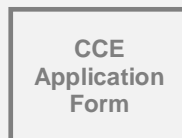
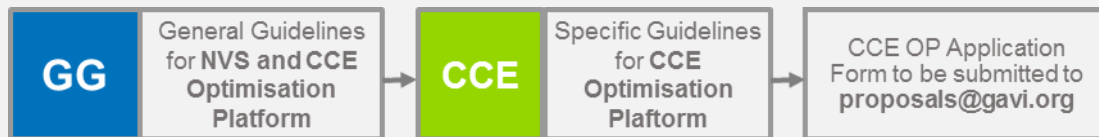


Vietnam Application Form for Cold Chain Equipment Optimisation Platform support in 2017

Document Dated: February 2017

Application documents for 2017:

Countries applying for Gavi Cold Chain Equipment (CCE) Optimisation Platform support in 2017 are advised to refer to the following documents in the order presented below:



Purpose of this document:

This application form must be completed in order to apply for support related to the CCE Optimisation Platform.

Applicants are required to first read the General Guidelines for all types of support, followed by the CCE Optimisation Platform guidelines. Thereafter, applicants should complete this CCE Application Form and submit by email to proposals@gavi.org.



Resources to support completing this application form:

Technology guide for equipment selection for counties wishing to request CCE Optimisation Platform support is available here: www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/



Extensive technical resources relating to vaccine cold chain equipment management are available on TechNet-21: www.technet-21.org/en/resources/cold-chain-equipment-management

Web links and contact information:

All application documents are available on the Gavi Apply for Support webpage: www.gavi.org/support/apply. For any questions regarding the application guidelines please contact countryportal@gavi.org or your Gavi Senior Country Manager (SCM).



Countries are informed that based on post IRC recommendations, **final approved amounts may be different** from what countries have requested.

This final approved amount will be dependent on the availability of funding.

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PART A: APPLICANT INFORMATION

1. Applicant information		
Country	Vietnam	
Date	8 September 2016	
Contact name	Prof. Dang Duc Anh National Institute of Hygiene and Epidemiology (NIHE) Director, National Expanded Program on Immunisation (NEPI) Manager	
Email address	dangducanh.nihe@gmail.com ; ducanh@nihe.org.vn	
Phone number	+84439712989	
Total funding requested from CCE Optimisation Platform(US \$)	3,224,560 USD	
Does your country have an approved Gavi HSS support on-going?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Indicate the anticipated final year of the HSS: 2017</i>	
Proposed CCE Optimisation Platform support start date (please be informed the actual start date should be at least 8-10 months from application date):	<i>Indicate the month and year of the planned start date of the support, based on the strategic deployment plan: 20 October 2017</i>	
Proposed CCE Optimisation Platform support end date:	<i>Indicate the month and year of the planned end date of the support, based on the strategic deployment plan: December 2020</i>	
Signatures Include signed (and official) CCE Optimisation Platform application endorsement by: a) Minister of Health and Minister of Finance (or delegated authorities) b) Members of the Coordination Forum (HSCC/ICC or equivalent body)	<p><i>We the undersigned, affirm the objectives and activities of the Gavi CCE Optimisation Platform proposal are fully aligned with the national health strategic plan (or equivalent) and that the funds for implementing all activities, including domestic funds and any needed joint investment, will be included in the annual budget of the Ministry of Health:</i></p> <p>Minister of Health (or delegated authority) Minister of Health (or delegated authority)</p> <p>Name: _____ Name: _____</p> <p>Signature: _____ Signature: _____</p> <p>Date: _____ Date: _____</p>	

PART B: MANDATORY ATTACHMENTS: NATIONAL STRATEGIES AND PLANS

This section provides a list of national strategies, plans and documents relevant to supply chain and requested support, which must be attached as part of the application.



All documents listed in the table below are **mandatory**, must be **attached** to your application, and they must be **final** and **dated**. Only **complete applications** will be assessed.

No.	Strategy / Plan / Document	Attached Yes/ No	Final version (dated)	Duration	Name of the file
1.	Signature sheet for the Minister of Health and Minister of Finance, or their delegates	Yes	2016		1.a Signature of MoH 1.b Signature of MoF
2.	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal ^[1]	Yes	2016		2.a 30 ICC meeting note_final 2b.ICC signature
3.	National Health Sector Development Plan	Yes	2015	2016 - 2020	3. MOH's 5 year plan 2016-2020
4.	cMYP	Yes	2015	2016 - 2020	4. cMYP_VNM_2016-2020
5.	EVM Assessment	Yes	2015		5. EVM report 2015_VNM
6.	EVM Improvement Plan	Yes	2015		6. EVM 2015 ImprovementPlan_VNM
7.	EVM Annual Workplan and Progress Report on EVM Improvement Plan ^[2]	Yes	2016		7. Improvement Plan Progress Report - VNM
8.	CCE Inventory Report ^[3] and Facilities Segmentation Plan	Yes	2015		8a. CCE Inventory_2015 8b. CCE_RE_Segmentation_deployment_VNM
9.	Cold Chain Rehabilitation and Expansion Plan, and Equipment Selection and Strategic Deployment Plan	Yes	2015		9. CCE - Expansion and Replacement Plan_VNM 8c.facility segmentation equipment selection and deployment plan_2017
10.	Maintenance Plan with financing	Yes	2015		10. Maintenance and

No.	Strategy / Plan / Document	Attached Yes/ No	Final version (dated)	Duration	Name of the file
					repair strategy_VNM
11.	Proof of status for CCE tariff exemptions waiver	Yes			11. The Law on Value-Added Tax_VNM
12.	Terms of Reference for the relevant Coordination Forum including all sections outlined in Section 5.2 of the General Application Guidelines[4]	Yes	2017		12. ICC/EPI Terms of Reference
13.	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Yes			Same than the 2nd document
14.	Other relevant documents	Yes			
	<i>a) Vietnam Transition Action Plan 2016-2020</i>	Yes	2016	2016-2020	14a. Vietnam Transition Plan 2016-2020
	<i>b) M&E plan for the implementation of the CCE expansion and replacement plan</i>	Yes	2015		14b. M&E plan for the implementation of the CCE expansion and replacement plan_VNM
	<i>c) UNICEF letter on CCE</i>	Yes	2016		15. UNICEF letter
	<i>d) 2017 CCE OP Budget Template</i>	Yes	2017		16. CCE OP Budget Template

3. How do the above strategies, plans and documents inform the CCE Optimisation Platform support request (initial support and scale-up support)? (Maximum 1 page)

INTRODUCTION: The current health sector plan 2016-2020 identifies 9 tasks of which 6 are directly relevant to the National Expanded Program on Immunization (NEPI). The main goal of the comprehensive Multiple Year Plan (cMYP) 2016-2020 is to maintain EPI achievements, decrease incidence of vaccine preventable diseases (VPD) through introduction of new vaccines and control and elimination of VPD. However, the introduction of new vaccines and expansion of the immunization program planned by EPI in the five-year period, suggests that the cold chain might require substantial upgrade, since the existing cold chain capacity may become the major bottleneck in implementing proposed strategies and reaching program objectives. Expansion of the immunization program considers increase of vaccine volume and thus will require significant improvement of existing storage capacity to accommodate increased volume of vaccines. The latest EVM assessment was carried out in 2015 and produced key recommendations for ensuring sufficient capacity of cold chain through the implementation of EVM improvement plan. The objectives of the Vietnam CCEOP proposal are to increase vaccine storage capacity for new vaccines introduction, to expand immunization services to isolated and poor areas, and to replace CCE with age of 10 years and more.

COLD CHAIN: in Vietnam, the policy for equipment selection is as follows:

- 1 national vaccine store: cold rooms, freezer-rooms and refrigerated trucks for transportation of vaccines

- 4 regional vaccine stores: cold rooms, refrigerators, freezer and refrigerated trucks for transportation of vaccines
- 63 provincial vaccine stores: cold rooms, refrigerators, freezer and cold boxes
- 712 district vaccine stores: refrigerators and cold boxes
- 11,160 commune health centers (CHC): vaccine carriers, cold boxes and refrigerators.

At commune level, monthly routine EPI sessions last for 1 - 3 days and vaccine carriers, cold boxes are used for transportation and storing vaccines during immunization days. In most CHCs, EPI vaccines are not stored at commune level. A system is in place for collecting and updating cold chain equipment inventories on a quarterly basis at all levels. Cold chain capacity appeared to be sufficient in 2016 even after the introduction of IPV and MR. However, the existing capacity is not sufficient for 2017 when more new vaccines, such as rotavirus, are introduced. There are needs for extra cold chain storage capacity for different scenarios for new vaccine introduction (e.g. JE alone, JE+rota, rota+IPV). This work is urgent considering that the country was already awarded with Gavi support for IPV introduction and is going to introduce the rotavirus vaccine in 2018 through funding from the government. The cold chain inventory in November 2015 showed that 1,681 TCW 3000 vaccine refrigerators at provinces and districts are in use and functional. 1,158 (69%) were installed in 2008 and 523 (31%) in 2015.

EVM IP: The key findings of the 2015 EVM assessment are outstandingly high for all levels of the supply chain. The IP lists 67 recommendations to increase EVM criteria, 14 of which are related to equipment improvement: continuous temperature monitoring devices, freeze indicators, refrigerators for district stores with insufficient storage capacity in consideration of **rotavirus vaccine introduction**, replacing non-PQS CCE, providing freeze and fridge tags, VLS400A (**IPV**) for new districts and areas with refrigerators damaged by disasters, replacing TCW3000 older than 10 years of functioning. The priority activities in the next five years are:

- Equipping provincial stores, district stores with VLS400A required for IPV introduction in 2018
- Replacing TCW3000 with more than 10 years of functioning in provincial and district stores

PRIORITIES FOR THE INITIAL AND SCALE UP PHASE: The CCEOP proposal is for procurement and installation of 1,360 ILR refrigerators in two phases: 760 in phase one and 600 in phase two. The deployment of the equipment will be performed by priority as follows:

- Domestic co-financing per year decided by MoH
- Remote, hard-to-reach and mountainous areas without functioning equipment (destroyed or no equipment)
- Facility where the storage capacity is insufficient (target population & new vaccines introduction)
- CCE Age > 10 years

MAINTENANCE: Vietnam NEPI has an innovative maintenance model with the Luxembourg Development's support in procurement, delivery, installation, and maintenance of 5,630 refrigerators in Vietnam. Since the support (2003-2012), Vietnam has developed an adequate and sustainable EPI-equipment maintenance and management system at different levels. The current system relies on dedicated MoH's staff (technicians and engineers), and service providers. The last EVMA (2015) revealed that only 4% of equipment looked at during the assessment being non-functional, which is an evidence of an effective maintenance and repair system.

STRATEGIC DEPLOYMENT: Through the CCEOP, Vietnam will prioritize expansion and replacement of refrigerators in facilities with 1) damaged refrigerators, 2) no refrigerators (in newly established districts), and 3) refrigerators older than 10 years. Indeed 1,360 ILR for replacing old ones in 61 provincial stores and 712 district stores (1,158) and 202 districts in remote and deprived areas. In the recent years, Vietnam has experienced innovative approaches for deploying more than 6,000 refrigerators (Luxembourg Development and MR campaign). Likewise, the country purchases EPI vaccines (Quinvaxem) from UNICEF which will facilitate the equipment procurement based on the current authorized process and is in accordance with the CCEOP procedures.

OTHER SUPPLY CHAIN FUNDAMENTALS: The CCEOP will complement investments in supply chain fundamentals funded by the domestic budget, HSS (GAVI), bilateral cooperation (Luxembourg Development, JICA), and iNGOs (PATH). These fundamentals will contribute to the sustainability of the NEPI, reinforce the coverage and equity of immunization as per Vietnam's vision to reach every child even in isolated and disadvantaged areas. The main focuses of the efforts will be:

- Development of human resources for health in rural, mountainous and difficult to reach areas through short and long term training activities
- Adequate supply of essential equipment for providing services to hard-to-reach population

- Reinforce management capacity and leadership
- Provision of PQS CCE for ensuring storage of vaccines in appropriate temperatures

MONITORING AND EVALUATION: The M&E will be done by national, regional and provincial EPI staff. The activities will be funded by the Government.

BUDGET AND JOINT INVESTMENT: The total funding requested from CCEOP is \$US 3,224,560 over a period of four years, with a 50% joint-investment coming from its national domestic resources. The distribution of CCE budget by year is as follows:

Year 1: US\$ 213,390; year 2: US\$ 1,588,570; year 3: US\$ 735,010 and year 4: US\$ 687,590.

4. Describe how supply chain stakeholders (including Coordination Forum (ICC/HSCC or equivalent), government, NLWG, NITAG, key donors, partners, CSOs and key implementers) have been involved in the application development including if the quorum at the endorsing meeting was met

Were any of Gavi's requirements to ensure basic functionality of Coordination Forums not met? Then please describe the reasons and the approach to address this (refer to section 5.2 of the General Guidelines for the requirements)(Maximum 0.5 page)

The CCEOP application has been discussed with the MoH and especially the General Department of Preventive Medicine as well as with the Ministry of Planning and Investment, and the Ministry of Finance. Likewise, the ICC has been supporting the process with programmatic questions and operations including immunization supply chain (iSC). Consequently, the ICC members were involved in the CCEOP application preparation and guidance. Indeed, in June 2016, during the 30th ICC meeting, NEPI presented the GAVI CCEOP application to the partners for discussion and approval to support the process. The ICC members (WHO, UNICEF, and PATH) endorsed the meeting decisions regarding the CCEOP application. WHO and UNICEF supported Vietnam in the preparation of the CCEOP application.

PART C: SITUATION ANALYSIS AND REQUESTED SUPPORT

This section gives an overview of the types of information the IRC will anticipate from countries in their application for CCE Optimisation Platform support. This section must be filled with appropriate reference to the country documents listed in Part B. Countries are required to provide a narrative in response to the following questions.

5. Situation analysis of country's supply chain and CCE(number, distribution, functionalities etc.) (Maximum 3 pages) Please respond to all questions

Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

- How is the country's immunisation supply chain administered?*
- What weaknesses have been identified in the country's supply chain?*
- Through what interventions are these weaknesses currently being addressed?*
- Describe challenges that are hindering the implementation of these interventions.*
- Describe lessons learnt from recent supply chain related support that inform the current request for CCE Optimisation Platform support.*
- What percentage of facilities has reliable access to grid electricity for up to or more than 8 hours per day?*
- Please give the quantity and percent of current CCE that is: a) functional; b) PQS-approved; c) non-PQS-approved; and/or d) obsolete?*
- What percent of the birth cohort is served by effectively functioning, PQS-approved CCE*

currently?

- i) What are the bottlenecks that CCE can address in the current supply chain set-up (for example, capacity and technology constraints)?
- j) Describe any other supply chain challenges that CCE Optimisation Platform support will assist in mitigating?
- k) What are the overall CCE needs?

a) Vietnam immunisation supply chain administration

Viet Nam (population 91.6 million) in recent years has experienced steady rates of economic growth and social development. The country is divided into 6 major geographical zones, including Red River Delta Area, Northern Midlands and Mountain Area, North Central and Central Coastal Area, Central Highlands, South East and Mekong River Delta. The rapidly growing urban centers of Hanoi in the north (population 7.3 million), and Ho Chi Minh City in the south (population 7.9 million) could be considered as an additional highly urbanized ecological zone. The health sector structure conforms to the administrative structures with a network of national hospitals, provincial and district preventive centers, and commune health centers, which are further networked by a system of village health

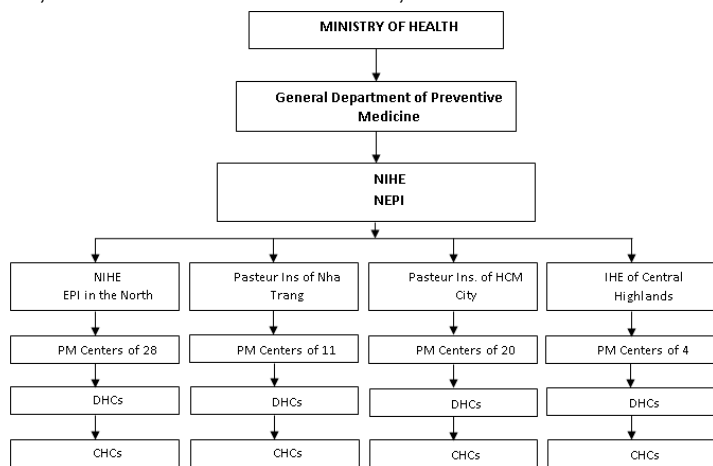


Figure 1 Vietnam NEPI organization chart

workers. The NEPI consists of 1 national, 4 regional vaccine stores, 63 provincial stores, 712 district vaccine stores, and 11,160 commune health centre (CHC). Each CHC is one immunization point but EPI vaccines are not stored in CHC. Monthly routine immunization session lasts for 1 – 3 days. Five percent of CHC conduct outreach activities. The NEPI vaccines are distributed by vehicles. Vietnam’s vaccine cold chain system covers from national store level to commune level. The cold chain system is managed by

the NEPI board of managers. Vietnam operates a 3 tier supply chain equipped with cold rooms/vaccine refrigerators and coupled to a 4th tier where cold boxes/vaccine carriers or refrigerators are used for immunisation sessions at commune level. All vaccines used in the routine immunisation program are produced in country except the Pentavalent and the MR vaccines that are imported. In June 2015, The World Health Organization formally certified Viet Nam as having a fully equipped national regulatory authority (NRA) that ensures the safety and efficacy of vaccines produced and used in the country. The certification means that Viet Nam’s NRA is compliant in all areas required to provide regulatory oversight of vaccines: overall system framework; marketing authorization and licensing; post-marketing surveillance, including for adverse events following immunization; lot release; laboratory access; regulatory inspections of manufacturing sites and distribution channels; and authorization and monitoring of clinical trials.

b) Vietnam Supply Chain Weaknesses

Vietnam has achieved very good results in the Effective Vaccine Management Assessment (EVMA). The aggregate performance across all nine vaccines management criteria assessed achieved or exceeded the World Health Organisation’s minimum recommended levels of performance across all criteria assessed.

Tier of Supply Chain	E1: Vaccine arrival	E2: Temperature	E3: Storage capacity	E4: Buildings, equipment, transport	E5: Maintenance	E6: Stock management	E7: Distribution	E8: Vaccine management	E9: MIS, supportive functions
Primary Store	77%	90%	79%	92%	100%	96%	79%	96%	78%
regional Stores	84%	84%	96%	84%	84%	92%	89%	96%	96%
Provincial Stores		89%	96%	92%	92%	93%	90%	95%	93%
district Stores		92%	96%	95%	88%	86%	89%	89%	89%
Clinics		88%	78%	94%	84%	81%	95%	87%	85%

Tableau 1: 2015 EVMA Results

Likewise, the EVMA revealed key weaknesses that need to be addressed:

- 1) VVM is not used in local vaccines: Local vaccine manufacturers do not use Vaccine Vial Monitors (VVM) time/temperature indicators. This will add approx. USD cents 6/vial on vaccine costs of vaccine typically with 10-20 doses/vial. There are no major capital investment costs for manufacturers and one manufacturer (Polyvac) is apparently already set up with cap labelling equipment. Use of VVM's provides scope to introduce the Multi Dose Vial Policy (MDVP) which can potentially reduce wastage levels to the recommended WHO levels which are approximately 25% lower than current wastage levels in Vietnam. Economies from reduced wastage are likely to more than offset the increased costs of vaccines.
- 2) The supply chain is critically short of refrigerated storage space for vaccines particularly at the national and 2 regional stores and to some extent at Provincial stores. This is an impediment to permit maximum and minimum stock levels and reserve stock levels to be aligned with WHO's recommended practices. Likewise, cold rooms are insufficiently fitted with state of the art WHO/PQS prequalified temperature monitoring systems so to provide program managers with a real-time dashboard of vaccine storage quality at all cold room storage locations.
- 3) The data management system does not include an inventory of supply chain equipment, hence a correlation between available storage space at any location and stock volumes cannot be made. The system also does not provide a direct linkage between the supply chain and immunised children record; hence, its present form does not include provision for batch tracking to the point of use. Likewise, it appears that data from immunisation activity in the private sector may not be reported in NEPI immunisation statistics.
- 4) The web-based tool used for stock management of supplies does not include stock management at district stores. Indeed it covers national, regional and provincial stores. There is no link to immunisation records, and no link between stock management, vaccine quality monitoring and available storage capacity for vaccine on a real-time basis.
- 5) Some vaccine refrigerators are not fitted with continuous monitoring devices and personnel have yet to receive training in the use of 1350 temperature monitoring devices recently supplied. Additionally, there are insufficient freeze indicators for use in cold boxes and vaccine carriers used to transport freeze sensitive vaccines.
- 6) Lessened equitable immunization access and coverage for remote, ethnic minority and migrant populations because of a lack of vaccine storage equipment in closer proximity with increased frequency of opportunities for contact.
- 7) Insufficient skills/competencies: The recent 'National EPI Review' found that training for EPI staff is heavily focused on **immunisation - particularly injection safety** - and does not give adequate emphasis to other components like **planning, budgeting, management and monitoring**. Likewise, supervisory visits are reasonably regular at all levels of the supply

chain; however there appears to be no systematic checklists of supervisory tasks and no register of actions for follow-up. Also, waste management practices at service delivery points are frequently less than adequate and there is no clear evidence that used syringes and other waste is systematically recovered from immunisation sessions and disposed safely.

- 8) High frequency for vaccine deliveries because of storage capacity and supplier constraints, more deliveries take place more frequently at the higher levels of the supply chain than should be the case.
- 9) The MDVP is not practiced in Vietnam because of the nature of immunisation service delivery from 11,500 community clinics on designated days, there is a policy which does not allow to store vaccines at most of these locations and VVM indicators are unavailable on locally produced vaccines.
- 10) No assigned manager to oversee the implementation of the cEVM improvement plans with direct reporting to the national EPI manager and program technical advisory and coordinating committees (NITAG/ICC).

c) *Planned interventions to address weaknesses of Supply chain*

There are 68 activities¹ planned to address the iSC weaknesses at all level of the immunization system in Vietnam, and the key priorities are the following:

- 1) Additional vaccine refrigerators to district stores without sufficient storage space to accommodate current and rotavirus vaccines are provided.
- 2) Temperature-monitoring studies are conducted in each region as per WHO/IVB 5.01 Rev A. or the UNICEF revised temperature monitoring protocol (2015).
- 3) Temperature mapping practices are revised to be compliant with the WHO recommended procedures for identifying hot/cold spots.
- 4) Continuous temperature monitoring devices are installed in all vaccine refrigerators and personnel trained.
- 5) Freeze indicators for vaccine transport are supplied, and training provided on their use where necessary.
- 6) The vaccine storage capacity of primary stores is increased prior to the introduction of new vaccines.
- 7) Non-functioning WIC/WIF alarms are repaired as a priority.
- 8) Clear guidelines on max/min stock levels should be issued and stock requisitions and supply based upon max/min stock levels. Province and district personnel should be trained on this topic.
- 9) VVMs are provided on locally produced vaccines inclusive of bOPV when local production is licensed.
- 10) A waste management assessment using WHO assessment tool (Tool Reference http://www.who.int/water_sanitation_health/medicalwaste/hcwmtool/en/.) is conducted.
- 11) A cold chain equipment inventory management system is put in place which assures that EPI national, regional and Provincials managers are continuously aware of the available storage capacity at all storage locations.
- 12) The national program establishes and implements a policy of reserving stock levels of all vaccines inclusive of those locally manufactured which ensures the availability of all vaccines at all times. At national level, this should be a minimum stock reserve level of 3 months.
- 13) A working group is established to review the immunisation logistics planning process, and submit a plan for ICC endorsement which modernises and streamlines the immunisation logistics planning process, improves the security of supply and provides a transparent supply chain network with clear guidelines for management and operation.

¹ EVM cIP report

d) Challenges hindering the implementation of these interventions

- 1) Vietnam, as an accelerated transition country, is not eligible for further HSS support from Gavi.
- 2) Coverage and equity: even with high DTP3 coverage (95%), Vietnam envisions reaching 100% coverage is equitable access by the entire population, including hard-to-reach areas, and ethnic minority groups.
- 3) Inclusion of private sector immunisation and inclusion of their data to the national ISC statistics. According to estimations of the national authorities (NEPI), the share of the private sector in vaccinating children may constitute up to 15% in the two largest cities and include provision of non-EPI vaccines in public sector facilities.
- 4) Cost of inclusion of VVM indicators to locally produced vaccines.

e) Lessons learnt from recent supply chain related support that inform the current request for CCEOP support

From 2003 to 2015, Vietnam had two major experiences in the procurement, delivery, installation and maintenance of CCE:

- 1) **Experience #1: Luxemburg Development Corporation** (Phase 1 from 2003 to 2005 and Phase 2 from 2008 to 2012) for the provision of a total of 5,630 refrigerators. The grant covered all activities from procurement to delivery, installation and maintenance. The process was managed by a dedicated team set up in NEPI office. The Luxemburg Development Corporation provided TA in form of a technical advisor that was seconded to NEPI. Two local sub-contractors from the private sector were contracted for the implementation. One service provider was responsible for managing the in-country distribution and logistics, while the other supported the installation of CCE. The installation was controlled through commissioning and hand-over reports to the local authorities. During this time, NEPI (at regional and provincial level) also established a new maintenance system. Technicians were trained in corrective maintenance and EPI staff was trained in preventative maintenance. Accountabilities, SOPs and guidelines were developed. In addition, spare parts management systems were implemented.
- 2) **Experience #2: MR Campaign** (from 2014 to 2015) for procurement of a total of 430 refrigerators. The process was fully managed by NIHE. The procurement was done via a public tender process and awarded to a local private company that received funds for the procurement, delivery and installation of refrigerators. The installation was controlled through commissioning and hand-over reports to the local authorities. Based on this experience, there is adequate evidence that the country has the capacity to pursue self-procurement and has in-country expertise to ensure that the equipment will be properly installed. The government of Vietnam, therefore, wants to pursue self-procurement. After the approval of this application, a focal point at NIHE will develop a detailed procurement plan.

f) Percentage of facilities with reliable access to grid electricity for up to or more than 8 hours per day

100% of facilities at province, district, and commune levels *have access to reliable grid electricity for up to or more than 8 hours per day.*

g) Quantity and percentage of current CCE that is: a) functional; b) PQS-approved; c) non-PQS-approved; and/or d) obsolete?

The cold chain inventory in November 2015 showed that:

- 1) 1,681 TCW 3000 ILR at provinces and districts are in use and functional : 1158 (69%) were installed in 2008 and 523 (31%) in 2015
- 2) PQS-approved: 1,681 (100%)
- 3) Non-PQS Approved: 0
- 4) Obsolete: 4,000 TCW50 EG refrigerators installed in 2003 and 2004

h) Percentage of the birth cohort served by effectively functioning PQS-approved CCE currently

Currently, 100% of the birth cohort is served by effective function PQS CCE.

i) Bottlenecks that CCE can address in the current supply chain set-up (for example, capacity and technology constraints)

- 1) Lack of storage capacity for IPV, rotavirus, and JE campaign.
- 2) Inequity access of immunization services in districts with low coverage, and poorest communities, including ethnic minority groups (14% of the population).

j) Other supply chain challenges that CCE optimisation platform support will assist in mitigating

- 1) Costs of transportation
- 2) Reducing the number of vaccine delivery because of low vaccine storage capacity
- 3) Energy and cost saving
- 4) Unnecessary maintenance costs

k) Overall CCE needs

- 1) The total number of required CCE based on the 2015 EVMA and the cIP is the following:

	2017	2018	2019	2020	Total
Provincial stores, district stores VLS400A required for IPV, introducing reduced – dose multi dose vaccine vials, for new districts and for areas with refrigerators ruined by disasters	30	30	90	52	202
Replace TCW3000 with more than 10 years functioning	60	640	220	238	1,158
Total	90	670	310	290	1,360
Total cost (US\$)	213,390	1,588,570	735,010	687,590	3,224,560
GAVI 50% (US\$)	106,695	794,285	367,505	343,795	1,612,280
50% co-financing (US\$)	106,695	794,285	367,505	343,795	1,612,280

* Based on UNICEF letter on “Information on cost of purchasing refrigerators for immunization” dated 4 August 2016. It includes a voltage regulator and a temperature logger, the shipping cost, the cost for in-country distribution and training in preventive maintenance and commissioning, a buffer fee 6% and a UNICEF’s handling fee 8%.

- 2) Vietnam will introduce IPV in 2018 and subsequently swap tOPV with bOPV. There is a plan for JE SIA in 2017 to vaccinate 12.7 m children (6-14 years of age) and JE

introduction into the routine program in 2018. The transition from the presently used JE vaccine to a new generation (WHO recommended) vaccine raises a number of issues relating to local production, etc. No additional provision is made in supply chain requirements over and above those already included for the currently used JE vaccine.

- 3) The cMYP includes provision of Rota (Liquid, 2-dose) vaccine. Vietnam did not submit a request to Gavi for supporting the introduction of vaccine financing in September 2015. However, according to the 2015 guidelines, it was the last date to request support due to the transition status of Vietnam. This plan assumes funding by the government of Vietnam.
- 4) Recommendations in the Joint Appraisal of 2015, encourage Vietnam to further focus on its REC strategy currently supported in some districts under HSS1 support from Gavi. A plan to strengthen immunisation services in REC (April 2015) classified communities where DPT3 and MCV2 coverages are notably low and recommends certain communities to be equipped with refrigerators.
- 5) Approximately 1,000 provincial and district hospitals administer vaccines (Hep B birth dose) to new-borns. Small and low cost vaccine refrigerators are planned to be provided to store vaccines at these locations.

NEPI equipped 4,000 communities in 2004 through bi-lateral funding, but the absorption refrigerators are no longer functional. Replacement of these units is not included in the plan. There are approximately 11,000 communes countrywide for which no CC equipment is considered.

6. Expected immunisation coverage, equity and sustainability results *(Maximum 2 pages)*

Please respond to all questions

Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

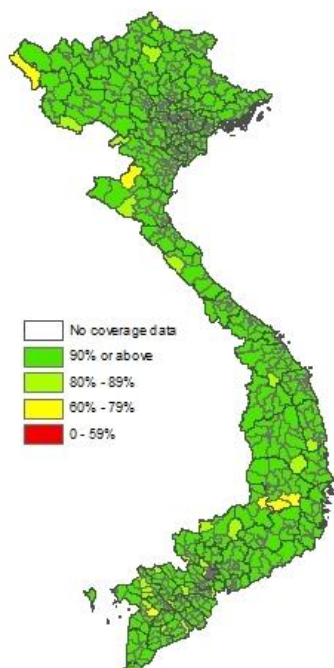
- a) *How will the requested Platform support concretely contribute to addressing identified geographic and socio-economic inequities and gender barriers to sustainable improvements in coverage and equity of immunisation? Examples may include (not exhaustive):*
 - o *Geographically remote districts or those with low coverage*
 - o *Poorer communities (e.g. in the poorest 10% of the population)*
 - o *Communities where gender barriers are significant and/or where low levels of female education is common (as this is often associated with lower coverage)*
- b) *What analyses have been made, or what plans are underway, to optimise the design of the supply chain distribution system in order to improve the efficiency of the supply chain and contribute to achieving coverage and equity goals?*
- c) *How have these system design considerations impacted the choice of CCE to be supported by the Platform?*
- d) *Concretely, how will Platform support help improve the sustainability of the supply chain system?*

a) How will the requested Platform support concretely contribute to addressing identified geographic and socio-economic inequities and gender barriers to sustainable improvements in coverage and equity of immunisation?

The 2015 EPI review highlighted challenges in consistently reaching the most disadvantaged populations. The review highlighted the complexity and diversity of the equity issue and the types of population groups at risk of not accessing to immunisation services. These include the following: *migrants, mobile populations, remote area residents and ethnic minority populations.*

In this context, Vietnam needs to expand the cold chain to provide immunization services to remote areas and to ethnic minority populations (14% of the population). In these areas, more refrigerators will be installed for storing EPI vaccines. A group of CHC may share one refrigerator for storing vaccines.

Likewise, in existing health facilities, there are 7² provinces with 24 districts that are performing low immunization coverage (<80%).



No	Province	District	Penta3 (%)
1	Nghệ An	Quế Phong	70.3
2	Điện Biên	H. Mường Nhé	73.7
3	Đắk Lắk	H. Lắk	77.1
4	Đắk Lắk	H. Krông Bông	72.4
5	Đắk Nông	Krông Nô	79.8
6	TPHo Chi Minh	QUẬN 1	34.5
7	TPHo Chi Minh	QUẬN 2	59.2
8	TPHo Chi Minh	QUẬN 3	43.9
9	TPHo Chi Minh	QUẬN 4	51.4
10	TPHo Chi Minh	QUẬN 5	26.1
11	TPHo Chi Minh	QUẬN 6	65.3
12	TPHo Chi Minh	QUẬN 7	69.8
13	TPHo Chi Minh	QUẬN 8	58.0
14	TPHo Chi Minh	QUẬN 10	30.8
15	TPHo Chi Minh	QUẬN 11	49.5
16	TPHo Chi Minh	GÒ VẤP	73.4
17	TPHo Chi Minh	TÂN BÌNH	52.6
18	TPHo Chi Minh	BÌNH THẠNH	49.0
19	TPHo Chi Minh	PHÚ NHUẬN	40.3
20	TPHo Chi Minh	BÌNH CHÁNH	77.5
21	TPHo Chi Minh	TÂN PHÚ	77.2
22	TPHo Chi Minh	BÌNH TÂN	76.0
23	Bình dương	Tp Thủ Dầu Một	71.4
24	Kiên Giang	Giồng Riềng	78.9

Table 1: list of 24 districts with low coverage covered by the CCEOP investment

Consequently, the CCEOP will support Vietnam to address district inequities.

b) What analyses have been made, or what plans are underway, to optimise the design of the supply chain distribution system in order to improve the efficiency of the supply chain and contribute to achieving coverage and equity goals

In Vietnam, 52% of locally manufactured vaccines are distributed directly to regional stores^[1]. This distribution system enables the national store to only manage stock of locally manufactured vaccines for distribution to the Northern region. Frequency for deliveries are defined, but due to storage capacity and supplier constraints, more number of deliveries take place and more frequently at the higher levels of the supply chain than should be based on the plan. (i.e. the national store made 56 deliveries in 2014). The analysis indicated a higher cost and a higher risk of stock out because of the lack of CCE at central, provincial and district levels.

In order to ensure optimizing the design of supply chain distribution system, Vietnam planned to:

² District and Province Deployment Plan (Document 8b)

^[1] 2015 EVMA report (document 6)

- Reduce frequency of delivery and costs of transportation (vehicle and air) by expanding the cold chain capacity to provide immunization services of:
 - ⇒ 712 districts with aged and damaged refrigerators
 - ⇒ 61 provinces with obsolete and damaged refrigerators
 - ⇒ And possibly 20 new districts in remote and disadvantaged areas (mountainous and ethnic minority groups)
- Use freeze indicators for transported vaccines

c) How have these system design considerations impacted the choice of CCE to be supported by the Platform?

1. The need for equipment replacement because of obsolescence or non-repairable equipment
2. The availability of reliable electricity (Grid Supply) in more areas
3. The required vaccine storage capacity of the facilities considering the current and new vaccine introduction
4. The performance of equipment: ILRs run on electricity or power from a generator. They are designed to require only eight hours of power per day to keep vaccines within the required temperature range
5. The reduction of recurring and running costs of equipment

d) Concretely, how will Platform support help improve the sustainability of the supply chain system?

The platform support will help to sustain and strengthen the supply chain system by:

1. Increasing the capacity of vaccine storage in the perspective of new vaccines introduction
2. Improving the storage of vaccines at recommended temperatures
3. Increasing the capacity to reach every child with a focus on isolated and deprived areas
4. Introducing more efficient cold chain equipment
5. Reducing the costs of highly frequent vaccine deliveries
6. Reducing the maintenance and repairing costs of aged CCE

7. Maintenance plan (and its source of funding) and equipment disposal (Maximum 2 pages)

Please respond to all questions

Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

- a) *How will the country ensure that aspects of maintaining the cold chain are addressed (e.g. preventive and corrective maintenance, monitoring functionality, technicians, financing for maintenance, etc.)?*
 - *What is the frequency of preventative and corrective maintenance that the country commits to (supported by partners)?*
 - *What technical support is anticipated for maintenance?*
- b) *How will the country monitor the completion of preventive and corrective maintenance?*
 - *Which source(s) of funding will be used for maintenance, and to what extent are they assured?*
- c) *How will the country dispose of obsolete and irreparable equipment replaced by CCE Optimisation Platform equipment?*

a) How will the country ensure that aspects of maintaining the cold chain are addressed?

Preventative and corrective maintenance

Vietnam has developed SOPs and guidelines for CCE maintenance. The “EPI in Practice” guidelines that are distributed to all facilities. The PEM (Provincial Equipment Manager) is responsible to keep

an updated inventory in Excel of all the equipment within the province. This list is updated on a quarterly basis and indicates changes, e.g. new equipment arriving, equipment taken out of service

EPI staff is in charge of preventative maintenance that consists in conducting daily, weekly and monthly checks, cleaning, and adjustments of the CCE. The supportive supervisory visits include the monitoring of 30 DTRs and aim to control the implementation of the preventative maintenance check-list.

Technicians and engineers are in charge of corrective maintenance SOPs and guidelines were developed. There is a spare parts management system. In case that additional capacity for corrective maintenance is needed, EPI system may contract private service providers. The country also harmonized its equipment with the vast majority now being provided by domestic which has greatly simplified the maintenance and spare parts management. The corrective maintenance is performed by REM with spare parts that are managed at regional level. Broken equipment is transported by EPI owned trucks to the repair centers or repaired on site.

Financing for maintenance

The maintenance budget is estimated by the Ministry of Health (annex 1 – 2016-2020 cMYP) and the source of funding is from central and local governments. In 2016, the spare parts budget was VND 1.2 billion (~USD 55,000) and funded by the government. Other maintenance costs were covered by regional and provincial levels.

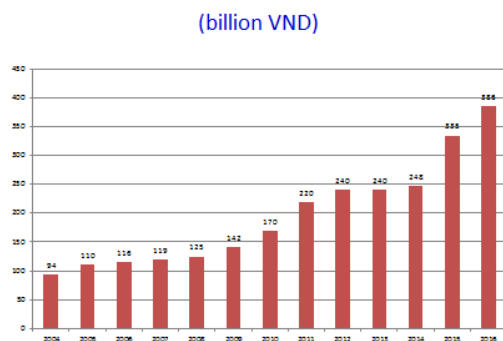


Figure 2: evolution of spare parts budget (2004-2016)

b) How will the country monitor the completion of preventive and corrective maintenance?

At national level, to coordinate, monitor and evaluate all equipment related activities, a national Equipment Manager (NEM) will be nominated. The NEM must have good management skills, logistic experience and sound technical understanding. The workload requires a 100% post (1 full time position).

The NEM will combine the reports of all regions and prepare adequate statistics including

- ⇒ Equipment data like age, no. of breakdowns, etc.,
- ⇒ Maintenance performance i.e. downtime of equipment, cost of repairs etc.
- ⇒ Asset data, i.e. inventory, remaining value, stock of spares, etc.

How will the country dispose of obsolete and irreparable equipment replaced by CCE Optimisation Platform equipment?

The disposal of CCE will be aligned with the Vietnam public procurement and disposal policy and will follow the procedure of disposal of government equipment. The obsolete or not-reparable refrigerators will be decommissioned and disposed following the methods as follows:

- ⇒ Transferring to another public entity or part of a public entity, with or without financial adjustment

- ⇒ Selling through public tender
- ⇒ Selling through public auction
- ⇒ Destructing, dumping, or burying
- ⇒ Trading-in

The NEPI will support districts and provinces in ensuring that the public procurement and disposal policy's practices are followed.

8. National Logistics Working Group *(Maximum 1 page) Please respond to all questions*
Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Does the country have a permanent and functioning National Logistics Working Group (NLWG)? If No, does the country plan to establish one and when?

Gavi and its Alliance partners encourage the establishment of such group that coordinates government and non-government partners 'activities and investments related to the health supply chain including immunization.

In Vietnam, the "Logistics Department" of the NIHE, and the four Pasteur Institutes are in charge of the iSC. However, in line with the EVM continuous Improvement Plan (cIP), an EVM Secretariat, will be set up at NEPI and an EVM cIP Implementation Oversight Manager will be hired with the following responsibilities:

- ⇒ To ensure effective and timely implementation of the cEVM cIP
- ⇒ To monitor implementation progress against defined programmatic indicators and milestones
- ⇒ To communicate and report implementation progress to the NEPI Program Director, NEPI and alliance partners
- ⇒ To draft a detailed program of activity to implement the cIP with defined milestones.
- ⇒ To oversight the implementation of the EVM cIP.
- ⇒ To plan and supervise inputs from short term international and national consultants
- ⇒ To monitor and report implementation progress, (EVM/LMIS Dashboard)
- ⇒ To collaborate with partners
- ⇒ To report regularly to the EPI Management, Task Force and Steering Committee
- ⇒ To provide budgetary oversight
- ⇒ To build capacity within EPI to progressively assume management of EVM cIP and plan an exit strategy (36 months)

In this context, Vietnam will examine the feasibility of benchmarking the upcoming group (secretariat and manager) with the concept of NLWG and ensure that the planned EVM secretariat and IP manager will be able to :

- ⇒ Coordinate national immunization logistics and supply chain activities as well as supply chain investments of government agencies and development partners.
- ⇒ Provide guidance, expertise and technical assistance on all matters concerning supply chain operations and improvement initiatives
- ⇒ Engage key stakeholders in the process to:
 - share information, evidence and lessons learned;
 - identify and overcome program bottlenecks;
 - explore opportunities for innovation;
 - and, to make optimal use of resources.

9. Other implementation details *(Maximum 1 page) Please respond to all questions*

Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

- a) How will the country facilitate the manufacturer's or representative's role in equipment purchase, distribution and installation?
- b) What is the source of the joint investment? Is the country's joint investment secured?
- c) Has the country secured import tariff exemptions for CCE? If yes, attach proof.

a) How will the country facilitate the manufacturer's or representative's role in equipment purchase, distribution and installation?



As per the Law on value added tax (VAT)³ pursuant to the 1992 Constitution of the Socialist Republic of Vietnam, which was amended and supplemented under Resolution No. 51/2001/QH10, the government is exempted from paying taxes for official aid funded projects. The Ministry of Health will interact with the manufacturer or the representative to ensure that the CCEOP activities will be properly managed and implemented. From 2003 to 2015, Vietnam NEPI already experienced this type of collaboration and closely collaborated with the providers to facilitate the procurement, delivery, installation and maintenance of the CCE.

b) What is the source of the joint investment? Is the country's joint investment secured?

Through this application Vietnam plans to procure CCE at provincial and district levels at a cost of \$US 3,224,560 of which 50%, \$US 1,161,280 will be covered by the CCEOP funding. Vietnam will co-invest 50% of the total amount through the government funding. The country's joint investment is secured.

PART D: INITIAL SUPPORT PHASE

This **initial support phase** is designed to address urgent CCE needs through years 1 and 2.

	Budgets are not inclusive of operational cost. Operational costs must be financed by Ministry of Health or other partners.
	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/

10. Prioritised (Urgent) CCE needs (Maximum 3 pages)

Provide information on **2 to 4 prioritised (urgent) CCE needs** as identified in the 'CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements'.

For each prioritised (urgent) CCE need, please provide the following information:

1. **The need:** Type of activity (e.g. replace obsolete CCE, extend CCE to unequipped facilities, etc.); specific CCE site (facility); type of equipment required; quantity of equipment items.
2. **Justification:** Reasons for urgent need (e.g. low CCE and/or immunisation (Penta3) coverage area, gender barriers, mobile population, etc.); current CCE and immunisation (Penta3) coverage in the population area.
3. **Expected outcome:** Anticipated increase in CCE and immunisation coverage (Penta3); anticipated progress against identified inequity (describe, in alignment with country Performance

³ Attached document "14"

framework).

4. **Total CCE budget:** includes Gavi and country joint investment share

Prioritised (Urgent) CCE Need #1	
The need	Vaccine refrigerators to supply in 2017 are 90 units with capacity of 145l. each.
Justification	<ul style="list-style-type: none"> • Supplying 90 ILR for new districts for groups of communes without any vaccine refrigerator or with obsolete refrigerators. • Ensuring enough vaccine storage volume for introduction of IPV and Rota vaccines that need increased storage volume from 2018 onward.
Expected outcome	Increased vaccine storage capacity for new vaccines introduction
Total CCE budget	US\$ 213,390
Prioritised (Urgent) CCE Need #2	
The need	The number of obsolete vaccine refrigerators to be replaced in 2018 is 670 units with capacity of 145l. each.
Justification	<ul style="list-style-type: none"> • Supplying ILR in new districts in hard-to-reach areas and replacement of aged refrigerators. • Ensuring sufficient vaccine storage capacity to maintain higher immunization coverage. • Replacing damaged refrigerators in natural disasters areas
Expected outcome	Increased equity and coverage in target areas
Total CCE budget	US\$ 1,588,570
GRAND TOTAL CCE BUDGET: Initial support (Years 1 and 2)	US\$1,801,960

11. Ongoing or planned activities around other supply chain fundamentals in the initial support phase

In this section, linkages must be drawn between requested CCE Optimisation Platform support, on-going Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support.

Describe planned or ongoing activities related to other supply chain fundamentals (see section 3.1 of the CCE Optimisation Platform Guidelines) during the initial support phase, including their sources of funding. Responses to this section should be linked to the EVM Improvement Plan.

<p>Supply chain managers</p> <p><i>Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</i></p>	<p>Capacity building and refresher training are required at all levels of the supply chain⁴. Mainstream programs addressing general vaccine management and supply chain logistic topics are planned, distributed over the 5 year timeframe of the cMYP:</p> <ul style="list-style-type: none"> • Management and planning module • Vaccine management and supply chain module • Immunization safety • Surveillance, supervision and monitoring module
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⁴ EVM/cIP 2015

	<ul style="list-style-type: none"> Partnering with communities
<p>Data for supply chain management</p> <p><i>Describe all planned or ongoing activities related to data for management, their sources of funding, and partner support. In particular, provide information explaining how improvements to the functionality of logistics management systems will improve the visibility of up-to-date and accurate vaccine stock records at each level of the vaccine supply chain.</i></p>	<p>Vax Trak is a computerised on-line data management package that has been developed to manage vaccine (and dry goods) stocks at national, regional and Provincial stores in Vietnam. There are plans to expand its use to district stores. The stock management package that is in use provides a register of stocks at locations and alerts when supply levels are critically low. There is a plan to extend the computerised system of data management (stocks and compilation of immunisation results) to the 712 district stores in 2019 and include supply chain equipment in the database by 2020.</p>
<p>Optimised, efficient design of distribution system</p> <p><i>Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	<p>Since the certification of the NRA in 2015, Vietnam is well positioned to include VVM's on locally produced vials, as this will also open industry opportunity for exports not only of currently produced vaccines but new vaccines currently undergoing clinical trials.</p>
<p>Continuous improvement process</p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>EPI activities for strengthening the cold chain system were mentioned in Improvement Plan and Transition Action Plan with support from UNICEF (see EVM Improvement Plan and Vietnam Transition Action Plan 2016-2020).</p>
<p>Temperature monitoring</p> <p><i>Describe the temperature monitoring devices that are currently available in the country? E.g. central level (CTMS), sub-national, lowest distribution and service delivery levels (30 DTRs and RTM devices), and during transportation (freeze tags).</i></p> <p><i>Furthermore, describe which measures are in place to a) obtain temperature data from the various devices;</i></p> <p><i>b) act following temperature alarms (curative maintenance); and</i></p> <p><i>c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system.</i></p>	<p>Fridge Tags: all vaccine refrigerators should be fitted with 30 DTR continuous temperature monitors and data reported as per the national norms and SOP's. 30 DTRs require replacement after 3 years. The 2015 inventory indicates that 932 fridge tags supplied in 2015 are installed and a further 764 in stock. In addition 265 log tags were supplied in 2014. Vietnam will standardise on 30-DTR devices.</p> <p>Freeze Tags are not systematically used for transporting freeze sensitive vaccines due apparently to a shortage of availability. Stocks will be maintained at province and district stores and included with all cold box and vaccine carrier dispatches. A supply of 15,000 will be procured and distributed.</p> <p>As per the EVM/cIP, a temperature monitoring study will be conducted in 2017 in accordance with WHO study protocol.</p>


12. Reviewing implementation of initial support activities


Support for approximately years 3 onwards will be contingent on reporting and performance of activities implemented during the initial support phase.

The annual review of the CCEOP project implementation will be conducted within the EVM framework and the cIP. This process will involve the ICC members and the cEVM secretariat (or NLWG) and cEVM Implementation Plan Manager. The monitoring and reporting of progress will be based on the performance monitoring framework and aligned with the cMYP.

PART E: SCALE-UP SUPPORT PHASE

This second phase of Gavi CCE Optimisation Platform support will be provided from approximately year 3 onwards.

	Budgets are not inclusive of operational cost. Operational costs must be financed by Ministry of Health or other partners.
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	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/
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13. Prioritised (Additional) CCE needs (Maximum 3 pages)

Provide information on **2 to 4 prioritised (additional) CCE needs** as identified in the 'CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements'.

For each prioritised (additional) CCE need, please provide the following information:

1. **The need:** Type of activity (e.g. replace obsolete CCE, extend CCE to unequipped facilities, etc.); specific CCE site (facility); type of equipment required; quantity of equipment items.
2. **Justification:** Reasons for urgent need (e.g. low CCE and/or immunisation (Penta3) coverage area, gender barriers, mobile population, etc.); current CCE and immunisation (Penta3) coverage in the population area.
3. **Expected outcome:** Anticipated increase in CCE and immunisation coverage (Penta3); anticipated progress against identified inequity (describe, in alignment with country Performance framework).
4. **Total CCE budget:** includes Gavi and country joint investment share

Prioritised (Additional) CCE Need #1

The need	Vaccine refrigerators to supply in 2019 are 310 units with capacity of 145l. each. The refrigerators are used for replacement of the old equipment with lifetime of more than 10 years and could not continue their functioning.
Justification	Refrigerators that start functioning from 2008 need to be replaced to assure safety and sufficient volume of the cold chain. The refrigerators are also used for areas with refrigerators ruined by natural disasters.
Expected outcome	All old vaccine refrigerators will be replaced by new ones and cold chain equipment at district and province levels will be at good condition for storing EPI vaccines. This will definitely maintain a high vaccination coverage
Total CCE budget	US\$ 735,010

Prioritised (Additional) CCE Need #2

The need	Vaccine refrigerators to supply in 2020 are 290 units with capacity of 145l. each. The refrigerators are used for replacement of the old equipment with lifetime of more than 10 years and could not continue their functioning.
Justification	Refrigerators that start functioning from 2008 need to be replaced to assure safety and sufficient volume of the cold chain. The refrigerators are also used for areas with refrigerators ruined by natural disasters
Expected outcome	All old vaccine refrigerators will be replaced by new ones and cold chain equipment at district and province levels will be at good condition for storing EPI vaccines. This will definitely maintain a high vaccination coverage

Total CCE budget	US\$ 687,590
GRAND TOTAL CCE BUDGET: “Scale-up support” (Years 3, 4)	US\$ 1,422,600

14. Ongoing or planned activities around other supply chain fundamentals in the scale-up support phase

In this section, linkages must be drawn between requested CCE Optimisation Platform support, ongoing Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support.

Describe planned or ongoing activities related to other supply chain fundamentals (see section 3.1 of the CCE Optimisation Platform Guidelines) during the scale-up support phase, including their sources of funding. Responses to this section should be linked to the EVM Improvement Plan.

Supply chain managers

Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.

Capacity building and refresher training are required at all levels of the supply chain⁵. Series of specialized programs are designed to target specific needs:

- Immunization data management
- Equipment inventory management
- Phone and tablet app familiarisation
- SOP’s training, developing, customisation
- Temperature monitoring devices
- Refrigerant gas management
- Refrigeration installation and maintenance
- Management skills
- Waste management practices

Data for supply chain management

Describe all planned or ongoing activities related to data for management, their sources of funding, and partner support. In particular, provide information explaining how improvements to the functionality of logistics management systems will improve the visibility of up-to-date and accurate vaccine stock records at each level of the vaccine supply chain.

Vax Trak is a computerised on-line data management package that has been developed to manage vaccine (and dry goods) stocks at national, regional and Provincial stores in Vietnam. There are plans to expand its use to district stores. The stock management package that is in use provides a register of stocks at locations and alerts when supply levels are critically low. There is a plan to extend the computerised system of data management (stocks and compilation of immunisation results) to these 712 district stores in 2019 and include supply chain equipment in the database by 2020.

Optimised, efficient design of distribution system

Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.

Since the certification of the NRA in 2015, Vietnam is well positioned to include VVM’s on locally produced vials, as this will also open industry opportunity for exports not only of currently produced vaccines but new vaccines currently undergoing clinical trials.

Continuous improvement process

Describe all planned or ongoing activities

EPI activities for strengthening the cold chain system were mentioned in Improvement Plan and

⁵ EVM/cIP 2015

<p><i>related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>Transition Action Plan with support from UNICEF (see EVM Improvement Plan and Vietnam Transition Action Plan 2016-2020).</p>
<p>Temperature monitoring</p> <p><i>Describe how the temperature monitoring system will evolve? Which devices will be used? Furthermore, describe which measures are in place to a) obtain temperature data from the various devices;</i></p> <p><i>b) act following temperature alarms (curative maintenance); and</i></p> <p><i>c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system.</i></p>	<p>Fridge Tags: all vaccine refrigerators should be fitted with 30 DTR continuous temperature monitors and data reported as per the national norms and SOP's. 30 DTRs require replacement after 3 years. The 2015 inventory indicates that 932 Fridge tags supplied in 2015 are installed and a further 764 in stock. In addition 265 Log Tags were supplied in 2014. Vietnam will standardise on 30-DTR devices.</p> <p>Freeze Tags are not systematically used for transporting freeze sensitive vaccines due apparently to a shortage of availability. Stocks will be maintained at province and district stores and included with all cold box and vaccine carrier dispatches. A supply of 15,000 will be procured and distributed.</p> <p>Cold Room/Freezer Room monitoring systems (CMS): in 2017, Vietnam requires 59 WICs and 5 WIFs to store vaccines when Rota is introduced in 2018 and 2 additional cold rooms by 2020.</p> <p>Central Temperature Monitoring Systems are planned for each WIC/WIF to continuously record data and communicate WIC/WIF status to a dashboard. Smart view systems are recommended (WHO/PQS Ref: E006/019)</p>

PART F: BUDGET TEMPLATES

This section details the number of requested equipment items and equivalent budget. A maximum investment amount (and indicative number of equipment items) corresponding to the phased support request will be considered for recommendation of approval by the IRC and subsequent decision by Gavi.

However, in consultation with the Secretariat and in-country partners, the number of equipment items may be modified when the detailed operational plan is developed subsequent to the Platform proposal and the support may vary within the limit of the approved maximum amount.

Budgets must be completed in the embedded budget template, and with reference to the **CCE Optimisation Platform Guidelines, Gavi CCE Optimisation Platform Technology Guide and CCE planning prices and Total Cost of Ownership (TCO) analysis tool.**

15. CCE Optimisation Platform -Budget Template

*To be filled by **ALL** countries after selection of equipment that best suit their CCE needs (e.g. specific model and make).*

Countries will plan with indicative PQS prices and corresponding service bundle estimates (depending on equipment being on/off-grid and estimated costs of service bundle).

Planning price ranges are provided in this template.

See Attached file (16. CCE OP Budget Template)




2017 CCE OP
Budget Template.xls

PART G: PERFORMANCE FRAMEWORK

Countries must include **CCE Optimisation Platform indicators** into the Performance Framework for the current and/or proposed Gavi HSS support, after Platform proposal approval.

According to their specific context, countries are required to consider the most appropriate data sources to report on programme implementation and progress against the targets set. This should be discussed with partners (which may provide technical assistance) and the Gavi Secretariat.

Programmatic reporting updates, as well as targets and indicator updates, will be made as part of the Gavi performance framework and annual Joint Appraisal process. Countries are expected to consider relevant smart indicators to be monitored and reported against, in terms of intermediate results or outcomes/impact.

	<p>Further information on developing relevant indicators, including a list of possible data sources, is provided in Section 7.2 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/</p>
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16. Indicator monitoring and reporting requirements

As a **minimum**, countries need to monitor and report on:

- **3 MANDATORY intermediate results indicators;**
- **1 MANDATORY intermediate result indicators if countries are procuring User independent freeze protected cold boxes and vaccine carriers; and**
- **1 to 3 ADDITIONAL intermediate results indicator(s).**

MANDATORY intermediate results indicators (must include baseline, data source, targets and frequency of reporting):

- 1) Number of equipped facilities replacing CCE with (any) platform-eligible ILR, SDD or long-term passive devices, and irrespective of their funding source;
- 2) Number of facilities previously without equipment, newly equipped with platform-eligible equipment (i.e. ILRs, SDDs or long-term passive devices); and
- 3) Well-defined indicator proposed by country to reflect appropriate maintenance of equipment; for example percentage of equipped facilities with functioning cold chain,⁶ such as demonstrated by remote temperature monitoring.

Provide list of planned mandatory intermediate results indicators:

- 1) Result indicators for rehabilitation: by 2021, >95% of facilities with aged/obsolete CCE have functional equipment
- 2) Result indicators for expansion: by 2021, 100% of facilities previously without CCE are equipped with higher performing equipment
- 3) Result indicator for maintenance: by 2021, duration of average of CCE breakdowns is less than 15 days

The primary data will be produced first by CHC and district EPI unit. The data will be collected with current monitoring forms:

⁶**Indicator definition:** % CCE functioning = (# functioning CCE devices) / (total # of CCE devices designated for use). CCE devices considered for this indicator include all refrigerators, fixed passive storage devices, walk-in cold rooms and freezers designated for string vaccines. Both the numerator and denominator should be collected from the same geographical area / period in time and should not include decommissioned equipment.

<p>4) <i>Ratio of freeze-free cold boxes/carriers to non-freeze-free cold boxes/carriers in-country?</i></p>	<ul style="list-style-type: none"> • Forms at commune level • Forms at district and provincial levels • Facility temperature forms • Cold chain inventory form (part of annual EPI report) • Cold chain maintenance (job cards) <p>The data and primary source documents will be reviewed to ensure the data quality. This will be performed on an annual basis.</p>
<p>ADDITIONAL intermediate results indicator(s): <i>Countries are required to suggest 1 to 3 intermediate results indicators to track performance of rehabilitation, expansion, maintenance and/or other supply chain fundamentals (include baseline, data source, targets and frequency of reporting).</i></p> <p>Examples of additional intermediate results indicators options are:</p> <ol style="list-style-type: none"> 1) <i>Functional status of cold chain equipment: Ratio of functional CCE and ratio of districts with at least 90% functional equipment;</i> 2) <i>Closed vial wastage: Rate at a national, district and facility level;</i> 3) <i>Forecasted demand ratio: Ratio of actual usage compared to forecast (vaccines);</i> 4) <i>Full stock availability: Ratio of facilities/districts without any stock out;</i> <ol style="list-style-type: none"> a. <i>Stocked according to plan: Percentage of facilities/stores/districts that have stocks levels between set minimum and maximum stock levels;</i> 5) <i>Temperature alarms: Frequency and magnitude of heat and cold alarms per monitoring period (i.e., temperature excursion) and number of CCE devices with more than a certain level of temperature excursion;</i> 6) <i>Rate of health facilities dashboard use, timely analysis and use for decision making;</i> 7) <i>On-time and in-full (OTIF) delivery: Ratio of order completely delivered on time; or</i> 8) <i>Number of health managers trained and despatched for supply chain oversight function and rate of reported monitoring activities.</i> 	<ol style="list-style-type: none"> 1. Ratio of functional CCE and ratio of districts with at least 90% functional equipment 2. Full stock availability: ratio of facilities/districts without any stock out

Functionality of CCE is broadly defined to mean that the device is operable at a particular point in time for storing vaccine.