Evaluation of the Gavi Health Systems Strengthening Support to The Democratic People's Republic of Korea

This report was prepared by the Health Intervention and Technology Assessment Program (HITAP), Thailand

In collaboration with World Health Organization (WHO) country office for Democratic People's Republic of Korea on behalf of WHO and UNICEF country offices in the Democratic People's Republic of Korea and Gavi, the Vaccine Alliance

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Acronyms

AEFI	adverse event following immunization
APR	Annual Progress Report
bOPV	bivalent oral polio vaccine
CHAEI	Central Hygiene and Antiepidemic Institute
CMW	Central Medical Warehouse
cMYP	comprehensive Multi-Year Plan
DQS	data quality self-assessment
DTP	diphtheria, tetanus and pertussis
EAPRO	East Asia and Pacific Regional Office
EPI	Expanded Programme on Immunization
EVM	Effective Vaccine Management
Gavi	Gavi, the Vaccine Alliance
HITAP	Health Intervention and Technology Assessment Program
HSCC	Health Sector Coordinating Committee
HSS	health systems strengthening
ICC	Interagency Coordination Committee
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IEC	information, education and communication
IMCI	Integrated Management of Childhood Illness
IMNCI	Integrated Management of Neonatal and Childhood Illness
IPV	inactivated polio vaccine
IRC	Independent Review Committee
IRD	Institute for Research and Development
JRF	Joint Reporting Form
KII	key informant interview
M&E	monitoring and evaluation
MCH	maternal and child health
MoPH	Ministry of Public Health
NCD	noncommunicable disease
NCL	National Control Laboratory
NITAG	National Immunization Technical Advisory Group
NPO	national programme officer
NRA	National Regulatory Authority
PBF	performance-based financing
PMU	Project Management Unit
SDD	solar driven drive
SOP	standard operating procedure
tOPV	trivalent oral polio vaccine
ToT	training of trainers
UHC	universal health coverage
UNICEF	United Nations Children's Fund
UNSC	United Nations Security Council
VPD	vaccine-preventable disease
WFP	World Food Programme
WHO	World Health Organization

Executive summary

The Government of the Democratic People's Republic of Korea was one of the first countries to successfully apply for Gavi, the Vaccine Alliance (Gavi)'s new funding window on health systems strengthening (HSS) in 2006, and was subsequently awarded a second Gavi HSS grant in 2014 (HSS 1 and 2, respectively). This report summarizes the findings of an "end-of-grant" evaluation of the first Gavi HSS grant and the midterm progress assessment of the second Gavi HSS grant, covering the period from 2007 to 2017. The objectives of this evaluation were to: assess the extent to which Gavi HSS support provided to the Democratic People's Republic of Korea during this period achieved, or is on track to achieve, its objectives; determine to what extent it has contributed to strengthening the health system of the country; identify issues encountered during implementation that have affected the overall results; and share the lessons learnt for informed decision-making with regard to future support from Gavi and other international donors to the Democratic People's Republic of Korea.

The methods employed for this study included a document review, an analysis of secondary data, a self-assessment, key informant interviews and direct observation of health facilities during an in-country mission.

The findings suggest that Gavi HSS support can be regarded as a success. The support has contributed to strengthening of the cold-chain system, human resource development and the process of planning for immunization service delivery. Gavi HSS support has helped in maintaining high and equitable immunization coverage and introduction of new vaccines in the country. In addition to meeting targets set in the proposal, Gavi HSS support in the Democratic People's Republic of Korea has also achieved many important outcomes that were not explicitly stated in the proposal, such as using the cold chain and logistical infrastructure for delivering other health services by health facilities, and the enhanced synergistic collaboration between the United Nations Children's Fund (UNICEF) and World Health Organization (WHO), which are the two implementing agencies. Through this support, Gavi has proven to the global community that the alliance was able to make an impact in a country with multiple geopolitical challenges.

There are lessons to be learnt from the implementation of Gavi HSS support, and going forward, there are areas that can be strengthened. Firstly, the project proposal for Gavi HSS 2 support was developed in less than an ideal time frame without any feedback from lessons learnt during implementation of Gavi HSS 1 support, and with limited resources. Secondly, there has been a delay in disbursement and use of funds due to challenges arising from international sanctions. Thirdly, immunization services in the country need to be considered alongside their financial sustainability. Finally, while appreciating the partnership of UNICEF and WHO that brings many benefits to the implementation of Gavi HSS support in the Democratic

Gavi HSS support in the Democratic People's Republic of Korea has achieved many important outcomes, such as using the cold chain and logistical infrastructure for delivering other health services by health facilities, and the enhanced synergistic collaboration between the United Nations Children's Fund (UNICEF) and World Health Organization (WHO), which are the two implementing agencies.

People's Republic of Korea, it must be stated that this partnership has the potential to affect the process of grant monitoring and evaluation, given that the two agencies play dual roles of being grant-holders as well as implementation partners.

We recommend that Gavi should: (i) continue to support the Democratic People's Republic of Korea; (ii) promote sharing of its success in the Democratic People's Republic of Korea with the global community; (iii) dedicate more resources to future project proposals for Gavi HSS support; (iv) develop guidelines for the Ministry of Public Health, consultants, UNICEF and WHO to define their individual roles and ensure their full participation in development of project proposals for Gavi HSS support; (v) review the potential for conflict of interest in the process of approval of current Gavi HSS applications, especially when the consultant who is involved in developing country proposals is also involved in the application review process; (vi) enforce its end-of-grant evaluation requirement and clarify its use to all parties; (vii) support addressing of common causes of delays in grant implementation; and (viii) explore appropriate models for implementing Gavi HSS support through implementing partner agencies.

We urge the government of the Democratic People's Republic of Korea to review findings of the present evaluation, to take actions as appropriate and to work closely with UNICEF and WHO to ensure that the remaining activities under Gavi HSS 2 support are implemented in a timely manner. Further, we make the following general recommendations: (i) invest more in health in order to ensure sustainability of the immunization programme; and (ii) continue supporting future independent evaluations of Gavi HSS support.

We recommend to UNICEF and WHO to: (i) work closely with the Government of the Democratic People's Republic of Korea to ensure that the remaining activities under Gavi HSS 2 support are completed in a timely manner; (ii) ensure that midterm and end-of-grant evaluations of Gavi HSS 2 support are conducted in a timely manner; (iii) prepare for operating under more stringent international sanctions; and (iv) document and report to the United Nations the impact of international sanctions on humanitarian aid to the Democratic People's Republic of Korea.

WHO-UNICEF and MoPH frequently conduct joint monitoring and supportive supervisions to improve the quality of immunization services

Background

1. Background

1.1 Gavi and its support for health systems strengthening

Gavi, the Vaccine Alliance (Gavi) has brought together public and private resources to improve equitable access to immunization in resource-limited settings that endure the greatest vaccine-preventable disease (VPD) burden. Since its establishment in 2000, Gavi has applied a demand driven model and worked in 77 countries for 12 underused vaccines *(1)*. In 2005, recognizing that system-wide barriers could constrain national and subnational immunization coverage, the Gavi Board endorsed a funding stream for strengthening health systems, with support available to all Gavi-eligible countries. Health systems strengthening (HSS) grants can be used to address bottlenecks in immunization, with the overall aim of strengthening effective delivery of maternal and child health (MCH) services for a wide range of activities. These activities revolve around broad categories such as infrastructure development, procurement and supply chain management and training and supervision of community health workers and health professionals, among others. The Democratic People's Republic of Korea was eligible for Gavi's new funding stream aimed at strengthening health systems for delivery of MCH services, including immunization.

Despite many significant achievements, the Democratic People's Republic of Korea has experienced many public health challenges in recent decades due to economic downturn, natural disasters and limited overseas development aid compared to other countries with similar economic status. The confluence of these factors resulted in a drop in life expectancy from 71 years to 69 years from 1990 to 2010 *(2)*. Nevertheless, Lee et. al *(3)* reported that the disease burden in the Democratic People's Republic of Korea differs from that in other low-income countries. The under-5 mortality rate is relatively low, while noncommunicable diseases (NCDs) act as a major cause of mortality in the country. Despite these numerous challenges, the Government of the Democratic People's Republic of Korea maintains a strong commitment to universal health coverage (UHC) including MCH services through an extensive network of more than 800 general and specialized hospitals at the central, provincial and county levels. This network consists of about 1000 hospitals and 6500 polyclinics at *ri* (rural county) and *dong* (urban county) levels, with an estimated workforce of 50 000 section level or household doctors working at the community level *(4)*.

In 2006, being aware of opportunities available through the Gavi Alliance's new funding stream to address immunization bottlenecks through the MCH service delivery platform, the Government of the Democratic People's Republic of Korea applied to Gavi for HSS support. The application was eventually approved and implemented during the period 2007 to 2013. At the conclusion of Gavi HSS 1 support, the Democratic People's Republic of

Korea submitted a second project proposal for Gavi HSS support, which was approved by Gavi in 2014. It was originally planned to be implemented till 2018, but was extended by a year due to delay in implementation. The objectives of Gavi HSS support in the Democratic People's Republic of Korea are described in the next section. WHO Country Office for the Democratic People's Republic of Korea, which is a co-recipient of Gavi HSS grants in the country, is commissioning this evaluation in collaboration with the United Nations Children's Fund (UNICEF), the other co-recipient, Gavi Secretariat and the Ministry of Public Health (MoPH) in order to determine the relevance, effectiveness, efficacy, efficiency and results of Gavi HSS support, as well as fulfilment of the requirements of the first Gavi HSS grant. Results of the evaluation will allow the country, co-recipients of the grant, Gavi Secretariat and various other national and international partners to learn from the experience of planning, implementing and monitoring and evaluation (M&E) of Gavi HSS support. Further, lessons learnt in implementing Gavi HSS support under multiple challenges due to United Nations' sanctions will provide opportunities to the country for overcoming challenges and further strengthening successful planning and implementation of similar Gavi supported grants or those supported by other donors to the Democratic People's Republic of Korea in future, to achieve intended outcomes and impacts. These lessons will also be useful for other countries with a similar background.

1.2 Gavi HSS support to the Democratic People's Republic of Korea

The history of the Democratic People's Republic of Korea is closely linked with the alliances of the post-Second World War era. During the first 3 decades following its formation, the Democratic People's Republic of Korea achieved a significant

Information management is equally important as service provision in immunization

gross national income per capita, largely due to the support it received from the erstwhile Soviet Union in subsidies and trade as well as in establishing heavy industry. The country witnessed a sharp contraction in the economy following the fall of the Soviet Union along with famine and energy shortages in the 1990s *(5)*. In addition to domestic crises, domestic health expenditure has been relatively low due to conflicting priorities *(5)*. The country has been under sanctions of the United Nations Security Council (UNSC) since 2006. Sanctions were subsequently revised, most recently in September 2017 *(6)*. While several international donor agencies came in to support the country in the 1990s, by 2013 international aid to the country was much lower than to other countries in the region with similar levels of development *(7)*. In this context, the MoPH with support from UNICEF and WHO Country Office for the Democratic People's Republic of Korea made an application to Gavi in 2006 to utilize its new funding stream for HSS support. Eventually, the country was among five out of 70 Gavi-eligible countries that received the first round of Gavi HSS support *(8)*.

A key objective of Gavi HSS support to the country has been to foster broad health systems improvement *(4, 9)*. In the first phase (HSS 1), the

expected outcomes included strengthening of health planning and information systems to be able to identify areas with low immunization coverage and at risk of outbreaks of VPDs. Furthermore, this phase of Gavi HSS support aimed at improving financial management in order to make vaccine supplies available in a timely manner, reduce vaccine wastage, enhance management of supplies and logistics and ensure efficient supply of vaccines and equipment to the *ri* level. Lastly, the first phase of Gavi HSS support sought to reinforce quality standards for health management and service delivery and target service delivery support to areas with low immunization coverage. The expected outcomes of the second phase of Gavi HSS (HSS 2) support were to sustain high and equitable immunization coverage measured in terms of the third dose of diphtheria, tetanus and pertussis (DTP) vaccine by enhancing institutional capacity at all levels of the health system in the country. Support included the introduction of national health accounts, financial management planning systems, making transportation available for delivery of vaccines and other ancillary supplies and upgrading facilities in remote areas with low immunization coverage. The second phase of Gavi HSS support emphasized equitable access to vaccines through expansion of cold-chain capacity to the *ri* level; improved service delivery through widespread microplanning; monitoring vaccine impact on targeted VPDs through strengthening the existing VPD surveillance network and establishing sentinel surveillance sites to detect VPDs targeted by new and under-utilized vaccines; improving immunization and vaccine supply and logistics; introducing data quality self-assessment (DQS); and effectively implementing hospital and community based programmes of Integrated Management of Neonatal and Childhood Illness (IMNCI) in areas with low immunization coverage *(4, 9).*

The first Gavi HSS support for the Democratic People's Republic of Korea, which was for approximately US$ 4.4 million, was one of the major international projects in addition to the Infant, Women and Children's Health (IWCH) project implemented by the MoPH and WHO with funds from the Republic of Korea. Gavi HSS 2 support was for approximately US$ 27.4 million *(4, 9).* Tables 1 and 2 provide a high-level summary of HSS 1 (2007–2013) support, (including its linkages with the Republic of Korea project) and HSS 2 (2014–2019) support, respectively. From the tables below, it is evident that the scope of Gavi HSS 2 support is broader and more focused on immunization outcomes, in line with the Gavi Alliance's strategic objectives of 2016–2020. It includes new components such as information management, which is a strategic focus area for Gavi in investments for achieving equitable and high vaccine coverage. However, both phases of Gavi HSS support have emphasized on improving health infrastructure. Improvement of this infrastructure, including that of the vaccine cold-chain infrastructure accounts for a significant proportion (close to a third) of the total budget allocation of Gavi HSS support.

The first phase of Gavi HSS support sought to reinforce quality standards for health management and service delivery and target service delivery support to areas with low immunization coverage.

Table 1: High-level summary of Gavi HSS 1 objectives and activities

Goal				Link with HSS framework of the Women's and Children's Health Project (MoPH/WHO/RoK)
To promote sustainable gains in immunization coverage through targeted investments in health systems strengthening				
Ser. No.	**Component**	**Major activities**	**Budget***	
1.	Guideline development and capacity-building for health management systems	◆ Health management system review and guideline revision and development: ▶ Conduct a review of health management systems at county level and below ▶ Develop integrated operational guidelines for health planning, incorporating health information, surveillance, logistics management, financing and microplanning ◆ Conduct a capacity-building programme in health management systems ◆ Strengthen the health sector coordination mechanism	US$ 1.6 million	◆ Output 3: Health management
2.	Support for service delivery at county and *ri* levels (co-financed with MoPH and Gavi partners, UNICEF and WHO)	◆ Provide service delivery support for: ▶ Transport ▶ Cold chain and logistic systems ▶ Communications ▶ VPD surveillance ▶ Monitoring and supervision ▶ Capacity-building for integrated management of childhood illness (IMCI) strategy	US$ 2.5 million	◆ Output 1: Quality improvement ◆ Output 2: Infrastructure ◆ Output 4: Communications

Note:
In addition, administrative costs of 5% were estimated. Total budget was US$ 4.4 million
*Numbers do not add up to the total due to rounding-off of costs

RoK – Republic of Korea; VPD vaccine-preventable disease
Source: Developed from Gavi HSS proposal titled "Health System Strengthening Proposal DPR Korea" dated 22 September 2006

Table 2: High-level summary of Gavi HSS 2 objectives and activities

Goal			
Reducing child mortality through improving and sustaining access, equity and quality of immunization services through development of both management and delivery systems (in the context of the integrated delivery system of the Democratic People's Republic of Korea)			
Ser. No.	**Component**	**Major activities**	**Budget**
1.	Service delivery: increasing accessibility, availability and coverage of immunization services through installation and implementation of microplanning and outreach service delivery systems for remote areas by 2018	• Conducting a service availability and readiness assessment • Development and implementation of microplanning for immunization service delivery • Upgrading and standardization of vaccine delivery rooms • Providing support for middle-level management training	US$ 4.3 million
2.	Vaccine management & logistics: assuring quality and reliability of immunization services by ensuring that 100% of counties have cold-chain functioning according to set standards by 2018	• Extending cold-chain systems to the county level and below, nationwide • Updating standard operating procedures (SOPs) for logistics management • Installation of solar power supported cold-chain systems at *ri* level • Upgrading of waste management systems across the country	US$ 7.9 million
3.	Demand generation: increasing demand for immunization services (maintaining DTP1–DTP3 drop-out below 2% in all provinces) through extension of community Integrated Management of Childhood Illness (IMCI) and the strategy for increased demand in immunization side to 100% of provinces by 2018	• Improving service providers' communication skills • Developing information, education and communication (IEC) • Developing IEC materials on adverse events following immunization (AEFIs) • Expanding the IMCI initiative across the country, especially to hard-to-reach areas • Institutional development of the national and provincial institutes to sustain communication strategy oversight	US$ 2.5 million

Goal			
Reducing child mortality through improving and sustaining access, equity and quality of immunization services through development of both management and delivery systems (in the context of the integrated delivery system of the Democratic People's Republic of Korea)			
Ser. No.	**Component**	**Major activities**	**Budget**
4.	Information & management: improved programme management through installation of DQS, AEFI and sentinel surveillance systems by 2018	• Establishing sentinel surveillance sites for specific VPDs • Strengthening laboratory supported VPD surveillance functions at county and provincial hospitals • Providing technical support and developing SOPs for the National Regulatory Authority and National Control Laboratory • Conducting nationwide training on VPD surveillance for middle-level managers and primary health-care providers • Extending pilot AEFI and DQS systems to 100% of provinces • Providing technical support for conducting coverage evaluation surveys	US$ 4.1 million
5	Programme management, governance and resources	• Installing a National Health Accounts (NHA) system • Establishing financial management procedures at the county level • Providing technical support to conduct situation analyses • Conducting an evaluation of HSS 1 in Q3 2014 to inform the lessons learnt from the grant implementation • Conducting a grant-end evaluation of HSS 2 • Documenting the technical cooperation and coordination plan	US$ 8.7 million

VPD – vaccine preventable disease; DQS – data quality self-assessment

Source: Developed from the Gavi HSS proposal titled "HSS 2 Proposal DPRK 2014–2018" dated 13 September 2013

1.3 Previous assessments of Gavi HSS globally

By the end of 2013, US$ 1335.8 million in Gavi HSS grants had been committed from 2000 through 2020, reflecting the strong commitment of Gavi to strengthen health systems around the world *(10).* Several assessments have been conducted to ensure that Gavi HSS support to countries is effective. There are two notable assessments on Gavi HSS support that were reported in 2009. The first is the HSS tracking study by Plowman and Abramson *(11),* which reviews technical, managerial and policy processes for the successful implementation of Gavi HSS grants in six selected countries. The second is the Gavi HSS support evaluation conducted by the Health and Life Sciences Partnerships (HLSP) *(12).* More recently, Gavi commissioned Cambridge Economic Policy Associates to conduct a meta-analysis of 14 country evaluations of Gavi HSS support approved before 2012 *(13).*

The HSS tracking study addresses issues related to strengthening the design, application and implementation of Gavi HSS support, enhancing responsibility and ownership in monitoring the grant and encouraging experience sharing and capacity-building among countries. The findings suggest that there is variation in planning, management and coordination of Gavi HSS support depending on the institutional placement of the support. The amount of time required for preparation of the proposal is often underestimated; and in most cases, countries are not ready to implement the programme when the disbursement begins. Countries typically rely on local technical resources rather than external assistance. Furthermore, a major proportion of the grant is used at the central level and includes pooled procurement of goods and services. However, the study found that the cost of commodities is underestimated in the grant proposals, forcing programme managers to change their targets during implementation. Additionally, there are insufficient efforts made to gather and analyse output level measures; and because of this, programme managers are unable to describe the impact of Gavi HSS support. The study recommends that Gavi should strengthen mechanisms for information sharing and dissemination of experiences related to Gavi HSS support across countries.

Gavi should strengthen mechanisms for information sharing and dissemination of experiences related to Gavi HSS support across countries.

The HSS support evaluation, which reviewed programmes in 21 countries, identified three significant areas for improvement. First, there is insufficient technical support being provided to Gavi HSS grantees after the approval of the grant, including support for M&E. Gavi's approach to work in countries through its technical partners, namely UNICEF and WHO, does not appear to ensure high quality technical support during implementation. This may have been, in part, due to the lack of clarity of the role of technical partners once the Gavi HSS application was approved. Second, the proposal review process through the Independent Review Committee (IRC) needs to be redesigned in order to respond to the complexities of the HSS proposal. The IRC's recommendations, while independent and transparent, are based solely on the written

proposal, and the Committee is not in a position to comment adequately on the feasibility of activities such as the choice of monitoring indicators, the implementation arrangements or the necessary conditions that would need to be in place for the Gavi HSS proposal to be operationalized. A third point relates to monitoring the performance of Gavi HSS support in terms of outcome and impact indicators. The indicators may not be directly linked with the objectives of Gavi HSS and often do not take into account confounding factors, hindering the ambitious, results-oriented approach of Gavi HSS support, thus limiting attribution of any successes achieved.

The meta-analysis, conducted by Cambridge Economic Policy Associates in 2015, benefitted from a large set of countries that were reviewed and echoed many of the findings from previous assessments. The study found strong evidence to suggest that programme management in countries was poor due to lack of planning and limited country capacity. It highlighted implementation delays across countries as well as costs associated with reprogramming of Gavi HSS support to enhance the relevance of grants. The study suggested that a more "hands-on" model would be more effective for the Gavi Secretariat to guide proposal development, implementation and monitoring. In terms of results, the study showed that activities conducted under Gavi HSS grants were typically completed, but attributing improvements in immunization and health outcomes to Gavi HSS support was difficult.

In addition to the portfolio level reviews of Gavi HSS grants, in-country assessments of Gavi HSS grants have been performed. In order to enhance the quality of the assessments as well as to allow for comparison of assessments across countries, Gavi has developed a guidance note for evaluating HSS grants. The guidance includes key evaluation questions on grant design, grant implementation, disbursement, grant management, grant support and results that are required to be addressed *(14).* The key areas of concern are summarized in Table 3.

Table 3: Summary of Gavi Alliance's guidance on evaluation of Gavi HSS grants

Component	Key concerns
Grant design and implementation	◆ Link to immunization outcomes ◆ Country ownership ◆ Addressing issues of equity and gender ◆ A fit-for-purpose monitoring and evaluation framework ◆ Innovation
Disbursements	◆ Planned versus actual disbursements ◆ Timeliness of utilization
Management/support	◆ Effectiveness of the implementing agency ◆ Effectiveness of Gavi and its partners (UNICEF/WHO)
Results	◆ Effectively addressing bottlenecks to immunization ◆ Meeting objectives and targets ◆ Contributing to country national health strategy ◆ Positive and negative unintended consequences

Source: Developed from "Excerpt from (Gavi) Guidance on evaluation of HSS grants"

Peripheral health workers are given an opportunity to share their experience in planning Gavi supported activities

Scope and approach of the review

2. Scope and approach of the review

2.1 Objective

The objective of this review is to conduct an end-of-grant evaluation of the first phase and a midterm review of the second phase of Gavi HSS support in the Democratic People's Republic of Korea. This evaluation assesses the extent to which Gavi HSS support provided to the Democratic People's Republic of Korea between 2007 and 2017 (HSS 1 and 2) achieved, or is on track to achieve, its objectives; and to what extent it has contributed to strengthening the health system of the country, in particular the MCH service delivery for achieving immunization outcomes. Further, it addresses the implementation issues that have affected the overall results and provides lessons for informed decision-making with regard to future support from Gavi and other international donors to the Democratic People's Republic of Korea and other countries with a similar country context. This is the first evaluation of Gavi HSS support in the Democratic People's Republic of Korea.

Although this review serves as an end-of-programme evaluation for Gavi HSS 1 support and a midterm progress assessment of Gavi HSS 2 support, it is not our intention to report the results separately, given a number of limitations in doing so. The reasons for not conducting separate analyses for Gavi HSS 1 and Gavi HSS 2 support are that:

- the two grants are the result of the continuation of the same Gavi HSS support, despite differences in some objectives;
- there is a similarity of the two grants to each other;
- a separate analysis cannot be conducted due to lack of documents and information related to Gavi HSS 1 support as a result of the long time that has elapsed since the closure of Gavi HSS 1 grant;
- contacting many implementers who implemented Gavi HSS 1 support was not possible as they are currently not stationed in the Democratic People's Republic of Korea;
- there are elements of recall bias in key informants on some specific details of Gavi HSS 1 grant;
- the sample of health facilities selected by the MoPH for the review was inadequate; and
- the time and access provided to external reviewers to conduct the in-country mission was limited for observing deliverables and reviewing relevant on-site information.

Findings from the three studies, the guidance note issued by Gavi Secretariat on evaluating Gavi

HSS grants described in the previous section, discussions with key stakeholders and minimal in-country observations shaped the methodological approach used in this study.

2.2 Evaluation questions and data sources

This assessment addresses the questions as given in Table 4.

Table 4: Evaluation questions and data sources

Evaluation parameters	Evaluation questions	Data sources
Design and Implementation	◆ To what extent and in what ways did the Democratic People's Republic of Korea's HSS application demonstrate clear linkage to immunization outcomes?	Document review, self-assessment form, KIIs
	◆ To what extent were the activities set out in the HSS application implemented as planned (quality, quantity, budget)? Particular attention will be given to the following issues: ▶ To what extent, if at all, were planned activities redesigned? What process was followed for this redesign? ▶ To what extent did programme management appropriately adapt to challenges in context and to delays?	Document review, secondary data analysis, KIIs
	◆ To what extent were activities, resources (staff, funding) and results appropriately coordinated, monitored and reported by the MoPH to Gavi through its partners? ▶ What were the challenges associated with monitoring and reporting of the HSS grant? ▶ To what extent was the feedback received helpful? Did it lead to appropriate actions?	Document review, secondary data analysis, KIIs
Disbursement and management	◆ To what extent were the funds used as planned?	Document review, secondary data analysis
	◆ What were the main factors that explain the utilization of the funds received?	Self-assessment and KIIs

Table 4: Evaluation questions and data sources

Evaluation parameters	Evaluation questions	Data sources
Gavi HSS outputs and outcomes, including M&E	◆ To what extent did the programme achieve its objectives and targets as per the grant performance framework and the HSS proposal?	Document review, secondary data analysis
	◆ To what extent did the HSS programme contribute to observed trends in the following indicators: ▶ DTP3 ▶ HepB3 ▶ Measles ▶ Child mortality ▶ Other indicators selected by the country as part of the grant proposal	Document review, secondary data analysis, KIIs
	◆ To what extent did HSS activities effectively address the bottlenecks to immunization identified in the original proposal, or are on track to addressing the same?	Document review, self-assessment, KIIs
	◆ To what extent were Gavi HSS funds catalytic in terms of catalysing other funding sources, scaling up activities and piloting new initiatives?	KIIs
	◆ To what extent was the Gavi HSS grant aligned with and complementary to other support from Gavi, other partners or the Government?	Document review, KIIs
	◆ What were the unintended positive and negative consequences of the Gavi HSS grant?	Document review, KIIs, direct observation
	◆ To what extent are the HSS results both operationally and financially sustainable without HSS support from Gavi?	Document review, secondary data analysis, KIIs, direct observation

Evaluation parameters	Evaluation questions	Data sources
Gavi HSS outputs and outcomes, including M&E	◆ What are the lessons learnt during the implementation process? What worked well and why? What did not work well and why? ◆ What could have been done to improve the implementation effectiveness (i) of implementation agencies? (ii) of Gavi and its partners? ◆ What are the major lessons that can inform improvements for future design, implementation and monitoring of HSS grants in the Democratic People's Republic of Korea and elsewhere? ◆ What were the major strengths and weaknesses of this Gavi HSS grant? ◆ What could have been done to improve the implementation effectiveness (i) of implementation agencies? (ii) of Gavi and its partners? ◆ What are the major lessons that can inform improvements for future design, implementation and monitoring of HSS grants in the Democratic People's Republic of Korea and elsewhere? ◆ What were the major strengths and weaknesses of this Gavi HSS grant?	Synthesis of findings by evaluators

KII – key informant interview

Gavi HSS support reinforces quality standards for service delivery

Good collaboration among MoPH, UNICEF and WHO has led to effective implementation of the Gavi HSS support

Methodology

3. Methodology

3.1 Study design

This study employed a mix of methods in order to obtain the required information to respond to the evaluation questions. The approach was primarily qualitative in nature, with a supportive quantitative analysis. For all evaluation questions, multiple methods were applied to collect pertinent information, and results were triangulated. The methods employed are discussed in this section.

3.1.1 Document review

Document review was conducted throughout the evaluation process. The review covered both the published and grey literature identified using search engines such as PubMed and ScienceDirect for academic papers, as well as relevant documents available on the websites of Gavi, UNICEF, WHO and those identified by key informants. Key documents such as Gavi HSS proposals for HSS 1 and 2 support, annual progress reports (APRs), previous Gavi HSS evaluations and health system and policy research reports on the Democratic People's Republic of Korea were among these. The document review helped guide other review methods used in the evaluation. Results were triangulated by the other methods.

3.1.2 Secondary data analysis

Existing information on disbursement of funds of Gavi HSS grants, M&E data from Gavi's grant performance framework and monitoring data on immunization coverage and child mortality over time were analysed. Given that the Gavi Secretariat makes most of its programme data publicly available and that UNICEF and WHO publish information on their activities, the main data sources were the Gavi Secretariat, UNICEF and WHO. Other data sources at UNICEF and WHO such as the Joint Reporting Form (JRF), Expanded Programme on Immunization (EPI) factsheets and VPD reports were used to complement the data collected from the Gavi Secretariat.

3.1.3 Self-assessment

Self-assessments allow respondents to reflect on a few strategic questions, the answers to which may not be straightforward, and to respond at their own pace. Further, respondents may be able to provide sensitive information more freely in writing than during an interview. Self-assessment was conducted in the early stages of the evaluation. The frank inputs received helped to shape the evaluation and maximize the utility of the study.

The evaluation team developed a form comprising eight questions, elicited programme strengths, weaknesses, opportunities and threats (SWOT) and sought recommendations for changes from the perspective of the programme leadership (Annex 1). The self-assessment targeted Gavi programme managers in the MoPH who had been or are involved in Gavi HSS 1 and 2 support, as well as country focal points of Gavi HSS at the Gavi Secretariat, UNICEF and WHO. The form was distributed electronically

and in the paper format as per convenience and respondents were asked to return the form within 10 days. All in all, eight responses were received from intended respondents from the MoPH, UNICEF and WHO staff at the country and regional levels. Key themes were identified from these responses. The data were recorded and managed in accordance with the data confidentiality policy described below.

3.1.4 KIIs

Semi-structured interviews were conducted virtually or face-to-face, depending on the availability and convenience of key informants. Interviews were recorded and summarized, though not verbatim. Key informants were identified using several methods including document review, suggestions by the Gavi Secretariat, UNICEF and WHO staff involved in the programme at the country or regional levels, as well as suggestions made by the interviewees themselves. Inputs of the regional level UNICEF and WHO staff were useful as they were involved in policy matters, monitoring, supervision and fiscal oversight from the organizational perspective pertaining to the Gavi HSS grant. MoPH and country level UNICEF and WHO staff were interviewed in groups during the country visit in August 2017.

In total, 25 staff from the MoPH, Gavi Secretariat, UNICEF, WHO and other organizations were interviewed either virtually or in person. All interviewees were given a consent form prior to the interview and were asked for verbal permission to record the interview. Key themes were identified from the interviews and responses were analysed. The data was recorded and managed in accordance with the data confidentiality policy described below. The summary list of KIIs by organization, the informed consent form and the guide for conducting the interviews are available in Annexes 2, 3 and 4, respectively.

IEC materials developed with the Gavi HSS support are helpful to the primary health care workers

3.1.5 Direct observation

Direct observation at health facilities at all three levels of administration, i.e. provincial, county and *ri/dong* levels was undertaken to witness physical developments of the health infrastructure that was a significant part of the Gavi HSS support in both phases. Immunization sessions were observed at a *ri* hospital and a *dong* polyclinic. The Central Medical Warehouse (CMW) in Pyongyang, the provincial health bureaus, county health departments and medical warehouses (provincial/county) were visited. A form was developed by the mission team to collect information on Gavi HSS support-related activities, human resources, infrastructure, planning of service delivery, monitoring and supportive supervision of immunization sessions and evaluation, data quality improvement and data management at observed health facilities. The feasibility for evaluators to travel, time available, significance of the geographical areas to the programme in terms of investment, challenges in terms of limited accessibility to health services and permission from the Government were taken into consideration by the MoPH with WHO and UNICEF country offices in selecting townships for the in-country review mission.

3.2 The in-country mission

The in-country mission was conducted from 7 through 19 August 2017. The agenda is available at Annex 5. During the in-country mission, the team visited health facilities and warehouses supported by the Gavi HSS grant at the central, provincial and county levels as described above and interacted with the staff. The team conducted face-to-face interviews and group discussions with the MoPH, UNICEF and WHO staff based in the country. A debriefing presentation and mission report was prepared. The in-country mission report is attached at Annex 6.

3.3 Analysis

All information gathered from multiple sources was synthesized and verified to the extent possible by the evaluators. The results, both qualitative and quantitative, were presented to address questions of the present evaluation and formulate policy recommendations. As noted above, the preliminary results were presented to senior managers and programme officers of the MoPH, WHO and UNICEF country offices during the debriefing session held on 17 August 2017 at the Potonggang Hotel, Pyongyang.

3.4 Data protection policy

All results derived from the self-assessment and interviews were presented anonymously to ensure confidentiality and protect the privacy of the respondents. The recorded interviews will be kept confidential and will be destroyed 1 year after submission of the report.

Gavi support has provided devices for vaccine cold-chain monitoring

Results

4. Results

4.1 Design and implementation

The results of the present evaluation have been divided into four sections according to the framework of analysis.

4.1.1 People involved in the proposal development

It is not uncommon for governments to request technical support from outside the country for developing Gavi HSS proposals. For the Gavi HSS 1 support in the Democratic People's Republic of Korea, Dr John Grundy, who previously worked at the Nossal Institute for Global Health in Australia led the team developing the grant proposal in consultation with the Democratic People's Republic of Korea Government as well as international agencies responsible for implementation of Gavi HSS support, namely UNICEF and WHO. The consultant hired was noted by several KIIs as an appropriate choice, given his experience of working in the Democratic People's Republic of Korea since 2004 on the comprehensive Multi-Year Plan (cMYP) and subsequently, on other projects related to the MCH area in the country. His experience in successfully developing Gavi HSS grant proposals for countries such as Myanmar, Cambodia and Timor-Leste was also considered. However, given that he was also on the IRC, it raises questions on the issue of conflict of interest, even though he was not involved in approving the proposal that he had helped to develop. We discuss this point further in the section "Recommendations to Gavi" at the end of this report.

Similar to other approved Gavi HSS proposals, the involvement of external experts was limited only to the design stage. External support has not been mobilized at the implementation stage of the proposal even for areas where UNICEF and WHO country staff do not have strong expertise such as capacity-building for regulatory bodies and ensuring adequate human resources for project M&E. This means that those implementing the programme at present may not have sufficient background information, especially on detailed plans that might have been discussed at the proposal development stage but were not included in the proposal because of the lack of space for details. This kind of information may have been lost and therefore implemented plans may not have been fully in line with original plans. This discrepancy was observed with regard to the capacity-building activities under the Gavi HSS 1 support. For example, the original plan of providing international exposure to the staff in the Democratic People's Republic of Korea relevant to Gavi HSS 1 support on health systems planning by visiting countries such as Cambodia and Mongolia never materialized at the time of implementation.

4.1.2 Learning from HSS 1

The end-of-grant evaluation for Gavi HSS 1 support was not conducted for unknown reasons, even though Gavi HSS 1 support was offered a no-cost extension. We consider this to have been a missed opportunity and a major impediment in developing and implementing the Gavi HSS 2 application effectively, for several reasons. Firstly, the APRs and joint appraisal reports did not contain information sufficient enough to develop the new proposal for Gavi HSS 2 support. Secondly, an evaluation of Gavi HSS 1 would have provided information on successes, failures, conducive factors and barriers encountered in implementation of Gavi HSS 1 support. Thirdly, an end-of-grant evaluation of the Gavi HSS 1 support would have identified major implementation bottlenecks and encouraged all stakeholders, i.e. staff at all levels of government and international agencies to critically think through the proposal and activities planned for Gavi HSS 2.

Findings from key informants revealed that there were difficulties in developing a proposal for Gavi HSS 2 support. There were issues related to hiring a consultant to prepare the Gavi HSS 2 proposal; the contract of the first consultant hired to lead the Gavi HSS 2 proposal development was terminated and a second expert was called in at short notice. The second expert spent just about 2 weeks in the country to consult stakeholders and write the current approved version of the Gavi HSS 2 proposal. This short time frame may explain why the Gavi HSS 2 proposal does not provide substantial information on activities that have continued from Gavi HSS 1; and more importantly, the serious number of issues related to the disbursement and procurement of goods and services under Gavi HSS 1 (described in more detail under Section 4.2 (Disbursement and management). This issue was largely ignored and not addressed in the Gavi HSS 2 proposal.

Interviews and discussions with staff suggest that awareness among mothers about immunization has improved over time.

The proposal for Gavi HSS 2 support expanded the scope of the proposal for Gavi HSS 1 support both in terms of the grant size – US$ 4.1 million for Gavi HSS 1 support to US$ 27.5 million for Gavi HSS 2 support – and activities, as documented in Tables 1 and 2. Some activities initiated during Gavi HSS 1 support were built on during Gavi HSS 2 support, such as IMNCI (previously referred to as Integrated Management of Childhood Illness [IMCI]) and cold-chain management, which in Gavi HSS 2 account for US$ 2.5 million and US$ 7.9 million, respectively. That the successes or failures of these activities were not evaluated at the end of Gavi HSS 1 support represents a lost opportunity for the Democratic People's Republic of Korea, Gavi and its partners in the Democratic People's Republic of Korea (WHO and UNICEF) in terms of improving the performance of the second grant. For example, investments in the cold chain were made at the *ri* level in Gavi HSS 1 and were to be continued in Gavi HSS 2; however, the proposal does not use evidence on utilization, repair and replacement of cold-chain equipment during the implementation period of Gavi HSS 1 to provide a compelling argument for continuation in the second phase. Although interviews and discussions with staff suggest that awareness among mothers about immunization has improved over time, the utility of IMNCI as a tool for demand generation in the context of the Democratic People's Republic of Korea is not entirely convincing, given that the health system in the country through the household doctors itself ensures participation in demand generation

activities. Further, only a few interviewees could provide details on how IMNCI was operationalized in the country. Finally, the reallocation of the IMNCI budget for other activities during Gavi HSS 2 suggests that this component, while important, is perhaps dispensable.

Transportation, on the other hand, was identified as a major bottleneck during the evaluation, not only on the supply side for programme managers who implement and monitor the immunization programme but also on the demand side for the users of services, i.e. households with mothers and children, particularly in rural areas. However, this was not reflected in the second proposal; and in Gavi HSS 2, funds have been reallocated from IMNCI to address this issue. In fact, other infrastructure needs have received very little attention in the proposals, even though interviewees noted acute needs for basic infrastructural investments.

4.1.3 Role of the MoPH in the design of the proposals and implementation

Although the extent to which the MoPH had ownership of the two Gavi HSS proposals was not clear during the document review and interviews with key informants, discussions with the MoPH staff in Pyongyang indicated that they understand the content of the Gavi HSS proposals well, and brought out their involvement and ownership of the programme. In August 2017, MoPH staff expressed an interest in taking a more hands-on approach in the preparation of the proposal for the next phase of Gavi HSS support. They indicated that they had already identified areas of focus and were ready to propose activities to be included in the next phase of Gavi HSS support. This is something for Gavi to take into consideration, given the current model in which UNICEF and WHO manage the entire process of developing the proposal including hiring consultants, coordination of the process and communication with the Gavi Secretariat.

One area that the MoPH staff highlighted during the self-assessment and in-country discussions relates to building domestic vaccine manufacturing capacity. This is in line with the country's governing philosophy of self-reliance; and from the viewpoint of immunization, it is a security measure to ensure continued access to life-saving vaccines in case the country is exposed to more serious international sanctions. Outside of Gavi-supported vaccine introductions, in 2009–2010, the Government introduced locally produced Japanese encephalitis (JE) vaccines with international support *(15, 16).* For vaccine production, the country needs technical know-how, equipment, compliance with good manufacturing practices (GMP) and a capable national regulatory authority. While WHO is seeking to work broadly on strengthening the capacity of the National Regulatory Authority (NRA) and the National Control Laboratory (NCL) within the scope of the current Gavi HSS proposal as an initial step, there needs to be further exploration on whether the support for domestic vaccine production itself is within the mandate of Gavi HSS support.

This example underlines the need for Gavi to clarify its position on what constitutes HSS support through guidelines for the proposal development, and establish procedural mechanisms to resolve grey areas. The current model may limit innovation, given that Gavi-supported activities across countries are quite similar. Strengthening cold-chain equipment, training providers and community engagement could be some such common activities. Countries may want to include other types of activities that may never have been supported by Gavi HSS support, marking a departure from a standard Gavi HSS formula. As stated in the evaluation of Gavi HSS support across countries, the strength of Gavi HSS support is that it offers opportunities for countries to address bottlenecks in improving immunization outcomes. It is hard to believe that bottlenecks are similar among all the 77 Gavi-eligible countries. In light of the heterogeneity of bottlenecks across

countries, rather than relying on a few international experts who provide support to countries around the world in developing proposals for Gavi HSS support, moving towards strengthened country ownership during the proposal development phase is, perhaps, a step in the right direction to enhance the impact of Gavi HSS support in particular and Gavi overall. This will come with its own cost to Gavi, which would need to devote resources to make clarifications in the guidelines on the proposal development for Gavi HSS support.

The current model may limit innovation, given that Gavi-supported activities across countries are quite similar. Strengthening cold-chain equipment, training providers and community engagement could be some such common activities.

4.2 Disbursement and management

4.2.1 Management of the grant

The Health Sector Coordinating Committee (HSCC), comprising about 10 members from the MoPH, UNICEF and WHO, is a high-level mechanism for supervising the implementation of the Gavi HSS grant. The functions of the Interagency Coordination Committee (ICC) for immunization, which is the technical arm of the governance system, is similar to the HSCC in terms of its functions and membership in the Democratic People's Republic of Korea. It was reported that the HSCC/ICC meets on an ad hoc basis. However, we did not have access to HSCC/ICC meeting minutes and did not have the opportunity to interview HSCC/ICC members during the country visit. In addition, not all members of the HSCC/ICC representing the MoPH joined the debriefing on 17 August 2017 in Pyongyang. While the HSCC/ICC is an important mechanism for ensuring success of Gavi HSS support, we did not see any budget allocated for functioning of the HSCC/ICC in both proposals and do not know how HSCC/ICC activities are funded.

For various reasons, in the Democratic People's Republic of Korea, Gavi HSS funds are channelled through the two implementation agencies, UNICEF and WHO. This practice is not uncommon and has been followed in countries such as Myanmar. There are two possible scenarios for implementing such a model: first, UNICEF and WHO act purely as fund holders, provide support to the Government, conduct quality assurance and monitor progress. The second scenario is that UNICEF, WHO and MoPH work together in implementing the proposal for Gavi HSS support. In the case of the Democratic People's Republic of Korea, it is the latter approach that applies. There are strengths and limitations of this model. As indicated by interviewees, the strengths of this model are that there is more staff available to help the Government implement the programme with UNICEF and WHO leveraging their expertise, relative strengths and ensuring the likelihood of the success of the programme. The limitation of this model, however, is the fact that Government capacity is not enhanced and this may affect the sustainability of the programme. Additionally, there is an inherent tension in the dual role played by UNICEF and WHO, in that they serve both as grant holders and implementers. There is, therefore, no safeguard in the system to ensure the quality of the programme at the country level.

Within the MoPH, there are three core members who manage the Gavi support in the country. The Gavi focal point in the MoPH manages all Gavi grants, including Gavi HSS support; the lead technical officer oversees the Central Hygiene and Antiepidemic Institute (CHAEI) and serves as the

secretary of the National Immunization Technical Advisory Group (NITAG); and the head of the Gavi Project Management Unit (PMU), which is the coordinating unit of the Gavi grant in the MoPH. The PMU is comprised of four staff members as of August 2017, including the head.

UNICEF and WHO disburse money to the MoPH for implementing activities and monitoring progress. UNICEF focuses on operational aspects of the grant and works closely with the CMW to procure equipment and transport for logistical activities. It also works together with WHO on IMNCI activities that include training, development and distribution of kits required for managing neonatal and childhood infections to all levels of the service delivery. WHO, on the other hand, is primarily focused on policy level activities including development of norms, standards, guidelines, policy documents, M&E, programme reviews and training of staff at various levels including overseas training and fellowships. International staff, as reported by UNICEF, has access to all provinces except one in the north and are typically required to provide some notice to the Government for obtaining permissions. Each organization has at least one national programme officer (NPO) through whom all communication between the organization and the MoPH is undertaken. The role of the NPOs is critical for the efficiency and effectiveness of coordination, given that they work with international organizations while their links with the Government remain as seconded officers from the Government to UN agencies.

4.2.2 Political economy of grant-holders in the Democratic People's Republic of Korea

As discussed above, UNICEF and WHO are co-recipients of the grant instead of the Government. Unlike in other countries, where their role is to monitor the grant, both agencies also implement the grant in this country. This model has borne fruit

WHO is primarily focused on policy level activities including development of norms, standards, guidelines, policy documents, M&E, programme reviews and training of staff at various levels including overseas training and fellowships.

and allowed Gavi HSS support to be received and implemented. The collaboration between the two agencies appears to be good and staff from both agencies note that they enjoy a high level of access and are strong when functioning together.

In the best interests of the Democratic People's Republic of Korea and Gavi, the grant should be divided between the two agencies based on the priorities for the country and relevant expertise of the two organizations. The involvement of UNICEF and WHO in the proposal development is more likely to result in priorities in the proposal that are a balance between the two agencies rather than a reflection of the country's actual priorities. However, interviews with the international staff in the two agencies point out that the priorities were set objectively and activities were costed without taking equal representation of organizations into consideration. Nevertheless, it is not clear whether Gavi Secretariat is in a position to discern whether the priorities in the proposal adhere to the priorities of the country. If not, it may need to find a novel feedback mechanism to ensure that the country's actual priorities are reflected during the proposal development in countries where multiple organizations are both grant holders and implementers.

Both agencies are recipients of two large external grants – Gavi and the Global Fund. In the case of Gavi, the division of funds is roughly equal for the

two agencies, whereas in the case of the Global Fund, UNICEF is the principal grant recipient and WHO the sub-grantee. Staff noted that the difference in the mechanism of grant management for Gavi and the Global Fund has not affected the working relationship between the two agencies. It was learnt that Gavi funds, as a proportion of the agency's country budget, are relatively more significant for WHO than they are for UNICEF in the Democratic People's Republic of Korea.

4.2.3 Delay in programme implementation

As of 2017, we observe that there have been severe delays in the implementation of both Gavi HSS 1 and 2 grants. In Gavi HSS 1 support, the project was closed 3 years after the scheduled end date. Table 5 illustrates the delay in disbursement, which is a proxy indicator for delay in programme implementation. UNICEF received the first tranche of funds in 2008, while WHO received the first and second tranches together in 2009. At the end of 2011, the original end-date of the grant, 78% of the approved funds had been received. By the end of 2013, the last tranche of about 13% was yet to be received. Based on document reviews, self-assessment, KIIs and face-to-face meetings we learnt that the delay in implementation stemmed from several factors. Some of the causes of delay were similar to those in other countries and therefore they were anticipated. These include the additional time required for developing materials, curricula and procurement of capital equipment. Given that many of these issues are unavoidable, they ought to be factored into the timeline at the proposal development stage. Unlike other countries, however, the Democratic People's Republic of Korea presents a unique setting, given the context of international sanctions. This issue is discussed further in section 4.2.4.

Gavi HSS support invests in cascade training for health staff as a part of health and immunization system strengthening

Table 5: Summary of Gavi approvals and disbursements for Gavi HSS (in US$) by year

Year	Approval (programme year)*	Disbursement (calendar year)*	Amount received (calendar year)**	Funds received by WHO** (calendar year)
2007	450 500			
2008	1 308 000	450 500	1 758 500	
2009		1 308 000		First and second tranches of HSS 1 received
2010	402 600	402 600	402 600	
2011	624 400	287 000		
2012	1 026 000	1 303 381	813 381	Third tranche of HSS 1 received
2013	548 500	60 019	837 019	Fourth tranche of HSS 1 received
2014	6 097 879	548 500	548 500	Fifth tranche of HSS 1 received
2015	5 032 836	6 155 859	11 130 716	First and second tranches of HSS 2 received
2016	7 571 897	2 975 277		
2017		1 999 579		
Grand total	23 062 612	15 490 715		

Note: UNICEF received the first tranche of HSS 1 in 2008. Receipt of funds not clearly indicated for subsequent years.

Source: *Data on Commitments and Disbursements, Gavi as on 16 July 2017

**Adapted from information provided in annual progress reports

4.2.4 Impact of international sanctions

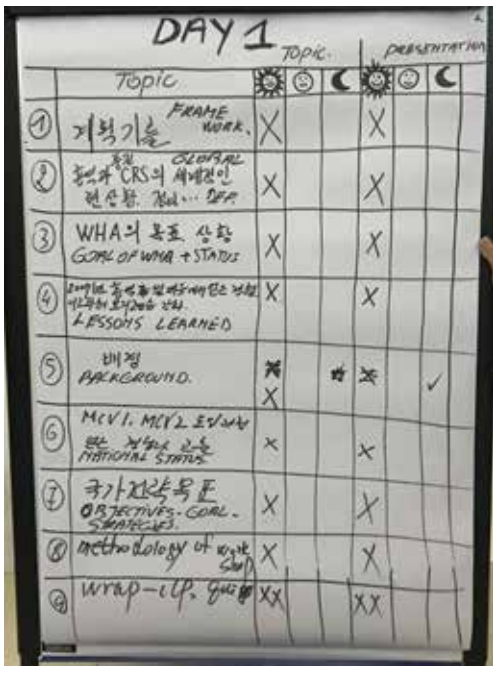
Among nations that receive international assistance, the Democratic People's Republic of Korea is unique given its geopolitical context. Since 2006, successive resolutions on sanctions have been applied by the UNSC. In 2017 itself, two UNSC resolutions have been adopted in August and September. The sanctions regime is governed by a Sanctions Committee, which is supported by an eight-member panel of experts. Humanitarian support to the Democratic People's Republic of Korea has been exempted from the sanctions. This allows UN agencies to continue to operate in the country. However, over time, transporting of goods and transmission of funds into and out of the country have become strict. These have impacted operations related to implementation of Gavi HSS support. The key points from each UNSC resolution have been summarized in Annex 7 with a focus on the financial measures, given their relevance to implementation of Gavi HSS support. It is unclear if the sanctions will be lifted anytime soon; these are thus likely to continue impinging on implementation of the grant.

Notwithstanding the provision to exempt humanitarian activities from the purview of sanctions, activities related to Gavi HSS support have been impacted in terms of transfer of funds to the country and procurement of goods. These points are detailed below.

Funds transfer

After being disbursed by Gavi Secretariat, the funds must be transferred from the headquarters of the two implementing agencies to the Democratic People's Republic of Korea to support activities in the country. Due to the sanctions regime in place, a special banking channel had to be established for transferring funds to the country. It is not easy to establish a banking channel because of the perceived high level of risk involved in transactions for all parties involved. UN organizations have relied on the World Food Programme (WFP) in the past to serve as their banker in the country, and many options are being explored to ensure programme continuity in the current circumstances. These banking channels can be and have been disrupted because of external factors. There was a major disruption of the banking channels in 2016 from March through November, at the end of which WHO owed the Government close to 1 million US dollars. During the mission in August 2017, it was learnt that the existing (or most recent) banking channel was to be closed by mid-September.

The existing (or most recent banking channel) is depicted in Fig. 1 as described by the officer responsibe for finances at the WHO Country Office. A requisition for payment is made by the WHO Country Office, which is sent to its Regional Office in New Delhi, India. Once it is approved, it is forwarded to WHO headquarters in Geneva, Switzerland. Once WHO headquarters approves the requisition for payment, a payment advice is

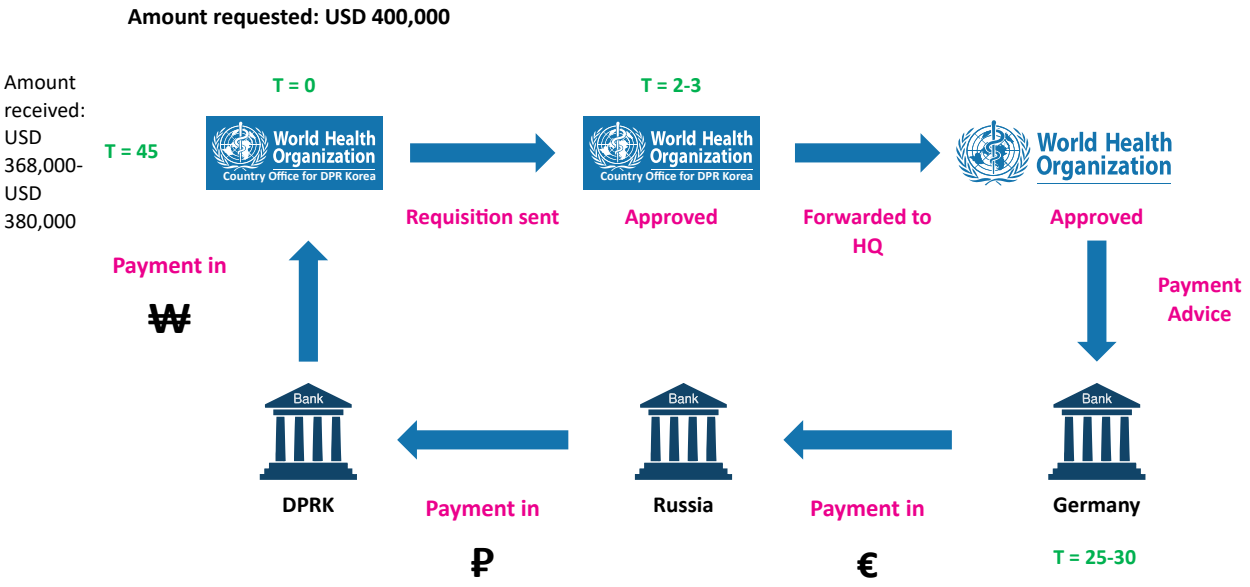


Gavi HSS support encourages interactions with health workers and taking their input for activity planning

made to a bank in Bonn, Germany. From Germany, the funds are transferred to a bank in the Russian Federation, which then transfers the funds to the designated bank in the Democratic People's Republic of Korea, i.e. the Democratic People's Republic of Korea Foreign Trade Bank. The entire process can take up to 45 days, while it takes about 25–30 days to get to the first bank. This lengthy transaction time not only affects WHO's ability to pay in a timely manner, but also impacts the MoPH's ability to deliver activities on time as its resources are limited.

In addition to the cost in terms of the prolonged time, there are three main financial risks and costs associated with the transfer of funds to the Democratic People's Republic of Korea. The maximum amount that can be transferred to the country is low relative to the needs of the Country Office because of the high level of risk. It has been reported that the maximum amount transferred at a time is US$ 600 000. Further, given that funds are channelled through three banks, the transaction cost is about 5–8%. Finally, under the most recent arrangement, the funds originate in US dollars, are then converted to euros, then roubles and finally to Korean People's won. It is estimated that about 2% of the transaction value is lost in the transaction in Russia and the exchange rate received in the Democratic People's Republic of Korea is also disadvantageous, reflecting the high cost of transferring funds to the country. For example, as per estimates of WHO headquarters, the conversion rate of 1 euro is supposed to be ₩ 136. However in the Democratic People's Republic of Korea, this value is between ₩ 115 and 119. In the example shown in Fig. 1, WHO Country Office would only receive about US$ 368 000–380 000 for a transaction of US$ 400 000, with an estimated loss of 5–8% in the process of transaction. In a country where resources are extremely limited, every dollar counts and therefore this loss is significant.

Fig. 1: The process for receiving funds in the Democratic People's Republic of Korea (for WHO)



The Country Office has developed coping mechanisms to deal with the cash shortage in the country. Once such mechanism is operating on a cash conservation mode. In this mechanism, only necessary activities are pursued and public health initiatives are deferred. The second mechanism is making payments outside the Democratic People's Republic of Korea to the extent possible, including hiring foreign consultants, study tours, etc. The third mechanism is expanding the "local supplier" clause for procurement to include Chinese suppliers. These measures provide options to WHO for conducting local purchases in China and implement procurement activities under the sanctions regime.

This combination of risk aversion on the part of key actors and the uncertainty related to the banking channel has had an impact on the implementation of activities in terms of both time and cost. The MoPH staff noted that the delay in receiving funds also affects their ability to deliver activities. It is important that the issues related to financial transactions be addressed in the next phase. Reviewers were made to understand that the Gavi Secretariat has recently agreed to cover the transaction fees, which is a welcome decision as a first step.

Procurement

Another area affected by sanctions is procurement of goods. Sanctions place several restrictions on items that can be imported as well as on transportation of cargo into or out of the country (*see* Annex 7). Even though there are exemptions under the sanctions for goods required for humanitarian activities, the broader context of the country and implementation of sanctions affect the procurement process.

The types of goods required for the programme may not be produced locally. Given the market structure in the Democratic People's Republic of

Combination of risk aversion on the part of key actors and the uncertainty related to the banking channel has had an impact on the implementation of activities in terms of both time and cost

Korea where there are limited suppliers, it may not be feasible to procure such goods locally. Further, and as mentioned above, there are difficulties in getting finances into the country. As a result Chinese suppliers have been designated as "local suppliers" to enable offshore procurements. However, in the interview, it was pointed out that even by expanding the definition for local suppliers, there are limited numbers of bidders for the required goods, thus limiting the option for procurement in China.

A second issue relates to items procured and their transportation into the country. Even once the goods are procured from the supplier, problems have been encountered in getting the items through customs in neighbouring China, especially when it is possible that the goods may have a "dual use". For the two implementing agencies, there appears to be a difference in the challenges faced by UNICEF and WHO because of the type of goods procured and the institutional structure of the two organizations. UNICEF has a global supply division based in Copenhagen, which procures vaccines and cold-chain equipment through the global tendering process. It is also supported by a regional hub in Shanghai, China which coordinates education related procurements. UNICEF staff indicated that they had not faced significant issues in procurement under Gavi HSS support. One example of "dual use"

was when procurement related to using aluminium films for solar panels was flagged, although it was eventually resolved. WHO, on the other hand, has faced more procurement issues in procuring items such as centrifuges and other laboratory equipment due to their potential for "dual use". Getting clearance for these items can take time and delays implementation of the Gavi HSS grant. Given the complexity of sanctions, staff stationed in the country does not appear to be adequately equipped with knowledge on legal implications. It may be useful to have a legal expert to advise the local UNICEF and WHO teams on legal aspects of procurements in a timely manner.

Given the complexity of sanctions, staff stationed in the country does not appear to be adequately equipped with knowledge on legal implications.

Bringing international experts into the country

It was reported that there were instances of reluctance on the part of international experts to travel to the country for in-country missions. Further, in general the Government provides visas for short periods such as 2 weeks, and in some cases, international experts may be allowed to visit the country once a year. Moreover, processing visas may take a few months. Therefore, activities involving international experts require planning well ahead of time. However, there were exceptional cases where the process of Government clearance was relatively quick. We learnt that during emergencies such as the measles outbreak in 2007, visas were expedited. The nationality of experts appears to have a bearing on the willingness of the Government of the Democratic People's Republic of Korea to mobilize their services. Some interviewees highlighted that there were a few exceptional cases where visas were not granted to international consultants.

Maintenance of equipment

Restrictions on procurement of items and mobility of international staff also have an impact on maintenance of equipment purchased. The difficulty of getting manufacturers to install equipment was highlighted in the review. Enhancing the local capacity to make repairs of procured equipment has been built in to address this shortcoming. However, getting spare parts can still be an issue.

Vaccines are essential in ensuring healthy lives, promoting well being and reaching the social development goal No 3.

4.3 Gavi HSS M&E

The performance of Gavi HSS support can be assessed in terms of its intended outcomes as well as other outcomes that were not explicitly articulated in the proposal. The intended outcomes included in the proposal relate to immunization coverage and child mortality, as well as outputs and intermediate results (*see* Annex 8 for detailed indicators). Table 6 summarizes these parameters for each Gavi HSS proposal in the Democratic People's Republic of Korea.

Table 6: Summary of indicators to monitor Gavi HSS 1 and 2

Types of outcomes	HSS 1	HSS 2
Immunization and MCH outcomes	• DTP3 and hepB coverage (by counties) • Measles coverage (by counties) • Under-5 mortality	• DTP3 coverage • Measles coverage • Equity of coverage • Dropout rate • Children fully immunized
Outputs and intermediate results	• Development of guidelines • Implementation of activities (at central, province, county and *ri* levels)	• Development of institutional capacity • Development of SOPs • Conducting studies on coverage, vaccine management, etc. • Implementation of activities (at central, province, county and *ri* levels)

Source: Adapted from Gavi HSS 1 and 2 proposals

In our analysis, the indicators used to monitor the progress of Gavi HSS support were not found to be adequately sensitive in capturing the impact of this support. Both proposals track coverage of the third dose of DTP that is in line with global standards. This is a good indicator as it suggests that the system can reach and follow up with the target population. At least 80% coverage of DTP3 was the threshold used to monitor performance of counties at the baseline. Even at the baseline, all the counties were already above this threshold. Thus, even though this indicator may be good in terms of global standards, the threshold is not sensitive to measure the impact of Gavi HSS support in immunization performance improvement in the Democratic People's Republic of Korea. More details are given in the next section. An indicator that is likely to be sensitive to change is the percentage of facilities without any vaccine stock-out on an immunization day.

Furthermore, some indicators were not appropriate for measuring the impact of Gavi HSS support. In Gavi HSS 1, child mortality was included as an indicator but was not measured or reported in the APRs. Subsequently, this indicator was dropped in the Gavi HSS 2 proposal. Perhaps this is not a good indicator to measure the impact of HSS activities as it may be difficult to assess rapid changes in child mortality that can be attributable to Gavi HSS activities. This indicator is also difficult to measure and requires a large sample size and accurate measurement techniques. It would therefore be a costly endeavour in a system without a robust health information system. In Gavi HSS 2, immunization performance indicators such as equity, dropout rate and children fully immunized were added. This was done to measure the effectiveness of activities related to inequitable access of immunization services. In Gavi HSS 2, additional indicators on activities performed were included but were found to be wanting. For example, microplanning is tracked at the county level, although, as the team found during the in-country mission, microplanning is the most suitable for the *ri* level since it was found to be implemented at this level.

Recognizing that measuring capacity development is difficult, it is still worth measuring indicators on learning and application of knowledge and skills acquired.

Training and capacity-building is an important modality of delivering Gavi HSS support. However, there is very little evidence of the impact of these activities other than the number of training activities conducted and the number of staff trained (*see* next section). Recognizing that measuring capacity development is difficult, it is still worth measuring indicators on learning and application of knowledge and skills acquired. Some examples of indicators that may reflect impact and would be sensitive to change include tracking the percentage of staff using guidelines or percentage of staff conducting microplanning on a regular basis.

The quality of some indicators and their measurement can be called to question as per our analysis. As shown in Table 7, in Gavi HSS 1, of the 17 indicators, only four had baseline values at the time of the proposal development, and many indicators changed over time. In Gavi HSS 2, the indicators were better defined with a majority having baseline information. We could not assess the status of the indicators in Gavi HSS 2 as it is ongoing and we were unable to access the M&E data since 2015. We therefore cannot comment on whether or not these indicators need to be modified.

Table 7: Analysis of indicator quality

Type	HSS 1	HSS 2
Proposal		
Number of indicators in proposal	17	23
Number of indicators with baselines	4	23
Number of indicators with targets	16	5
Number of indicators on immunization or child health outcomes	3	5
Number of indicators on outputs or intermediate results	14	18
Grant-end annual progress report		
Number of indicators reported in the final year of grant	14	na
Number of indicators reported in the final year of grant that were in the proposal	7	na
Number of indicators reported in the final year of grant but not in the proposal	7	na
Number of indicators not reported in the final year of grant but in the proposal	10	na
Number of indicators reported in the final year of grant that were modified from the ones in the proposal	4	na

na - not available

Source: Developed from HSS 1 and 2 proposals and Annual Progress Report (2014)

One of the key elements of an M&E system is having reliable and timely data. We understand that the MoPH regularly provides aggregated data to international agencies as requested for reporting purposes. We also learnt that data is transmitted electronically from the province to the central level, but records are maintained and reported manually at county and *ri/dong* levels. Interviewees from international organizations expressed little or no concern about the recording systems in place. However, the likelihood of accurate data being used to provide feedback to the system in a timely manner is not evident. In terms of human resource management, recording and reporting is done by household doctors who are the main agents of service delivery. This may inhibit their ability to work effectively. It may be useful to consider having data entry and analytical support at health facilities to maintain records, and extending the electronic reporting system to lower levels of administration.

In summary, the M&E system is not adequately implemented for Gavi HSS support, even though Gavi strategically prioritizes M&E in order to learn from programme implementation. A clear evidence of this shortfall is that the Gavi HSS 1 support was evaluated 3 years after its completion, making it very difficult to observe the impact. Further, some of the relevant information may not be available – either because it is missing or due to the levels of recall bias existing among old and new staff involved in grant implementation. As mentioned above, delayed evaluation of Gavi HSS 1 support was a lost opportunity for informing Gavi HSS 2 support. We note that at the time of completing this review, Gavi HSS 2 is already midway through and the present review is more of a midterm progress assessment for Gavi HSS 2 support. Although we have tried to incorporate such a midterm progress assessment for Gavi HSS 2 support in the present evaluation, we recognize the limitation in terms of time and resources. We therefore suggest that a proper Gavi HSS 2 midterm review be conducted and built on the present evaluation.

4.4 Gavi HSS outputs and outcomes

According to programme outcomes and outputs reported to the Gavi Secretariat on an annual basis, almost all indicators achieved their targets, except for the percentage of counties implementing supportive supervision (Table 8). The Democratic People's Republic of Korea's immunization programme performance is outstanding as compared to countries at the same level of economic development, as demonstrated by the fact that the DTP3 coverage is at par with the Regional average of WHO's Western Pacific Region and high as compared to that of WHO's South-East Asia Region (Fig. 2). Data collected through self-assessment, KIIs, meetings with stakeholders from the MoPH and international staff suggest that Gavi HSS support has made a significant contribution to this progress. However, the country achieved these targets even before Gavi HSS supported activities were implemented. It is very difficult for us as reviewers to draw firm conclusions about how Gavi HSS support contributed to the improvement of immunization and child health in the Democratic People's Republic of Korea, even though high levels of immunization were maintained during the period of Gavi HSS support.

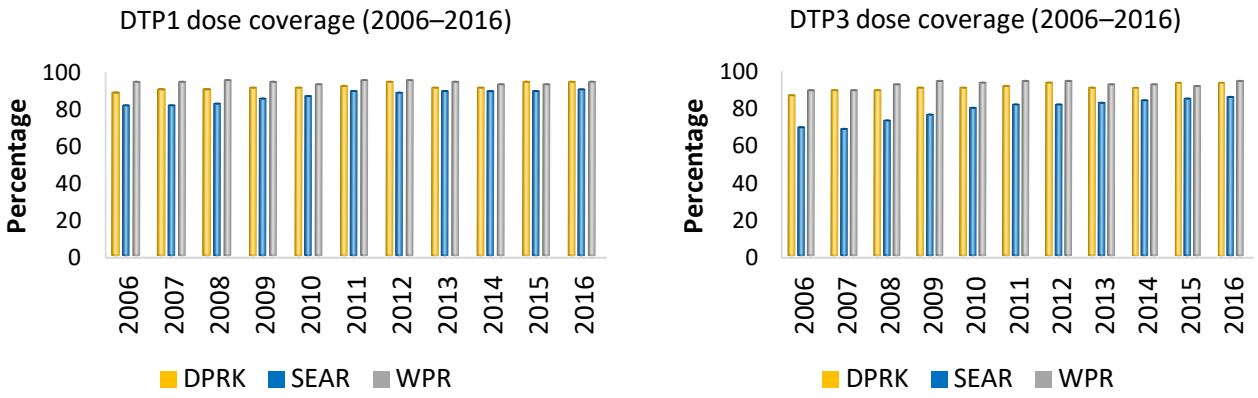
Table 8: Performance of HSS 1

Indicators	Baseline value	Target for reporting year	2007	2008	2009	2010	2011	2012	2013	2014
Immunization and child health outcomes										
Percentage of counties achieving >80% DTP3 coverage	100%	100%	n/a	n/a	n/a	100%	100%	100%	100%	100%
DTP–HepB3 coverage	82%	90%	n/a	n/a	n/a	90%	94%	96%	94%	95%
MCV1 coverage	80%	90%	n/a	n/a	n/a	98%	99%	99%	99%	99%
Outputs and intermediate results										
Numbers of staff trained in integrated health management (persons)	0	3850	na	na	na	0	2736	3536	3925	3925
Guidelines developed for microplanning	No	Yes	na	na	na	Yes	Yes	Yes	Yes	Yes
Guidelines developed for financial management	No	Yes	na	na	na	Yes	Yes	Yes	Yes	Yes
Percentage of counties implementing supportive supervision	0%	100%	na	na	na	30%	60%	80%	85%	85%
Percentage of counties implementing IMCI	25%	100%	na	na	na	100%	100%	100%	100%	100%
Percentage of counties managed by trained health managers	0%	100%	na	na	na	100%	100%	100%	100%	100%
Percentage of counties utilizing integrated VPD surveillance	0%	100%	na	na	na	90%	100%	100%	100%	100%
Percentage of counties routinely integrating Vit A with RI	99.70%	100%	na	na	na	100%	100%	100%	100%	100%
Percentage of counties with 90% functioning cold chain	n/a	100%	na	na	na	100%	100%	100%	100%	100%
Coordination mechanism established for HSS	No	Yes	na	na	na	Yes	Yes	Yes	Yes	Yes
Percentage of provinces with VPD focal points trained on data management	0%	100%	na	na	na	100%	100%	100%	100%	100%

na – not available; RI – routine immunization

Source: Adapted from APRs

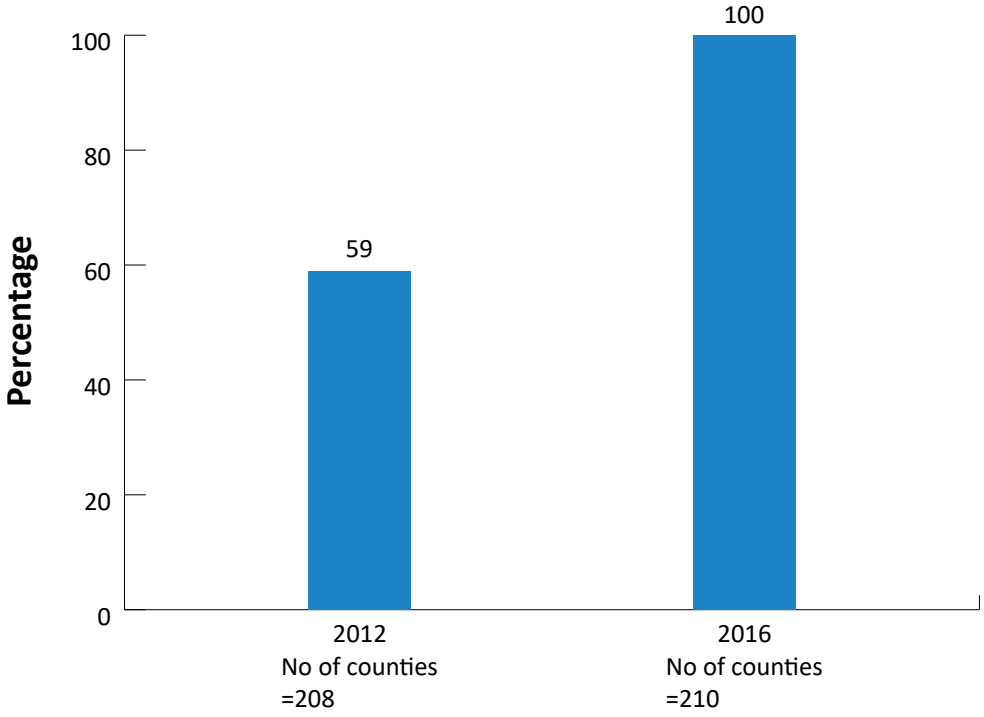
Fig. 2: Comparison of DTP 1 and DTP3 coverage in the Democratic People's Republic of Korea with WHO South-East Asia and Western Pacific regions



DPRK – Democratic People's Republic of Korea; SEAR – South-East Asia Region; WPR – Western Pacific Region
Source: WHO/UNICEF Estimates of National Immunization Coverage for 2006–2016 as of 15 July 2017

In the Gavi HSS 2 proposal, some indicators that are sensitive to change such as increasing DTP3 coverage from 80 to 95% in counties have been included. In relation to this indicator, there is a significant improvement in percentage of counties with at least 95% DTP3 coverage during the implementation of Gavi HSS 2 (Fig. 3).

Fig. 3: Improvement in coverage of DTP3 across counties in the Democratic People's Republic of Korea (2012–2016)



Source: Joint Reporting Form on Immunization 2012, 2016
Note: Counties 95% or above DTP3 Coverage included

Closely associated with immunization outcomes are the "hardware" and "software" aspects of the immunization programme to which Gavi HSS support has made significant contributions. The "hardware" aspects include cold-chain equipment, transportation, printing of materials and other information, laptops, communication technology equipment, refurbishment of vaccination rooms, immunization and laboratory supplies. The "software" aspect covers capacity-building activities including developing materials and training modules, conducting cascade training through a master training-of-trainers (ToT), conducting training both at different levels of service delivery – central, province, county and *ri/dong* as well as in various provinces. Study tours to learn from peers in other countries are also included in this category. The major topics covered during training included IMNCI, cold-chain management and surveillance of VPDs and AEFIs, among others.

4.5 Unintended consequences of Gavi HSS support

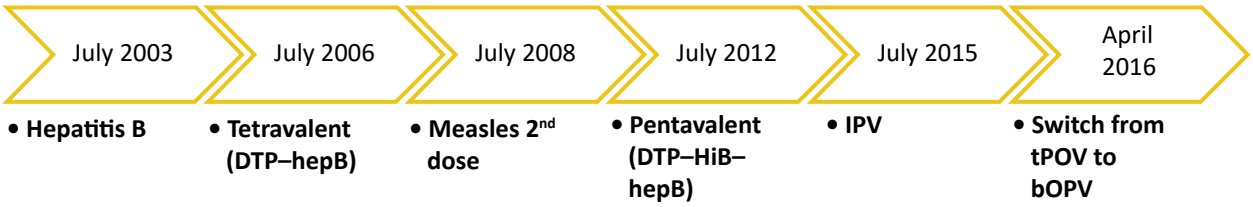
The evidence indicates that Gavi HSS has also had an impact on other areas of the health system in the Democratic People's Republic of Korea as well as on the synergy of working of the two implementing agencies, i.e. UNICEF and WHO. These unintended consequences may not be measurable by indicators. Nor have they been mentioned in the proposal. However, we believe that these consequences are important and need to be highlighted.

4.5.1 Other types of impact on the Democratic People's Republic of Korea's immunization/health system/ health services

The Democratic People's Republic of Korea has adopted new and underutilized vaccines with or without the support of Gavi over the past 2 decades, as illustrated in Fig. 4. Two vaccines, namely hepatitis B vaccine and tetravalent (DTP-HepB) vaccine were introduced before the Gavi HSS 1 proposal was approved, whereas the second dose of measles vaccine, pentavalent (DTP-HepB-Hib) vaccine and inactivated polio vaccine (IPV) were introduced during the implementation of Gavi HSS 1 and 2. Introduction of vaccines supported by Gavi indicates the good relationship with, and trust in Gavi that the Government has. Also, other new vaccines introduced such as the second dose of measles vaccine is a testimony to the technical collaboration of the Government with WHO and UNICEF. Interviews and discussions with the MoPH, UNICEF and WHO staff confirmed that Gavi HSS support has played a crucial role in ensuring that the cold chain and other elements of the health system were in place to facilitate the introduction of new and underutilized vaccines in the Democratic People's Republic of Korea. Further, training activities were conducted for the introduction of IPV and switching from the trivalent oral polio vaccine (tOPV) to the bivalent oral polio vaccine (bOPV) in 2015 and 2016, respectively.

Gavi HSS has also had an impact on other areas of the health system in the Democratic People's Republic of Korea as well as on the synergy of working of the two implementing agencies, i.e. UNICEF and WHO.

Fig. 4: New vaccines introduced in the Democratic People's Republic of Korea during 2003–2016



Source: Adapted from the presentation made by the Kangwon Provincial staff and WHO EPI Factsheet 2016

The health system infrastructure has been significantly improved as part of the Gavi HSS support by expanding the cold-chain capacity and installing electricity supply at local health facilities. During the field visit, we observed that the refrigerators purchased with funds from Gavi HSS support were used to maintain the cold chain for other medicines requiring cold storage as well. Furthermore, the improvement of transportation of health-care providers can ensure the access of household doctors, who are critical to the service delivery process, to households, with its use not being limited to the vaccination programme. This intervention can save many lives of patients in addition to its impact on improving immunization outcomes and related morbidity and mortality reduction.

The MoPH has earned recognition for its commitment to and efforts in sustaining high and equitable immunization coverage in alignment with the Global Vaccine Action Plan (GVAP) and the strategy of the Gavi Alliance (2016–2020). This recognition was evidenced by the receipt of performance-based financing (PBF) of US$ 4.1 million. PBF is an incentive mechanism that rewards Gavi HSS grantees for achieving their programme results or immunization outcomes under Gavi HSS support. PBF is also linked to meeting the country's co-financing commitments, which are to be met by the Democratic People's Republic of Korea.

4.5.2 Impact for UNICEF and WHO

It is clear from our observations that Gavi HSS support has brought the two implementing agencies UNICEF and WHO closer and together in their work towards improving child health in the Democratic People's Republic of Korea. This increased collaboration has several benefits. For one, the impact of the grant is enhanced, given that each agency brings its own expertise and relative strengths to the table while implementing Gavi HSS support. Secondly, it can reduce inefficiencies because they share information and coordinate their efforts in synergy. This also ensures that the two organizations do not duplicate each other's work in implementing Gavi HSS support. Further, we learnt from the staff that this collaboration has helped improve activities both funded and not funded by Gavi, right from the top-level management to the level of the programme managers. UNICEF and WHO have worked together on several issues related to MCH and other areas, but it is Gavi HSS support that has made them operate more effectively in the Democratic People's Republic of Korea. This observed synergy has been instrumental in enhancing their reputation in the health sector. The experience gathered in joint implementation of Gavi HSS support has benefitted joint work in other areas such as responding to emergencies, elimination of malaria, control of tuberculosis and NCDs *(17).*

During discussions with the staff from UNICEF and WHO, it was evident that they used the performance of the Gavi HSS support to raise funds from donors for the immunization programme in past years including the Republic of Korea, which is a major donor for MCH projects in the Democratic People's Republic of Korea.

4.5.3 Impact for Gavi

In addition to achievements related to the Gavi HSS grant, Gavi itself has also been credited for supporting a well-performing immunization programme in a country that is regarded as having one of the most challenging contexts for successfully investing overseas development aid. This was evidenced by the development of promotional materials and its use by Gavi for fund-raising (https://www.youtube.com/watch?v=q_Ynmu5jEZ0, accessed 08 September 2018).

4.6 Programme sustainability

The evaluation highlighted the importance of sustaining the progress made by the immunization programme. The estimated proportion of Gavi support to the total immunization budget in the Democratic People's Republic of Korea for 2011–2015 was about 48% *(16)*. This level of support suggests that the immunization programme is not self-sufficient. In other words, without Gavi's support, the Democratic People's Republic of Korea may have difficulties in sustaining immunization activities. We tried but were unable to find the actual financial contribution of Gavi HSS support as a percentage of the total health and immunization budgets. Based on our interviews and the field visit, the entire cold-chain infrastructure and logistic support are funded by the Gavi HSS grant (*see* Annex 9 for the list of cold-chain equipment supported by Gavi). The local staff appears to have placed their hopes on Gavi maintaining its support for immunization infrastructure through a subsequent Gavi HSS 3 support without relying on an aternative financial sustainability plan.

Gavi HSS support promotes independent , external reviews by experts to guide the national immunization program

Gavi HSS supports involvement of external experts in capacity building in DPRK

Discussion and recommendations

5. Discussion and recommendations

5.1 Summary of main findings and discussion

Our evaluation suggests that Gavi HSS support in the Democratic People's Republic of Korea from 2007 through 2017 can be regarded as a success. Although Gavi HSS support is not used to pay for vaccines per se, it contributes to planning of immunization activities, increased access to immunization services, management of the cold-chain system, improvement of supply and logistics and human resource development. These contributions have resulted in maintenance of a high and equitable immunization coverage and introduction of new and underutilized vaccines in the country. In addition to meeting the targets set in the performance framework of Gavi HSS grants, Gavi HSS support in the Democratic People's Republic of Korea has achieved many more important outcomes that were not explicitly included in Gavi HSS proposals.

On the other hand, Gavi as the donor has proven its ability to contribute to making an impact in a country facing many geopolitical challenges. This impact has been made by supporting to improve immunization outcomes through its Gavi HSS support in the Democratic People's Republic of Korea. This case study is worthy of being showcased during the next Gavi pledging campaign.

Our evaluation offers lessons to be learnt from the experience and suggests that there is room for improvement of activities. The proposal for Gavi HSS 2 support did not receive feedback on lessons learnt from implementing Gavi HSS 1 support. The time devoted to the development of the proposal was less than ideal and the support provided by Gavi and its partners in the Democratic People's Republic of Korea was not adequate. The delay in disbursement and use of funds have been recognized since the early days of Gavi HSS 1 support and the situation has not gotten better, due to challenges arising from international sanctions. These points should attract more attention in the design of the next phase of Gavi HSS support (HSS 3) and other relevant aid proposals to the Democratic People's Republic of Korea. Although the country has demonstrated the ownership of Gavi HSS support and a strong commitment to sustain the high performance of the immunization programme, further expansion of the immunization services in the country needs to be considered alongside its financial sustainability. The strategic thinking of Gavi HSS support for the next phase should take into account limitations of expanding immunization services without sustainable financial sources.

The partnership between UNICEF and WHO brings many benefits to the implementation of Gavi HSS support in the Democratic People's Republic of Korea. This is a win–win arrangement for all parties involved including MoPH, Gavi, UNICEF and WHO. Due to the country context, it is inconceivable for UNICEF and WHO not to be involved in

implementation of Gavi HSS support. However, because of their dual role of being the grant holders and also being part of the implementing team, it is unavoidable that the M&E element gets diluted. In order to improve the quality of M&E for tracking the progress of implementation of the Gavi HSS grant, technical support on M&E needs to be laid down in the Gavi HSS proposal. In future, this will have to be organized at the stage of developing proposals and further expanded during their implementation.

This evaluation has certain limitations. Firstly, Gavi HSS support has been implemented since 2007 and about 10 years have elapsed since its inception. Some requisite information was not available since the staff involved had moved away to other duty stations within and outside the country and could not be contacted. In the case of those who were contacted, there could have been variable levels of recall bias, limiting the validity of data collected. Secondly, although we would have liked to do more primary data collection including a survey with random sampling of facilities, this was not possible. As a result, we have relied mainly on secondary sources of performance data, which could not be independently verified. Finally, we could not access documents that were in the Korean language and had limited access to documents that were not publicly available.

5.2 Recommendations to relevant stakeholders

The following recommendations are targeted to the major three stakeholders of this evaluation, namely Gavi, alliance partners in the Democratic People's Republic of Korea (UNICEF and WHO) and the MoPH. While the recommendations are addressed to specific users, they may be used or applied by other users as they deem appropriate. These recommendations are not exhaustive and we have focused only on the key points.

Gavi HSS contributes to planning of immunization activities, increased access to immunization services, management of the cold-chain system, improvement of supply and logistics and human resource development.

5.2.1 Recommendations to Gavi

- **Continue to support the Democratic People's Republic of Korea.** Given the importance of Gavi's support to the Democratic People's Republic of Korea's immunization programme which has delivered outstanding outcomes, Gavi should continue to provide comprehensive support to the country.
- **Promote the success of Gavi in the Democratic People's Republic of Korea to the global community**. Gavi has shown that it is possible for international agencies that provide humanitarian aid to the Democratic People's Republic of Korea to be successful. It should therefore share its experience with other international aid agencies so as to enable them to effectively provide humanitarian support in the Democratic People's Republic of Korea. It can also inform its own donors about Gavi's significant impact on the ground.
- **Dedicate more resources to subsequent Gavi HSS proposals.** This evaluation illustrates the importance of prioritizing the development of subsequent Gavi HSS proposals, which involve bringing together various actors in the health sector to review implementation of previous proposals, articulate a clear strategy and reflect it

in any subsequent proposal. This entails allocation of more time and resources for subsequent proposals. These efforts should not be viewed as a programme cost, but rather as an investment. It is recommended that Gavi allow applicants to include a budget line in each proposal to support the development of the subsequent proposal, if applicable.

- **Develop guidelines for all parties.** Since Gavi encourages country ownership and demands high quality proposals which often require support from external experts, it is recommended that guidelines on Gavi HSS proposal development be made for each group, i.e. the government, consultants and partners (UNICEF and WHO), to ensure that each party has clarity regarding their role and ensure full participation of all parties in the process as per their individual roles. We are aware that Gavi has a general guideline available. However, it should be expanded to address all parties concerned.
- **Review potential for conflicts of interest in the current proposal approval process.** Gavi should review conflicts of interest arising from the dual role of being a member of the IRC and also a consultant developing the Gavi HSS proposals for countries. We are aware that consultants do not review the proposals of the countries that they work on. However, this is not sufficient by itself to address the potential for conflicts of interest.
- **Enforce end-of-grant evaluation and clarify its purpose.** Gavi should enforce the requirement for having an end-of-grant evaluation. It should also clarify or address concerns of the country regarding the purpose of the evaluation and how it will be used for the benefit of future interactions with Gavi, including the next phase of Gavi HSS support.
- **Address common causes for delay.** Gavi Secretariat should consider commissioning a team that could advise or estimate the time and resources required to address the common causes of delays across countries.
- **Explore appropriate models for delivering Gavi HSS support.** Gavi should support conducting of more in-depth studies to learn about the impact of the three different models used to deliver Gavi HSS support in countries like the Democratic People's Republic of Korea, where the grant-holders are part of the implementation team.

5.2.2 Recommendations to the Government of the Democratic People's Republic of Korea

The evaluation team urges the Government of the Democratic People's Republic of Korea to review the findings of this evaluation and take actions as appropriate, including working closely with UNICEF and WHO to ensure that the remaining Gavi HSS activities are implemented in a timely manner. The following are general recommendations for the Government's consideration:

- **Implement the Gavi HSS 2 support in a timely manner**. The Government should work closely with UNICEF and WHO to ensure that the remaining activities in the Gavi HSS 2 support are implemented in a timely manner by addressing preventable common causes of delay.
- **Invest more in health.** With support from Gavi and its partners, the Democratic People's Republic of Korea Government is showing that their staff is fully capable of

ensuring universal access to immunization and reducing the VPD burden. Given the nature of the external support, the Government should ensure long-term financial sustainability of the immunization programme as well as develop human capacity in areas where they currently rely on external technical support.

- **Value independent evaluations of Gavi HSS support.** With the prospect of continuation of Gavi HSS support in the future, independent and high-quality evaluations of Gavi HSS support will provide crucial inputs to develop and implement future Gavi HSS proposals.

During supervisory visits partners ensure potency of vaccines by checking the vaccine vial monitor

5.2.3 Recommendations to UNICEF and WHO

- **Ensure that midterm review and end-of-grant review are conducted in a timely manner for Gavi HSS 2 support.** This evaluation shows the importance of Gavi HSS grant evaluations. WHO should ensure that a midterm review of Gavi HSS 2, which builds on this evaluation, is conducted. The midterm review should also consider the appropriateness of current indicators to track the success of Gavi HSS 2 support. Further, WHO should plan to commission an end-of-grant evaluation in time so as enable its use for the next proposal for Gavi HSS support.
- **Prepare for operating under more stringent international sanctions.** The findings from this evaluation show the significant impact that international sanctions have had on implementation of Gavi HSS support. It also illustrates the trend of increasing severity of the sanctions. UNICEF and WHO cannot ignore this future uncertainty and should prepare for more stringent international sanctions by having plans in place to respond to multiple levels of sanctions-related contingencies.
- **Document and report on the impact of international sanctions on humanitarian aid to the Democratic People's Republic of Korea.** UNICEF and WHO should systematically evaluate the impact of current international sanctions on humanitarian operations, including but not limited to Gavi HSS support, and report to the UN. These recommendations are to ensure that the sanctions do not affect humanitarian aid in the Democratic People's Republic of Korea, as stated in various UNSC resolutions.

Gavi HSS support encourages microplanning to reach the last child for vaccination

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Not only the technical staff, senior level officials of MoPH, WHO and UNICEF also attend Gavi HSS activity reviews

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Field visits are an opportunity for interactions with service users and supporting plans to reach every child

Biography of the evaluation team

7. Biography of the evaluation team

Dr Yot Teerawattananon, MD, PhD

A medical doctor and health economist by training, Dr Yot Teerawattananon is a founding leader of the Health Intervention and Technology Assessment Programme (HITAP, http://www.hitap.net/en), a semi-autonomous public agency under Thailand's Ministry of Public Health. Works of HITAP have been used to inform policy decisions regarding adoption of medicines, vaccines, medical devices, health promotion and disease prevention programmes under the universal health coverage (UHC) scheme in Thailand. He is also a member of WHO's Immunization and Vaccine-related Implementation Research Advisory Committee (IVIR-AC), the scientific advisory group to WHO on research and development blueprint, and the executive board of the international Decision Support Initiative (iDSI). He has published more than 100 papers in peer-reviewed international journals and some book chapters. He and his team at the HITAP have provided technical support to build capacity on health technology assessment in Bhutan, India, Indonesia, Nepal, Myanmar, the Philippines, South Africa, Sri Lanka and Vietnam. Currently, Dr Yot is the president of the HTAsiaLink (http://htasialink.org/), a regional network comprising more than 30 health technology assessment agencies throughout Asia and the Pacific region.

Ms Saudamini Dabak, BA (Economics), MA

Ms Saudamini Dabak is a technical advisor at the HITAP, Thailand. She started working at the HITAP as an Overseas Development Institute (ODI) Fellow in 2015. At the HITAP, Ms Saudamini Dabak has supported health technology Assessment (HTA) initiatives in the South-East Asia Region and has experience working in Indonesia, India and Vietnam. Her current work includes conducting Gavi HSS support evaluation in Myanmar. Prior to working at the HITAP, Ms Saudamini Dabak worked at the World Bank Group. She completed her master of arts from the Johns Hopkins School of Advanced International Studies (SAIS) in USA and holds a Bachelor of Arts in Economics from St. Xavier's College, University of Mumbai, India.

Dr Md Jasimuddin, BMgt, MMgt, PhD

Dr Md Jasimuddin is attached to the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). He has bachelor's and master's degrees in management while his doctorate is on Adolescent and Reproductive Health. He has extensive experience in designing, implementing, monitoring and evaluating health systems research. He has conducted full country evaluations for the Gavi Secretariat and was responsible for the full country evaluation in Bangladesh under WHO South-East Asia Region.

Dr Nihal Abeysinghe, MBBS, MSc, MD

Dr Nihal Abeysinghe is a medical doctor and a specialist in community/public health medicine. He holds a bachelor's degree in medicine and surgery (MBBS), a master's degree and a doctorate in community/public health medicine. He has worked as an epidemiologist in a range of postings in Sri Lanka and in the South-East Asia Region with WHO. Dr Abeysinghe was the Chief Epidemiologist and the EPI manager in the Ministry of Health, Sri Lanka from 2003 to 2008. He had extensive experience in managing and overseeing Gavi HSS and other Gavi-related grants for the Ministry of Health, Sri Lanka, and WHO Regional Office for South-East Asia prior to his retirement. In his tenure at WHO, he worked as the Regional Advisor, Vaccine Preventable Diseases and Immunization System Strengthening and also the acting coordinator of the Immunization and Vaccine Development (IVD) unit. He is currently the Deputy Director for Research and Development for Health and Social Care at the Institute for Research and Development (IRD), Battaramulla in Sri Lanka.

Mr Abu Obeida Eltayeb, BSc, MPH

Mr Abu Obeida Eltayeb participated in the review representing the UNICEF Regional Office for East Asia and Pacific. Mr Eltayeb holds a bachelor's degree in science and a master's degree in public health. He currently serves as an immunization specialist at the UNICEF Regional Office for East Asia and Pacific and is based in Bangkok. Mr Eltayeb is a public health professional with a focus on HSS and routine immunization service delivery strategies with an equity lens. Mr Eltayeb has wide experience in the area of immunization, having worked for both UNICEF and WHO in many countries in Asia and the Pacific regions. Before serving in WHO and UNICEF, Mr Eltayeb served in the Ministry of Health, Sudan and the School of Public Health, Alzaiem Alazhari University.

Building a core group of trainers helps in conducting nation-wide training programmes in a standard manner

Annexes

Annex 1 – Self-assessment form

Description of self-assessment form

You are receiving this self-assessment form as you have been identified as a key figure in managing the Gavi HSS programme in the Democratic People's Republic of Korea. This self-assessment form is part of the first stage of our data collection process and will inform the study.

What do we want from you?

We are keen to learn from you and urge you to respond to all eight questions based on your personal experience. Please note that your responses need not reflect your organization's position. You may respond in any way you wish, using anecdotes or vignettes, for example. Please provide evidence where possible. There is no space limitation and you may complete the form at your own pace over a 10-day period.

Your responses to this form are confidential and will only be seen by the evaluation team. The information provided will be included in the report anonymously.

What should you do after completing the form?

Kindly return your self-assessment form electronically to Ms Saudamini Dabak at saudamini.d@hitap.net. Please feel free to reach out to us if you have any questions.

Personal details

1. Name:

2. When were or have you been involved with the Gavi HSS Programme in the Democratic

People's Republic of Korea:

- Start date (month/year):
- End date (if applicable) (month/year):

3. Responsibilities at the time of involvement in Gavi HSS:

Questions

1. Do you agree that the Gavi health systems strengthening (HSS) programme has contributed to improvement in immunization in the Democratic Peoples Republic of Korea? If yes, in what way did the Gavi HSS programme address the bottlenecks in accessing immunization? Please explain.
2. In your opinion, has the Gavi HSS programme contributed to improvement of the health system capacity outside of the immunization programme? In what way?
3. In your opinion, have there been any unintended consequences (both positive and negative) of the Gavi HSS programme?
4. If you could go back to the start of the Gavi HSS programme, what would you do differently?
5. What, according to you, are the most important factors contributing to the success or failure of the HSS implementation in the Democratic Peoples Republic of Korea? You may describe the important factors for both success and failure.
6. How do you see the sustainability of the activities currently supported by the Gavi HSS programme over the next 10 years in the Democratic Peoples Republic of Korea?
7. What would be your suggestions for a third phase of the Gavi HSS programme in the Democratic Peoples Republic of Korea? Should there be one?
8. Do you have any other comments?

--- End ---

Annex 2 – List of key informant interviews conducted

Ser. No.	Name	Organization	Position (as it relates to Gavi HSS)
1	Mr Par Eriksson	Gavi	Former Senior Country Manager, DPRK
2	Ms Laura Craw	Gavi	Senior Programme Manager, Monitoring, Data Systems and Strategic Information
3	Mr John Grundy	Independent consultant	Independent researcher
4	Dr Kim Jong Ran[1]	MoPH	Technical Officer
5	Dr Won Kwang Chon[1]	MoPH	Gavi Focal Point
6	Dr Kim Nam Hyok[1,2]	Gavi PMU	Head, PMU
7	Ms Hwang Yun Mi[2]	Gavi PMU	PMU staff
8	Ms Nam Hong Ryon[2]	Gavi PMU	PMU staff
9	Ms Ri Sun Hui[2]	Gavi PMU	PMU staff
10	Ms Elena Velilla Cerdan	UNICEF	Chief of Health
11	Dr Kamrul Islam	UNICEF	Former Chief of Health, DPRK
12	Ms Oyunsaihan Dendevnorov	UNICEF	UNICEF Representative, DPRK

Ser. No.	Name	Organization	Position (as it relates to Gavi HSS)
13	Dr Muhammed Tariq Iqbal	UNICEF	Immunisation Officer, DPRK
14	Mr Murat Sahin	UNICEF	Deputy Representative, DPRK
15	Mr Song Xiaobing	UNICEF	Procurement Officer
16	Ms Xiaojun Wang	UNICEF	EAPRO Regional Immunization Team Leader
17	Mr Dorji Thinlay	WHO	Administrative Officer, DPRK
18	Dr Jang Ra Son	WHO	National Professional Officer
19	Dr Partha Pratim Mandal	WHO	Former Technical Officer, DPRK
20	Dr Pushpa Wijesinghe	WHO	Medical Officer – Communicable Diseases and Surveillance (CDS), DPRK
21	Dr Stepan Jost	WHO	Former WHO Representative, DPRK
22	Dr Suraj Man Shreshtha	WHO	Former Medical Officer, DPRK
23	Dr Thushara Fernando	WHO	WHO Representative, DPRK
24	Dr Yonas Tegegn	WHO	Former WHO Representative, DPRK
25	Dr Zobaidul Haque Khan	WHO	Former Medical Officer, Communicable Diseases and Surveillance (CDS), DPRK

PMU – Project Management Unit; DPRK – Democratic People's Republic of Korea; CDS – Communicable Diseases and Surveillance; MoPH – Ministry of Public Health; EAPRO – East Asia and Pacific Regional Office

Note:

- 1 – Interviewed in one group
- 2 – Interviewed in another group

Annex 3 – Informed Consent Form

Informed consent form for interview

Title of the study

Evaluation of the Gavi HSS Support in the Democratic People's Republic of Korea

Evaluation team

- Dr Yot Teerawattananon, HITAP, Thailand
- Ms Saudamini Dabak, HITAP, Thailand
- Dr Jasim Ud Din, icddr,b, Bangladesh
- Dr Nihal Abeysinghe, IRD, Sri Lanka (formerly at WHO)
- Mr Abu Obeida Eltayeb, UNICEF EAPRO, Bangkok, Thailand

Purpose of the study

This evaluation focuses on assessing the extent to which the Gavi health systems strengthening (HSS) support provided to the Democratic People's Republic of Korea between 2007 and 2017 (Phases 1 and 2) has achieved its objectives and contributed to strengthening the health systems of the Democratic People's Republic of Korea. It will also address the implementation issues that have affected the overall results and provide lessons for future support from Gavi and other international donors to the Democratic People's Republic of Korea and other countries with a similar country context. This study has been funded by WHO and is the first evaluation of the HSS programme in the Democratic People's Republic of Korea.

Participation

You have been selected as a participant in this study because you have been identified as a key person who was involved in or is knowledgeable about the local context of the health systems and the Gavi HSS programme in the Democratic People's Republic of Korea.

Method and procedure

The interview may be conducted virtually or face-to-face. During the interview, we will record our conversation in order to ensure accuracy of the information reported.

Confidentiality

All efforts will be made to maintain the privacy, anonymity and confidentiality of respondents. The recorded interviews will be kept confidential and will be destroyed after 1 year of submission of the report. The results of the interviews will be reported anonymously.

Sharing the results

The results of this study will be summarized in a report and shared with the MoPH, the Democratic People's Republic of Korea, Gavi, WHO, UNICEF as well as the general public.

Providing your consent

You may provide your verbal consent at the beginning of the interview.

Annex 4 – Guide for conducting key informant interviews

Guide for conducting key informant interviews

This guide will be used to interview key informants as part of the evaluation of the Gavi health systems strengthening (HSS) Support programme in the Democratic People's Republic of Koreas conducted by the Evaluation Team in 2017. This guide is to ensure that the interview is effective in addressing all important evaluation questions stated in Table 4 of the evaluation proposal. If the interviewer finds that there are other relevant issues emerging from the discussion, he/she may deviate from this guide in order to capture those findings.

There are five groups of key informants that have been identified: (i) Gavi staff; (ii) WHO and UNICEF staff responsible for implementation of the Gavi HSS programme; (iii) Democratic People's Republic of Korea MoPH staff who are involved in management and implementation of the programme at all levels; (iv) external consultants who helped develop the Gavi HSS proposals in Phases 1 and 2; and (v) other international experts who are involved in the immunization programme or health system development in the Democratic People's Republic of Korea.

(i) Gavi staff

- Can you describe how, when and for how long you were involved in Gavi HSS support in the Democratic People's Republic of Korea?
- To what extent does Gavi HSS support (Phases 1 and 2) in the Democratic People's Republic of Korea differ from Gavi HSS support in other low-income countries with a similar level of economic development? Give your answer in terms of:
  - grant approval process
  - disbursement of the grant
  - M&E of the programme
  - linking Gavi HSS to other Gavi supported grants, e.g. Immunization Services Support (ISS), New Vaccines Support (NVS), Injection Safety Support (INS) and Vaccine Introduction Grant (VIG). We are aware that ISS

is no longer available as a separate grant.

- To what extent did Gavi HSS Phases 1 and 2 contribute to immunization outcomes in the Democratic People's Republic of Korea?
- What was the most challenging issue faced by Gavi in supporting HSS in the Democratic People's Republic of Korea in the past? How did Gavi overcome this challenge?
- What is the most persistent challenge facing Gavi in supporting HSS in the Democratic People's Republic of Korea? What are the barriers to overcoming this challenge? Based on your opinion, how does this current challenge affect the success of the Gavi HSS programme?
- What are the lessons learnt that inform improvement for future HSS grants in the Democratic People's Republic of Korea and other countries?

(ii) WHO and UNICEF staff

- Can you describe how, when and for how long you were involved in Gavi HSS support in the Democratic People's Republic of Korea?
- *Proposal development*: If you worked at WHO or UNICEF during the time that the Gavi HSS proposal was developed, can you explain who were the key persons involved in developing this proposal? If there was an external consultant, how was he/she identified? What were the reasons for approaching this/these persons? Who had the authority to define the objective, scope and activities of the proposal?
- *Grant approval*: Did you face or observe any challenges during the grant approval process of the Gavi HSS programme? Based on your experience, in what way did the sanctions on the Democratic People's Republic of Korea affect the grant approval process?
- *Implementation*: Given that WHO and UNICEF are partners in implementation, what were the biggest challenges during the early stages of grant implementation? How did WHO and/or UNICEF overcome these challenges?
- *M&E*: What were the biggest challenges for M&E for this Gavi HSS programme in the Democratic People's Republic of Korea? How did WHO and/or UNICEF overcome these challenges?

General:

- Looking back, with the information available now, what is the one thing you would change in any of the steps described above?
- During the time you were involved, what outcome are you most proud of?

(iii) The Democratic People's Republic of Korea Ministry of Public Health staff

- Can you describe how, when and for how long you were involved in Gavi

HSS support in the Democratic People's Republic of Korea?

- *Implementation:*
  - To what extent, if at all, were planned activities redesigned? Who was/ were involved and what process was followed for this redesign?
  - To what extent did programme management appropriately adapt to challenges in terms of delays in grant implementation? How did the programme management respond to changes in context including international pressure, new government policy, etc.?
- *Results:*

To what extent and in what way was the Democratic People's Republic of Korea Gavi HSS support linked to achieving immunization outcomes? To what extent did the grant effectively address the bottlenecks to immunization identified in the original proposal and subsequent analyses?

- *Impact and sustainability:*
  - What was the value added by Gavi HSS support compared to other types of financing, both international and domestic?
  - To what extent were Gavi HSS funds catalytic to other funding sources/ complementary to other funding sources in the health sector?
  - To what extent were other funding sources complementary to the Gavi HSS programme?
  - What were the positive and negative unintended consequences of the Gavi HSS grant?
  - How sustainable in financial and programmatic terms are the achievements of the HSS grants?

(iv) External consultants

- Can you describe how, when and for how long you were involved in Gavi HSS support in the Democratic People's Republic of Korea?
- What were the reasons for your involvement in Gavi HSS support in the Democratic People's Republic of Korea? What drew you to work on this programme?
- What was the most challenging issue faced by you while supporting Gavi HSS in the Democratic People's Republic of Korea? How did you overcome this challenge?
- Have you worked on HSS programmes in other countries and/or worked on other activities in the Democratic People's Republic of Korea? If so, what were the differences you observed for Gavi HSS support compared to other HSS programmes or other activities in the Democratic People's Republic of Korea?
- Did you need to compromise on the original plan in terms of programme objectives, activities, budget assigned or M&E mechanisms? How did you reach a compromise? How did this affect the various aspects of the programme described above?
- Looking back, with the information available now, what is the one thing you would change in the steps of the programme that you were involved in, i.e. proposal development, grant approval, implementation and M&E?

- During the time you were involved, what outcome are you most proud of?

(v) Other experts

- Can you describe your involvement in Gavi HSS support or other health-related activities in the Democratic People's Republic of Korea?
- To what extent and in what way was the Democratic People's Republic of Korea Gavi HSS support linked to achieving immunization outcomes? To what extent did the grant effectively address the bottlenecks to immunization identified in the original proposal and subsequent analyses?
- What was the value added by Gavi HSS support compared to other types of financing, both international and domestic?
- To what extent were Gavi HSS funds catalytic to other funding sources/ complementary to other funding sources in the health sector?
- To what extent were other funding sources complementary to the Gavi HSS programme?
- What were the positive and negative unintended consequences of the Gavi HSS grant?

New vaccine introductions have presented with an opportunity to re-orientate the staff on immunization practice

Annex 5 – Agenda for the mission to the Democratic People's Republic of Korea

Agenda for external evaluation of Gavi HSS 1 grant mission (7–19 August 2017)

Members : Dr Nihal Abeysinghe, former WHO (Sri Lanka) Dr Md Jasim Uddin, icddr, Bangladesh Ms Saudamini Dabak, HITAP (India/Thailand) Dr Abu Obeida Eltayeb, UNICEF, EAPRO		
7 August (Monday)	**Morning**	–
	Afternoon	Arrival in Pyongyang and checking into the hotel
8 August (Tuesday)	**Morning**	Meeting at the WHO office Briefing with the WR and meeting with the WHO and UNICEF immunization teams Meeting with UNICEF Representative to the Democratic People's Republic of Korea
	Afternoon	Meeting with the MoPH team to brief on the mission Team work on protocol
9 August (Wednesday)	**Morning**	Travelling to the field
	Afternoon	Meeting with the provincial EPI team and visit provincial medical warehouse
10 August (Thursday)	**Morning**	Meeting with the county level EPI team and visit county medical warehouse
	Afternoon	Visit a *ri* level hospital

11 August (Friday)	Travel back to Pyongyang	
12 August (Saturday)	Work at WCO and UNICEF, Pyongyang	
13 August (Sunday)	Rest and sightseeing	
14 August (Monday)	**Morning**	Visit Central Medical Warehouse
	Afternoon	Work at WCO and UNICEF, Pyongyang
15 August (Tuesday)	National holiday. Work at WCO and UNICEF, Pyongyang	
16 August (Wednesday)	Work at WCO and UNICEF, Pyongyang	
17 August (Thursday)	**Morning**	Preparation for the debriefing
	Afternoon	Debriefing with the MoPH
18 August (Friday)	Team work at WHO office on the outline of the mission report	
19 August (Saturday)	Leave Pyongyang	

Annex 6 – In-country mission report

In-country mission report on evaluation of the Gavi Health System Strengthening support

in

the Democratic People's Republic Korea, 7–19 August 2017

Gavi HSS support enhances building the capacity of the household doctors

Gavi Health Systems Strengthening Support Evaluation

the Democratic People's Republic of Korea

7–19 August 2017

Prepared by: Ms Saudamini Dabak, Dr Jasim Uddin,

Dr Nihal Abeysinghe, Mr Abu Obeida Altayeb

Contents

Acknowledgments

We would like to extend our sincere gratitude to colleagues from the Ministry of Public Health (MoPH), WHO and UNICEF who helped make the mission a productive and successful endeavour. We would like to thank Dr Pushpa Ranjan Wijesinghe, WHO and Dr Muhammed Tariq Iqbal, UNICEF for coordinating the mission and ensuring that every aspect of the mission ran smoothly. We also thank Dr Sin Un Suk and Dr Jang Ra Son, national officers from WHO for organizing the logistics of the mission team and the field visits. We thank Dr Won Kwang Chon, the Gavi Focal Point at the MoPH; Dr Kim Jong Ran, the Technical Officer for the Immunization Programme; Dr Kim Nam Hyok, Head of the Project Management Unit (PMU) and PMU staff, namely Ri Sun Hui, Hwang Yun Mi and Nam Hong Ryon for their constant and excellent support throughout the mission including organizing, translating and clarifying discussion points. We also thank staff at health facilities in Kangwon and Pyongyang provinces for their time and efforts in showing us the immunization sessions and explaining the various processes. We are grateful to staff of WHO and UNICEF who gave their time to speak with us; Choe Suk Hyon, Vice-Director at the MoPH; Dr Thushara Fernando, WHO Representative; Oyunsaikhan Dendevnorov, UNICEF Representative and Dr Rezwan Kamar, Acting WHO Representative for their guidance and support to the mission. Last but not least, we appreciate the invaluable contributions of Mr Abu Obeida Eltayeb from the UNICEF Regional Office who served as a team member of the mission and Dr Yot Teerawattananon, who provided remote support to the mission team and gave comments on this report.

Abbreviations

AEFI	adverse event following immunization
CHAEI	Central Hygiene and Antiepidemic Institute
CMW	Central Medical Warehouse
DQS	data quality self-assessment
DTP	diphtheria, tetanus and pertussis
EAPRO	East Asia and Pacific Regional Office
EPI	Expanded Programme on Immunization
EVM	Effective Vaccine Management
Gavi	Gavi, the Vaccine Alliance
HITAP	Health Intervention and Technology Assessment Program
HSS	health systems strengthening
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IEC	information, education and communication
IMCI	Integrated Management of Childhood Illness
IMNCI	Integrated Management of Neonatal and Childhood Illness

KII	key informant interview
M&E	monitoring and evaluation
MoPH	Ministry of Public Health
NCL	National Control Laboratory
NITAG	National Immunization Technical Advisory Group
NRA	National Regulatory Authority
PMU	Project Management Unit
SDD	solar driven drive
SOP	standard operating procedure
ToT	training of trainers
UHC	universal health coverage
UNICEF	United Nations Children's Fund
VPD	vaccine-preventable disease
WFP	World Food Programme
WHO	World Health Organization

Partners audit training programmes to ensure that recommended standards are adhered to

Introduction

1. Introduction

The Government of the Democratic People's Republic of Korea has achieved high levels of immunization coverage over the last decade. In 2006, it applied for Gavi, the Vaccine Alliance (Gavi)'s newly opened funding window of health systems strengthening (HSS) support. After completion of the first HSS grant (HSS 1) in 2013, the Democratic People's Republic of Korea applied for and received a second Gavi HSS grant (HSS 2) for the period 2014 through 2018, now extended to 2019. As part of the grant-end requirement of Gavi HSS 1 support, an evaluation of the programme was to be conducted. World Health Organization (WHO), co-recipient of the grant along with United Nations Children's Fund (UNICEF) in the Democratic People's Republic of Korea requested Dr Yot Teerawattananon of the Health Intervention and Technology Assessment Programme (HITAP) to conduct the evaluation of Gavi HSS support in the Democratic People's Republic of Korea with a team of experts and representatives from the regional offices. While developing the protocol for the study, it was agreed that the evaluation would cover the 10-year period of Gavi HSS support in the Democratic People's Republic of Korea and serve as the end-of-grant evaluation of the then Gavi HSS 1 support and as a midterm review of Gavi HSS 2 support.

The study employs multiple methods for data collection as outlined in the proposal: document review, secondary data analysis, self-assessment form, key informant interviews (KIIs) and direct observation of health facilities. Between May and August 2017, documents from Gavi, WHO and UNICEF available to the public were reviewed. Further, academic articles on Gavi HSS support and health care in the Democratic People's Republic of Korea were reviewed. Publicly available datasets available on Gavi's website were analysed. A self-assessment form with eight questions was developed and fielded to managers and administrators of the Gavi HSS programme in the Democratic People's Republic of Korea in July 2017. KIIs were conducted over Skype or in person with the staff of WHO, UNICEF and the Gavi Secretariat who are or had been involved in Gavi HSS support or had experience of working on health care in the country.

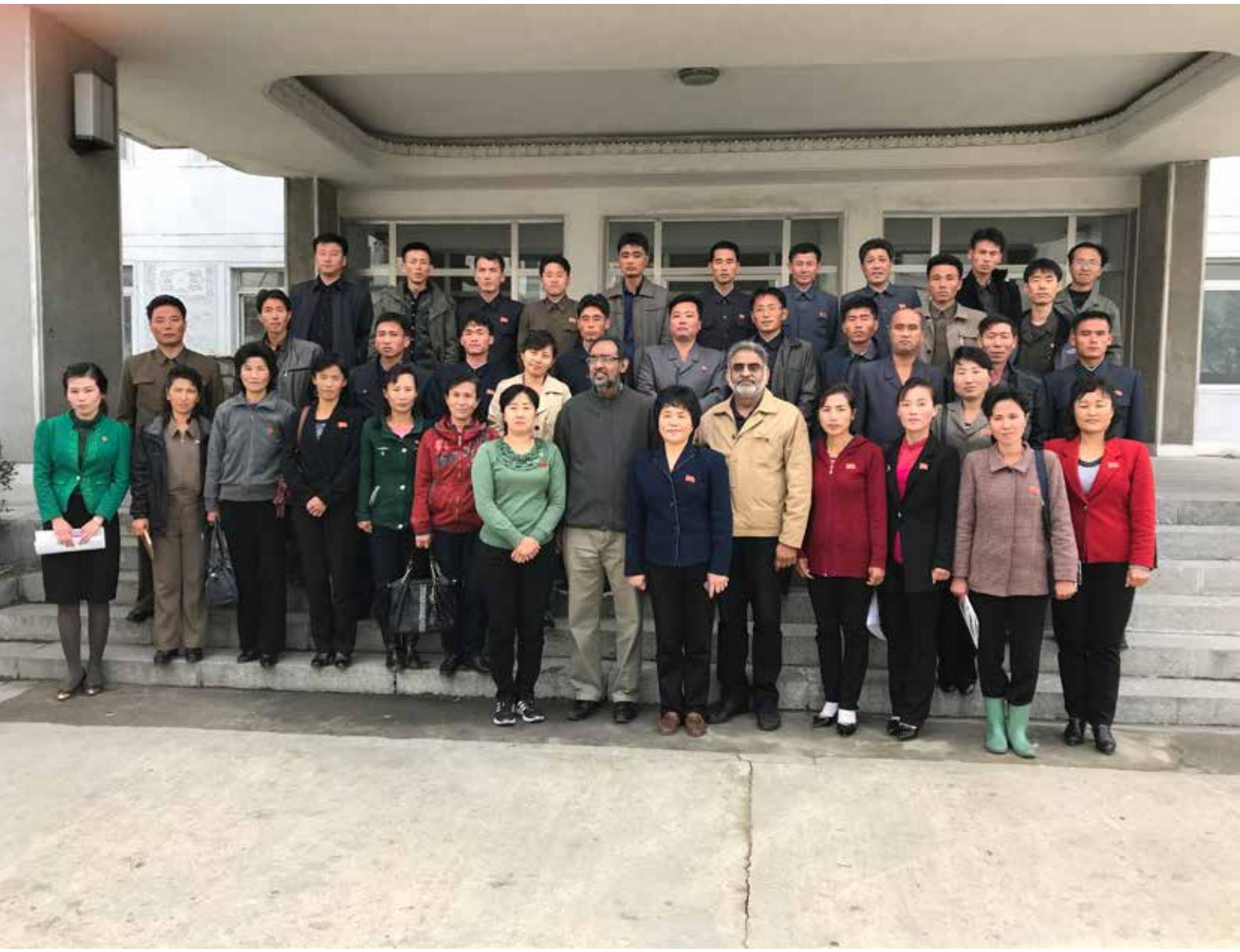
As part of the evaluation, an in-country mission was conducted from 7 to 19 August 2017. The objectives of the in-country mission were: to conduct KIIs with relevant stakeholders from the Ministry of Public Health (MoPH), WHO and UNICEF; to participate in field visits down to the *ri* and *dong* levels; and to summarize lessons learnt during the in-country

The report is structured to provide a description of activities, the background information on Gavi HSS support and the health system in the Democratic People's Republic of Korea, followed by the results of the mission.

visit in a debriefing session with the staff from MoPH, WHO and UNICEF. The team comprised Ms Saudamini Dabak from the HITAP, Dr Jasim Uddin from the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b), Dr Nihal Abeysinghe, former staff at WHO Regional Office for South-East Asia and Mr Abu Obeida Eltayeb from the UNICEF East Asia and Pacific Regional Office (EAPRO). The mission was coordinated by Dr Pushpa Ranjan Wijesinghe from WHO and Dr Muhammed Tariq Iqbal from UNICEF with support from the staff of WHO, UNICEF and MoPH, the Democratic People's Republic of Korea.

This report summarises the activities conducted and results of the in-country mission in the Democratic People's Republic of Korea. The report is structured to provide a description of activities, background information on Gavi HSS support and the health system in the Democratic People's Republic of Korea, followed by the results of the mission. Finally, the lessons learnt, conclusion and recommendations are presented. The agenda, list of participants and supplementary information are included in the annexes.

Thanks to the efforts of polio vaccination, the Democratic People's Republic of Korea is free from polio since 1996



Joint training programmes conducted by MoPH, WHO and UNICEF contribute to health and immunization system strengthening

Description of activities

2. Description of activities

The in-country mission was conducted from 7 through 19 August 2017. The agenda and the list of participants are given in Annexes 1 and 2. During the mission, the team visited health facilities supported by the Gavi HSS grant and interacted with the staff at the province, county and *ri/dong* levels as well as warehouses at the central, province and county levels. The team visited two provinces, namely Kangwon and Pyongyang. In Kangwon, the team visited the office of the provincial health bureau, the provincial medical warehouse, the offices of the county public health department and the county medical warehouse and finally, a *ri* clinic where the team witnessed an immunization session. In Pyongyang, the mission team visited the Central Medical Warehouse (CMW), the office of the Pyongyang provincial health bureau and the provincial medical warehouse as well as a *dong* polyclinic, where an immunization session was held. The visits covered a rural *ri* hospital in Kangwon province and an urban *dong* polyclinic in Pyongyang province. Thus, the central level as well as all three tiers of the health facilities, viz. provincial, county and *ri/dong* levels were covered during the visit.

The visit to a health facility began with a presentation providing an overview of the health/ immunization system and the health facility by the health facility staff, which included the section chiefs and the director. This was followed by a question and answer session and a visit to the medical warehouse for observing an immunization session. The Gavi Project Management Unit (PMU) staff typically served as translators during the field visit and clarified discussion points. The mission team had developed a form to collect data and record observations at each facility. There were six components that were reviewed: activities conducted at the health facilities, human resources, planning, infrastructure, immunization session monitoring and data quality and management. Specific points for each component were also identified by the in-country mission team. The form is given in Annex 3. At the end of the visit to Kangwon province, the review team shared their observations and had a discussion with the technical staff from the province.

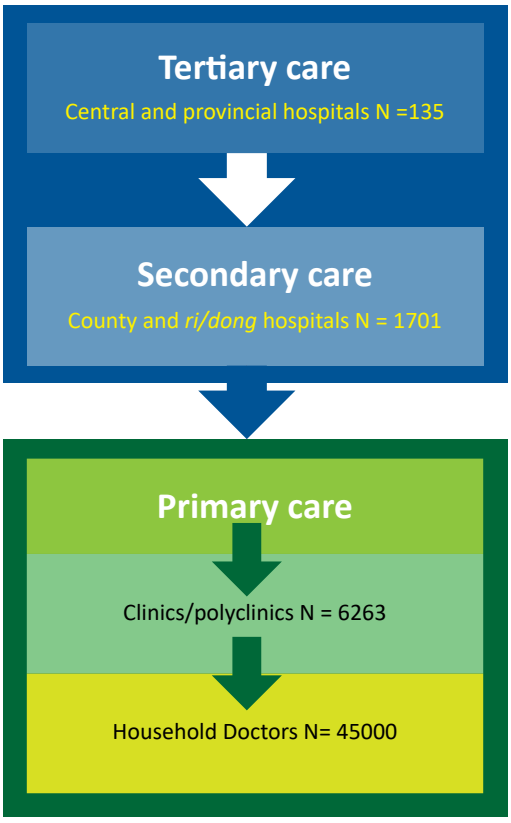
In addition to field visits, the review team conducted KIIs, reviewed data collected and worked on preparing the presentation for the debriefing. KIIs were conducted with the staff from WHO and UNICEF. MoPH and Gavi PMU staff was interviewed in groups, with a translator. The team followed the guide for conducting an interview, which was included in the materials of the protocol of the Gavi HSS evaluation in the Democratic People's Republic of Korea. Consent for conducting and recording the interviews was requested as per the practice. The team worked together to analyse data collected through the self-assessment form, review of secondary data and documents. Further, the team worked on the presentation for the debriefing with the MoPH, WHO and UNICEF staff on 17 August 2017.

Country context

3. Country context

The health system in the Democratic People's Republic of Korea is stratified according to the administrative structure of the country. There are three levels: 12 provinces, 210 counties that are equivalent to districts, and sub-counties. The sub-county level is called *ri* in rural areas and *dong* in urban areas. At the *ri* and *dong* levels, both *ris* and *dongs* have clinics or polyclinics which offer outpatient services but only *ri*s have a hospital which has both outpatient and inpatient facilities. At each clinic or polyclinic, there are often five or more household doctors, who are the main delivery agents of the immunization programme. There is usually one immunization doctor among the household doctors at the clinics. It may be noted that *ri/dong* hospitals and *ri/dong* clinics/ polyclinics serve the peripheral population. Both can refer patients to county hospitals. The health system, organized in terms of care provided, is shown in Fig. 1.

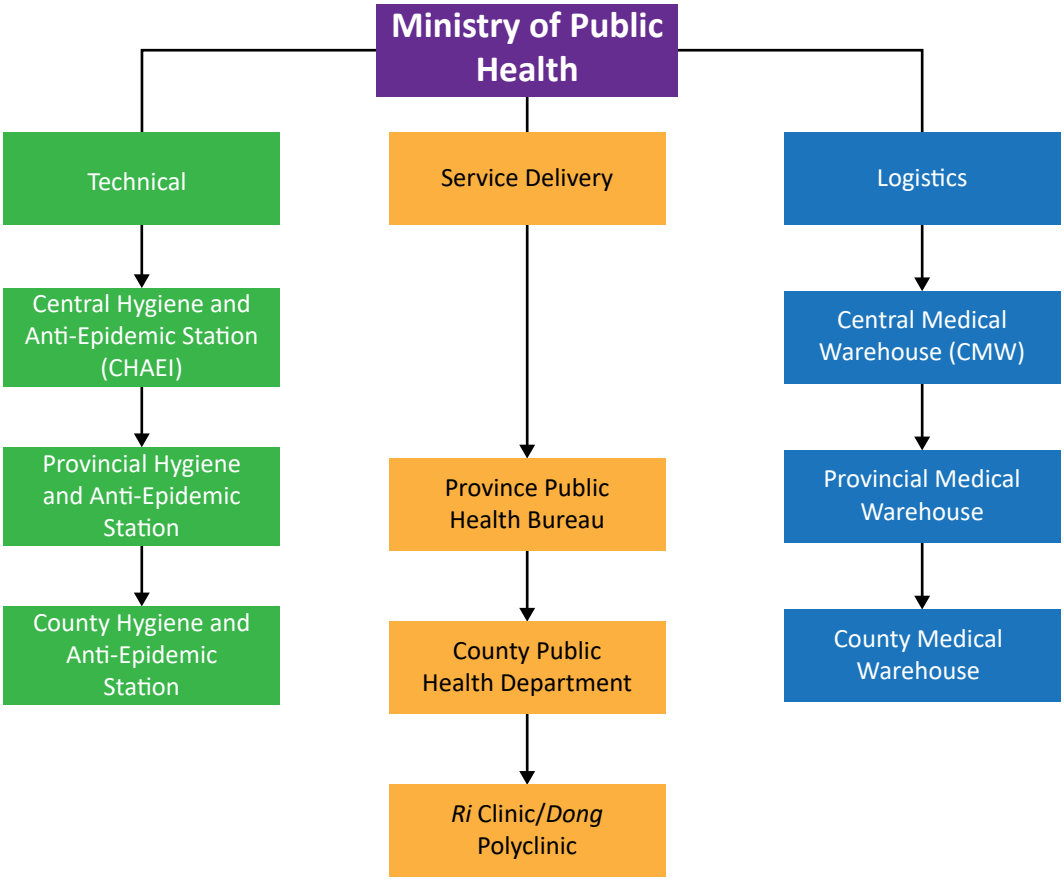
Fig. 1: Health system in the Democratic People's Republic of Korea



Source: Adapted from the Medium Term Strategic Plan 2016–2020 and discussions with colleagues

The Expanded Programme on Immunization (EPI) programme is organized along three verticals: technical guidance, service delivery and logistics, as depicted in Fig. 2. The Public Health Bureau serves as the coordinating agency at each level. The technical arm, called the Central Hygiene and Anti-epidemic Institute (CHAEI), is led by the EPI manager. The logistics team is responsible for managing the cold-chain equipment and transport. CHAEI is responsible for forecasting vaccines requirements as well as coordinating vaccine-preventable disease (VPD) surveillance. The cold-chain system is managed by the CMW.

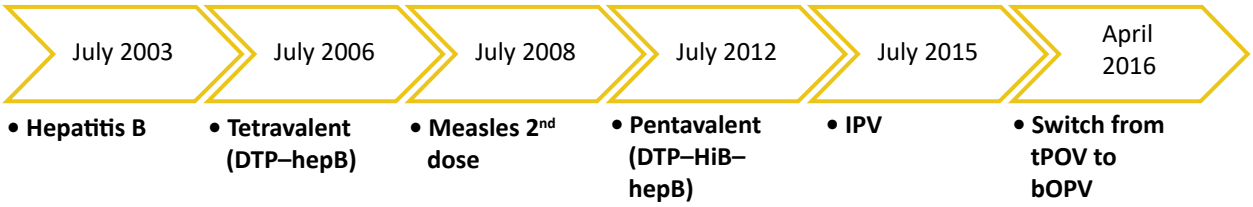
Fig. 2: EPI system



Source: Adapted from a presentation by the Central Medical Warehouse staff, Ministry of Public Health, the Democratic People's Republic of Korea

The EPI programme in the Democratic People's Republic of Korea was initiated in 1980. New vaccine introductions over the last two decades are shown in Fig. 3 below. Among these, Gavi has supported the introduction of hepatitis B, second dose of the measles vaccine, tetravalent (diphtheria, tetanus and pertussis [DTP]–hepatitis B) vaccine, pentavalent (DTP–Hib–hepatitis B) vaccine and inactivated polio vaccine (IPV).

Fig. 3: New vaccine introductions in the Democratic People's Republic of Korea (2003–2016)

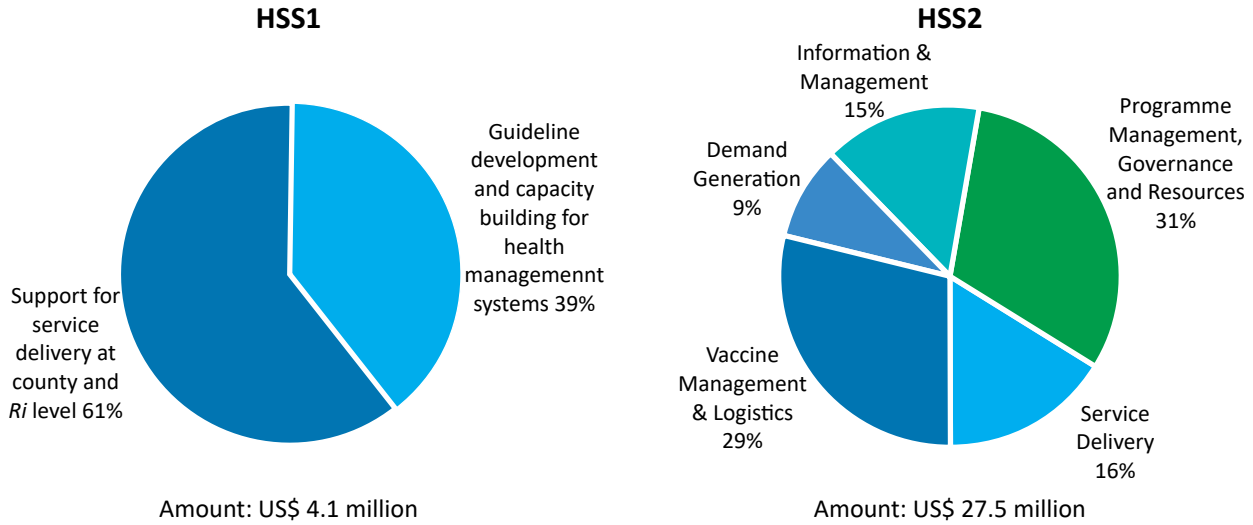


DTP – diphtheria, tetanus and pertussis; hepB – hepatitis B; Hib – Haemophilus influenzae type B; IPV – inactivated polio vaccine; tOPV – trivalent oral polio vaccine; bOPV – bivalent oral polio vaccine

Source: Adapted from the presentation by Kangwon Province staff and WHO EPI Factsheet, 2016

Since Gavi's support to the Democratic People's Republic of Korea began in 2003, it has provided different types of funding support to the country. The Democratic People's Republic of Korea was one of the first five countries to apply for and receive Gavi HSS 1 support in 2006. The Gavi HSS 1 grant of US$ 4.2 million covered the period 2007–2013 and was undertaken by the MoPH with partners, namely UNICEF and WHO. The country subsequently made a second application for Gavi HSS support (HSS 2) and secured a grant amounting to US$ 27.5 million. In Gavi HSS 2 support, there was an expansion of activities from Gavi HSS 1 support. A summary of the proposed amount and components for the two grants is provided in Fig. 4.

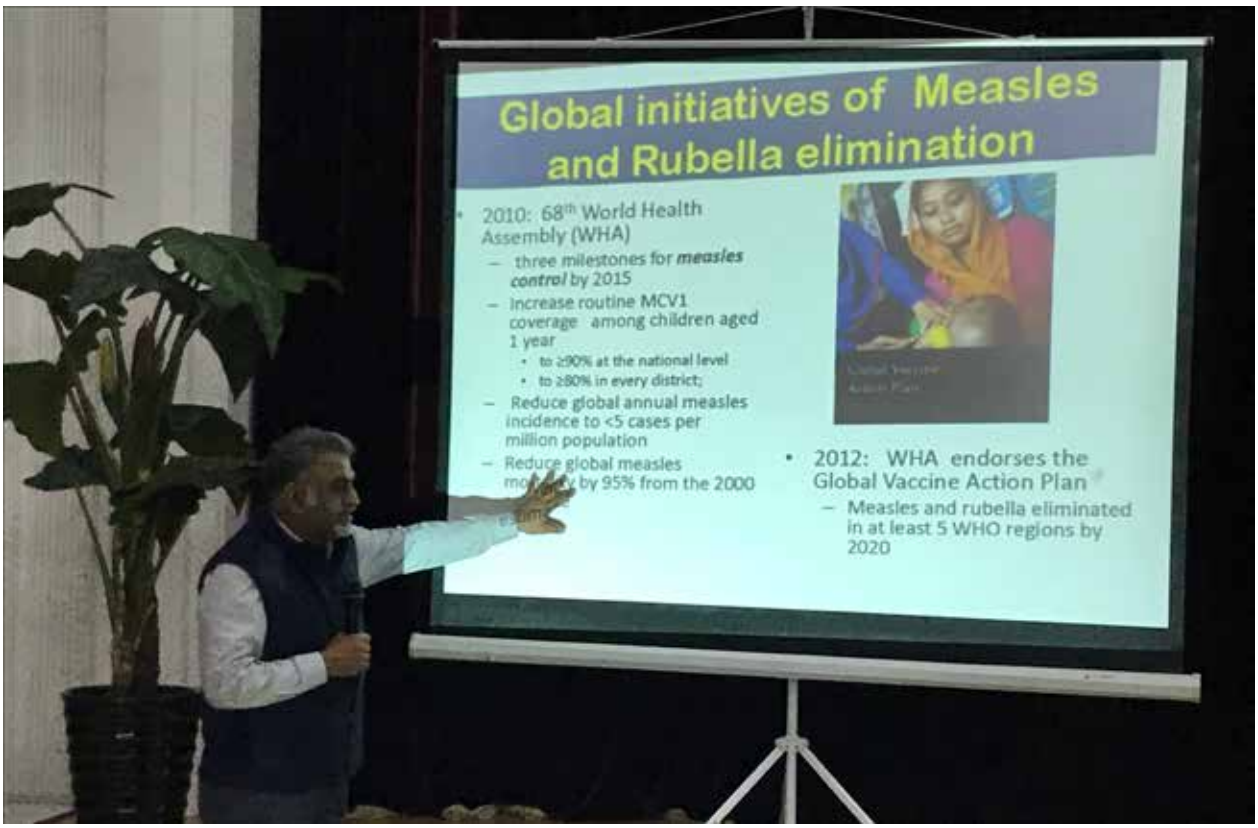
Fig. 4: Gavi HSS support summary (HSS 1 and 2)



Source: The Democratic People's Republic of Korea Gavi HSS 1 & @ proposals

All grants related to Gavi are managed by a core team that comprises the Gavi focal point in the MoPH, the EPI Manager and the PMU. The PMU comprises four staff and supports the technical team, advises the MoPH through the Gavi focal point, develops annual action plans and plans for training. The system of coordination of Gavi support is centralized and it focuses on strengthening the capacity of the immunization service delivery and the VPD surveillance at the central and provincial levels.

During field visits special attention is given to checking the vaccine vial monitors



UNICEF is actively involved in Gavi supported activities as a partner agency

Thanks to Gavi HSS support, several national and provincial plans were developed with involvement of national and international experts

Results

4. Results

In this section, the results of the in-country mission are summarized under four categories as described in the proposal. These are: design and implementation of Gavi HSS support, disbursement and management, outputs and outcomes of Gavi HSS support and lessons learnt. The information provided here is based on the data collected both during and before the mission to the Democratic People's Republic of Korea and expands on the points presented during the debriefing session on 17 August 2017.

4.1 Design and implementation of Gavi HSS support

Key findings on the design and implementation of Gavi HSS support are highlighted based on the data collected prior to and during the in-country mission.

The time allocated for the proposal development for Gavi HSS 2 support was inadequate and had to be completed within a short time frame in order to meet the application submission deadlines, with the main work being completed in 3 weeks. The development of the Gavi HSS 2 proposal, and subsequently its implementation did not benefit from the lessons learnt from Gavi HSS 1 support, as no end-of-grant evaluation for Gavi HSS 1 support had been conducted. Gavi HSS 2 support expanded the scope of Gavi HSS support in the country, both in terms of the grant size (US$ 4.1 million for HSS 1 to US$ 27.5 million for HSS 2) and activities.

There are some points related to the programme design that need careful review. Firstly, the utility of the Integrated Management of Neonatal and Childhood Illness (IMNCI) in the context of the Democratic People's Republic of Korea is not entirely convincing, and reallocation of the IMNCI budget for other activities suggests that this component, while important, is perhaps weak. Secondly, transportation is a major bottleneck, not only for programme managers who implement and monitor the immunization programme but also for the users of services, particularly in rural areas. This was not reflected in the Gavi HSS proposal but was identified and addressed during its implementation. The above two points illustrate the opportunity cost of some activities and the need for prioritization of activities in the design phase, given the country context. Finally, one area that the MoPH staff highlighted but was not reflected in the proposal or activities relates to building the domestic vaccine manufacturing capacity. Discussions with the international staff, some of whom alluded to a previous assessment in 2009, suggest that this activity may be infeasible. Presently, WHO is seeking to work within the scope of the current Gavi HSS 2 proposal to strengthen the capacity of the National Regulatory Authority (NRA) and the National Control Laboratory (NCL).

The country ownership of the immunization programme appears to be high and it is considered to be the best performing public

health programme in the country. MoPH staff stated that there were substantial technical inputs from the Government during the Gavi HSS proposal development stages. It was stated on various occasions that the Government had to wait long periods for reimbursement of funds from partners for completed activities when there were funding delays (*see* Sec 4.2 – Disbursement and management). The decision-making system in the Democratic People's Republic of Korea is centralized. Given this system, it was noted that while it may take a long time to make a decision on an activity, once a decision is made, it is implemented as planned across the country within the stipulated time period. This also suggests a high level of accountability in the system that has led to successful implementation of the immunization programme.

The flexibility offered by the Gavi HSS support is viewed positively by the international agencies involved. This level of flexibility, which translates into less burdensome requirements by donors, coupled with a high level of country commitment, has yielded results and is seen as a good model to replicate. This also allowed for making changes to the programme design in response to new information becoming available on the ground with the passage of time. One example of this flexibility is being able to address cold-chain requirements at the county level, which had not been included in the Gavi HSS 2 proposal. Another example is being able to reallocate funds from the IMNCI activities to provide emergency transportation to health facilities in consultation with the Gavi Secretariat. However, this flexibility has been a double-edged sword, especially in the context of the sanctions. There have been delays in getting cash into the country and this has affected the progress of Gavi HSS activities (*see* Sec 4.2 – Disbursement and management). In this context, having a plan of activities, a clear set of outputs in advance and also a backup plan for accounting for possible delays due to incidents such as delays in having in-country cash would be useful to complete the activity as planned. However, frequent changes in activities due to donor flexibility have the potential to affect the implementation of in-country activities. This is especially so, when factors such as lack of in-country cash operate in an environment of sanctions that could become more stringent than at present.

4.2 Disbursement and management

Implementation was delayed across Gavi HSS 1 and 2 grants. There was a time lag in transferring funds from Gavi to WHO and UNICEF. In the case of Gavi HSS 1 support, the first tranche is reported to have been received in 2009 by UNICEF and in 2011 by WHO. While Gavi HSS 1 support was originally slated to be completed in 2012, the last tranche was received only in 2014. In the case of Gavi HSS 2 support, implementation began in 2015 and this has led to having to push back the end date of Gavi HSS 2 support from 2018 to 2019.

The impact of sanctions on transfer of funds has been acute. Even when funds are transferred to the implementing agencies, it is difficult to get these funds into the Democratic People's Republic of Korea. On occasions, it was reported that the World Food Programme (WFP), which has a presence in the country, served as the banker to other UN agencies including WHO. However, during 2015 and 2016, getting the money into the country has been even more challenging. Agencies such as WHO have developed coping mechanisms to deal with the lack of in-country funds. This includes deferring public health activities and making payments for activities externally. Further, "locally sourced goods" may be procured from China so that payments can be made outside the Democratic People's Republic of Korea. However, this measure has not been an adequate solution and there have still been delays.

It is estimated that it takes WHO up to 45 days from making the requisition for funding to receiving it in the Democratic People's Republic of Korea. This is partially due to the interminable banking channel that comes from WHO headquarters through Germany, Russia and finally to the appointed bank in the Democratic People's Republic of Korea. Further, there are substantial transaction costs, exchange rate losses and time costs. One more source of delay may be internal to the Organization due to procedures and potential risk aversion. The banking channel that had been operational since December 2016 is fragile and it was expected that this channel would be closed from the middle of September 2017.

Similar challenges are faced with the import of goods into the country. UN sanctions are complex and not easy to navigate. Further, there are bilateral sanctions with countries such as Japan that need to be taken into account. However, there appears to be a difference in the challenges faced by UNICEF and WHO because of the type of goods procured and the institutional structure and capacity of the two organizations. UNICEF has a global supply unit based in Copenhagen where items related to vaccines and cold-chain equipment are selected through a global tendering and bought in bulk. A regional hub in Shanghai also coordinates education related procurements. There have not been any significant issues except for one case of use of aluminium film for solar panels that was eventually resolved. WHO, on the other hand, has faced more issues in procuring centrifuges and other laboratory equipment that may be considered "dual use" as per sanction clauses. Even once the goods are procured from the supplier, there are issues encountered in getting these items through customs in neighboring China.

It was reported that there was an underutilization of funds and delays in implementation of activities in 2015 due to several factors. As a result, In 2016, there was a push to undertake and complete activities worth two years in one year. This is commendable and speaks volumes on the implementation capacity of the Government. However, there was little reflection on how the bunching up of these activities affected the impact of Gavi HSS supported activities on the immunization programme and how it challenged the absorptive capacity of the Government in implementation. Little doubt is expressed as outcomes related to immunization have been independently verified to be par excellence. However, the impact on specific activities, such as capacity-building is not clear.

In the Democratic People's Republic of Korea, UNICEF and WHO are co-recipients of the grant instead of the Government. Unlike in other countries, where their role is to monitor the grant, in the Democratic People's Republic of Korea both agencies also implement the grant. While there is an inherent incongruity in the two roles, this model has borne fruit in the country and allowed Gavi HSS support to be received and successfully implemented, notwithstanding the international sanctions. International staff, as reported by UNICEF, has access to all provinces except one in the north and typically require providing some prior notice to the Government for permissions. The collaboration between the two agencies appears to be good. Staff from both agencies note that they enjoy a high level of access and are stronger together. Both agencies are recipients of two large external grants: Gavi and the Global Fund. While in the case of Gavi the division of funds is roughly equal for the two agencies, in the case of the Global Fund UNICEF is the principal grant recipient and WHO is the sub-

grantee. Staff noted that the difference in the grant management for Gavi and Global Fund grants has not affected the working relationship between the two agencies. In the case of Gavi, staff pointed out that activities were costed during the proposal and divided between the two organizations based on the nature of the activity and relative strengths of the two agencies rather than taking equal representation into consideration. This strategy appears to be a good one since it takes into account the traditional role and relative strengths of these two agencies in the country in terms of their long-term operation. It was noted that Gavi funds are relatively more significant for WHO than they are for UNICEF in the Democratic People's Republic of Korea. Comparison of the structure and functioning of the two grants (Gavi and the Global Fund) is also relevant to the discussion. At the policy level, two separate processes are followed for the two grants. Attempts were made to bring both grants together; however, this was not pursued further. In terms of grant management, one of the key differences is that there appears to be more flexibility in the Gavi grant as compared to the Global Fund grant, where outputs are fixed and clearly defined. The Global Fund also has strict verification requirements, which can impact the implementation.

The role of the MoPH in the Democratic People's Republic of Korea is unique. It is important to consider this, as it relates to Gavi HSS support in the country. As noted in the previous section, implementation of activities by the MoPH has been delayed due to late reimbursement of funds from the two agencies for activities completed by the MoPH within the country. This delay affects the MoPH significantly as the Ministry also has limited access to sources of funding for its activities. Reflecting the restricted financial resources, the Ministry has in the past delayed payment of co-financing for Gavi supported vaccines, although it has made up for it later. Further, the international staff note that UNICEF pays for traditional vaccines on behalf of the Government. Even in the area of infrastructure, the Ministry is not able to build a permanent structure for dry stores in the CMW. Currently, these items are stored in tents supported by the International Red Cross. Gavi HSS support is therefore a lifeline for activities of the Ministry related to immunization and VPD control. While it is possible to make advance payments under the Direct Finance Cooperation arrangements, the proportion allocated upfront may not be adequate, given the extended periods of delays of reimbursement from the partner agencies for previously completed activities. Building the staff capacity of the MoPH is another area that has been pointed out as important. Efforts in this regard have been made in the past such as conducting training on proposal writing to ensure receipt of good quality proposals for activities implemented under Gavi HSS support. However, this was a one-off activity and a systematic approach is required. Further, the MoPH staff does not have access to email as per the country's policy and so their only link with Gavi and other donors is typically through the two agencies. This also limits the direct interaction between the MoPH staff and donors, including Gavi.

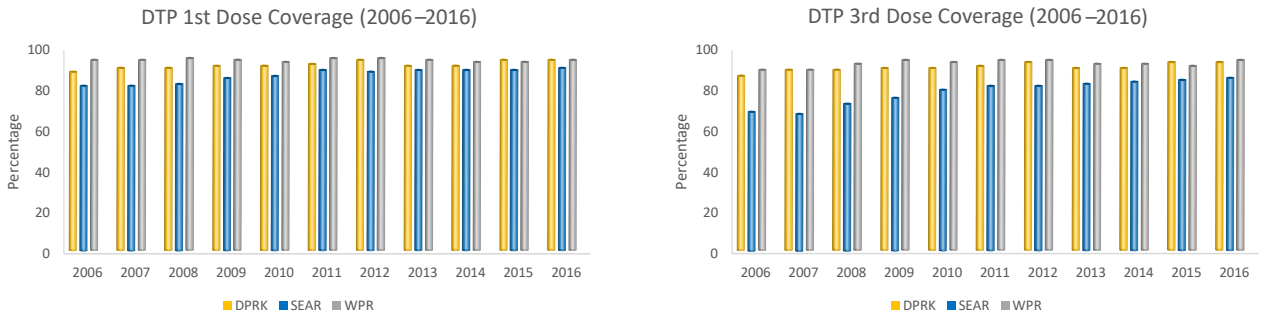
4.3 Outputs and outcomes of Gavi HSS

This sub-section on outputs and outcomes has been aligned with the components of the Gavi HSS 1 and Gavi HSS 2 proposals, with issues organized under each component for analytical purposes.

4.3.1 Immunization outcomes

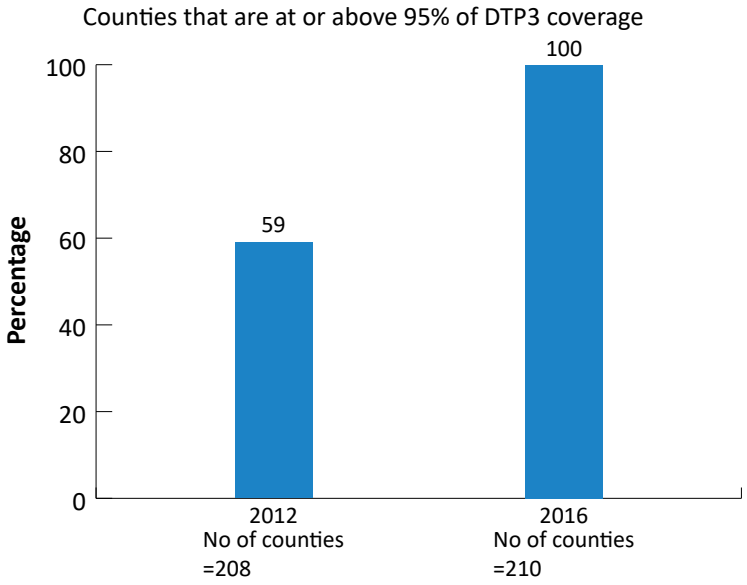
Immunization outcomes in the Democratic People's Republic of Korea have been exemplary, as reflected in the administrative coverage data as well as the estimates of the independent coverage evaluation survey. The trend of the diphtheria, tetanus and pertussis (DTP) coverage has been high and consistent over the 10-year period of implementing Gavi HSS support. The Democratic People's Republic of Korea not only outperforms the overall figures for WHO South-East Asia Region in terms of DTP coverage but is also at par with WHO Western Pacific Region (Fig. 5). This information is supported by the recently concluded coverage evaluation survey, which independently verified the reported coverage. Results of the coverage evaluation survey have not yet been publicly released. Both the coverage as well as the equity in coverage have improved during the period of implementing Gavi HSS support (Fig. 6).

Fig. 5: DTP 1 and 3 coverage (2006–2016) in the Democratic People's Republic of Korea and WHO South East Asia and Western Pacific Regions



Source: **WHO/UNICEF coverage estimates for 1980 - 2016, as of 15 July 2017**

Fig. 6: Equity in DTP3 coverage in the Democratic People's Republic of Korea in 2012 and 2016



Source: Joint Reporting Form on Immunization 2012, 2016

4.3.2 Service delivery

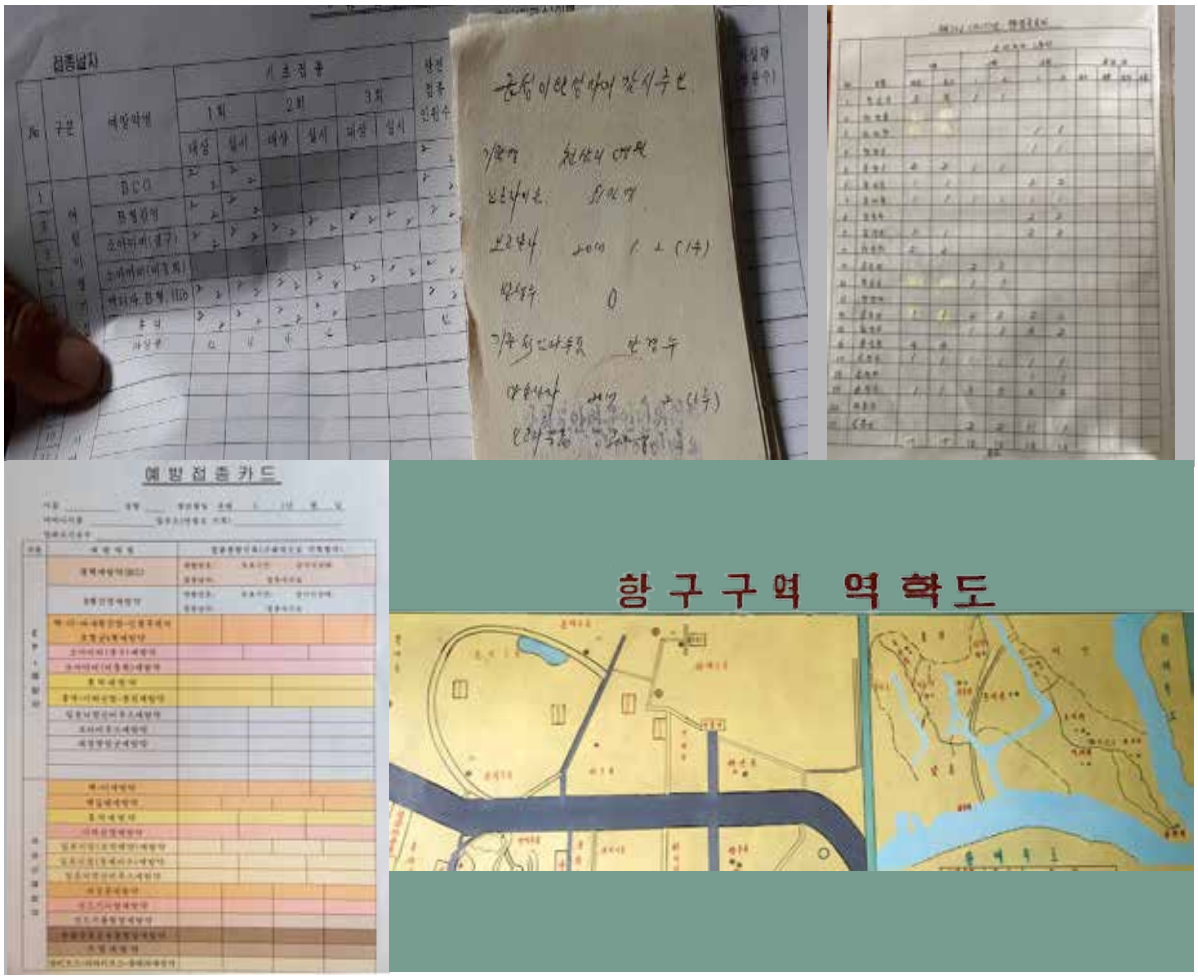
Microplanning, one of the most important components of immunization service delivery, is a task performed at the *ri/dong* levels. It was, however, not clear to us if all elements had been covered in microplans and were presented in a usable format. The microplans were not readily available at the county and provincial levels where we visited. Instead, the national guide for microplanning was shown to us. The immunization data collected at the *ri/dong* levels are aggregated at the county and provincial levels, and there is a mechanism to trace and ensure vaccination of defaulters. This is primarily done by the household doctors.

Each health facility sets immunization targets to be achieved on a monthly basis. Information, education and communication (IEC) activities are conducted by immunization doctors targeting children eligible for vaccination in catchment areas before, during, and after the monthly immunization sessions. Vaccination sessions are typically organized once a month, between the thirteenth and fifteenth of each month, and defaulters are tracked within 15 days. Information is provided to mothers on the need for vaccination, due dates of vaccination and possible adverse events following immunization (AEFIs). Immunization records are maintained in a paper-based format. Facilities maintain plans for supervision of immunization activities. However, due to limited time and resources, it may not be possible for supervisors to supervise immunization activities in all areas during a single cycle, which is usually one month. Additionally, there are limited means of communication between household doctors in the field and the supervisory staff.

There appears to be a difference in the challenges faced by UNICEF and WHO because of the type of goods procured and the institutional structure and capacity of the two organizations.

The other activity pertinent to Gavi HSS support is VPD surveillance. Three methods of VPD surveillance were described: passive surveillance, active surveillance of diseases and sentinel site surveillance. The first two are done on a weekly basis at the county level and reported to the provincial level. There are sentinel surveillance sites housed in paediatric hospitals across the country. It was also reported that household doctors monitor and report AEFIs when they make visits to households as part of AEFI surveillance.

During our visits to health facilities, in terms of areas for improvement, it was suggested that health facilities be equipped with child-friendly materials, including toys. These were for children who come to the health facilities for the second dose of measles when they are 15 months old. An immunization doctor suggested that having injection AEFI kits for household doctors would be useful.



Clockwise from top left: Microplan at a ri hospital; record of immunization at dong polyclinic; immunization card; map of catchment area of dong polyclinic;
Source: Mission team

4.3.3 Cold chain, vaccine management systems and logistics

The cold-chain equipment component accounts for the largest budget in the Gavi HSS proposal. This component also offers the most visible sign of the impact of Gavi HSS support; and as pointed out by some interviewees, this infrastructure would not have been available at all administrative levels had it not been for Gavi HSS support. The person responsible for cold chain at the provincial level said that he was proud of the establishment of the cold-chain system from the central to the peripheral administrative levels over the last 10 years.

Cold-chain equipment had been installed in all facilities that were visited. Two types of temperature monitoring devices are typically placed in the cold-chain equipment to cross-check the temperature. Monitoring is done electronically, or manually, or both. Maintenance of equipment is done by training of the staff, providing tool kits and procuring spare parts, if necessary. Electricity remains an issue at the rural level and the need for generators and solar driven drives (SDDs) is underscored for this reason. Summary of equipment installed under Gavi HSS support over the past 10 years is summarized in Table 1.

WHO and UNICEF technical teams are key to disseminate new evidence and global guidance in DPRK

Table 1: Summary of cold-chain equipment installed under Gavi HSS (2007–2017)

Equipment	Quantity
Cold room (40 m^3)	4
Cold room (10 m^3)	11
Freezer room (20 m^3)	1
Ice lined refrigerator (ILR)	472
Solar driven drive (SDD)	1406
Cold box	1175
Carrier	9811
Generator (50 kw)	2
Generator (10 kw)	22
Voltage regulator (120 kw)	1
Voltage regulator (70 kw)	1
Voltage regulator (10 kw)	22
Voltage regulator (2 kw)	448
Fridge tag 2	2880
Multi log 2	17
Freeze tag	5900
Refrigerator vehicle	2
Truck	11
Motorcycle	110
Motor-tricycle	318
Tool kit for SDD installation	24

Source: Adapted from presentation by Central Medical Warehouse staff, MoPH, Democratic People's Republic of Korea

Left to right: vaccine carrier; Storage of vaccines with fridge tags
Source: Mission team

Left to right: generator; cold room
Source: Mission team

Although transportation in the form of vehicles/motorcycles/tricycles is provided at different levels, lack of sufficient transportation continues to be a constraint for providing vaccines as well as for monitoring, supervision and other outreach activities. The operating costs, i.e. fuel are not covered by Gavi HSS support.

Left to right: Multilog 2 monitoring system; moto-tricycle
Source: Mission team

Immunization waste management is done at the session level and it was reported that materials are incinerated at the county level.

4.3.4 Demand generation for immunization

IMNCI has been identified as a demand generation activity in addition to improving the skills of health workers to identify and manage neonatal and childhood illnesses at the primary health-care level. IMNCI activities include revision of the clinical and community IMNCI guidelines, development of IEC materials and enhancing service provider communications skills. The following activities related to the IMNCI have been supported by the Gavi HSS grant. IMNCI guidelines and IEC materials were developed, designed and printed. Training of health staff on integrated health management was conducted using the training of trainers (ToT) module. IMNCI training materials have previously been distributed to universities.

Staff in the provinces visited noted that they were proud of the level of awareness among mothers about immunization and their ability to participate in IEC activities. Only limited IEC materials on immunization and growth monitoring were displayed at *ri/dong* levels. However, development of a set of comprehensive IEC materials is being planned under Gavi HSS support. UNICEF has identified nine "convergence counties" for piloting integration of all child-related activities such as the water, sanitation and hygiene (WASH) programme and IMNCI, with plans to expand to 50 counties. A comprehensive set of IEC materials will also be pilot tested in convergence counties. IMNCI kits will be distributed to household doctors as part of this effort.

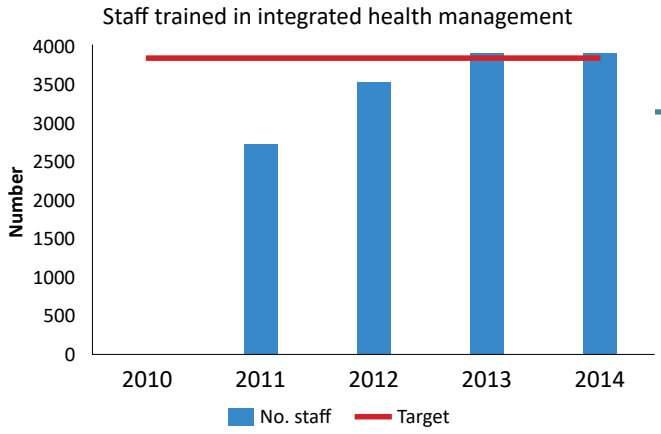
Left to right: Health workers communicate key messages to mothers and care givers using IEC materials; Gavi HSS support promotes developing IEC materials for use by health staff
Source: Mission team

4.3.5 Capacity-building

Among the activities in Gavi HSS support, capacity-building of the staff has been given prominence as a major area for focus. Data from Gavi HSS 1 support suggest that training targets for the integrated health management and VPDs were met (Fig. 7). The other areas of training conducted were microplanning, IMNCI and managing cold-chain equipment. Further, training materials were developed and distributed to hard-to-reach areas in the northern region. However, the impact of these training programmes is not clear. Comprehensive records on participants of training programmes were not readily available. In discussions, staff in the health facilities noted that the quality of training needs more attention and training activities should be conducted on a continuous basis in areas such as microplanning and cold-chain management. It was also suggested that the most recent versions

of guidelines on VPD and AEFI surveillance, for example, be made available in the Korean language in a timely manner. Further, they opined that it would be helpful to develop and distribute factsheets on different topics to the provincial level to raise awareness. Lack of training equipment was also highlighted. One modality discussed was hiring international consultants to train the local staff. Our interviews revealed that the staff appears to stay in their positions on average for long periods of time (many reported being at their positions for 10 years or so). Hence, investing in staff capacity-building at the peripheral level would definitely benefit the immunization programme directly. Interactions with the health staff at the periphery allowed us to understand the high staff morale and commitment. Some of them expressed that they were proud of their contributions towards achieving and maintaining high immunization coverage in their respective provinces.

Fig. 7: Number of staff trained



% Counties managed by trained health managers	Baseline	Target	Year target achieved
	0% (2006)	100%	2011

Percentage of Provinces with VPD Focal points trained on data management

Year	Percentage
2007	
2008	30%
2009	60%
2010	100%
2011	100%
2012	100%
2013	100%
2014	100%

Source: Annual Progress Reports, 2011 and 2014

4.3.6 Information management

There is a regular system of recording and reporting immunization data from the *ri/dong* level to other levels. While there is an e-reporting system from provinces to the central level, at other levels it is maintained manually. As noted above, immunization records are paper-based and we observed that there were extensive numbers of records maintained in the form of chits, registers and diaries at the health facility level. While immunization records were maintained at the health facility level, no records were available with the mothers, i.e. home-based immunization records. In addition to immunization records, household doctors and anti-epidemic doctors conduct VPD and AEFI surveillance on a weekly basis. We also observed that an effective vaccine stock management system was in place at the province and county levels where the in-country mission members visited.

Under Gavi HSS support, a coverage evaluation survey had been carried out most recently, in 2017. The previous survey was conducted in 2008. The coverage evaluation survey independently estimated the immunization coverage for vaccines used in the immunization schedule. The recent coverage evaluation survey suggests that the immunization coverage estimates were actually marginally higher than the administrative coverage reported through the WHO/UNICEF Joint Reporting Form (JRF).

We observed that the burden on household doctors to enter records in forms, diaries and registers was enormous. This observation also calls for justifying investments on an e-reporting system, or having a data assistant to compile, consolidate and analyse data to save the time of household doctors. At the facility level, we observed that there was limited data available for scrutiny. Data are reported to have been available at the Hygiene and Anti-epidemic Station and county and provincial levels. It is not clear how the data collected is being used for programme management at the *ri/dong*, county and provincial levels. There does not appear to be an established, systematic and regular mechanism for quality assurance of immunization, VPD and EPI data. In terms of data availability for monitoring, international staff informed that once data requirements are communicated to the MoPH with reasons such as use by partner agencies or reporting to WHO, aggregate data is made readily available. Acute flaccid paralysis and measles case-based data are also shared with WHO.

4.3.7 Programme management and governance

Some of the activities completed under programme management and governance include: Guidelines for Financial Management (2010), Medium Term Strategic Plan 2016–2020, a coverage evaluation survey (2017), as well as the Effective Vaccine Management (EVM) assessment (2017). The Interagency Coordination Committee (ICC) and the National Immunization Technical Advisory Group (NITAG) have benefitted from Gavi HSS support, as noted by multiple respondents. Other areas such as preparation of national health accounts and activities related to the NRA under this topic still have to be accomplished.

Sustainability of the programme

5. Sustainability of the programme

Sustainability of the immunization programme after the end of Gavi HSS 2 is a question of concern and a point for discussion among the staff. The key aspect is financial sustainability of the immunization programme and the potential for Gavi or other donors to continue to support the country, given the current economic situation. In light of the Democratic People's Republic of Korea's noteworthy performance in terms of achieving immunization coverage and equity, the country has already been rewarded with performance based financing (PBF) by Gavi. This may serve as a signal to other donors who may be able to support the country on its ability to reach the project outcomes. At the activity level, institutionalizing the capacity-building of staff at all levels of service delivery remains to be a useful investment that needs sustainability for long-term dividends, given the very low turnover of the staff. This may require a broad approach to nurturing the capacity of the health-care staff at all levels of immunization service delivery. Sustainable local maintenance of infrastructure and equipment also requires attention, as purchasing new equipment is not always possible, especially under the current economic sanctions. In terms of the long-term sustainability of the immunization programme, an area that was highlighted over and over again was enhancing the capacity to produce vaccines domestically. Japanese encephalitis vaccine is produced domestically and is presently being delivered at health facilities, though it is neither WHO prequalified nor has the good manufacturing practice (GMP) been assessed. From the perspective of the MoPH, enhancing domestic production capabilities is seen as the main way to ensure financial sustainability as well as operational sustainability of the immunization programme in the Democratic People's Republic of Korea.

Lessons learnt

6. Lessons learnt

Lessons learnt from the in-country mission are summarized below.

- The Democratic People's Republic of Korea has demonstrated strongly positive results on key immunization indicators over the last decade, overcoming several challenges.
- Gavi HSS support has added value to immunization services in the Democratic People's Republic of Korea. It has played a critical role in supporting the immunization programme, and its investments in the country have yielded high returns even under the current difficult circumstances.
- In the Democratic People's Republic of Korea, it may take time to make a decision; but once a decision is taken, the implementation is completed within the time frame as planned.
- Good collaboration among the MoPH, WHO and UNICEF has led to effective implementation of the Gavi HSS grant and achievement of results.
- Gavi HSS proposal development requires more time for obtaining inputs from different teams within the MoPH, preparation and flexibility of grant management than was available for preparation of the Gavi HSS 2 proposal, given the unique context of international sanctions in the Democratic People's Republic of Korea.
- Investments in the immunization/VPD data management and reporting system, introducing a home-based vaccination record for mothers and having an electronic data reporting system from the *ri* level up to the national level via county and provincial levels would be helpful in ensuring availability of timely and accurate data and the data validation process.
- Capacity-building of staff at all levels of immunization service delivery needs to be further strengthened.
- The Gavi HSS grant could benefit from a strengthened M&E framework. Further, completion of timely grant-end evaluation of Gavi HSS 1 support would have been extremely useful for the EPI and grant management for both the MoPH and partners (UNICEF and WHO).
- Disbursement of funds for in-country activities remains an issue under the current sanctions regime and needs to be addressed by finding alternative and pragmatic solutions for effective implementation of activities.
- Focus of the Government on its immunization programme through Gavi HSS has been a success story. However, synergies with broader HSS efforts need to be built upon to achieve broader impacts such as attaining the Sustainable Development Goals (SDGs).

Recommendations

7. Recommendations

Based on the findings, the review team formulated its recommendations.

- Continuation of Gavi HSS support to facilitate the Democratic People's Republic of Korea to sustain its achieved immunization goals
- Gavi to consider providing more preparation time for developing future proposals as well as having specific guidelines for different players involved in the proposal development
- Institutionalization of capacity-building for:
  - New household doctors and other immunization staff (modular-based training); introduction of standard operating procedures (SOPs) for immunization and VPD surveillance activities; in-service training for other health staff involved in EPI and VPD activities with priority focus on rural areas
  - Cold-chain technicians
  - Supervisors of the immunization programme at various levels of service delivery
  - MoPH/PMU teams managing the grant
- Further improving the quality of the immunization programme;
  - Expansion of the e-recording and reporting system along with manual reporting system until it is properly established
  - A monitoring and supervision plan based on priority areas and issues derived from local data analysis and close monitoring of its implementation
  - Establishing a strong VPD surveillance system with clear reporting of suspected and confirmed VPD cases and institutionalizing the local capacity for VPD data analysis for identifying high-risk areas and populations for interventions
  - Developing a comprehensive policy document on immunization that incorporates all related policy guidelines issued by the MoPH
  - Introducing a home-based child health record for recording all information related to immunization, growth monitoring, AEFIs, etc.
  - Developing IEC materials targeting the importance of timely immunization, need for reporting AEFIs and VPDs, growth monitoring and IMNCI
  - Gavi should have a system to evaluate its support in the country more frequently than having evaluations with very long gaps in between,

so that both Gavi and the country could get exact information about the progress of Gavi HSS grant implementation and its impact on the programme

- Exploring options to support MoPH to strengthen its domestic vaccine manufacturing capacity;
  - Continuing to explore options to strengthen the NRA and NCL, as proposed by WHO Exposure to good practices in other countries including study tours to NRAs and NCLs in other countries
  - Reviewing previous assessments and conduct a new assessment to see the feasibility of supporting domestic manufacturing of vaccines
- Exploring an easy and pragmatic way of transferring funds from Gavi headquarters to the country for smooth functioning of Gavi HSS activities at the operational level.

The debriefing session on 17 August 2017 at Botonggang Hotel, Pyongyang with attendees, including Dr Choe Suk Hyon, Vice-Director, MoPH, Ms Oyunsaikhan Dendevnorov, UNICEF Representative and Dr Rezwan Kamar, Acting WHO Representative

Meetings are held between the MoPH and Gavi Alliance partners to exchange ideas to optimize project implementation

Annexures

Annex 1 – Agenda: external evaluation of the Gavi HSS 1 grant mission – August 2017

Members: Dr Nihal Abeysinghe (Sri Lanka)

Dr Md Jasim Uddin (Bangladesh)

Dr Saudamini Dabak (India/Thailand)

Dr Abu Obeida Eltaye b (UNICEF)

Date	Time	Activity
7 August (Monday)	Morning	
	Afternoon	Arrive in Pyongyang and check into the hotel
8 August (Tuesday)	Morning	◆ Meeting at WHO office ◆ Briefing with the WR ◆ Meeting with the WHO and UNICEF immunization teams ◆ Team work on protocol
	Afternoon	Meeting with the MoPH team to brief on the mission
9 August (Wednesday)	Morning	Travelling to the field
	Afternoon	Meeting with the provincial EPI team and visit provincial Medical warehouse
10 August (Thursday)	Morning	Meeting with the county level EPI team and visit county medical warehouse
	Afternoon	Visit one of the *ri*-level hospitals
11 August (Friday)	Travelling back to Pyongyang	

Date	Time	Activity
12 August (Saturday)		Work at WCO and UNICEF, Pyongyang
13 August (Sunday)		Rest and sightseeing
14 August (Monday)	Morning	Visit Central Medical Warehouse
	Afternoon	Work at WCO and UNICEF, Pyongyang
15 August (Tuesday)		National holiday. Work at WCO and UNICEF, Pyongyang
16 August (Wednesday)		Work at WCO and UNICEF, Pyongyang
17 August (Thursday)	Morning	Preparation for the debriefing
	Afternoon	Debriefing with the MoPH
18 August (Friday)		Team work at WHO office on the outline of the mission report
19 August (Saturday)		Leave Pyongyang

MoPH – Ministry of Public Health; EPI – expanded programme on immunization; MWF – maternity waiting home

Annex 2 – List of participants

Sr. No.	Person	Position/unit	Meeting type
MoPH			
1	Dr Choe Suk Hyon	Vice-Director, MoPH	Debriefing
2	Dr Won Kwang Chon	Gavi Focal Point, MoPH	Debriefing/field visits/ meeting
3	Dr Kim Jong Ran	Technical Officer, MoPH	Debriefing/field visits/ meeting
4	Dr Kim Nam Hyok	Head, Gavi PMU	Debriefing/field visits/ meeting
5	Dr Ri Sun Hui	Gavi PMU	Debriefing/field visits/ meeting
6	Dr Hwang Yun Mi	Gavi PMU	Debriefing/field visits/ meeting
7	Dr Nam Hong Ryon	Gavi PMU	Debriefing/field visits/ meeting
8	Mr Kim Sung Yong	Central Medical Warehouse (CMW)	Field visit, CMW, Pyongyang
9	Dr Rim Chol	Provincial HAEI	Field visit, Kangwon Province
10	Mr An Chol Jin	Provincial MW	Field visit, Kangwon Province
11	Dr Choe Chol Ik	County HAEI	Field visit, Anpyon County
12	Mr Ri Yong Su	County MW	Field visit, Anpyon County
13	Dr An Kyong Su	Head of the hospital	Field visit, Chonsam *Ri*
14	Dr Tae Yong Sun	Immunization doctor	Field visit, Chonsam *Ri*
15	Dr Ri Kwang Chol	Pyongyang HAEI	Field visit, Pyongyang City
16	Mr Kim Dung Min	Pyongyang MW	Field visit, Pyongyang City

Sr. No.	Person	Position/unit	Meeting type
17	Dr Om Hyon Hui	Head of Polyclinic	Field visit, Kumsung *Dong*
18	Dr Jong Sung Hui	Immunization Doctor	Field visit, Kumsung *Dong*
UNICEF			
1	Ms Oyunsaikhan Dendenovrov Dendevnorov	Representative	Courtesy call/KII/debriefing
2	Mr Murat Sahin	Deputy Representative	Courtesy call/KII
3	Dr Md. Tariq Iqbal	Health Specialist (Immunization)	Coordinator/KII
4	Dr Elena Velilla Cerdan	Chief of Health	KII
5	Mr Kim Chol Nam	NPO	Field visit
6	Mr Song Xiaobing	Procurement Officer	KII
WHO			
1	Dr Thushara Fernando	Representative	Meeting
2	Dr Rezwan Kamar	Acting Representative	Debriefing/courtesy call
3	Dr Pushpa Ranjan Wijesinghe	Medical Officer – Communicable Diseases and Surveilance (CDS)	Coordinator
4	Mr Thinlay Dorji	Financial Officer	KII
5	Dr Jang Ra Son	NPO	Coordinator/KII
6	Dr Sin Un Suk	NPO	Coordinator

HAEI – hygiene and anti-epidemic institute; KII – key Informant Interview; MW – medical warehouse

Annex 3 – Observation form for field visits

Form for field visit – Gavi HSS support review

Instructions: This form has been developed to record observations on six components as they relate to the Gavi HSS support at the provincial, county and *ri* levels.

Date:

Province: **County:** ***Ri*:**

Total population in catchment area:

Population:

- Children under 1 year:
- Children under 5 years:
- Pregnant women:

Sr. No.	Issue	Observations
1	Activities ◆ Daily ◆ Monthly	

Sr. No.	Issue	Observations
2	Human resources (for every staff) ◆ Composition of staff ▶ Director of People's Health Bureau ▶ EPI focal point ▶ Cold-chain technician ▶ Hygiene and anti-epidemic station/ institute ◆ Duration of posting ◆ Type of training (including last structured training)	
3	P*lanning* ◆ Microplanning (copy of the most recent plan) ◆ Stock management	

Sr. No.	Issue	Observations
4	Infrastructure ◆ Storage including refrigerated solar cold-chain systems ◆ Clinic environment including heating systems ◆ Transportation: ▶ National ▶ Provincial ▶ County ◆ Temperature monitoring systems: ▶ Cold rooms ▶ Refrigerators ▶ During the transportation of vaccines	
5	Immunization session monitoring ◆ Vaccine and injection devices ◆ Cold-chain equipment ◆ Injection technique and injection practices ◆ Recording and reporting ◆ Communication to and awareness of parents	

Sr. No.	Issue	Observations
6	Data quality and Management ◆ Administrative records ◆ Surveillance: ▶ VPDs ▶ AEFI's	

---------- End of In-Country Report ----------

Annex 7 – Timeline and key points of sanctions applied through the UNSC

Date	General sanctions	Financial transactions
14 October 2006	◆ Setting up of a Sanctions Committee ◆ Arms embargo ◆ Restrictions on exports and imports of materials, equipment, etc. to the Democratic People's Republic of Korea	◆ Freezing of funds and economic resources of designated entities or persons ◆ Exemption for basic expenses after notification to Sanction Committee
12 June 2009	◆ Expansion of existing arms embargo provisions ◆ Inspection of cargo ◆ Setting up a "Panel of experts" to assist the Sanctions Committee in implementation of provisions ◆ Extended annually until 2013	◆ Expansion and enforcement of existing financial sanctions ◆ International financial and credit institutions not to provide new grants or loans to the Democratic People's Republic of Korea except for humanitarian purposes ◆ Provision of public financial support for trade with the Democratic People's Republic of Korea to be discontinued
22 January 2013	◆ Sanctions committee to provide assistance for inspections of vessels ◆ Clarifications on certain issues such as disposal of seized items	◆ Expansion of and enforcement of existing financial sanctions ◆ Note evasion of sanctions including use of bulk cash
7 March 2013	◆ Expansion of prohibited items list ◆ Expansion of existing provisions on inspection of cargo ◆ Extended annually until 2015	◆ Expansion and enforcement of existing financial sanctions ◆ Recognizes Recommendation 7 by the Financial Action Task Force (FATF) on implementation of targeted financial sanctions ◆ Inclusion of clause to prevent provision of financial services including bulk cash to, through and from each country ◆ Prohibits financial institutions from opening branches or accounts in the Democratic People's Republic of Korea

Annex 7 – Timeline and key points of sanctions applied through the UNSC (contd.)

Date	General sanctions	Financial transactions
02 March 2016	◆ Expansion of scope of restricted items except for food and medicine, and unless exclusively for humanitarian purposes ◆ Expansion of cargo inspections and maritime transportation ◆ Restricts exports of coal, iron and iron ore from the Democratic People's Republic of Korea ◆ Restricts sale of aviation fuel to the Democratic People's Republic of Korea unless approved by the Sanctions Committee ◆ Role of Sanctions Committee in implementing measures added	◆ Expansion and enforcement of existing financial sanctions on financial transactions and asset freeze ◆ New operations of the Democratic People's Republic of Korea banks in member states prohibited ◆ Joint ventures or correspondent banking relationships with banks within the Democratic People's Republic of Korea prohibited for banks under the jurisdiction of Member States ◆ Public and private financial support to trade with the Democratic People's Republic of Korea prohibited
30 November 2016	◆ New conventional arms dual-use items to be adopted by the Sanctions Committee ◆ Increased cargo inspections ◆ Personal luggage and checked baggage to be considered "cargo" ◆ Increased maritime transport measures and coverage of rail and road transport ◆ Scientific and technical cooperation to be suspended except for medical exchanges ◆ Cap placed on coal exported by the Democratic People's Republic of Korea	◆ All offices including UN agencies, except for those providing humanitarian support and their banking accounts in the Democratic People's Republic of Korea must be closed

Annex 7 – Timeline and key points of sanctions applied through the UNSC (contd.)

Date	General sanctions	Financial transactions
05 August 2017	◆ Full ban on coal, iron and iron ore exported by the Democratic People's Republic of Korea ◆ Export of seafood from the Democratic People's Republic of Korea prohibited ◆ Ban on hiring new labour from the Democratic People's Republic of Korea	◆ Nationals or entities of Member States not to enter into new joint ventures or cooperation with persons or entities in the Democratic People's Republic of Korea ◆ Activities related to humanitarian aid are exempted from measures. Exemption may be sought from the Sanctions Committee ◆ Financial transactions with the Democratic People's Republic of Korea Foreign Trade Bank or the Korea National Insurance Corporation are exempted if related to diplomatic or humanitarian purposes
11 September 2017	◆ Full ban on natural gas and limits on oil exports to the Democratic People's Republic of Korea ◆ Ban on exports of textiles from the Democratic People's Republic of Korea ◆ Provisions for inspection of vessels increased	◆ Nationals or entities of members to discontinue existing joint ventures or cooperation

Source: Adapted from Security Council Committee Established Pursuant to Resolution 1718 (https://www.un.org/sc/suborg/en/sanctions/1718/resolutions, accessed 30 August 2018)

Annex 8 – Results – indicators for HSS 1 and 2

Type (a)	Indicator (b)	Base year (c)	Target (d)	Status at end of grant (year) (e)
HSS 1				
Indicators in proposal				
Outputs/ intermediate results	Numbers of staff trained in integrated health management systems	0	1500/3850 (APR)	3925 (2014)
	Guidelines developed for microplanning	0 (APR)	1 (APR)	1 (2014)
	Guidelines developed/updated for financial management	0 (APR)	1 (APR)	1 (2014)
	Coordination mechanism established for HSS	0 (APR)	1 (APR)	1 (2014)
	Percentage of counties that identify the package of services to be delivered in integrated microplans	0%	100%	na
	Percentage of counties that implement an integrated supportive supervision programme using agreed guidelines and information feedback procedures	0% (APR)	100%	85% (2014)
	Percentage of counties that are utilizing integrated VPD report and follow-up systems	0% (APR)	100%	100% (2014)
	No of provinces that have a focal point for VPD surveillance and monitoring and are able to use a database for planning immunization activities	100%	100%	100%
	Percentage of counties that routinely integrate vitamin A and deworming into EPI activity	100%	100%	100%
	Percentage of counties that are able to show tracked budget versus expended resource	0%	100%	0%

Annex 8 – Results – indicators for HSS 1 and 2 (contd.)

Type (a)	Indicator (b)	Base year (c)	Target (d)	Status at end of grant (year) (e)
	Percentage of ri that have at least 2 or 3 bicycles	na	100%	100%
	Percentage of counties identified with 90% functional cold-chain equipment	na	100%	100%
Immunization or child health outcomes	Percentage of counties with >80% DTP–HepB3 coverage	100% (APR)	100%	100% (2014)
	Percentage of counties with >90% measles coverage	90%	100%	100% (2014)
Additional indicators reported on in APR (2014)				
Outputs/ intermediate results	Percentage of counties implementing IMCI	25%	100%	100% (2014)
	Percentage of counties managed by trained health managers	0%	100%	100% (2014)
	Percentage of counties that routinely integrate Vit A with RI	99.70%	100%	100% (2014)
	Percentage of counties with 90% functional cold-chain equipment	na	100%	100% (2014)
	DTP–HepB3 coverage	82.30%	90%	95% (2014)
	MCV1 coverage	80%	90%	99% (2014)
	Percentage of provinces with VPD focal points trained on data management	0%	100%	100% (2014)

Annex 8 – Results – indicators for HSS 1 and 2 (contd.)

Type (a)	Indicator (b)	Base year (c)	Target (d)	Status at end of grant (year) (e)
HSS 2				
Indicators in proposal				
Outputs/ intermediate results	Number of *ri* clinics in target provinces with upgraded and fully functional Immunization rooms	Baseline 0	1100	1100 (2017)
	Number of counties in target provinces with microplans with M&E targets according to microplanning guidelines	Baseline to be assessed Year 1	210	210 (2017)
	Number of catch-up campaigns conducted to reach the unreached/ partially immunized children in low performing provinces	Baseline 0	3	5 (2017)
	Number of target counties with system readiness for vaccination	Baseline to be assessed Year 1	210	210 (2017)
	Number of *ri* hospitals with refrigerated solar cold-chain systems according to international standards (EVM assessed)	Baseline 0	1100	1100 (2017)
	National Waste Management Plan/ Policy established	Baseline 0	Established by 2017	Completed
	Percentage of of target counties that benefited from community IMCI Introduction	Baseline 9	25%	15% (2017)
	Number of Immunization specific communication materials developed and disseminated (AEFI and/or new vaccines)	Baseline 0	6	6 (2017)
	Number of provinces/counties with AEFI system (WHO standards) introduced	Baseline – AEFI established in 2 provinces	120	210 (2017)

Annex 8 – Results – indicators for HSS 1 and 2 (contd.)

Type (a)	Indicator (b)	Base year (c)	Target (d)	Status at end of grant (year) (e)
	Number of counties with DQS system (WHO standards) introduced	Baseline – 0	120	130 (2017)
	Number of AES sentinel sites established according to WHO standards	Baseline – 0	3	0 (2017)
	Number of ILI/SARI surveillance sites	Baseline – 0	3	3(2017)
	Number of diarrhoea sentinel surveillance sites	Baseline – 0	3	3(2017)
	National Health Accounts System Installed (WHO standards)	Baseline 0	Activity not relevant as fund is managed by UNICEF/WHO	Activity deleted in agreement with Gavi
	Multi-Year Sector Plan 2016–2020 developed	Baseline – MTSP 1 – 2010–2015	Updated for 2016–2020	Updated 2016
	cMYP 2016–2020 developed	Baseline – cMYP 2011–2015	Updated for 2016–2020	Updated in 2016
	Development and implementation of standard operating procedures for National Regulatory Authority and National Control Laboratory (WHO standards)	Baseline function to be assessed	Planned for 2018	To be completed in 2018
	EPI coverage surveys conducted (population based surveys)	Baseline – last coverage survey 2008	Planned for coverage survey in 2017	Completed
Immunization or child health outcomes	DTP3 coverage – percentage of surviving infants receiving three doses of DTP3 vaccine that will be maintained at >95%	>95%	>95%	>95% (2017)

Annex 8 – Results – indicators for HSS 1 and 2 (contd.)

Type (a)	Indicator (b)	Base year (c)	Target (d)	Status at end of grant (year) (e)
	Measles coverage – percentage of surviving infants receiving two dosages of measles that will be maintained at >95%	>95%	>95%	>95% (2017)
	Equity of coverage – percentage of counties that have 95% or above DTP3 coverage that will increase from 59% (JRF 2012) to more than 80% by 2018	59% (JRF 2012)	More than 80% by 2018	100% (2017)
	Dropout rate – percentage point difference between DTP1 and DTP3 coverage maintained at less than 2%	Less than 2%	Less than 2%	Less than 2% (validated by CES) 2017
	Proportion of children fully immunized -– percentage of children aged 12–23 months who receive all basic vaccinations that will increase from 88% in 2008 (survey) to 95% by 2018	88% in 2008 (survey)	95% by 2018	93.8% (95% CI (92.2%–95.1%) CES 2017

APR – Annual Progress Report; JRF – Joint Reporting Form; cYMP – comprehensive Multi-Year Plan; ILI – influenza-like illness; SARI – severe acute respiratory infections; DQS – data quality self-assessment; na – not available

Annex 9 – Summary of cold-chain equipment installed under Gavi HSS (2007–2017)

Particulars	Central	Provincial	County	*Ri*	Number
Cold storage					
Cold room (40 m^3)	✓				4
Cold room (10 m^3)		✓			11
Freezer room (20 m^3)	✓				1
Ice lined refrigerator (ILR)	✓	✓	✓	✓	472
Solar driven drive (SDD)			✓	✓	1406
Cold box	✓	✓	✓	✓	1175
Carrier	✓			✓	9811

Annex 9 – Summary of cold-chain equipment installed under Gavi HSS (2007–2017) (contd.)

Particulars	Central	Provincial	County	*Ri*	Number
Power					
Generator (50 kW)	✓				2
Generator (10 kW)		✓			22
Voltage regulator (120 kW)	✓				1
Voltage regulator (70 kW)	✓				1
Voltage regulator (10 kW)		✓			22
Voltage regulator (2 kW)	✓	✓	✓	✓	448
Temperature monitoring					
Fridge tag 2	✓	✓	✓	✓	2880
Multi log 2	✓	✓			17
Freeze tag	✓	✓			5900
Transport					
Refrigerator vehicle	✓				2
Truck		✓			11
Motorcycle			✓	✓	110
Motor tricycle			✓	✓	318
Others					
Tool kit for SDD installation	✓	✓			24

SDD – solar driven drive

Source: Adapted from presentation by Central Medical Warehouse staff, MoPH, the Democratic People's Republic of Korea

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