HISTORY, INTERNATIONAL RELATIONS, AND PUBLIC HEALTH - THE CASE OF THE DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA 1953 – 2015

By John Grundy

Abstract

The historical legacy of North Korea is characterized by occupation and conflict, and economic rehabilitation and then collapse, with tragic and widespread consequences for population health. From the standpoint of the historical determinants of health, this paper reviews the health system in North Korea between 1953 and 2016. Ideology and political relations have been dominant forces in determining the evolution of the health care system and of population health. Despite the development of an extensive primary health care system in the country from the early 1960s following the establishment of the DPRK state in 1948, the public health system experienced a major decline in the 1990s, with catastrophic implications for the health and survival of the population. In recent years, evidence has emerged of some important public health gains, particularly through immunization, women's and children's health, and communicable disease control initiatives. This experience demonstrates that, within the overall policy context dominated by the historical and political determinants of health, there remains the capacity for implementation of public health programs that can yield both tangible health benefits for the population in North Korea, as well as assist the health system to edge closer to a regional standard.

Introduction

For many, the Democratic People's Republic of Korea (the DPRK or 'North Korea') has been characterized as a hermit nuclear state, with secretive government, limited representation of civil and private sector constituencies and highly restricted movement of peoples, trade and information across borders. But despite the lack of information regarding the current situation in North Korea, this does not mean that there is not a method for understanding the nature of North Korean society.¹ Arguably these knowledge gaps are being addressed through a growing body of academic literature in relation to the economic, political and historical aspects of North Korean society.²

In contrast, there is a very limited literature surrounding issues of human security in this context, and particularly in relation to public health. A search in the PubMed health data base (https://www.ncbi.nlm.nih.gov/pubmed/) illustrates that there are currently 1488 articles listed for the title search term "Cambodia" and 5750 articles for "Vietnam," but only 90 for "North Korea" and four for "DPRK." This lack of information on public health is even more obvious in relation to the non-medical aspects of public health (health planning, health financing, and human resources management) which are highly subject to the broader social and political rules regarding the way management systems are organized and resources allocated. This leaves the question open regarding the extent to which public health programs are in any way alleviating the harsh health and social conditions of the population.

Despite political constraints, North Korea has over the last 10 years developed some extensive international partnerships in the health sector through the agencies of the United Nations, some international non-government organizations, the Republic of Korea, and increasingly through global public private partnerships such as the Global Fund to Fight Malaria, Tuberculosis and HIV AIDs (GFTAM) and the Global Alliance for Vaccines and Immunization (GAVI).³ But despite these efforts, national and international investment in the health sector, and related health indicators of the general population, have continued to lag well behind regional countries. This is leading to international concern regarding the impacts of food insecurity and access to quality health care on maternal and child survival.⁴

So, to what extent have the pressures of national history and international relations impacted on the quality of the health care system in North Korea, and what implications do the findings of this analysis present for bringing the North Korean health system up to regional standards?

This paper will aim to clarify the links between health and history in this country by describing and analyzing national history and international relations between 1953 and 2015, and examining the impact this has had on health system

development. In the conclusion, I will then consider the implications of these findings for health system strengthening approaches in North Korea.

Data Sources

The author has undertaken development work in the country between 2006 and 2014, and has been involved with development of national plans, project evaluations, immunization⁵ and health system strengthening strategy,⁶ and analyses of international cooperation.⁷ Statistical information on health status has been sourced from national surveys including multi indicator cluster surveys,⁸ the most recent census⁹ and data from the Global Health Observatory of the World Health Organization.¹⁰ Additional data has been sourced through population based health surveys and assessments conducted by government agencies in collaboration with international agencies including the World Food Program and the United Nations Children's Fund.

Main Findings and Observations

The Historical Legacy

Following the Korean War, the period from up until the 1970s arguably proved to be the zenith of the northern regime in terms of economic development. The North managed to outpace the GNP per capita of the South for the first 30 years after the establishment of the two Koreas. This was due in part to a combination of factors. While in the South there was a succession of military regimes, the North in contrast stabilized its model of governance. Secondly, the northern regime benefitted from substantial trade subsidies and investments from the Soviet Union. And finally, it was during this period that a strong industrial base was established in the North.

From the 1960s, the policy of the government of the DPRK was to expand public services further out to the population, and to reach farmers and populations in remote areas of the country. In fact, the government expanded public health services immediately after separation from the South, with a focus on lower cost prevention services. Kim I1-sung instituted free health care and compulsory free education, and abolished the agricultural tax. The regime initiated vaccination services in the 1960s, and with programs focusing on personal hygiene and sanitation, and expanded health care infrastructure. There were about 20 times more hospital beds available per person in North Korea than South Korea in 1970. 12 By the 1980s, government sources reported that universal health care access had been achieved.

With the collapse of the Soviet Union in the late 1980s and the related cessation of favorable subsidies and trade conditions, tragedy struck North Korea in terms of the great famine in the

mid-1990s, when the northern government reported 220,000 people to have died from hunger¹³ and with other sources estimating population losses of from three to five percent of the total.¹⁴ There was a catastrophic economic collapse in the 1990s, with GDP halving between 1992 and 2000. The country during this period was beset by the three shortages of energy, food supplies, and foreign exchange.¹⁵

It was during the humanitarian catastrophe in the 1990s that international cooperation in the field of health and humanitarian affairs first commenced. There is highly contested literature regarding the value of these international efforts. Some, while acknowledging the restrictions on information and on movement of aid workers, nonetheless made the claim that the partnerships that resulted contributed to both an ease in the humanitarian situation as well as a more informed awareness of the conditions of the population in North Korea. ¹⁶A growing number of NGOs have been reported in the country in the mid-2000s, with these NGOs reporting improved public health interventions as a result, as well as providing the opportunity for improved international relations arising from NGO partnerships. Others provide far more negative assessments, and allege diversion of aid to the military establishment. ¹⁷

The National Political and Administrative Structure and Implications for Health

Throughout the twists and turns in national history and international relations outlined above, the political structure has remained remarkably resilient for over five decades. Administratively, the country is divided into 10 provinces and 206 counties, and is further subdivided into rural *ri* (or *dong* in the urban area), and thereafter into neighborhood sections. The section is the lowest administrative level and constitutes essentially the local neighborhood administration.

Before illustrating the links between this administrative structure and the design of the health care system, it is important first to explore the important links between national security policy and public health. The shift towards a military first strategy and the nuclearization of the country has important consequences for health sector resource allocation. According to the political ideology of Songun politics, the Korean People's Army is accorded the highest economic and resource allocation priority. The DPRK now has a standing army of 1.1 million in a population of only 23 million. From 25 to 30 percent of the GDP of \$28 billion is invested in defense expenditures in the DPRK.¹⁸ This large technological, hardware and human resource investment, in the context of a low and stagnant GDP alluded to earlier, has important implications for investments in social sector development. An in depth costing exercise of the medium-term plan for the development of the health sector in the DPRK confirmed that only 33 percent of funding was committed over a five-year period from priority health programs between 2011 and 2015, indicating substantial

financial gaps for essential health commodities and lifesaving medicines for the population over this period. ¹⁹ As we will see in more detail below, this shortfall in national investment for the health sector is linked to both low rates of international aid flows and relatively high rates of defense expenditures relative to GDP. This has had catastrophic consequences for the population, and in particular for the quality and reach of women's and children's health care services.

Structure of the North Korean Health Care System

The administration of the health system tracks the administrative system of the state. There is a network of provincial, county and ri hospitals, and at the primary level the "section doctor" model of health care. It is at the primary level of care that the very distinctive nature of the North Korean health care system becomes evident. The section doctors, though based at the ri clinic, are in fact directly accountable for provision of primary care to a set block of houses (50) in each community. There are 44,760 section or "household doctors" in the DPRK and with a ratio of 7.6 health workers per 1000 population has one of the highest health worker densities in the region.²⁰ This network of primary care practitioners forms the backbone of health care system in the DPRK by providing first line medical and emergency care, as well as a range of preventive health care services including ante natal care, family planning, child illness management, and immunization services.

Current Health System Barriers and Gaps

Although human resource numbers are high, there are major concerns regarding quality of care in North Korea. Despite support through development partners in recent years, the fact remains that, due to years of tensions in international relations and the related aid and economic embargoes, and restrictions of population movement across borders, the health workforce has become isolated from the most recent international health developments.

There is evidence from multiple sources over a lengthy period of time of under resourcing of the health sector. In 2003, it was reported that 70 percent of essential medicines to clinics and hospitals outside of the capital are being provided by international organizations, in particular UNICEF and the International Federation of the Red Cross.²¹ An independent evaluation of a Women's and Children's Health Project conducted in 2008 observed consistent reporting of about 30 percent stock out in the last three months in most of the facilities visited for pediatric drugs, and that the unmet need for emergency obstetric drugs was reported to be even higher at up to 50 percent.²² This seems to be verified by a number of reports of the desperation of the population in accessing the most basic medical care, and with increasing pressures on the population to make payments for care due to shortages of essential medicines, supplies, and referral transport.²³

The Decline in Public Health Infrastructure

Since the end of the Soviet era, there has been widespread decline in the quality of public infrastructure across the country. This particularly applies to the issue of water and sanitation. In the 1990s, the series of natural disasters had severe impacts on both water supply and sewerage systems. The 2008 census reported that 22 percent of the population above the age of 15 years is involved in collecting water, often from unprotected sources. Irregular water supply systems have resulted also in inability to maintain flush toilet sanitation systems, with most households now reliant on open air pit latrines. Chronic energy shortages mean that essential public facilities such as schools and hospitals are without basic energy supplies, and town water supplies are threatened by the breakdown of gravity fed water supply systems.

The current crisis in national and international financing is not restricted to under financing of the health sector. In fact, underfinancing of the public sector more broadly has had a catastrophic public health effect. In the 1970s, the DPRK had eliminated malaria. However, subsequent to changes in farming practices, natural disasters, and poor public health responses, there was amplification of the vector leading to an outbreak of 296,540 vivax malaria cases in the southern part of North Korea in 2001.²⁴

There is consistent documentation across the years of food insecurity in the country, exacerbated by recent natural disasters, with international agencies requesting significant (but largely unmet) requirements for essential food supply. Only 25 percent of the land surface in North Korea is arable for high yield agricultural products.²⁵ A Food and Agriculture Organization Food Security Assessment conducted in 2013

concluded that, despite an improvement in harvests in 2013, most of the households have "borderline and poor food consumption", with consumption of proteins and oil being a major problem. ²⁶ In terms of food security, the country remains highly vulnerable to the impacts of natural disasters of flood and drought or of economic downturn. Problems have been noted at the sub national level in the northeastern mountains and the flood and drought prone parts of the country with a large population in Ryanggang, North Hamgyong and South Hamgyong provinces. The most recent estimate by the World Food Program indicates that 70 percent of the population is food insecure.²⁷

It has been reported that the population adapts to food insecurity in several ways. Even though the most common source of food is the Public Distribution System, food can also be acquired through private markets where they are available, including farmer's markets, daily markets, and state shops. Other sources include transfers from relatives, the cultivation of kitchen gardens, and the collection of wild foods. Chronic childhood malnutrition ("stunting") rates are currently at 27.9 percent,²⁸ which means that just under one third of children (aged six and under) are chronically malnourished, leading to concerns regarding psychosocial and physical development of these children over the longer term.

Evidence of Some Recovery in Health System Performance in North Korea in Recent Years

Table 1 provides an overview of a selection of main health indicators in North Korea, including a comparison with regional countries.

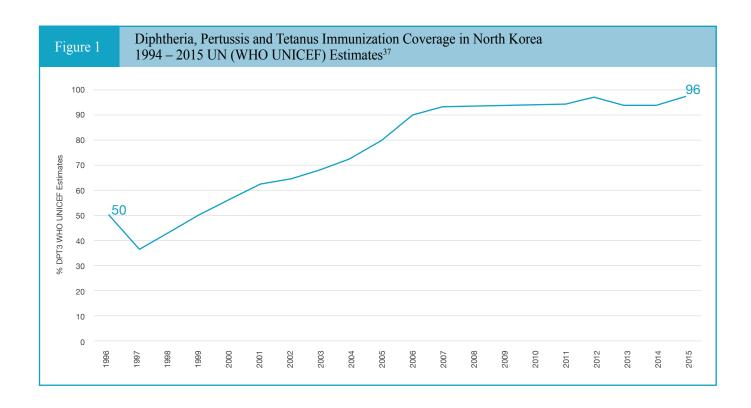
Table 1 Selection of Regional Health Indicators										
		Human Development Index Ranking ²⁹	Maternal Mortality per 1000 Births ³⁰	Child Mortality per 1000 Births	Ante Natal Care 4 Visits	% Childhood Stunting (children aged <5)	% DPT3 Vaccine Coverage ³¹	Estimated TB Cases and Deaths per 100,000 pop ³²		
		2015	2015	2015	Year	Year	2015	2015		
North Korea		No Data	82	25	93 (2009)	28 (2012)	96	61		
Myanmar		148	178	50	73 (2007)	35 (2010)	75	49		
Cambodia		143	161	28	76 (2014	32 (2014)	89	55		
Lao PDR		141	197	67	61 (2012)	44 (2012)	89	49		
Nepal		145	258	36	60 (2014)	38 (2014)	91	20		
Vietnam		116	54	22	74 (2014)	23 (2011)	97	17		

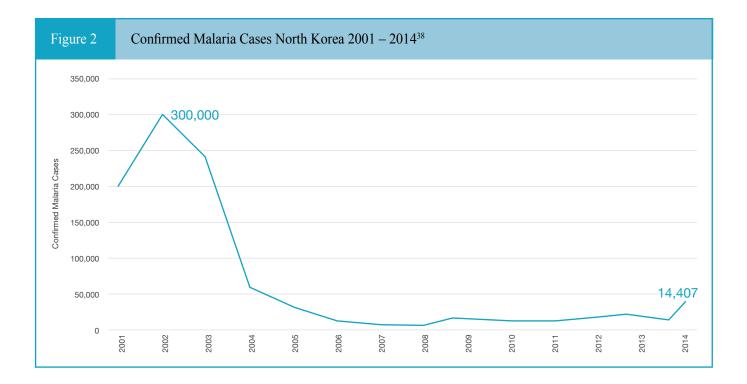
These indicators provide a mixed picture for public health status and trends in North Korea, with some areas providing evidence of decline and stagnation, and other areas demonstrating signs of recovery. Despite high ante natal care and health facility delivery rates, the maternal mortality rate in North Korea has increased from the 1990 rate of 75 per 100, 000 births to 82 per 100,000 in 2015.33 Although the current rate compares quite favorably with other countries in the region, the fact that North Korea is the only country in this sample from the region to have increased the rate from 1990 is indicative of stagnation in the quality of health system functioning, particularly with regards to functioning of a health care referral system between primary centres and hospitals, which is the critical area of investment for maternal mortality reduction. In contrast, child health indicators have demonstrated sustained improvements from 1990. Child mortality has declined from 43 per 1000 births in 1990 to 23 per 1000 births in 2015.34 Consistent with this decline, there have been improvements to both nutritional status and immunization coverage of children in this same period. Childhood stunting rates have declined from 64% in 1998 to 28% in 2012.35

The case of immunization highlights the value of targeted interventions in such governance contexts as North Korea. There has been a steady improvement in immunization coverage from the crisis years of the mid-1990s, where immunization coverage was below 40 percent. Coverage has been maintained above 90 percent since 2006 (Diphtheria,

Pertussis, and Tetanus vaccine or 'DPT3' – see Figure 1). The country, through collaborations with the Global Alliance for Vaccines and Immunization (a global public private partnership), has introduced new vaccines into the childhood vaccination program (for prevention of hepatitis and some forms of meningitis), and with local United Nations partners in country, assisted to rebuild cold chain systems and surveillance capacity to ensure safer and more effective delivery of vaccines to most children in the country. These partnerships have led to improved immunization coverage for children in the country, which has been validated through coverage surveys and international estimates of coverage.³⁶

Malaria prevention and control is another area which suggests some level of success. Following the re-emergence of malaria in the 1990s, the MOPH has dramatically reduced yearly caseloads from that of 296,540 cases in 2001 to 14,407 cases in 2010. These achievements, reinforced through multiyear investments through the Global Fund, were made through implementation of a series of public health measures including prompt treatment and distribution of insecticide treated bed nets. Figure 2 provides an outline of the latest UN estimates of the number of malaria cases in the DPRK between the early 2000s and 2014.





The field of tuberculosis (TB) control is far more contentious, principally due to lack of data to evaluate the nationwide incidence of TB.³⁹ Due to the benefits of Global Fund investments in tuberculosis (TB) control, the directly observed treatment approach has been scaled up nationally, and case detection has been consistently above 90 percent since 2003, and treatment success rates more than 85 percent continue to be achieved. Recent performance reports from the Global Fund indicate that 90.1 percent of new TB cases were successfully treated.⁴⁰ Despite these investments, as illustrated in Table 1, the incidence of TB in North Korea is still very high, and the latest data from the World Health Organization indicates cases in the country are increasing.⁴¹ Recent evidence is also emerging of high levels of multi drug resistant TB in the country.⁴²

Non-communicable diseases are also a significant problem in North Korea, with high smoking rates and rates of cardiovascular diseases and cancers, but with very limited specialist or primary care capacity to address the problem. One recent review of the burden of disease in North Korea has found that almost two thirds of deaths in North Korea are attributable to non-communicable diseases, although the burden of disease attributable to tuberculosis and malnutrition is still very significant.⁴³

An evaluation from the field of a women's and children's health project funded by the Republic of Korea through the World Health Organization found that the project implementation resulted in improved access to quality child health care and a reduction in maternal deaths where the project has been investing.⁴⁴ There are several challenges related to such

models of bilateral funding for women's health. The first is financial, as far as investments in maternal mortality reduction requires broader investment in strengthening of health systems including infrastructure, surgical facilities, referral services, essential medicines and blood and laboratory services support. The second challenge with such bilaterally funded projects is that funding can be captive to external political events, resulting in a 'stop start' project culture that works against long-term efforts to rebuild the health care system. Nevertheless, despite the constraints presented by the pressures of national and international politics, there is now gathering evidence, particularly in relation to child health and communicable disease control, to support the claim that recent public health interventions have alleviated the health conditions for women and children in North Korea.

Trends in International Financing for Development in North Korea

This finding of recent public health improvement, particularly in regards to child health, suggests that international partnerships and development programs have had some impact in recent years. But analysis of development assistance disbursements between the mid-1980s and 2015 does illustrate that development partner disbursements have been significantly lower to North Korea than to countries with a comparable development status in the region (see Figure 3). Previous published data on aid flows indicate that rates of development assistance flows to countries such as Cambodia and Laos for example, are up to 11 to 12 times higher on a per capita basis than in North Korea and in Myanmar.⁴⁵

Figure 3 illustrates the history of total donor flows (all sectors) to 4 countries including the DPRK. The sharp spike in development assistance in Myanmar in 2011-12 illustrated in figure 3, is related to the political openings in that country following constitutional reforms and commitment to general elections. This opened pathways to additional bilateral and multi-lateral assistance through the World Bank and the ADB, resulting in an increase in aid to that country of over 4 billion US\$ in 2013. These findings confirm a major thesis of this paper, in that public health systems investment, and the related public health status of the population, are closely intertwined with domestic political priorities and with trends in international relations.

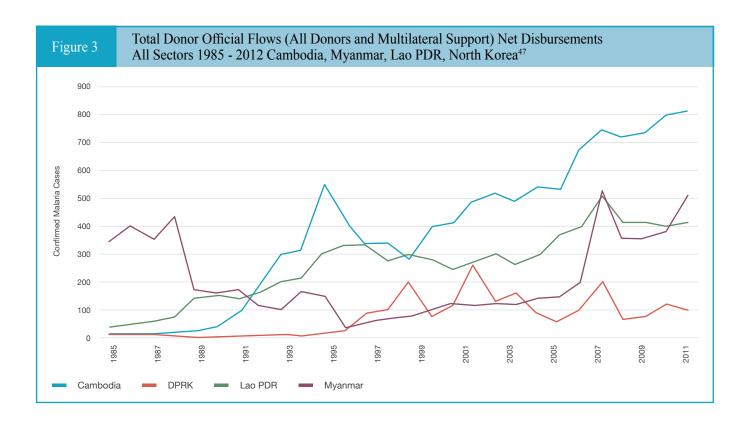
To offset the negative impact of domestic political priorities and international relations on public health, it is vital that aid is well targeted with cost effective public health interventions. Despite previous assessments indicating that aid is only beneficial in countries with sound macro policy frameworks, 48 the data presented in this paper regarding childhood immunization coverage and malaria control, does suggest that, well targeted aid in the context of a comparatively low volume of development assistance and domestic financing, still does have the capacity to realize tangible public health benefits for the population.

Discussion and Conclusions

The Role of History in Shaping Population Health and Health System Formation in North Korea

From a technical standpoint, the design of the North Korean health care system, with its vast array of facilities and human resources as previously outlined, should make a major contribution to public health. In fact, the household doctor system offers more opportunity for close contact of the population with the health care system than most countries of the region, which often struggle to locate health professionals in rural and remote areas of the country. But as we have seen, the benefits of health system investments have been swamped by the tide of international relations, and the rise of *Songun* politics in the Post Kim Il Sung era.

Domestically, the political ideology of "military first" clearly has significant implications for the internal allocations of resources to health and other social sectors. It is not possible to estimate the costs of nuclearization, but in the context of the size of the North Korean economy, these costs are no doubt formidable. There are also major questions of course regarding the economic efficiency of collectivized production systems



with most 20th century political experiments in this regard ending in stagnant economic growth and pressures for economic and social reform, as the cases of the Soviet Union and the People's Republic of China amply demonstrate. Although it is in fact the case that the DPRK experienced economic growth in the earlier decades following its foundation in 1948, the fact remains that this growth was based in large part on favorable resource inflows from the former Soviet Union. This finding is reflected in trade statistics, which demonstrate that trade as a percentage of GDP dropped from 20 percent before the Soviet collapse to 12 percent in 2000.⁴⁹ The "Sunshine Policy" of the Republic of Korea altered the tenor of relations between the North and the South between 1998 and 2008, and resulted in a rise in trade between the two from \$333 million in 1999 to \$1.8 billion in 2008. By 2008, trade had recovered to the pre-Soviet level of 20 percent of GDP. Along with this improving trade came a gradual opening up of international aid.

Despite the impact of the Sunshine Policy and expanding trade links with China, recent public health initiatives have taken place against a backdrop of ongoing economic embargoes and trade sanctions from the broader international community. In fact, where aid instruments have been applied, they have often been used more crudely, with the provision of economic aid reportedly being used as a lever by which to extract political concessions. This is most evident in the conducting of intermittent Six-Party Talks between USA, China, Japan, Russia, the DPRK and South Korea, where international aid, energy supplies and economic sanctions are being continually applied as instruments of negotiations in order to encourage denuclearization of the country.

U.S. policy on the DPRK has been reported by one analyst to "stand on two legs", with one leg being that of gradual engagement with the North, commencing with a series of negotiations with Pyongyang in the early 1990s on denuclearization. The other policy leg is that of containment, largely mediated through upgrading the US Government's own as well as allies' military capabilities in the region. 50 Initially, the Six Party Talks provided a unique opportunity for the U.S. and China to forge a strategic cooperation in the area of North Korean policy,⁵¹ and thereby assist to tilt international policy towards one of engagement. However, recent tensions in the South China Sea, and continued testing of nuclear devices by the Northern Regime, is testing the relationship between the larger powers. A fundamental principle of the Sunshine policy is the absolute rejection of war as an instrument of policy including policy on reunification. Rather than being interpreted as a form of appeasement, the Sunshine policy operates on principles of engagement through "dialogue, cooperation, exchanges and trust building."52 From the standpoint of international aid, the current predominance of national security and containment strategies over those of human security and engagement in international relations will mean that there is unlikely to be significant changes to patterns and volume of aid in the coming years.

These tensions in international relations outlined above have arguably also contributed to the siege mentality of the DPRK State, and assisted to reorient its domestic pattern of resource allocation towards defense expenditures. The evidence for this siege mentality has been reinforced by the recent unilateral declaration of the DPRK government on March 11, 2013 to nullify the armistice arrangements from 1953. In other words, in the context of the DPRK, it is the hard diplomacy of military power that is the dominant paradigm in both national politics and international relations. Soft power diplomacy, particularly here in relation to humanitarian and development effort, has being relegated as a lower order foreign and domestic policy priority. In this regard, the history of the Korean Peninsula particularly in the 20th and early 21st century provides more than enough evidence of the extent to which the ebb and flow of national politics and international relations has impacted on the health of the population.

In summary, health systems and population health have been socially and politically deconstructed by the military first patterns of political power exercised domestically through Songun politics, and internationally through confrontational stances of encircling bilateral powers. The national ideology of Juche, with its overall emphasis on self-reliance, has resulted in external economic relationships being limited to politically and economically subsidized relations with Soviet and Chinese sponsors, in contrast to the outward orientated economic policies of the South.⁵³ Similarly, in the health sector, this philosophy of self-reliance has in all probability contributed partially to deconstruction, by limiting ideological motivation for partnerships with external agencies and non-government organizations. In this regard, the fate of the health care systems and the population it serves have become very much subject to the vicissitudes of domestic political priorities and international relations.

Mitigating Historical Impacts - Lessons from International Partnerships for Health in North Korea

Bridging the divide between these contending historical forces of political construction and deconstruction of health care systems are the tentative steps undertaken through national and international partnerships to revive the faltering health care system in the last 10 years, with, as we have seen, some promising but yet very early results. Improvements in immunization, and communicable disease control, and early steps towards strengthening of primary level maternal and child health care services, augur well for the Korean population from a number of perspectives. In providing essential services and health commodities for life saving interventions, such

partnerships have demonstrated the real capacity to conserve and improve the lives of ordinary Korean families, without in any way impinging upon the strategic political objectives of states in conflict. Secondly, and even more importantly, these partnerships in improved primary care are bringing the North Korean health workforce into contact with the latest international guidance and technical knowledge on public health, which bodes well for ensuring a transition towards an integrated health care workforce on the Korean Peninsula in future years. Such an approach should do well to build on the lessons learned from reunification of the German health care system, the experience of which points to the need to develop long term partnerships and road maps, and that the most critical way to prepare for this road map is to *make improvements to the current system*.⁵⁴

By engaging with this narrow "technical space" for health system improvement, partners on the peninsula have the opportunity to move beyond and around the forces of history and ideology. It provides feasible scope for addressing the immediate and medium-term health humanitarian needs of the population in North Korea, as well as providing the best opportunity to bring the North Korean health system up to regional standards.

Conclusions

Most available evidence would support the claim that, although there are ongoing threats to the human security of the North Korean population, there is no immediate threat to the survival of the North Korean state. The ranking of humanitarian health aid and investment as a lower order domestic and foreign policy priority has locked the international discourse onto the national security objectives of rival states, with the human security of the North Korean populations viewed at the very best as a bargaining chip in their hard power negotiations. In this regard, there is a real sense in which the population in North Korea has become entrapped within a rigid political culture that is dominated by geopolitical position and internal security, and situated between rival states in an international order dominated by the doctrines of hard power. It reinforces the notion that, as Thucydides has been quoted in the North Korean context, the strong do what they can, and the poor suffer what they must.55 In this way, the system of both national politics and international relations permeates the everyday existence of North Korean families, and is arguably the most powerful force in shaping their health destiny.

Notwithstanding the power of political and historical forces to shape the pattern of health in North Korea, it nonetheless remains the case that there is still room for technical health policy maneuver to make substantial improvements in public health, even in the toughest of historical and governance contexts.

The tactical positioning of Global Health Initiatives and other non-state actors in particular represent important opportunities for widening the humanitarian and development space for shared action, particularly in such critical public health domains as immunization, communicable disease control, nutrition and maternal and child health. Bilaterally funded programs also have the potential to be effective provided they are not subject to the 'stop start' mentality of a project timelines linked to external political events.

If there is to be common ground between various national and international players on the Korean Peninsula, then joint action on the health and nutritional welfare of mothers and young children should the safest space on which to build longer term humanitarian and development relationships. This will enable a shift in the international discourse on the Korean Peninsula from an almost exclusive focus on national security, onto matters of human security, and will enable the North Korean health system to edge closer to an acceptable regional standard.

¹ Park P. 2001, "The future of the Democratic People's Republic of Korea," Journal of Contemporary Asia, 31:1, 104-120 DOI: 10.1080/00472330180000071.

² Perspectives on North Korea, Taylor & Francis Publishers (2013), http://explore.tandfonline.com/content/pgas/perspectives-on-north-korea.

³ Haewon Lee, Deborah Y. Ahn, Soyoung Choi, Youngchan Kim, Hyunju Choi, Sang Min Park, 2013, *The Role of Major Donors in Health Aid to the DPRK*, J Prev Med Public Health 46:118-126.

⁴ McCurry, J., 2010, North Korea's Health System in Disarray," *Lancet*, Volume 376, Issue 9738, Page 318.

⁵ J Grundy, D Hipgrave, B A Biggs, 2015, "Public Health and International Partnerships in the Democratic People's Republic of Korea," *PLOS Medicine*, DOI: 10.1371/journal.pmed.1001929 http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001929.

⁶ Grundy J, Moodie R., 2008, "An Approach to Health System Strengthening in the Democratic People's Republic of Korea (North Korea)," *International Journal of Health Planning and Management*, 23: 1–17.

⁷ Grundy J, P Annear, K Bowen, BA Biggs, 2012, "The Responsibility to Protect: Inequities in International Aid Flows to Myanmar and the Democratic People's Republic of Korea and Their Impact on Maternal and Child Health," *Asian Studies Review*, 36:2, 171-187.

⁸ Government of DPRK Central Bureau of Statistics, 2010, The DPRK Multiple Indicator Cluster Survey 2009 - Final Report, http://www.unicef.org/dprk/MICS_ DPRK_2009.pdf.

Government of DPRK Central Bureau of Statistics Census, 2009, http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20 census%20report.pdf.

¹⁰ World Health Organization, 2016, Global Health Observatory.

¹¹ Cha, V, 2012, The Impossible State: North Korea, Past and Future Pymble, Australia: HarperCollins.

¹² Sunyoung Pak, Daniel Schwekendiek, and Hee Kayoing Kim, 2011, "Height and Living Standards in North Korea, 1930s–1980s," *Economic History Review*, 64, S1 (2011): pp. 142–158.

¹³ Goe, L., Linton, J., 2005, Community-Based Public Health Interventions in North Korea: One Non-Governmental Organization's Experience with Tuberculosis and Hepatitis B, *Public Health*, 119 6, pp. 347–352.

¹⁴ Haggard S., Noland, M., 2007, Famine in North Korea: Markets, Aid and Reform (New York: Columbia University Press, 2007): pp. 73-76, quoted in Victor Cha, The Impossible State: North Korea, Past and Future (Pymble, Australia: HarperCollins, 2012).

- 15 Yong-Soo Park, 2009, "The Political Economy of Economic Reform in North Korea," Australian Journal of International Affairs, Vol. 63, No. 4: pp. 529-549 (December 2009).
- 16 Smith, H., 1999, Opening up' by Default: North Korea, the Humanitarian Community and the Crisis, Pacific Review 12-3: pp. 453-478.
- ¹⁷ Terry, Fiona, 2001, The Deadly Secrets of North Korea, Ideas and Opinions (2001), http://www.doctorswithoutborders.org/publications/article.cfm?id=.
- ¹⁸ Cha, V, 2012, The Impossible State: North Korea, Past and Future Pymble, Australia: HarperCollins
- ¹⁹ Ministry of Public Health and WHO, 2011, Medium term Plan for the Development of the Health Sector in DPR Korea 2010-2015 WHO Pyongyang http://www.nationalplanningcycles.org/sites/default/files/planning_cycle_repository/democratic_peoples_republic_of_korea/mtsp_2010_-_2015.pdf
- ²⁰ Updated assessment of health workforce population ratios, World Health Report 2006, World Health Organization WHO (2006), http://www.who.int/whr/2006/en/.
- ²¹ Grundy J, Moodie R, 2009, "Approach to Health System Strengthening in the DPRK, International Journal of Health Planning and Management," Int J Health Plann Manage. 2009 Apr-Jun;24(2):113-29. doi: 10.1002/hpm.958.
- ²² Nossal Institute for Global Health, 2009, University of Melbourne Evaluation of Women's and Children's Health Program.
- ²³ McCurry, 2010, North Korea's Health System in Disarray, Lancet. 2010 Jul 31;376(9738):318
- ²⁴ WHO Global Health Observatory, MOPH Global Fund Proposal, 2010, Malaria Rd 8, pp: 14/68, http://apps.who.int/ghodata/?vid=7400&theme=country#.
- 25 UNICEF, 2003, Analysis of the Situation of Women and Children in DPRK, UNICEF Pyongyang, http://www.unicef.org/dprk/situationanalysis.pdf.
- ²⁶ Food and Agriculture Organization, 2013, Food Security Assessment Mission Report, 2013 DPRK http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/246456/
- 27 World Food Programme, 2016, Press Statement (September 13, 2016), http://www.wfp.org/news/news-release/wfp-provides-emergency-relief-over-140000-people-hit-floods-dprk.
- ²⁸ CBS Central Bureau of Statistics, 2013, Democratic People's Republic of Korea Final Report of the National Nutrition Survey 2012, CBS Central Bureau of Statistics with technical support from UNICEF, WFP, WHO (March 2013), http://reliefweb.int/sites/reliefweb.int/files/resources/DPRK-NNS-Final-Report_eng-2013f.pdf.
- ²⁹ UNDP, 2015, Human Development Report 2015 http://hdr.undp.org/sites/default/files/ranking.pdf
- 30 Maternal, Child Mortality, and ANC coverage and nutrition data all sourced from WHO Global Health Observatory http://apps.who.int/gho/data/view.main.1630
- 31 WHO Vaccine Monitoring Data Base WHO UNICEF Estimates http://www.who.int/immunization/monitoring_surveillance/data/en/
- 32 WHO Data Visualizations TB Cases and Deaths WHO Geneva 2016 http://gamapserver.who.int/gho/interactive_charts/tb/cases/atlas.html
- 33 World Health Organization Global Health Observatory 2017 http://apps.who.int/gho/data/view.main.1630
- 34 World Health Organization Global Health Observatory 2017 http://apps.who.int/gho/data/view.main.1630
- 35 World Health Organization Global Health Observatory 2017 http://apps.who.int/gho/data/view.main.1630
- ³⁶ John Grundy, Beverley-Ann Biggs, David B. Hipgrave, Public Health and International Partnerships in the Democratic People's Republic of Korea Published: December 29, 2015 Plos Medicine http://dx.doi.org/10.1371/journal.pmed.1001929
- ³⁷ WHO Global Vaccination Monitoring Data Base DPRK, http://apps.who.int/immunization_monitoring/globalsummary/estimates?c=PRK.
- 38 World Malaria Report, World Health Organization (2014), p. 215, http://www.who.int/malaria/publications/world_malaria_report_2014/wmr-2014-annexes.pdf?ua=1.
- ³⁹ Young-jeon Shin, Moran Ki, and Nackmoon Sung, 2015, A new strategy for tuberculosis control in North Korea *Epidemiol Health*. 2015; 37: e2015053. Published online 2015 Nov 22. doi: 10.4178/epih/e2015053 PMCID: PMC4722223
- 40 Global Fund to Fight Malaria, Tuberculosis and HIV AIDs (GFATM), 2012, http://portfolio.theglobalfund.org/en/Grant/Performance/PRK-810-G02-T.
- 41 WHO, 2016, Data Visualizations TB Cases and Deaths WHO Geneva 2016 http://gamapserver.who.int/gho/interactive_charts/tb/cases/atlas.html
- ⁴² Kwonjune J. Seung, Molly Franke, and Stephen W Linton, 2016, . Multidrug-Resistant Tuberculosis Treatment in North Korea: Is Scale-Up Possible? PLoS Med. 2016 Aug; 13(8): e1002062.
- 43 Yo Han Lee, Seok-Jun Yoon, Young Ae Kim, Ji Won Yeom, In-Hwan Oh, 2013, Overview of the Burden of Diseases in North Korea, J Prev Med Public Health 46 pp. 111-117.
- 44 Nossal Institute for Global Health, 2009, University of Melbourne Evaluation of Women's and Children's Health Program.
- 45 J Grundy, P Annear, K Bowen, B.A. Biggs, 2012, The Responsibility to Protect: Inequities in International Aid Flows to Myanmar and the Democratic People's Republic of Korea and their Impact on Maternal and Child Health Asian Studies Review 36(2):171-187
- ⁴⁶ OECD Query Wizard for International Development Statistics http://stats.oecd.org/qwids/
- ⁴⁷ OECD Query Wizard for International Development Statistics http://stats.oecd.org/qwids/
- ⁴⁸ Craig Burnside, David Dollar, 2000, Aid, Policies, and Growth American Economic Review vol. 90, no. 4, September 2000 (pp. 847-868)
- ⁴⁹ Babson, B., 2012, Future Strategies for Economic Engagement with North Korea, in Kyung-Ae Park and Scott Snyder North Korea in Transition Politics, Economy and Society (UK: Rowman and Littlefield Publishers, 2013).
- ⁵⁰ Jae-Jung Su The Two Wars Doctrine and the Regional Arms Race, 2003, Critical Asian Studies 35:1 (2003) 3-32
- ⁵¹ Bonnie Glaser and Wang Liang North Korea: The Beginning of a US China partnership Washington Quarterly 31-3 165-1802008 http://www.tandfonline.com/doi/pdf/10.1162/wash.2008.31.3.165?needAccess=true
- ⁵² Moon Chung-in Prospects For North Korean Economic Reform Koreas Economy 2014 Vol 28 Koreas Economy
- 53 Babson, B., 2013, Future Strategies for Economic Engagement with North Korea, in Kyung-Ae Park and Scott Snyder North Korea in Transition Politics, Economy and Society (UK: Rowman and Littlefield Publishers, 2013).
- ⁵⁴ Gun-Chun Ryu, 2013, Lessons from Unified Germany and Their Implications for Healthcare in the Unification of the Korean Peninsula, J Prev Med Public Health 46:127-133.
- 55 Ji-Hyun Kim, "Toward a Comprehensive Understanding of North Korea's Nuclear Conundrum: The Six Parties in Complex Interdependence from 2002 to 2008," Asian Politics & Policy, Volume 3, Number 2 (2011), pp. 249–283.

Leading Economic Indicators for Korea

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Growth Rate of Real GDP (%) Annual change at Chained 2010 Constant Prices	2.8	0.7	6.5	3.7	2.3	2.9	3.3	2.8	2.8
GDP Current US\$ billions	1,001.7	902.3	1,094.3	1,202.7	1,222.4	1,305.4	1,411.0	1,382.40	1,411.00
GNI Per Capita US\$	20,419	18,256	22,105	24,226	24,600	26,070	27,892	27,171	27,561
Current Account Balance Current US\$ billions, BOP basis	3.2	33.6	28.9	18.7	50.8	81.1	84.4	105.9	98.7
Consumer Prices (%) Annual Change at 2010=100 Constant Prices	4.7	2.8	2.9	4.0	2.2	1.3	1.3	0.7	1
Unemployment Rate (%)	3.2	3.6	3.7	3.4	3.2	3.1	3.5	3.6	3.7
Inward Foreign Direct Investment US\$ billions	11.2	9.0	9.5	9.8	9.5	12.8	9.3	5.0	N/A
Stock Price Index Average	1529.49	1429.04	1764.99	1983.42	1930.37	1960.5	1982.16	2011.85	1987
Exchange Rate Average Won/US\$	1,260	1,165	1,135	1,152	1,071	1,055	1,099	1173	1208

Bank of Korea National Statistical Office UNCTAD

FTA Trade Data (Imports)

FTA Partner	Year FTA Implemented	Imports Year Prior to Implementation	2012	2013	2014	2015	2016
ASEAN	2007*	\$34,053,303	\$51,977,288	\$53,339,069	\$53,417,787	\$45,030,695	\$44,308,069
Australia	2014*	\$20,784,616	\$22,987,917	\$20,784,616	\$20,413,019	\$16,437,806	\$15,165,380
Canada	2015	\$5,442,591	\$5,247,371	\$4,717,331	\$5,442,591	\$3,983,082	\$3,942,465
Chile	2004	\$1,057,723	\$4,676,463	\$4,657,503	\$4,810,134	\$4,402,094	\$3,701,955
China	2015	\$90,082,226	\$80,784,595	\$83,052,877	\$90,082,226	\$90,250,275	\$86,962,000
Colombia	2015	\$607,608	\$414,770	\$206,586	\$607,608	\$323,482	\$432,859
EFTA	2006	\$1,818,056	\$7,713,240	\$6,408,617	\$5,631,875	\$5,122,925	\$4,042,319
European Union	2011	\$38,720,830	\$50,374,026	\$56,229,819	\$62,393,661	\$57,199,021	\$51,901,261
India	2010	\$4,141,622	\$6,920,826	\$6,180,172	\$5,274,668	\$4,240,565	\$4,188,967
New Zealand	2015*	\$1,526,481	\$1,339,176	\$1,395,172	\$1,526,481	\$1,225,020	\$1,098,258
Peru	2011	\$1,038,932	\$1,639,407	\$1,983,017	\$1,432,825	\$1,135,814	\$1,294,815
Singapore	2006	\$5,317,665	\$9,676,408	\$10,369,435	\$11,303,182	\$7,942,129	\$6,805,668
Turkey	2013	\$672,311	\$672,311	\$691,870	\$655,159	\$789,555	\$737,782
United States	2012	\$44,569,029	\$43,340,962	\$41,511,916	\$45,283,254	\$44,024,430	\$43,212,047
Vietnam	2015*	\$7,990,325	\$5,719,246	\$7,175,193	\$7,990,325	\$9,804,831	\$12,495,050

In thousands of U.S. dollars.

*indicates FTA came into effect at the end of a calendar year.

Data from the Korea International Trade Association.

FTA Trade Data (Exports)

FTA Partner	Year FTA Implemented	Exports Year Prior to Implementation	2012	2013	2014	2015	2016
ASEAN	2007*	\$40,979,192	\$79,145,169	\$81,996,804	\$84,577,372	\$74,824,364	\$74,530,999
Australia	2014*	\$9,563,090	\$9,250,485	\$9,563,090	\$10,282,512	\$10,830,635	\$7,488,836
Canada	2015	\$4,916,629	\$4,828,116	\$5,202,855	\$4,916,629	\$4,623,244	\$4,886,206
Chile	2004	\$517,187	\$2,469,337	\$2,458,198	\$2,083,323	\$1,742,342	\$1,611,455
China	2015	\$145,287,701	\$134,322,564	\$145,869,498	\$145,287,701	\$137,123,934	\$124,432,718
Colombia	2015	\$1,509,399	\$1,467,701	\$1,342,312	\$1,509,399	\$1,128,951	\$853,467
EFTA	2006	\$1,090,367	\$1,494,923	\$2,441,207	\$2,021,334	\$6,301,959	\$4,110,145
European Union	2011	\$53,506,562	\$49,370,825	\$48,857,103	\$51,658,051	\$48,079,270	\$46,613,849
India	2010	\$8,013,290	\$11,922,037	\$11,375,792	\$12,782,490	\$12,029,587	\$11,598,547
New Zealand	2015*	\$1,730,305	\$1,465,066	\$1,490,532	\$1,730,305	\$1,262,746	\$1,305,131
Peru	2011	\$944,438	\$1,472,617	\$1,440,213	\$1,391,727	\$1,217,373	\$1,156,030
Singapore	2006	\$9,489,300	\$22,887,919	\$22,289,028	\$23,749,882	\$15,011,164	\$12,459,151
Turkey	2013	\$4,551,618	\$4,551,618	\$5,657,826	\$6,664,732	\$6,249,319	\$5,385,453
United States	2012	\$56,207,703	\$58,524,559	\$62,052,488	\$70,284,872	\$69,832,103	\$66,472,534
Vietnam	2015*	\$22,351,690	\$15,945,975	\$21,087,582	\$22,351,690	\$27,770,750	\$32,650,609

In thousands of U.S. dollars.

 $\mbox{\ensuremath{^{\star}}}\mbox{indicates FTA}$ came into effect at the end of a calendar year.

Data from the Korea International Trade Association.