

Intervention Area	Current Year (2010)	Planned (within next 5 years)
Case Management		
Diagnosis		
National diagnosis policy (confirmed, clinical)	Local public health centers and tertiary hospitals confirm smear with microscopy or RDT	Will continue diagnostic policy
Tools (microscopy, RDT, PCR, parasite genotype, algorithm for clinical diagnosis)	Use of microscopy, RDTs, PCR, IFAT and sequencing	
Monitoring/QA	If slide or RDT found negative, sent to district level for microscopy (PCR); if district public health center (PHC) finds smear negative, slide sent to Center of Disease Control for PCR, IFAT and sequencing; if tertiary hospital finds smear negative, sends directly to CDC; in non-risk areas, local public health centers send all slides to district level public health center	QA on diagnostic capacity and QC on testing capability of public health centers at 36 sites; will assess effectiveness of diagnosis kit with emphasis on malaria antigens and evaluate effectiveness of ELISA
Treatment		
<i>P. vivax</i> – 1 st line treatment protocol (radical cure, type, unit, dose); contraindicated populations (type, unit dose)	Treatment provided free of charge from government; chloroquine (3 days) 25mg base/kg, then primaquine (14 days) 15mg base (0.25mg base /kg) during transmission season; retreatment if parasites still present	
<i>P. vivax</i> – 2 nd line treatment protocol		
<i>P. falciparum</i> – National treatment protocol/policy (type, unit dose)	No Pf in ROK	No Pf in ROK
<i>P. falciparum</i> – Complicated Malaria	No Pf in ROK	No Pf in ROK
Mixed infections – National treatment protocol/policy (type, unit dose)	None necessary	None necessary
Directly Observed Therapy (DOT) and Case Follow-up (drug adherence)		
G6PD screening		
G6PD prevalence survey		
Mass screening & treatment/Focal screening		
Focused Mass Drug Administration (MDA)		
Monitoring/QA		

Chemoprophylaxis		
Prophylaxis - travellers	None	None
Prophylaxis – high risk populations	Starting in 1997, all soldiers given chemoprophylaxis of chloroquine once per week for 20 weeks and primaquine for 14 days	
Prophylaxis – pregnant women	None	None
Intermittent Preventive Treatment – infants (IPTi), Children (IPTc) or in Pregnancy (IPTp)	None	None
Prevention		
Vector Control		
IRS Strategy (e.g., spatial or temporal rotation)	Some use of IRS; risk areas identified using Geographic Information Systems (GIS) technology	Will conduct targeted scale-up of IRS
Insecticides	Permethrin space spray (thermal fogging, cold fogging, mist)	Will move towards use of pro-ecological methods
LLIN		Will increase distribution of LLINs in risk areas
Expired LLIN collection & replacement		
ITN (and insecticides used)		
Larval control & environmental modification		Will implement ‘Innovative Field Vector Mosquito Extermination Project’ for control of vector sources
QA		
Other	Use of <i>Bacillus thuringiensis</i> and mosquito magnets	Plan to strengthen education on vector mosquito control for major communicable diseases
Advocacy & Education		
Mass media		Will conduct malaria risk awareness-raising campaign targeting general public through television, SMS text messaging, newspapers
IEC/BCC campaigns		Plan to strengthen IEC activities via collaboration with residents and medical institutions; will develop and distribute promotional and educational materials; will prepare and implement culturally appropriate educational and promotional programs
Community-based interventions	Health education on personal malaria protection methods (mosquito nets, screening, protective clothing)	

Surveillance		
Case detection and reporting		
Case reporting system	Communicable Diseases Monthly Report published by the Korea Center for Disease Control and Prevention; all cases reported immediately to Ministry of Health and Welfare through the web-based reporting system	Continue to use current reporting system
Active case detection (ACD)	Currently in use	Plan to enhance active case detection activities
Passive case detection (PCD)		
Case investigation or “re-active surveillance”	Field inspections and consultation in military units with high incidence of disease; field inspections at transmission areas of high risk. See further description of case investigation under Outbreak/Epidemic Prediction and Response (below)	Will continue to provide consultation to Department of Defense for military units with high incidence of malaria; consultation on disinfection and delivery of New Jersey light traps
Other surveillance (e.g., screening, prevalence surveys)		
Outbreak (Epidemic) detection and response		
Outbreak/Epidemic Prediction & Response	Early detection and control program: notify Center for Disease Control of confirmed cases; report of epidemiological investigation of all cases; case definition and classification according to Algorithm; build database; visualization using GIS (ArcView, Google Earth); cluster case analyses; intervene; evaluate risk of appearance of new foci and/or of reemergence of previous malaria foci through mapping of acquired infection place by latitude and gradient (transmission monitored in 22 risk districts)	Will intensify outbreak surveillance and increase early diagnosis and treatment by providing RDT in remote transmission risk communities; will improve rapid diagnosis and early detection of patients through education of residents
Entomological Surveillance		
Surveillance vector species, behaviour, or densities	Division of Medical Entomology at Korean Center for Disease Control monitors, researches and does surveillance of vector densities to identify prevention sites	Will use GIS to improve vector control; will strengthen vector control forecasting system
Resistance monitoring		
Insecticide and drug resistance activities		Division of Research and Development will conduct

		research on drug resistance
Drug efficacy		
<u>Prevention of reintroduction</u>		
High risk populations	De-militarized Zone (DMZ) and North Korea border identified as risk area; soldiers and men at particular risk	Continued high risk populations: border soldiers and villages along the border increase transmission risk across the country
Border screening	Soldiers consistently screened	Will create prevention program at Gaesung Industrial Complex and M. Geumgang tourist center
Cross border collaborations	Republic of Korea (ROK) provides in-kind (anti-malarial medication etc) and cash aid (for training staff carrying out anti-malarial activities) using CDC budget and South-North Korea Collaboration Fund; South Korea's Unification Ministry financially supported North Korea's anti-malaria campaigns for seven years, with annual aid of \$530,000 in 2001 to \$1.41 million in 2007; \$1.096 million USD in bed nets, insecticides, anti-malarials and diagnostic reagents given to DPRK	Will provide aid to Democratic Republic of North Korea (DPRK): 1.2 million dollars in value, including 200,000 doses of chloroquine, 50,000 doses of primaquine, insecticide (5 tons of Permethrin and 10 tons of Deltamethrin), 100,000 ITNs, reagents, etc; and continued participation at the 'South-North Korea Technical Consultation Meeting on Malaria in the North'
Vector-control specific POR activities		
Program Management and health systems		
<u>Program Finance</u>		
National elimination goal (by province, district)	Elimination by 2015; working with Democratic Republic of North Korea to eliminate risk in border regions	Will continue work with Democratic Republic of North Korea
Funding sources and funding budget from each source		Likely will increase subsidization from the National Treasury (148 million Korean Won) and will have budget reallocation (240 million Korean Won)
<u>Stratification</u>		
Stratification strategies for defining risk areas, to allocate resources & activities	GIS mainly used in the Demilitarized Zone to identify clusters at household level and population density of mosquitoes; climate and rainfall being integrated into model; stratification by city	
<u>Program structure and organization management</u>		
Program management	Management through the Division of Infectious Diseases Control & the National Malaria	Will place increased emphasis on training

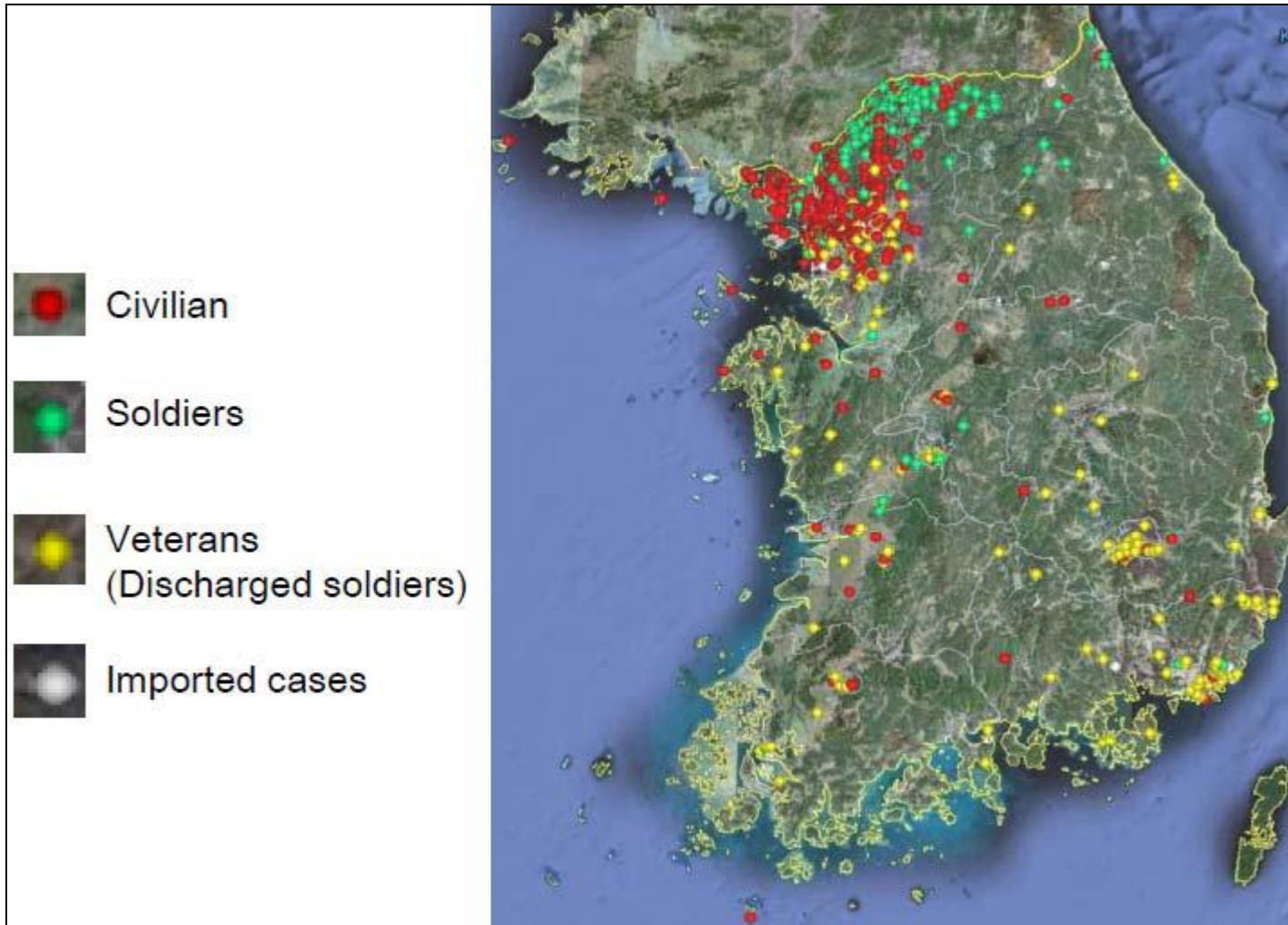
	Elimination Task Force	
Procurement & supply management		
Financial management		
<u>Program integration</u>		
Level of integration of malaria elimination into public health	High	Will continue to increase collaboration with local public health centers and military public health units
<u>Personnel</u>		
Reorientation, retraining, or restaffing & capacity development		Malaria education for Research Institute of Public Health and Environment lab technicians
<u>Legal Framework</u>		
Frameworks/policies/regulation/strategic plans		
Standard Operating Procedures (SOP) – list subject	Diagnosis method (Microscopy and PCR) were approved by Korean NIH SOP	
<u>Private sector – Providers</u>		
Engagement with formal providers (case management, reporting, other)		
Engagement with informal providers (case management, reporting, other)		
Training		
Other		
Monitoring and QA		
<u>Private sector – Companies/Businesses</u>		
Employee or community programs (e.g., medical services, bed net campaigns)		
<u>Partners</u>		
Funding		Plan to continue aid to DPRK
Implementation (list partners and type of collaboration)	<i>Democratic People’s Republic of Korea</i> : ROK provides malaria related commodities, financial aid <i>WHO</i> : supports relationship with DPRK <i>China</i> : supports and facilitates relationship with DPRK	Plan to continue current partner models
<u>M&E</u>		
M&E Elimination Plan, indicator development	Weekly Malaria Inspection Meetings held by	Will implement Health Systems Strengthening

	Director of the Center for Disease Control; discussion of future malaria elimination strategies	(HSS) activities that will aim to enhance Monitoring & Evaluation	
QA/QC (diagnosis, supply chain, etc)			
Other			
<i>Operational Research</i>	<i>Research in Past 5-10 years</i>	<i>Present Research Projects</i>	<i>Planned Research Projects</i>
Parasitological research projects, in particular for <i>P. vivax</i> ; list major outcomes and please cite publications when relevant			Research studies for detection of parasites with molecular biology; epidemiological research to be conducted in high and low transmission areas: will include breakdown of demographics, suspected route of infection, area of infection, and detailed analysis on recrudescence and re-infection of patients
Entomological research projects; list major outcomes and please cite publications when relevant		Climatological research on vector densities	Increase research on mosquito ecology and extermination; will continue to explore combined use of chemical and physical extermination methods
Behavioural research projects; list major outcomes and please cite publications when relevant			
Other research projects; list major outcomes and please cite publications when relevant			
Research Partners (national, regional and international) in operational research projects			

Quantitative Data			
Variable	Data	Source	Notes (include year if not 2010)
Total population	48,332,822	World Health Organization, World Malaria Report 2010	2009
Population at risk (PAR): Low Medium High	3,383,298 NA 0 Males: 1.9/100,000 Females: .6/100,000	World Health Organization, World Malaria Report 2010 Action Plan for Malaria Elimination	2009 Most cases in soldiers and veterans, aged 20 to 42 years old; those living in DMZ; men at higher risk than women
Total malaria deaths, Total estimated deaths	None reported	The Global Fund to Fight AIDS, TB and Malaria	
Total malaria cases	1,343	APMEN II Meeting Minutes, World Health Organization, World Malaria Report 2010	2009
Total positive slides – <i>P. vivax</i>	1,343 (All)	Action Plan for Malaria Elimination	
Total positive slides – <i>P. falciparum</i>	0	Action Plan for Malaria Elimination	
Total suspected cases	1,343	World Health Organization, World Malaria Report 2010	2009
G6PD deficiency % population			
# imported malaria cases (national)	25	APMEN I Meeting Minutes	2008
Slide positivity rate (SPR)			
Annual blood examination rate (ABER)			
Annual parasite index (API)			
Available parasite prevalence data			

Main Sources (list up to five main sources):

1. Han, E. et al., Reemerging vivax malaria: changing patterns of annual incidence and control programs in the Republic of Korea. *Korean Journal of Parasitology* 2006;44:285-294.
2. Han-Sung, L. Korea Center for Disease Control (2010). "Malaria in Korea." Asia-Pacific Malaria Elimination Network Meeting Presentation.
3. Korea Center for Disease Control and Prevention (2010). "Action Plans for Malaria Elimination 2010," (draft document).
4. Moon, K. et al., Recurrence rate of vivax malaria in the Republic of Korea. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 2009;103:1245—1249.
5. Park, K. "Malaria Control Programme in the Republic of Korea." Meeting Presentation.
6. World Health Organization. World Malaria Report, 2010.



Malaria transmission in the Republic of Korea, January - October 2009