producing electricity."

Encouraging the people's will by supplying electricity

- NK has been highly dependent on hydraulic power stations in the past, however, with the help of KEDO, the North is constructing a nuclear power plant. Which, in your opinion, is the most efficient for North Korea to solve its urgent electricity problems: a hydraulic power station, a thermoelectric power plant, or a nuclear power plant?

"The efficiency of a hydraulic power station, due to the geographical realities, is quite limited. Moreover, during the dry season the operation period is drastically reduced. Therefore, they had better use a thermoelectric power plant as their main source of power and turn hydraulic power into a secondary source of energy. As for the nuclear power plant, its raw production price is quite cheap and it has the ability to mass-produce electricity. Thus, there is a need for North Korea to construct many nuclear power plants. However, the downside of this kind of plant is that it requires large investments and takes a long time to build. As such, the North has no choice but to use thermoelectric power plants that use coal as fuel as their main source of power and complement it by using hydraulic power as a secondary source of energy. For large-scale big capacity power plants, location is crucial. Therefore it is only natural for them to construct power plants near mines and adopt a method of transmitting high voltage electricity. When the North adopts an approach in which they import coal to operate their power plants, they can build a coal yard near the harbors in which the 10ton ships can enter and begin to build power plants in coastal areas in order to become more economically competitive."

- Mr. O stated that, "to raise the nation's willingness to participate, the solution of the electricity problem is the most important".

As South Korea also experienced serious shortages of electricity until the end of the 1960's, electricity to individual houses was rationed, and factories were supplied with electricity for a set number of hours a day. To make matters worse, electricity was supplied by diesel locomotives! Thus, the government set out to increase the number of electric facilities. As a result, the electricity situation improved remarkably. However, it was not until the 'Saemaeul movement' was begun that farming and fishing villages began to have electricity in their homes. Prior to that, the residents of these villages had gone to bed immediately after dark for want of anything better to do. Students couldn't study even if they wanted to, and the work period per day was reduced by 50% because people could not work without proper lighting. There weren't even any T.V or radios, how can we call this a civilized society? Therefore, one of the most important objectives of the Saemaeul movement was the provision of electricity to farming and fishing villages. As such, the government formed a plan to supply electricity to all farming and fishing villages throughout the nation. This was known as 'the 10 year plan to provide electricity in farming the fishing villages' that was carried out alongside the Saemaeul movement. The successful implementation of this plan ushered in big changes in rural life as a result of the supply of electricity throughout the country. The supply of electricity to farming and fishing villages was nothing less than 'a civil revolution in the rural areas', and was also at the same time, the start of 'the agricultural industrial revolution' that resulted from 'the extension of working hours' and from the 'usage of electricity as power for agriculture'."

Solving the problem of fuel with briquettes

- It has been said that because of the desperate need for fuel in NK, they are cutting down trees from the mountains and as a result the mountains have become practically deforested. How can North Korea solve their fuel problem?

" The most realistic means to solve the heating of houses is to use briquettes. If someone asked me to point out our country's greatest invention, I would have to answer the briquette to heat the Ondol (a heated floor). During the Korean War and for 30 years after that, this briquette heating system allowed us to have warm food and the ability to sleep on a nice warm floor. With only two briquettes, we can cook our meals and heat our room for a whole day, can't we? As they can produce ample amounts of coal in North Korea, I think that they can solve the problem of fuel by producing coal to make briquettes, and then providing these briquettes to the citizens of North Korea. Here again the problem of electricity emerges, and as such this is why the government of NK must tackle this problem immediately. Cooperation between South and North Korea is important, too. In South Korea the coal industry has become a sunset industry. Thus we should seriously consider a plan to move the machines needed to mine coal and the necessary facilities to North Korea in order to help them make briquettes."

-The railroads, streets, harbors and airports in NK under the present circumstances are practically non-productive. What can the North do to improve its basic infrastructure?

" First of all, the way the transportation facilities of NK are organized results in an unnecessary over consumption of electricity. In a country that is in need of electricity, they run electrical trains and city buses. While this may seem desirable from an environmental standpoint, this is a way of thinking that can only be taken into consideration once a country has achieved a certain level of development. Under the present circumstances they had better change all their transportation modes to diesel. With regards to railroads, experts maintain that North Korea must rebuild most of their current routes. Despite the fact that this is an arduous task, on accounts of the high amount of capital required, the implementation of a prioritized railroad modernization project based can be achieved. Anyway, to supply cement, electricity and coal is the most important task of the Kim Jong Il government. This also means that they must earn dollars."

-There are many experts who point out the fact that considering the problems of food, clothing, and housing, as well as all the other difficulties NK is faced with today, it is not easy to expect them to be able to nurture the export industry.

"Of course, while it is possible for North Korea to try and accomplish all tasks in one big swoop, isn't it better for them to follow what we did in the 1960's, when we sparingly used our precious earned

export dollars to achieve industrialization? I think that NK needs to start with the project that has the most ripple effect throughout their economy and the highest priority. At this time, the 'Impact Policy' can be used as a good yardstick for carrying out this policy. By encouraging their citizens' willingness to participate in the national project and implementing projects in an orderly fashion, NK can also achieve success in a short period of time."

Mr. O also said, "Just like we found our strength in export-led development during the development stage, NK also has no other way but to engage in 'export-led development' as well. If North Korea decides to export its products to the U.S., they should enlist South Korean enterprises that specialize in marketing to help them do so."

-In your opinion, what does North Korea's leadership group have to do to reorganize its industrial structure in order to give priority to exports?

"I would like to ask them to, "get rid of 'this industrial self-reliance (Juche) philosophy' as quickly as possible. This Juche ideology in the industrial sphere basically means, 'achieving salvation through their own efforts' or 'self-sufficiency'. Though the quality of their products is inferior, the government still urges its people to 'achieve salvation through their own efforts or achieve self-sufficiency' with the goods made in NK. When they abandon this kind of subjective attitude, and start producing goods that are internationally competitive, the quality of their products will improve and they can then begin to export them."

-It sounds like the North is going to need a lot of money to make the changes they need to make.

"This is why the establishment of diplomatic relations with Japan is so crucial. NK must establish good relations with Japan and try to conclude an agreement on reparations as soon as possible. Following our own treaty with Japan, we used the reparations to solve our economic problems. And then, once we had done this and the economy began to take off, the U.S. and Europe began to help us, didn't they? Therefore, if North Korea can establish friendly relations with the U.S., they can obtain long-term low interest public loans from the ADB and the World Bank and then the NK economy can get a little breathing room."

-Do you think North Korea has any advantages over the South, and if so, what are they?

"As NK is a socialist country, all land is state-owned. As a result, the government does not have to buy back the land from the people whenever it decides to build expressways or factories; in other words, land is free. This is a big advantage that North Korea possesses. In addition, they have excessive amounts of superior quality manpower available at a cheap price. There are not many countries that have such favorable work conditions. I think that the necessary conditions to bring

about industrialization are already in place and that all that is left over is for the leadership to get its act together. Of course, there exists the fear within the North Korean hierarchy that 'if they reform or open up the economy, the tide of capitalism will come and make it impossible to maintain the national system'. In this regard, China should serve as a good barometer for the North. If the North does not open up now, there is no telling what kind of more extensive crises are just around the corner. If Kim Jong Il manages to resolve just the food problem, then he should be acclaimed as 'the great leader who accomplished a goal that even Kim Il Sung couldn't.'

Start with the field that can lead to large-scale employment.

Mr. O stressed that education was the most important way to resolve all difficulties.

"The ruler must explain the plan through which he will accomplish the hopes and dreams of the citizens and make them willfully follow his instructions. In South Korea, we planted the spirit of, 'whatever we try, we can do, or 'we can do it too'. NK must also instill its people with such spirit through such mottos as, 'whatever we try, we can do, or 'let's overtake China.' On this point, just as the Saemaeul movement was effective in spreading this attitude in South Korea, I believe that the Chullima movement in North Korea can achieve the same if used properly. The people of NK desire the same thing as everyone else: 'to eat well and to live well'. In order to achieve this the government must make them realize that 'export is the only way to survive', and that, 'All citizens must do their part to increase exports'. In other words, there is a need to mobilize all North Korean citizens and turn them into 'export warriors.'

- According to various sources, NK is seriously considering starting with the IT industry, rather than following your suggestion and beginning with the export of light industrial goods.

"Although the development of the IT industry is necessary for all countries, it is not an industry that can feed the masses. It would be much more realistic for the North to put all their energy into an industrial field that can earn them dollars and employ people on a large-scale. In our case, as exports rapidly increased, so did the number of jobs. This led to many from the rural areas moving to cities, thus reducing the rural population, didn't it? If NK is interested, there is a way for them to start earning foreign currency immediately: dispatch skilled manpower, including skilled women, to other countries like we did when we sent our nurses and miners to West Germany. When we began to take on projects in the Middle East, we used much skilled Chinese labor. During this period, we signed a contract with the Chinese government, and sent the salary of these skilled workers, paid in dollars of course, back to the Chinese government, which then turned around and paid the workers' families in Chinese currency. Isn't there some way that the South could employ North Korean labor, and then send their salaries back to the North Korean government? In reality, NK is a little late. If they had started their economic reconstruction ten years ago along with China, they might have found their second wind by now. Unfortunately, because they wasted ten years, NK has become a poorer country than even the countries of Southeast Asia, including Viet Nam. It would be advantageous to NK to establish a system of the division of labor with South Korea. Should they do

so, the North can benefit from the synergy effect by building on each other's strengths. For example, presently small and medium sized enterprises in South Korea are suffering from a lack of manpower. Therefore, if they change things in such a way that NK supplies South Korean enterprises related to the machinery and electronic accessories industries, this can become a win-win situation for both the North and the South. This is the reason why I believe that training large numbers of highly skilled technicians and skilled labor should be an important part of any national strategy. North Korea can gain a very valuable resource simply by training a million highly skilled technicians and skilled laborers to take part in the export war. In other words, these individuals will act as the representative export warriors. However, as North Korea needs time to train these people, it is vital that they begin immediately. If these million representative export warriors each would produce 100 dollars worth of exportable products every month, total exports (100dollars*12months*1million persons=) would reach 1.2 billion dollars, and if they produced for 1,000 dollars worth of products, then exports would reach 12 billion dollars a year."

- Do you think that Kim Jong Il and the North Korean leadership have the ability or willingness to make the big changes that are needed to reconstruct the nation?

" Because Kim Jong Il cannot do everything by himself, he must select a competent staff and provide them with the necessary leeway. The future of NK depends upon 'what direction Kim Jong Il takes', and it is imperative that 'he follow Deng Xiaoping's lead'. To do this, he does not have to search for some new methods, but simply learn from the successful example of South Korea, their brothers beyond the DMZ, and follow the path down which 'China is now going down'."

Mr. O emphasized three points, "The NK leadership must turn all industries into export industries, entrust all rights to technocrats, and solve the problems of food, clothing and housing first." He added that he remembered advising President Park to do the same during the 1960~70s'. Moreover, he presented <chart 2>

The industrial revolution in Korea

The basic principle of the management of national affairs is 'export first' followed by 'increase employment and income'. <Chart 2> demonstrates in detail the various stages of the Korean industrial revolution.

The stages are divided by total exports. The year that Korea changed its industrial structure to become an export-oriented one was 1964. This marks the beginning of the first stage.

▷ the first stage was 1964~1967 when total exports amounted 100~300million dollars

- ▷ the second stages was until 1970 when total exports amounted to 1 billion dollars
- ▷ the third stage was until 1977, when total exports amounted to 10 billion dollars
- ▷ During the fourth stage total export surpassed 100 billion dollars and GNP per capita reached 10 thousand dollars.

<Chart 2> Four stages of industrial revolution

- 5 - five year economic plan
- 1 -GNP per capita
- 1,000 - Export: surpassed 100 billion dollars
- () -Export-oriented industrialization
- Industrial revolution
- 1 - surpassed 100 million dollars
- Take Off - Announcement of economic Take Off by Dr. Raust
- 3 - surpassed 300 million dollars
- 10 -surpassed 1 billion dollars
- Announcement of heavy chemical industrialization plan
- 100 -surpassed 10 billion dollars (achieved 50 % of heavy chemical industrialization)

The stages of the industrial revolution in Korea	The first stage	The second stage	The third stage	The fourth stage
Export (billion dollars)	1~3	3~10	10~100	100~1,000
Hoffmann coefficient	2.50~2.00	2.00~1.50	1.50~1.00	1.00~under 0.50
GNP per capita (\$)	100~150	150~250	250~1,000	1,000~10,000
Industry type	Move toward an export-oriented industrial structure	Domestic material products	Domestic machinery products	Domestic technological products
Export industries	Light industry (textiles)	Light industry (started heavy chemical industry)	Light industry + Heavy chemical industry	1.Heavy chemical industry 2.Precision industry 3.Intellectual industry

Human resources	Female unskilled labor	Female unskilled labor + male unskilled labor	Male skilled labor	Technicians and researchers
Government policies	Increase of productivity/ and export	Construction	Heavy chemical industry/ Scientific development	Industrial rationalization of human, energy and national resources), technological innovation, and research & development

In Korea, the Hoffmann coefficient fell below the 0.50 level in 1990. Moreover, that year total exports reached 100 billion dollars. In 1995, GNP per capita reached the level of 10 thousand dollars per person. Seen in this light, we can assume that Korea entered the third level of industrial development as defined in Hoffmann's coefficient in the early 90's to become an advanced industrial nation (please refer to <chart1>). This marvelous achievement was accomplished in 30 years. People have called it 'the miracle on the Han' (However, in 1997 the financial crisis broke out, which resulted in a severe drop in GNP per capita to 6000\$ per person. It took 6 years, until 2003, for the GNP per capita to once again reach the 10 thousand dollar level. Thus we find ourselves unable to break the 10 thousand dollar mark. In other words we have lost six years. This illustrates just how important the role of a leader is to his nation).

[1] O Wonchol, born Hwanghae province in 1928, graduated from the department of chemical engineering of Seoul National University. Mr O has held the following positions: factory manager for the Sibal automobile company, assistant secretary for the department of mining, industry and electricity within the Ministry of Commerce and Industry, 2nd secretary for economic matters in Chongwadae as well as head of planning for the expansion of the heavy-chemical industry.

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