

Malaria Control Project in the DPRK



by Jae S. Hwang, Project Director
Development Cooperation Project Division
Korean Sharing Movement

[This report is dedicated to the memory of Professor Park Jae Won (1967~2011). As a consultant on the *Malaria Control Project in the DPRK*, Professor Park worked actively as a WHO representative on Malaria projects in Laos, the Congo, Papua New Guinea, and other places. He died in a sudden accident on 14 July 2011 while touring Laos for the WHO.]

Background

The *Malaria Control Project in the DPRK* has been in operation since 2008. It has been sponsored and implemented by the Korean Sharing Movement (KSM) and the Provincial Government of Gyeonggi Province of South Korea. This year the project has expanded with additional participation by the Incheon Metropolitan Government.

Most cases of tertian malaria in South Korea occur in areas near the DMZ along the border of South and North Korea. Most outbreaks occur in the northern areas of South Korea, specifically northern Gyeonggi Province, northern Incheon City, and Kangwon Province, and in the southern areas of North Korea, including Kaesong and its vicinity, South Hwanghae Province and North Kangwon Province.

Malaria was actually eliminated in South Korea in the 1970s but resurfaced some 20 years later in 1993. At present there are 1,771 known cases of malaria throughout South Korea. In 1998 North Korea formally admitted that malaria had broken out again within its territory. But malaria specialists in South Korea have concluded, based on various epidemiologic investigation and medical data, that malaria's re-emergence in South Korea came from North Korea. Furthermore 70% of malaria patients in the South are infected by carrier mosquitoes that traveled from North Korea.

Thus malaria is a problem that directly affects the health of people in both Koreas, and this is a case where maximum synergy can be achieved only when the strengths of North and South are combined. For this reason since 2008 KSM and Gyeonggi Province have been conducting the "Malaria Control Project in the DPRK," which to date has treated 500,000 people from 130,000 households in the Kaesong Area.

This project has been conducted as a cooperative effort between KSM, which has years of experience in humanitarian aid work in North Korea and maintains solid communication lines with the North Korean side, and Gyeonggi Province, which boasts the largest provincial government organization in the country and provides for the full expenses of the project. Actual project implementation is done through close coordination and agreement between both groups. This is not a new approach to North Korean humanitarian and development aid.

Since early 2000 KSM has conducted numerous agriculture and livestock development projects in conjunction with various South Korean local governments. Since 2004 KSM has worked successfully with Gyeonggi Province on agricultural development projects at North Korean collective farms and integrated community-based development projects.



Prof. Park (left) and the Director Kim (right) at Parasite Research Laboratory, DPRK National Academy and Institute of Medicine. (15 October 2010)

Preparations and principles

In late 2007 KSM and Gyeonggi Province sent the North Korean authorities a proposal for a new Malaria Control Project in the DPRK, and in March 2008 they reached an agreement on project implementation with the North Korean Council for Reconciliation and Cooperation. Later, when they visited the North to implement the project agreement, they met with experts from the Parasite Research Laboratory at North Korea's National Academy and Institute of Medicine.

Before beginning the project, we established several broad principles. The first was to avoid overlapping with other malaria eradication projects currently being conducted by international organizations and the South Korean government, particularly the Korean CDC. At the time, the ROK government's aid consisted mainly of malaria medication, microscopes for diagnostic use, mosquito repellent and insecticide; aid from international society included malaria medication and tent-style LLINs (Long-Lasting Insect Nets). The second principle is to provide facilities and materials suitable to North Korea's current realities, based on our previous experience of various development aid projects in North Korea. Third, the project is to provide direct material assistance to benefit North Korean citizens, in addition to the malaria control aid provided through the North Korean disease control authorities.



Ms. Jun (left), Head of the Malaria Department, and the Director Kim (right) of the Parasite Research Laboratory carefully inspecting RDT. (1 July 2011)

First phase of implementation

The project began based on these principles, but for the first two years from 2008-2009 the program concentrated on adapting the malaria control programs used by the South Korean disease control authorities and gaining an understanding of North Korean disease control practices. During this period we offered to North Korea seven quarantine trucks, 100 manual spray guns, and other disease prevention equipment along with various insect repellent, insecticides, malaria diagnosis kits, mosquito coils, and aerosol-type insecticides to be distributed for household use. We tried to give the North Korean side as many opportunities as possible to practice using the different kinds of insecticides and equipment in order to determine what sort of items would be most useful to their situation. At the end of each year, malaria experts from the South and North met in Kaesong or Pyongyang to discuss the year's work and hear progress assessments. Also at these annual conferences the projects for the next year were planned.

Let us briefly discuss the aid materials that have been supplied over this period. In accordance with KSM's aid principles as described above, we strive as much as possible to provide aid that is appropriate to the actual situation in North Korea, based on our past experience with humanitarian aid work there. The quarantine trucks run on engines manufactured in South Korea in the 1980s, provided through assistance from an automobile manufacturer. This is necessary because most engines produced nowadays come with

electronic chips that control the fuel mixture, and if such engines were to run on the poor-quality fuel used in North Korea they would rapidly break down. Therefore we took care to provide only purely mechanical, old-style engine parts with no electronic fuel control systems.

Furthermore, regarding malaria diagnostic devices, the best way to test for malaria is via electron microscope. Unfortunately, due to the unreliable electricity supply and the difficulty making distilled water necessary to produce the dye solution for the microscope, electron microscopes are not much use in North Korea. Instead, we therefore provided what are known as Rapid Diagnostic Test (RDT) kits.



In front of Janam San hotel in Gaesung. Third from left is Prof. Park, followed by Ms. Jun, Director Kim. They are flanked by members of KSM. (1 July 2011)

Second phase of implementation

Based on our two years' experience, KSM and Gyeonggi Province developed this project further from 2010. The overall project framework was designed to conform with WHO guidelines. We therefore expanded the project based on information obtained through coordination with North Korean malaria experts, in conjunction with our three guiding principles.

Recently the WHO announced new guidelines. The core focus of aid has shifted from repellents and insecticides for eradication of mosquitoes to strategies aimed at preventing people from being bitten. Accordingly, KSM and Gyeonggi Province have increased the proportion of aid taken up by provision of LLINs (long lasting insecticidal nets). LLINs are nets made of mosquito-repellent thread; instead of tent-style nets we have provided LLIN fabric which may be used to construct shelters or cut up into smaller pieces as needed.

Furthermore, through our two years of experience we were able to confirm that patients had built up a low-level drug resistance to the malaria medicine Chloroquine. In the past large quantities of Chloroquine had been provided by the international community and the ROK government. But because of poor diagnostic facilities in North Korea, Chloroquine was being prescribed automatically to any patient with a fever in the summertime. Thus we broadly increased the quantity of RDT supplied, to at least enable more precise diagnoses for patients suspected of having malaria. Only through accurate diagnoses and proper dosages can medication tolerances be prevented.

If pregnant women become infected with malaria, the result may be premature births or LBWs (low birth-weight infants). Therefore we provided the malaria prevention medicine Fansidar to 7,500 expectant mothers in the Kaesong area. We also provided small quantities of larvacide and mosquito coils. (For a summary of inputs, see Fig. 2 below.)

Outcomes and goals

In 2008, the first year of the project, the total of malaria patients in all of North Korea decreased 30% from 23,409 to 18,679. During the same period in northern Gyeonggi Province, which has the most malaria cases in South Korea, the number of malaria patients decreased about 50% from 1,007 to 490. Subsequently the numbers have continued to steadily decrease in the project's focus area of Kaesong as well as in South Korea's Gyeonggi Province. (See also Fig. 1 below.)

Of course, this result is not entirely due to KSM and Gyeonggi Province's Malaria Control Project in the DPRK. Other environmental factors and international efforts such as the Global Fund have also played a role. Nonetheless, the Malaria Control Project in the DPRK has undeniably had considerable positive impact.

Until the present time (August 2011), the South Korean government has completely suspended humanitarian aid to North Korea at the governmental level. Although some humanitarian aid by NGOs is permitted on a case-by-case basis, in reality these projects too have been effectively suspended. Nonetheless, the Malaria Control Project in the DPRK has proceeded with relative consistency. Of course, in the wake of the Cheonan incident, our project encountered many problems concerning delivery of material aid and monitoring visits. Yet although the 5.24 measure temporarily suspended all shipments to the North, the Malaria Control Project was the first material aid project to receive permission to continue operations.

Our narrow goal is to eliminate malaria outbreaks from the Korean peninsula. But our broader wish is that we may once again enter a period of improved inter-Korean relations and active humanitarian and development aid such as we saw before 2008. Instead of malaria, we would like to see peace spread throughout our peninsula.



At South Korean CIQ (customs, immigration and quarantine) right before visiting Gaesung, Prof. Park explains the project to the press. This was the first aid to the DPRK that the ROK Government approved since the 5.24 measures. This explains the lively interest of the press. (17 August 2010)

Fig. 1: Number of new malaria cases in Kaesong in 2010 by month.

[Data obtained from the director of the Malaria Research Center at North Korea's Parasite Research Laboratory during a visit to Kaesong on 23 May 2011. This was a 25% decrease from 2009, when there were a total of 1,152 malaria cases in the Kaesong area. Unit: Persons.]

May	June	July	August	September	Total
11	102	415	284	47	859

Fig. 2: Summary of work on the Malaria Control Project in the DPRK by year.

[The costs listed here reflect only the cost of aid materials, excluding the cost of monitoring visits and other administrative expenses.]

Year	Operator	Target	Number of Visits	Aid Materials	Cost of Materials
2008	Gyeonggi Province	3 areas in Kaesong and vicinity 130,000 households 500,000 people	3	insecticide, larvicide, quarantine trucks, manual spray guns, mosquito nets, mosquito coils, etc.	USD 438,000
2009	Gyeonggi Province	Kaesong and vicinity 130,000 households 500,000 people	2	insecticide, larvicide, aerosols for family use	USD 369,000
2010	Gyeonggi Province	Kaesong and vicinity 130,000 households 500,000 people	3	RDT 120,000 tests, LLIN 122,000m ² , Fansidar 45,000 tablets, insecticide, mosquito coils	USD 318,000
2011	Gyeonggi Province	Kaesong and vicinity 130,000 households 500,000 people	4	RDT 343,500 tests, LLIN 450,000m ² , insecticide, mosquito coils	USD 900,000
	Incheon City	Haeju, S. Hwanghae Province, etc. 7 areas, 60,000 households, 270,000 people	3	RDT 93,500 test, LLIN 85,000m ² , insecticide, mosquito coils	USD 180,000
Total					USD 2,205,000