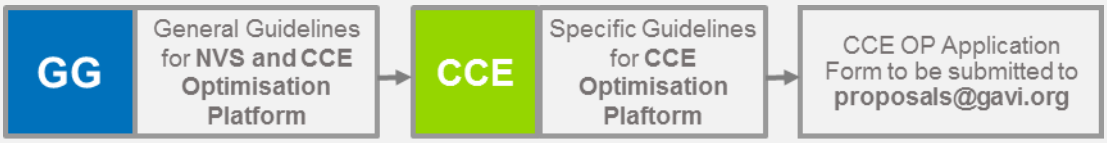
Application Form for
Cold Chain Equipment Optimisation Platform support in May-June 2017 only

Document Dated: April 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:



CCE Application Form

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.

CCE TG

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

Weblinks 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.

Gavi will respect countries' equipment selection. However, countries could also receive their 2nd or 3rd preference based on their selection in the budget.

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PART A: APPLICANT INFORMATION

1. Applicant information	
Country	Myanmar
Date	3rd May 2017
Contact name	Dr. Htar Htar Lin – Deputy Director/ Programme Manager Central Expanded Programme on Immunization (CEPI), Department of Public Health, Ministry of Health and Sports
Email address	dr.htarhtarlin@gmail.com
Phone number	Phone: + (95) 67 431436; Mobile: + (95) 9 730 70447, + (95) 9 428 188 188
Total funding requested from CCE Optimisation Platform **(US $)**	*This should correspond exactly to the budget requested in the embedded template.* *$ 6,580,068 (total budget excluding the joint investment procurement fees)* $ 3,290,034 (GAVI funding) $ 3,290,034 (country joint investment) $ 279,653 (Total Estimated Country Joint Investment Procurement Fees)
Does your country have an approved Gavi HSS support on-going?	**Yes** ☐ No ☐ *Indicate the anticipated **final year** of the HSS: December **2019***
Proposed CCE Optimisation Platform **support start date** *(please be informed the actual start date should be at least 8-10 months from application date):*	*Indicate the month and year of the planned start date of the support, based on the strategic deployment plan:* ***August 2018***
Proposed CCE Optimisation Platform support end date:	*Indicate the month and year of the planned end date of the support, based on the strategic deployment plan:* ***December 2019***
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)*	*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:* **Minister of Health and Sports) (or delegated authority)** Name: Signature: Date: **Minister of Planning and Finance (or delegated authority)** Name: Signature: Date:

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.

2. Mandatory attachments					
No.	**Strategy / Plan / Document**	**Attached Yes/No**	**Final version (dated)**	**Duration**	**Comments**
1	Signature sheet for the Minister of Health and Minister of Finance, or their delegates	Pending			MoHS already signed. MoPF signature awaiting
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal[1]	Yes			
3	National Health Sector Development Plan	Yes	Dec 7 2016	5 years	Included executive summary as well (separate document)
4	cMYP	Yes	2017	5 years	
5	EVM Assessment	Yes	2015		
6	EVM Improvement Plan	Yes	2016	5 years	
7	EVM Annual Workplan **and** Progress Report on EVM Improvement Plan[2]	Yes	April 2017	5 years	
8	WHO CCEI Tool/UNICEF IMT/PATH CCEM Tool/CHAI tool[3,4]	Yes[5]	December 2016		
9	Inventory Report and Facilities segmentation	Yes[6]	December 2016		
10	Single document: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and	Yes	April 2017		

[1] In the case of HSS and CCE Optimisation Platform requests, minutes must reflect that both were discussed and endorsed.
[2] The EVM IP and annual work plan progress report must have been updated within three (3) months before applying for Platform support.
[3] The CCE Inventory must have been updated within no more than one (1) year of applying for Platform support.
[4] Tool should allow reviewers to understand targeting of equipment to locations relative to contribution towards improving coverage and equity of immunisation.

[5] National adaptation and further customization based on WHO CCEI tool.

[6] Inventory report is part of cold chain rehabilitation plan as the separate chapter.

2. Mandatory attachments					
No.	**Strategy / Plan / Document**	**Attached Yes/No**	**Final version (dated)**	**Duration**	**Comments**
	Equity Improvements Chapter 3: Strategic Deployment Plan Chapter 4: Equipment Selection				
11	Maintenance Plan with financing and source(s)	Yes	April 2017		
12	Proof of status for CCE tariff exemptions waiver	Attached[7]			See footnote[8]
13	Terms of Reference for the relevant Coordination Forum (such as ICC) including all sections outlined in Section 5.2 of the General Application Guidelines	Yes			
14	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Yes			
15	Other relevant documents				No HSS report available as HSS-2 has not started yet

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 main goal of the Myanmar National Health Plan 2017-2020 is to extend access to the basic Essential Package of Health Services (EPHS) to the entire population while increasing financial protection. Despite important progress, the health status of the Myanmar population is poor and the under-five mortality rate is 72 deaths per 1,000 live births, the infant mortality rate is 62 per 1,000 live births, and the malnutrition is highly prevalent with more than one third of the children under five years stunted. One of the major Myanmar's health systems challenges is the insufficient availability and distribution of inputs that relies on a solid supply chain system. Indeed, the existing procurement and supply chain arrangements are highly fragmented along vertical programs and funding sources. This is why Myanmar recently took the following two measures: (1) established a National Supply Chain Task Force (NSCTF) to provide coordination and leadership for the public sector supply chain system, and (2) developed a MoHS 2015-2020 National Health Supply Chain Strategy for Medicines, Medical Supplies, and Equipment. Likewise, the 2017-2021 CMYP aims "*to strengthen immunization supply chain, vaccine management and build a stronger cold chain system*

[7] Generic MOU between government and UN.

[8] In Myanmar context, there is no generic tariff exemption certificate as for each shipment. A separate exemption certificate is required. Attached a generic MOU between UN and government that exempts supply for UN from tax. In CCEOP case, the consignee is government therefore separate exemption certificate should be applied when anticipating shipment.

at all levels". The CCEOP proposal is aligned with the national health and immunization strategies and the Sustainable Development Goals to achieve universal health coverage by 2030.

Cold chain situation: There are 831 cold chain points with at least one refrigerator: 1 national store, 21 sub-national depots, 330 township depots, and 479 (21% of a total of 2300) services delivery points. Myanmar has 3182 refrigeration units including 14 cold rooms and 13 walk-in-freezers. Of those 2278 (71%) are PQS qualified equipment. 76% of the total refrigerator strength are functional in the country and 4% are awaiting installation. 1304 (41%) refrigerators and freezers are more than 10 years old.

Effective vaccine management and cold chain capacity: as new vaccines are introduced, the country will need additional storage capacity for vaccines and dry goods. The volume required for current immunization schedule at service delivery level is 104.3cm3 including diluents. The volume required with inclusion of all new vaccine (rota and HPV)will be 152.3 cm^3 at township level, 146.5 cm^3 at national and sub depot level and 176.3 cm^3 at service delivery level.

2016 EVM cIP: there are large numbers of non-functional cold chain equipment at stores, which either cannot be repaired, or in some cases use CFC refrigerant. This equipment should be disposed on in an environmental friendly manner and removed from inventory. Flooding in 2015 also damaged cold chain equipment in 6 regions. In accordance with the continuous improvement plan, the CCEOP will enable Myanmar rehabilitating, expanding, and extending the CCE urgent and scale up needs as per the following:

Urgent needs in 2018: 72 VLS 400 A Greenline, 71 VLS 200 A Greenline, 15 TCW 2043 SDD, 397 TCW 40 SDD, and 100 Coldtrace5	**Scale Up needs in 2019**: 33 VLS 400 A Greenline, 100 Long term passive devices, 2,696 Cold boxes, 11,500 Vaccine carriers, 1,100 Coldtrace5

Strategic deployment and maintenance: The Myanmar deployment plan maps the cold chain equipment requirements for urgent need and scale up and maps the rehabilitation plan and expansion plan sorted by the locations and year of deployment. This plan shows which equipment model will go to which site at which year, In summary, the CCEOP will enable Myanmar deploying 587 refrigerators as per the following:

CCEOP	Replacement/rehabilitation		Expansion		Extension	
	Equipment	Sites	Equipment	Sites	Equipment	Sites
Initial phase (2018)			271	247	284	284
Scale up phase (2019)			32	32		

The preventive and corrective maintenance is largely outsourced and plans are made to improve health workforce capacity.

Other supply chain fundamentals: the CCEOP will complement GAVI SC fundamentals funded by the domestic budget, HSS (GAVI), bilateral and multilateral cooperation (3MDG Project, UNICEF), and NGOs. First, the CCEOP will enable forming 284 additional Cold chain points to reach coverage and equity objectives, Secondly, the planned activities are part of the EVM continuous IP, with equity

focus to increase the Fully Immunized Child (FIC) and Penta-3 coverage in hard to reach and low performing areas.

Budget and joint investment: The total funding requested from CCEOP is $US 6,580,068 over a period of 16 months, with a 50% joint-investment coming from the GAVI HSS-2 budget.

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

Does the country have a permanent and functioning National Logistics Working Group (NWLG)? 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.

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 1 page)*

Following the EVMA in 2015 and development IP, it was recommended that the country needs to strengthen the cold chain capacity. The decision to apply for CCEOP application was taken in the ICC meeting (14/02/2017). UNICEF initiated the process of recruiting number of consultants (1 international, 3 national) to support government national EPII program in the implementation of EVMIP and LMIS especially the web-based Cold Chain MIS components in the 3rd quarter of 2016. The EVM implementation team prepared the cold chain gap analysis and cold chain rehabilitation plan in a series of consultation with partners, MOHS (Ministry of Health and Sports) and CCKPs (Cold Chain Key Person at sub depot and township levels). The cold chain inventory serves as a foundation for rehabilitation plan and the inventory is updated twice annually. The CCEOP proposal uses the last updated inventory as on December 2016.

The cold chain gap analysis and rehabilitation plan was endorsed by CEPI (Central Expanded Programme of Immunization). The cold chain expansion plan was prepared through consultative workshop inviting the focal persons from 17 States and Regions. The expansion plan was based on the EVMIP recommendation of expanding the immunization services and cold chain points to improve the overall coverage.

The CCEOP proposal was prepared under the leadership of CEPI with technical support from

UNICEF in consultation with partners using the cold chain rehabilitation plan and expansion plan.

Myanmar conducted a workshop in 2014 to establish the national supply chain task force (NTF). The terms and references of NTF is:

- Provide a forum that will ensure sustained networking among major country stakeholders on supply chain issues
- Participate in the development of supply chain policies, strategies, guidelines, and action plans
- Advise the Ministry of Health, donors and development partners on supply chain issues
- Provide technical guidance to the Ministry of Health on the implementation of one national integrated supply chain
- Assist the Ministry of Health with information sharing and coordination of supply chain technical assistance and other supply chain activities
- Review proposals, work plans and scopes of work for supply chain activities and providing comments to the Ministry of Health and development partners
- Participate in periodic review meetings on supply chain and other program monitoring activities.
- Advice from the committee is in the form of recommendations. The NTF is encouraged to reach consensus in providing advice, whenever possible. When consensus is not possible, the meeting record will reflect the diversity of opinions. The NTF will not provide recommendations unless a quorum is present. The quorum for the NTF is determined to be three members which must include the Chair or Co-chairs and the GHSC- psm Representative.

The task force has 14 member groups chaired alternatively (annually) by Deputy Director General from public health and medical service. The NTF at the minimum meets every 3 months on a regular basis.

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:

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

Immunization supply chain administration: The immunization program responsibility lies with the Department of Public Health within the Ministry of Health and Sports. Since 2015, after the split of department of health into two departments of Department of Public Health and Department of Medical Services, the central medical store department (CMSD) is reporting and providing support largely to the Department of Medical Services with minimum support to department of public health (DoPH).The DoPH established the Procurement and Supply division which however currently has around 12 staff members at national level out of the 97 approved posts (remaining are vacancies). At regional level, no staff has been assigned. The supply system is currently fragmented supported by various partners including the global fund. UNICEF continues to provide support to MOHS in vaccines and cold chain forecasting, procurement, shipment clearance, storage and distribution for traditional and GAVI supported vaccines. MOHS is planning to strengthen the health supply chain system through the

creation of a new supply chain unit within the MOHS. However this strategy remains unfunded.

Myanmar has four tier immunization supply chain, with all shipments arriving at national store (Known as CCR-Central Cold room) based in Yangon. The national store receives the shipment of each vaccine three to four times a year and has a safety stock policy of two months. The vaccine is then sent to 22 sub depots, every two months. The sub depot has a safety stock policy of one month. Vaccines and supplies are then sent to lowest distribution point (Township – 330 Township hospitals), some places on monthly basis but largely every two months. Most of the service delivery level pick vaccine directly from township on need basis for the fixed and outreach sessions with exceptions of 479 service delivery points where there is a cold chain refrigerator to facilitate supply to sub centres and nearby service delivery levels. In total country has 11,637 service delivery points of which 1738 are main health centres (Rural Health centres), 725 station hospitals, 87 urban health centres, 384 MCH (Maternal and Child health centres) and about 9000 sub centres.

Level	Equvallant level in country	Vaccine supply interval (in months)	Safety stock (in months)
PR	CCR (Central cold room)	4	2
SN	SD (Sub depot)	2	1
LD	TH (Township)	2	1
SD	RHC, MCH, SRHC, Hospital, THC, SH	1	1

Type of Health Facility	Total Number	Total with Cold Chain Points
Hospital		2
Station Hospitals	725	223
Township Hospitals	330	330
UHC	87	0
MCH	384	1
RHC	1,738	250
Sub-centres	9,000	4
Total	11,637	810

Myanmar conducted a second round of the comprehensive Effective Vaccine Management (cEVM) assessment in year 2015 with the first round in 2011. The second round of EVM assessment saw an overall improvement of 9% between 2011 and 2015.

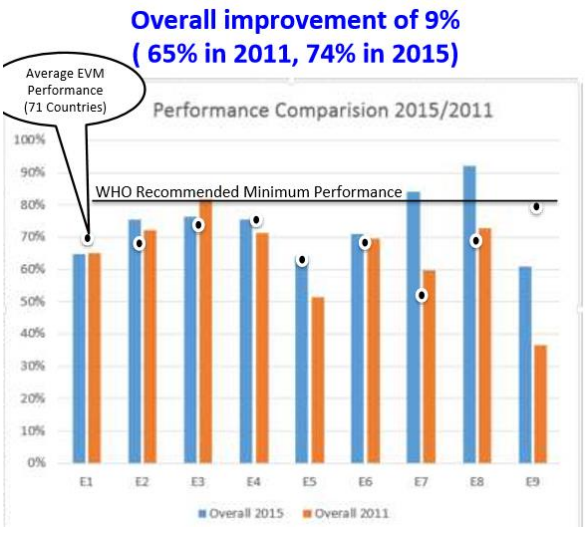
Weaknesses of immunization supply chain:

The key weaknesses/risks identified by EVM assessment of 2015 are:

- The potential financial and reputational risk from damage to large quantities of vaccines at the central store and regional store (Mandalay and Magway), since vaccine storage temperatures are not monitored continuously.

- The somewhat modest uptake of recommendations from several studies performed during the period 2012-2014 including implementation of recommendations from the 2011 EVM assessment.

- The notable decrease in DTP3 coverage and dropout rate since 2010.



- Recommendations to introduce SOP's and contingency plans have not been adopted

- A temperature monitoring study was conducted, but results from the study were not implemented

- A cold room mapping study was conducted but cold rooms installed subsequently are not mapped

- Monitoring of unopened vial wastage and including wastage data in forecasts appears not to have progressed further since 2011

- Guidance on disposal of immunisation waste has been established, but good waste disposal practices are not always observed.

Following measures have already been taken in the last two years to address these shortcomings:

- UNICEF has procured 1200 refrigerators (both electric and solar) based on EVM findings and replacement of obsolete units. This CCEOP application is focused on replacing Non PQS equipment and vision 2021 population storage volume needs and introduction of JE, Rota and HPV vaccine into routine immunization program.

- Continuous remote temperature monitoring of cold rooms at national and sub national (sub depots) have already been installed and are currently being monitored by national CCR staff, sub depot staff, CEPI and UNICEF.

- Mapping of cold room has been initiated with cold rooms at national stores already mapped and certified. Mapping of sub depot cold rooms is planned for 2017 second half.

- As an important measure for protection of vaccine from freezing, Myanmar is proposing replacing the cold boxes and vaccine carriers up to RHC level by 2019 utilizing the opportunity of CCEOP application.

- Capacity building of cold chain key persons has been done at central level in 2016 and the subsequent training of cold chain key persons at Sub-depot and townships level are being conducted in the second quarter of 2017.

The EVM assessment findings conclude that six key operational measures are required to ensure the continuous availability and quality of vaccines and to enhance system efficiency. These measures centre on:

- Program physical and operational expansion to accommodate new vaccines. The number of vaccine doses/FIC will increase from 12 to 21/FIC by 2018, and vaccine volumes will increase by around 300% at Central and Sub-Depot storage facilities. Waste volumes will almost double to 1.15 litre/FIC. (1,115 cc/FIC). [**Recent cold chain gap analysis done in 2017 shows that the FIC volume per child rises from 77.7cm3 to 146.5cm3 with introduction of JE, Rota and HPV vaccine into routine immunization program. The CCEOP application takes into consideration these changes and request CCEOP platform to address the capacity gaps needs.]**

- End-to-End quality assurance of vaccines through considerably improved temperature monitoring and management during both storage and transport. **[The RTM central temperature monitoring system has already been installed at all the cold room locations. The country is already using fridge-tag (30 DTR) for temperature monitoring**

of refrigerators and moving in the direction of RTM based temperature monitoring for performance based maintenance program and monitoring of refrigerators.]

- A review of the present strategy of one contact/month and associated lack of active vaccine storage devices at service delivery locations and absence of MDVP**. [Myanmar is now proposing the extension of immunization services to additional 284 service points with cold chain refrigerator to improve the number of immunization services contacts. Cold chain refrigerators for these 284 points have been included in this application. The selection of the strategic additional cold chain points has been done through a consultative workshop in March 2017.]**

- Capacity building to update the generally sound knowledge base and train newcomers. Training will need to provide MLM, ToT in ISCL and VM. Training for the introduction of new vaccines should include where possible training in ISCL practices. **[a series of training programs have been planned through EVM IP for 2018-2021, see the EVMIP work plan and separate sheet on capacity building]**

- The progressive conversion of the current manual data management system into an electronic system which will provide EPI management with a tool for day to day program management and monitoring of vaccines stocks, movements and vaccine storage quality. **[UNICEF along with implementing partners of CHAI and WHO have been collaboratively working on web based immunization data reporting tool and cold chain web based MIS. The tool is currently under development and will be implemented in a phased manner including piloting of the system. The web based cold chain MIS (multi login) will be linked to RTM progressively for real time maintenance tracking and updates and an android based application which allows users to update the cold chain inventory on a real-time basis].**

- Management support for oversight of the implementation of EVM improvements. The tracking of EVM IP implementation has been done on periodic basis in consultative manner. The next updated report on EVM IP implementation update is due in May 2017. The key major challenges hindering the progress in accelerating the implementation EVM improvement includes inadequate human resources in terms of numbers and skills. Most of the Townships do not have designated cold chain key persons (CCKPs), in addition the current CCKP have not been thoroughly trained making it difficult to take leadership role in the implementation of EVM improvement plan. Another challenge is related to availability of adequate funds to support implementation of planned activities.

Access to grid electricity: Myanmar has been facing challenges regarding electricity availability. The national grid is available at 382 out of 832 cold chain points in the country (45%) of which 40% of sites (319 cold chain points) have electricity more than 8 hours a day. This is the reason why the country has been investing in solar refrigerators. Of 3180 units of refrigerators (including cold rooms), there are 327 (10%) solar direct drives and 560 (17%) battery based solar refrigerators. Though a large

number of sites (55%) do not have national grid, some have alternate source of electricity (local hydro station, generator and other sources.) These alternate sources of electricity are often not reliable. The CCEOP application requests the new equipment based on national grid availability only and requests solar refrigerator in case the supply from national grid is less than 8 hours a day.

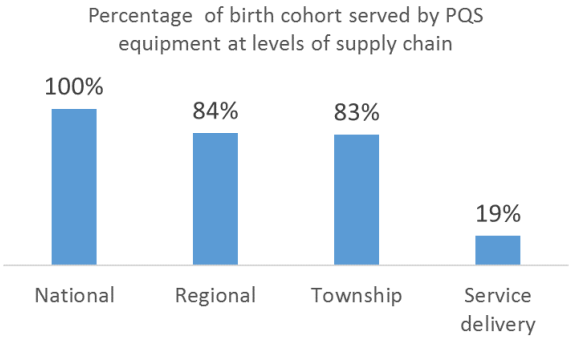
Quantity and percentage of current CCE that is: a) functional; b) PQS-approved; c) non-PQS-approved; and/or d) obsolete

Type of equipment	Total units in country	Total equipment		
		Functional	Non functional	Not installed
Walk in Coolers - WIC	14	12		2
Walk in Freezers - WIF	13	11		2
PQS qualified	**2278**	**1867**	**228**	**136**
Solar	537	377	90	69
Freezer	765	684	21	39
Ice lined refrigerator	972	802	117	28
Refrigerator	4	4		
Non PQS	**877**	**513**	**364**	
Solar	346	227	119	
Freezer	72	29	43	
Ice lined refrigerator	217	109	108	
Ice pack freezer	201	129	72	
Domestic refrigerator	41	19	22	
Total	**3182**	**2403**	**592**	**140**
%		76%	19%	4%

Myanmar has total of 3182 refrigeration units including 14 cold rooms and 13 walk-in-freezers. Of those 2278 (71%) are PQS qualified equipment. 76% of the total refrigerator strength are functional in the country and 4% are awaiting installation. 1304 (41%) refrigerators and freezers are more than 10 years old. However, due to a procurement wave in the last 5 years, especially after 2015 EVM assessment, 46% of the total units are now less than 5 years old.

Birth cohort served by effectively functioning, PQS-approved CCE:

The PQS equipment serves an average of 72% of birth cohort in the country. This is better understood looking at the birth cohort served by PQS equipment at each supply chain level. The national store is equipped with PQS qualified cold rooms and freezer rooms. At the sub-national (regional store, sub depot) 84% of the sites are supported by PQS equipment, at township level 83% of sites are equipped with PQS whereas only 19% of service delivery have PQS equipment. Please note that the supply chain levels that are counted as sites served with PQS equipment may also have non PQS equipment, which is in process of being phased out.



Bottlenecks that CCE can address in the current supply chain set-up: As seen from above, CCEOP application can address the needs of cold chain equipment in the country to fulfil cold chain capacity gaps and replace non PQS equipment which has really been a bottleneck in terms of managing cold chain. The maintenance costs are as high as $400 per unit per year and with this investment including investment for RTM, the maintenance costs are expected to come down as well as increased confidence in cold chain temperature maintenance.

Other supply chain challenges that CCEOP support will assist in mitigating: Myanmar is in a transit phase to adopt chilled water pack policy to be used for transportation of vaccine between supply chain levels. The adoption of policy has been very slow and health workers are often nervous using chilled water packs anticipating damages due to heat exposures during transit. The use of ice packs is still widely prevailing in the country. Myanmar is proposing to use freeze protected cold boxes and vaccine carriers which will help addressing the bottleneck of exposure of vaccine to freezing during transportation. Another important intervention of using remote temperature monitoring for tracking the cold chain performance will help substantially in need based interventions of maintenance teams for corrective maintenance and triggering health workers at cold chain points for preventive maintenance.

Overall TA needs

Based on EVM improvement plan, the country needs following technical assistance: 1) Support MOHS in procurement of outsource services 2) TA in development of contingency plan 3) EVM secretariat providing dedicated support to EVM management for timely implementation of EVMIP 4) TA in conducting waste management assessment 5) TA for EVM assessment for 2018. 6) Monitoring and tracking of EVMIP. 7) Improve the capacity of DOPH and CEPI in providing continuous learning opportunities in immunization service delivery and vaccine management 8) Strengthen capacity of CEPI and state township level in data management 9) Strengthen capacity of CEPI and state township level in data quality survey 10) Development of standard operating procedures 11) Improve the capacity in planning implementation and monitoring of pilot projects and initiative towards health care waste management.

Overall cold chain needs

Referring to cold chain rehabilitation plan, part of the overall cold chain needs is addressed by CCEOP application. Table below summarizes the cold chain needs that are proposed under CCEOP platform. In addition to this, country needs five 40m3 cold rooms, eight 20 m3 cold rooms and respective spare parts. The overall budget including the proposed budget in CCEOP ($6,580,068) amounts to ($ 10,461,382). Additionally, the EVM IP budgeted in 2016 (2017-2021) was of 43 million USD, this included the rehabilitation costs which is similar in line with rehabilitation costs derived after expansion and cold chain gap analysis. The HSS proposal in year 2017-2019 and CMPY 2017-2021 was built largely on EVM-IP for immunization supply chain, cold chain and logistics part.

	Cost per unit	Bundling cost	Total cost per unit	Units under expansion	Units under rehabilitation	Total units	Total cost
Refrigerator units							
VLS 400 A Greenline	$ 1,180	$ 1,000	$ 2,180		104	104	$ 226,766
VLS 200 A Greenline	$ 818	$ 1,000	$ 1,818	49	22	71	$ 129,047
TCW2043 SDD	$ 8,811	$ 1,500	$ 10,311		15	15	$ 154,660
TCW 40 SDD	$ 5,701	$ 1,500	$ 7,201	235	162	397	$ 2,858,924
Remote temperature monitoring devices							
Coldtrace5	$ 231	$ -	$ 231			1200	$ 277,200
Freeze protected cold boxes and vaccine carriers							
Cold boxes	$ 400	$ -	$ 400		2696	2696	$ 1,078,400
Vaccine carriers	$ 60	$ -	$ 60		11500	11500	$ 690,000
Long term passive devices	$ 2,393	$ 650	$ 3,043			100	$ 304,300
Spare parts for refigerator units (estimate of 15% of unit cost)							
Spare parts for solar and electric refrigerators							$ 410,900
Voltage regulators							
Voltage regulators for platform electric units + 10% buffer			$ 100			194	$ 19,400
Total budget for equipment							**$ 6,149,596**
Additional 7% for freight costs							$ 430,472
Net CCEOP proposal budget							**$ 6,580,068**

The specific needs covered under CCEOP application are:

Refrigerators: based on cold chain gaps analysis (considering operational capacity[9] of PQS, functional and less than 10 years of age equipment only) and expansion plan country needs a total of 587 refrigerators (303 for rehabilitation and 284 for expansion)

Remote temperature monitoring devices: The country has included 1200 remote temperature monitoring devices in proposal. There are total of 831 cold chain points, plus 284 sites under expansion. The country has proposed one RTM per cold chain point (RTM (coldtrace5) can monitor up to 5 refrigerator units at a time) plus a buffer of 86 units to cover the sites that have more than 5 units at a location. The operational costs of RTM (network data costs, training costs and TA to manage the RTM installations and data management are included in rehabilitation plan with funds to be covered from HSS funds. See details of RTM's implementation in rehabilitation plan (equipment selection chapter).

Freeze protected cold boxes and vaccine carriers: As mentioned earlier, the country desperately needs investing in freeze protected cold boxes and vaccine carriers for maintaining quality of vaccine. This include testing of long hold term passive devices aim to test 100 units proposed under this proposal at hard to reach areas but only those where ice availability is not a problem. The country might expand these cold boxes to other service delivery level upon a successful testing of these 100 units. Myanmar is requesting a total of 2696 cold boxes. This is based on following requirement:

- 3 cold boxes for every sub depot (in total 66 cold boxes for sub depot). This is for contingency storage of vaccines in case of refrigerator failure.

- 1 cold box per township (in total 330 cold boxes for townships). This is for contingency storage and transportation.

[9] The definition of operational capacity is considering the PQS, less than 10 years old and functional units as true operational capacity. The cold chain point may have additional units but these are automatically considered removed after the gap analysis was done and additional units are procured based on the gaps.

- 1 cold box per health centre (in total 2300 cold boxes). This is for contingency storage and transportation.

Myanmar is requesting a total of 11500 vaccine carriers. This is based on the number of approximate sub centres in the country (2300 health centres * 5 average sub centre per health centre).

Spare parts for refrigerators: As a national policy country will procure spare parts of all new refrigerators proposed under CCEOP application. The cost of spare part is estimated @15% of equipment cost based on experience of costing in EVM IP. The spare parts requirement for CCEOP application equipment are included in proposal. The spare for existing equipment is estimated annually and will be procured separately through different funding sources.

Voltage regulators: As a national policy, all electric refrigerators proposed under CCEOP application need voltage regulator to prevent damage due to voltage fluctuations.

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):*
   - *Geographically remote districts or those with low coverage*
   - *Poorer communities (e.g. in the poorest 10% of the population)*
   - *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?*

More than 80% of immunization services are provided through outreach. There is a few housing facility for midwives to stay at RHC & SCs. There is inadequate number of outreach services in hard to reach, conflict and peri urban areas. The micro plan does not always cover poor, migratory population and are developed without participation of community (cMYP and EPI evaluation 2014). The limited access to immunisation services is compounded by limited number of facilities equipped with cold chain services (<22% according to EPI data). Rural health centers have only grown 15% during the period 1988 to 2012 (there are only 1,738 RHCs when the national requirement is 3,000

facilities based on the recommended allocation of 20,000 population per RHC). As mentioned in the description of the health sector, out of more than 21,000 trained midwives only 12,000 have been appointed resulting in work overload often limiting their availability to provide immunisation services beyond a day or two a month through outreach. This set up has increased the wastage given that vaccines are only able to be kept in the cold chain for a few days. Vaccine product related waste disposal was also reported to be a problem.

According to various reports from the Ministry of Health and Sports, it has been documented that Myanmar still has pockets of low immunization coverage in border areas, physically hard-to-reach areas, in urban slums and among migrant communities. The National EPI Programme Review attributes the low coverage to the limited opportunities for vaccination among these communities (National EPI evaluation 2016). In these communities, opportunities for immunization are lost due to the present one contact/month strategy and associated lack of active vaccine storage devices at fixed service delivery points (RHCs). Some recommendations for ways to improve coverage are the following: 1) extend the present 3 tier cold chain to a 4 tier chain in certain geographic or hard to reach areas, direct supply of vaccines from Sub-depots to RHCs rather than storage at Townships in certain zones/regions (refer cMYP 2017-2021 page 17).

In addition it has been documented that the decline in the immunization coverage is due to the following: 1) Inequities in immunization coverage for children in areas affected by conflicts, geographically hard to reach areas, among peri-urban populations, and self-administered regions; 2) lack of adequate resources and support for transport for midwives for outreach and supervisors; 3) lack of cold chain at the RHC level, even in hard-to-reach areas; and 4) need for additional cold chain storage and vaccine management skills.

Improving the availability of cold chain infrastructure and supply chain management systems is also an aim of the cMYP. Specifically the objective is to strengthen immunisation supply chain, vaccine management and build resilient cold chain systems at all levels.

a) Scaling up cold chain in hard to reach areas and also in urban areas including hospital will contribute in increasing the number of immunisation sessions and hence contribute in decreasing drop-out rates.
b) Safety of vaccines guaranteed, as vaccine will be kept in refrigerators compared to current practices where vaccines are kept in passive equipment (vaccine carriers and cold boxes) for more than 3-5 days.

With improved access to cold chain infrastructure where previously there was none, will effectively expand fixed sites able to provide immunisation services contributing to higher coverage rates. The selected RHC or SC in the prioritized Townships will be equipped with cold chain equipment especially solar in areas where basic health staff need to travel a long distance (for more than 2 days)

to collect vaccines. This will ensure that vaccines are available whenever needed especially during the rainy season where access is always a challenge.

Shifting gradually from vaccinating children and pregnant women in outreach services to offering routine immunisation in fixed sites in an integrated programmatic package with MCH and other essential health interventions. This will sustain and increase access to immunisation and will also result in frequent immunisation opportunities. Increased coverage is expected by addressing specific populations in different settings such as urban/peri-urban, mobile/migrant workers and physically and geographically hard to reach areas. The provision of EPI services through fixed posts at hospitals, MCH clinics and urban health centres (UHC) and through outreach services will reach the unreached children.

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?

Cold chain equipment in the country has been maintained (curative) through outsourcing mechanism in the country in addition to some cold chain sites which are managed by “Government engineers”. UNICEF funds and manages the outsourcing of maintenance of cold chain equipment including cold rooms. The outsourcing is done through companies called “Ngwe Kyar Yan Co. Ltd.”, “Theint Theint Aung Co. Ltd.” and “Mega Co Ltd.”. The outsourcing companies provided “cold chain technicians” are responsible for a geographical coverage of cold chain points. The current maintenance mechanism works on following agreements with the company:

- Each technician must visit every cold chain point twice a year for curative and preventive maintenance. During his visit, the technician validates that the equipment is functioning properly and any intervention is undertaken if required.

- During their visit to the site, the technician checks the status of preventive maintenance of equipment and carries out any necessary preventive maintenance that has been skipped/missed by cold chain handler on site

- Through their company the technician requests UNICEF/CEPI focal person if intervention needs any spare part. Spare parts are normally stocked at sub depot (regional stores) and upon approval these are issued to technicians to carry out intervention. Technician makes additional visit if needed.

- Technician updates the inventory of cold chain equipment after every visit and bi-annually this gets updated at national level. Cold chain inventory is primarily being managed by UNICEF currently but plans are that from 2018 onwards this responsibility will be handed over to CEPI

- Technician updates the database of interventions on cold chain points and each maintenance company produces quarterly reports on cold chain maintenance status.

Myanmar is in a transit phase of moving away from current arrangement to a more focused approach. While the current approach works very well from output point of view the costs of maintenance is as high as $400 per refrigerator per year. The country plans to improve the maintenance cost through improved information management system. To achieve this, country is engaging in following two activities:

- Development of national web based cold chain MIS as an integral part of eLMIS which covers immunization coverage reporting system. UNICEF, along with CHAI and WHO are working together on the CCMIS component. The MIS will have an android based application extension which gets installed on the mobile phones of health workers at all cold chain points. The health workers can raise series of requests and indicate problems with their equipment for further diagnosis by maintenance team. The information will then be channelled to maintenance company technician who either does remote intervention and if needed visits the site for curative action. The health workers will also be able to update the cold chain inventory directly from their mobile phones.

- The country is proposing the introduction of RTM for performance monitoring of cold chain equipment. The RTMs for every cold chain point that has been proposed through this CCEOP application, will serve as the information, diagnostic tool for technician and national officers. Each technician will be trained in installation of RTM and its use. Each CCKP will be given login with access to all the cold chain points installation within their own area of responsibility. They will track the performance of equipment online and at times might be able to detect a potential problem in future just by looking at for example ,the temperature profile of equipment and take curative actions on time.

- Country plans to introduce standard operating procedures for preventive maintenance of cold chain equipment including new models of refrigerators, cold boxes and vaccine carriers. These SOPs will be integral part of training to health workers. In line with EVM requirement, SOP will follow with maintenance schedules, standardized templates for recording and reporting of preventive maintenance of equipment.

- The country will introduce few important policies to guide, monitor and enforce the

improvements in cold chain functionality and accountability of maintenance teams. Some of the important policies that the country will enforce are:

- Reporting time policy: The reporting time for cold chain equipment failure should be 24 hours from time of failure. Any delay in reporting through the application or by other means should be considered a failure at the health worker's end.
- Response time policy: The response time policy should indicate that equipment should be attended within 15 days of reporting. Stringent action should be taken against the maintenance team for any delay in attending to the cold chain equipment diagnosis or repair.
- The downtime policy: The downtime policy indicates that the equipment should be repaired within 30 days of reporting the failure or declared as non-repairable by the maintenance team
- Sickness rate policy: The sickness rate of cold chain equipment policy indicates maximum rate of non-functional equipment at any given point of time should not exceed 10% of total inventory. This is applicable for both national and state levels.

- The country plans to introduce two key indicators for monitoring performance of cold chain equipment and effectiveness of maintenance plan. These are:
  - % of equipment, non-functional at any given point of time (sickness rate)
  - % of equipment failures per year
- With these 2 indicators country can track the performance of various models in the country and finalize the procurement in future and can track the performance of cold chain maintenance team and take future course of action

Myanmar is currently spending an estimated $675,886 per annum on cold chain maintenance country wide. With the revised strategies and including the new CCEOP equipment plus additional 13 cold rooms the revised maintenance costs will be expected to go down to $480,340 per annum. These costs will partially be covered through HSS funds except for government technician salaries and travel costs which amounts to $10,000 per year.

Myanmar currently has only 5 regional cold chain technicians recruited by government. The outsourcing companies are engaged to cover the regions not covered by government technicians. The country will review the status of HR recruitment by 2018 and will revise the maintenance strategy for 2019 onwards (to continue with outsourcing or in-house management). The funding for outsourcing has been secured till 2019.

The country plans to form a committee at state level with members from MOHS, CEPI, one partner organization and outsourced maintenance company to take a call and methods on disposal of obsolete and non-functioning units. The committee will approve the auction of these equipment at state level with special care of retrieving the refrigerant from units when these are further taken for

condemnation.

8. 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.*

All the supplies for immunization programme (UN Donation or Procurement services) are handled by UNICEF supply section based in Yangon. Following section (Custom Clearing Process) explains the complexity of receiving and clearing the supplies from Custom in the country. UNICEF program section will work together in harmony with UNICEF supply section, UNICEF Supply Division and CEPI within Ministry of Health and Sports.

The budget for procurement of refrigerators and cold boxes in HSS-2 amounted to 4.8 million USD. The country will use this budget to co-fund the country share of CCEOP proposal. Additionally, there is a budget of 15 million USD for other supply chain activities in HSS-2. Country will use this fund for implementing rehabilitation plan.

UNICEF has an MOU with Ministry of Health and Sports that states the tax exemption for all supplies arriving in the country for either direct use by the UN or donation of UN to government. However, for everything else, for every shipment, a separate tax exemption certificate is required which is obtained by UNICEF Supply section when the shipment details are known. Therefore, no generic tax exemption certificate is available. For more information, please refer to deployment plan in mandatory document #8 and #9

PART D: INITIAL SUPPORT PHASE

This **initial support phase** (through years 1 and 2) is designed to address urgent CCE needs contributing to improvements in coverage and equity, to protect vaccine stocks, complement investments in other supply chain 'fundamentals' and contribute to full scale-up of optimised, sustainable supply chains.

☆	Budgets are **not inclusive** of operational cost. Operational costs must be financed by Ministry of Health or other partners.

CCE	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/

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

Prioritised (Urgent) CCE Need #1	
The need	Create cold chain point by providing a refrigerator to health centres that are hard to reach and/or poor immunization coverage rates to improve number and quality of vaccinations (284 service delivery points for consideration) under expansion plan. The requirement is 284 TCW 40 SDD refrigerators.
Justification	The creation of these additional cold chain point will serve 7% of total population of country plus act as a vaccine supply hub to neighbouring service delivery points including sub centres, hospitals. This will substantially increase the opportunities of contact with child from one or no contact per month to maximum of four contacts per month (weekly sessions).
Expected outcome	Improved fully immunized child coverage at low coverage areas and reaching every child at hard to reach areas (equity issue) with new and under-utilized

	vaccines
Total CCE budget	$ 1,906,067
Prioritised (Urgent) CCE Need #2	
The need	Provide cold chain equipment as a part of rehabilitation to all the cold chain points where there is shortage of operational PQS quality storage capacity for introduction of Rotavirus vaccine due in 2018. The requirement is 72 VLS 400 A Greenline, 22 VLS 200 A Greenline, 15 TCW 2043 SDD and 162 TCW 40 SDD. In addition to this, pilot test the 100 units of remote temperature monitoring devices to track the performance of cold chain equipment and link it to maintenance program which has been outsourced in the country. Procure voltage stabilizers for electric units and spare parts for refrigeration units
Justification	Additional equipment needed to fill the cold chain gaps
Expected outcome	Sufficient cold chain capacity with PQS qualified equipment ready for introduction of all new planned vaccine in immunization program
Total CCE budget	$ 1,624,529
Prioritised (Urgent) CCE Need #3	
The need	A) 100 units of RTM coldtrace5 for pilot testing B) Spare parts for equipment under CCE need#1 and #2 C) Voltage regulators for electric units under CCE need#1 and #2
Justification	Pilot testing of RTM and learn lessons and steps needed to be used in full scale in scale up phase for tracking equipment performance and performance based curative maintenance; Spares parts and voltage regulators as national policy
Expected outcome	Country experience on implementing RTMs
Total CCE budget	$ 449,073
Prioritised (Urgent) CCE Need #4	
The need	
Justification	
Expected outcome	
Total CCE budget	
GRAND TOTAL CCE BUDGET:	**$ 3,979,668**

Initial support (Years 1 and 2)	

10. Summary of INITIAL SUPPORT PHASE replacement/rehabilitation, expansion and extension plan

All countries must fill this section to highlight the number of equipment and corresponding number of sites these equipment will serve to meet their replacement/rehabilitation, expansion and extension targets. See Section 6.2 of the CCE optimisation Platform Guidelines for the definitions of replacement/rehabilitation, expansion and extension. The values entered below must align with those in Section 9 above and in other parts of the application form.

Replacement/Rehabilitation				**Expansion**		**Extension**	
Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Existing sites with (non)functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
No of Equipment	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*
				VLS 400A Greenline : 72	63	*TCW 40 SDD :* 284	284
				VLS 200A Greenline : 22	20		
				TCW 2043 SDD : 15	7		
				TCW 40 SDD : 162	157		
Total	***Total***	***Total***	***Total***	**271**	**247**	**284**	**284**

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.*	
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.*	Expansion of physical infrastructure for both vaccines and dry stores at national and sub national levels. The cold chain capacity of national and sub national stores to be increased to accommodate Rota and HPV vaccines to routine immunization program. All facilities are equipped with fire extinguishers. Conduct a waste management assessment. Series of training programs as planned in EVMIP to strengthen the capacity of CEPI, states and regions in data management, vaccine management and data quality surveys.
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.*	Migration to computerized EPI data management system including the real time monitoring of stock movements, real time temperature monitoring (RTM and central temperature monitoring system for cold rooms), linkages of vaccine supply reports to immunization reports and interface with national LMIS (developed by UNICEF and CHAI). Web-based cold chain MIS linked to national LMIS using android based application extension for end user interface for updating the cold chain MIS and need based maintenance intervention.

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.*	Explore and test the outsourced services for transport and distribution for EPI supply. The redesign of distribution system is budgeted at approximately 6.7 million USD for 5 years and approximately 15% is expected to be funded from government and remaining from HSS-2. This includes improvements of cold chain capacity of technicians, support in outsourcing of transportation and distribution services, repair and maintenance of cold rooms, support planning and implementation of eLMIS. Refer to EVM IP for more details
Continuous improvement process *Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.*	Following actions to prevent vaccines from freezing: - Procurement and deployment of refrigerated vans for transportation of vaccines between national and sub national levels. - Fully adopt chilled water pack policy for transportation of vaccines between supply chain levels. - Use of RTM for temperature monitoring of fridges. - All cold rooms are annually mapped (temperature mapping) using the standard temperature mapping kit. - Use of freeze tags for all supplies using cold boxes and vaccine carriers. NTF (National Task Force) to track the implementation status of EVMIP.
Temperature monitoring *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).*	Myanmar is currently using fridge-tag 2 (FT-2) to monitor temperature of every fridge in the country. All the cold rooms are already installed with Central Temperature Monitoring System using Berlinger Smartview.

<u>Furthermore, describe which measures are in place to</u> *a) obtain temperature data from the various devices;* *b) act following temperature alarms (curative maintenance);* *c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and* *d) countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.*	The CCKP (Cold Chain Key Person) relies on the reading from FT-2 for diagnosis of problems with refrigerator. The country will develop the SOPs for using RTM in line with timelines of its introduction. The country will introduce the RTM in pilot phase (100 numbers) and will scale up to all cold chain points. All the operational expenses are budgeted in rehabilitation plan refers to mandatory document #8 and #9 and chapter Cost Summary for detail costing of RTM.

PART E: SCALE-UP SUPPORT PHASE

This second phase of Gavi CCE Optimisation Platform support (provided from approximately year 3 onwards) is designed to address additional CCE needs as part of optimising design and increasing the sustainability of the supply chain.

☆	Budgets are **not inclusive** of operational cost. Operational costs must be financed by Ministry of Health or other partners.

CCE	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/

12. 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	Address cold chain capacity needs for introduction of HPV into national immunization program by 2019. The need is 32 VLS 400A Greenline refrigerators.
Justification	CCEOP proposal is based on rehabilitation plan prepared with view of introduction of all planned vaccines. The urgent need by and large addresses the need for most of the cold chain points to be ready for 2021, the remaining gaps are addressed here
Expected outcome	Country to be ready at all supply chain levels for introduction of new vaccine
Total CCE budget	$ 74,658

Prioritised (Additional) CCE Need #2	
The need	Freeze protected cold boxes, vaccine carriers and long term passive devices 100 long term passive storage devices (ARKTEK-YBC-5). 11,500 vaccine carriers (approximately 1 per every sub centre). 2,696 cold boxes (3 per sub depot, 1 per township and health centre).
Justification	Equip the supply chain with reliable equipment to guarantee total freeze protection of vaccine during transit and contingency storage. Test 100 units of long term passive devices for future expansion
Expected outcome	Quality assurance of vaccine with protection from freezing during transit and contingency storage
Total CCE budget	$ 2,217,789
Prioritised (Additional) CCE Need #3	
The need	Scale up of RTM at all the cold chain points; Voltage regulator and spare parts for equipment specified in scale up need #1
Justification	RTM will serve as information tool for informed maintenance interventions and will serve as performance indicator of cold chain in the country
Expected outcome	Better managed cold chain equipment; timely update of cold chain inventory with results indicated from RTM
Total CCE budget	$ 307,952
Prioritised (Additional) CCE Need #4	
The need	
Justification	
Expected outcome	
Total CCE budget	
GRAND TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 & 5)	**$ 2,600,400**

13. Summary of SCALE-UP SUPPORT PHASE replacement/rehabilitation, expansion and extension plan

All countries must fill this section to highlight the number of equipment and corresponding number of sites these equipment will serve to meet their replacement/rehabilitation, expansion and extension targets. See Section 6.2 of the CCE optimisation Platform Guidelines for the definitions of replacement/rehabilitation, expansion and extension. The values entered below must align with those in Section 9 above and in other parts of the application form.

Replacement/Rehabilitation				**Expansion**		**Extension**	
Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Existing sites with (non)functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
No of Equipment	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*
				TCW 400A Greenline：32	32		
Total	***Total***	***Total***	***Total***	***32***	***32***	***Total***	***Total***

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, 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 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.*	Strengthen planning and delivery of quality EPI services through evidence generation. Strengthen monitoring and supervision of EPI activities including tracking of EVMIP.
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.*	Continue the efforts on migration on computerized EPI data management system (LMIS, web-based cold chain MIS, CMTS, RTM).
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.*	Implement the outsourcing of transport and distribution system of EPI supply based on learnings in 2017-2018 outsourcing trials
Continuous improvement process *Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.*	
Temperature monitoring *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*	Fully implement the use of RTM for temperature monitoring of refrigerators and need based maintenance intervention by outsourced maintenance companies.

devices; *b) act following temperature alarms (curative maintenance);* *c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and* *d) countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.*	

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 attached 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.

How to fill the attached budget template: Countries should:

- *Select appropriate 'Equipment Model' against the listed equipment types*
- *Fill out the 'Estimated service bundle cost' and 'Number of equipment' requested*
- *(In the last 'Total CCE OP Request' table), fill out second and third preference for each model selected. The second and third preference should be comparable products in the same capacity segment.* **Countries are informed that Gavi, and its Alliance partners principally UNICEF, will try as much as possible to respond to countries' first preference, but manufacturers' lead time could also lead to countries receiving cost estimates for either their second or third preference.**

Completed budget template should be sent as an attachment along with application form.

Budgeting for Buffer and Procurement fees

- *Buffer fees: A 7% buffer on **total equipment cost** is built into country yearly budgets. This will cover currency variations, demurrage and associated costs and will be returned to country, if unused.*
- *Procurement fees: Countries will also need to **pay UNICEF's procurement costs for the***

***country joint investment portion**, estimated to be up to 8.5%. Please obtain actual amounts from the UNICEF country office..*

PART G: PERFORMANCE FRAMEWORK

Countries must include **CCE Optimisation Platform indicators** in the application. The indicators need to be included in 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.

CCE	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/

16. Indicator monitoring and reporting requirements

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

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

1) ***CCE Replacement/Rehabilitation in existing equipped sites**: Percentage of existing sites with (non)functional and/or obsolete non-PQS and PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)*
2) ***CCE Expansion in existing sites:** Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;*

***3. CCE Extension in unequipped existing and in new sites:** Percentage of previously unequipped sites (providing immunisation services or*

not, including existing sites without active devices) and new service sites being equipped with Platform eligible equipment.

4. CCE maintenance : *Well-defined indicator proposed by country to reflect appropriate maintenance of equipment; for example percentage of equipped facilities with functioning cold chain,[10] such as demonstrated by remote temperature monitoring;* ***and***

3) ***5. Freeze-free to non-freeze-free carrier ratio:*** *Ratio of freeze-free cold boxes/carriers to non-freeze-free cold boxes/carriers in-country?*

USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS

Indicator *(Provide name of the mandatory indicator as shown above)*	***Definition*** *(Provide definition if not already specified)*	***Data Source*** *(identify data source)*	***Reporting frequency*** *(annual, semi-annual, quarterly etc.)*	***Baseline (Year)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 1*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 2*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 3 (If applicable)*** *(Provide numerator and denominator for calculating percentage)*
1. ***CCE Replacement/rehabilitation in existing Equipped sites***	*Percentage of existing sites with (non)functional and/or obsolete non-PQS and PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)*	*Cold chain inventory*	*Semi annual*	*Numerator = 0 Denominator= 0 Percentage= 0*	*Numerator = 0 Denominator= 0 Percentage= 0*	*Numerator = 0 Denominator= 0 Percentage= 0*	*Numerator = Denominator= Percentage=*
2. ***CCE expansion in***	*Percentage of existing sites*	*Cold*	*Semi annual*	*Numerator = 0 Denominator=*	*Numerator = 271 Denominator= 303*	*Numerator = 303 Denominator=*	*Numerator = Denominator=*

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

existing equipped sites:	*being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;*	*chain invent ory*		*303 Percentage= 0*	*Percentage= 89*	*303 Percentage= 100*	*Percentage=*
3.. CCE extension in unequipped existing and/or new sites:	*Percentage of previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and new service sites being equipped with Platform eligible equipment.*	*Cold chain invent ory*	*Semi annual*	*Numerator = 0 Denominator= 284 Percentage= 0*	*Numerator = 284 Denominator= 284 Percentage= 100*	*Numerator = Denominator= Percentage=*	*Numerator = Denominator= Percentage=*
4. ***CCE maintenance***	*Percentage of equipment functional at any point of time*	*Cold chain invent ory*	*Semi annual*	*Percentage = 80*	*90+ %*	*90+ %*	
. ***Freeze-free to non-freeze-free carrier ratio***	*Ratio of freeze-free cold boxes/carriers to non-freeze-free cold boxes/carriers in-country*	*Cold chain invent ory*	*Semi annual*	*0%*	*0%*	*100%*	

ADDITIONAL intermediate results indicator(s): *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).*

Examples *of additional intermediate results indicators options are:*

1. ***Functional status of cold chain equipment****: Ratio of functional CCE and ratio of districts with at least 90% functional equipment;*
2. ***Closed vial wastage****: Rate at a national, district and facility level;*
3. ***Forecasted demand ratio****: Ratio of actual usage compared to forecast (vaccines);*
4. ***Full stock availability:*** *Ratio of facilities/districts without any stock out;*
    a. *Stocked according to plan: Percentage of facilities/stores/districts that have stocks levels between set minimum and maximum stock levels;*
5. ***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;*
6. *Rate of health facilities dashboard use, timely analysis and use for decision making;*
7. ***On-time and in-full (OTIF) delivery****: Ratio of order completely delivered on time;* ***or***
8. *Number of health managers trained and despatched for supply chain oversight function and rate of reported monitoring activities.*

USE THE TABLE BELOW TO COMPLETE ADDITIONAL INDICATORS

Indicator *(Provide name of the* ***additional*** *indicators as shown above)*	***Definition*** *(Provide definition if not already specified)*	***Data Source*** *(identify data source)*	***Reporting frequency*** *(annual, semi-annual, quarterly etc.)*	***Baseline (Year)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 1*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 2*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 3 (If applicable)*** *(Provide numerator and denominator for calculating percentage)*
1. Temperature alarms	*Identification and reduction in temperature alarms using RTM*	*RTM*	*quarterly*	*0%*	*10% reduction in alarms*	*20% reduction in alarms*	