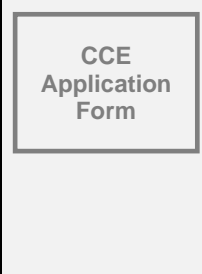





# Application Form for Cold Chain Equipment Optimisation Platform Support in 2018

Document Dated: December 2018

	<p><b>Purpose of this document:</b></p> <p>This application form must be completed in order to apply for support related to the CCE Optimisation Platform.</p> <p>Applicants are required to read the <b>Application guidelines</b> and <b>How to request new Gavi support</b> documents. Thereafter, applicants should complete this CCE Application Form and submit by email to <a href="mailto:proposals@gavi.org">proposals@gavi.org</a>.</p>
  	<p><b>Resources to support completing this application form:</b></p> <p><b>Technology guide for equipment selection</b> for counties wishing to request CCE Optimisation Platform support is available here:  <a href="http://www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/">www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/</a></p> <p><b>Extensive technical resources</b> relating to vaccine cold chain equipment management are available on TechNet-21:  <a href="http://www.technet-21.org/en/resources/cold-chain-equipment-management">www.technet-21.org/en/resources/cold-chain-equipment-management</a></p>
<p><b>Weblinks and contact information:</b></p> <p>All application documents are available on the Gavi Apply for Cold Chain Equipment support webpage: <a href="http://www.gavi.org/support/process/apply/cceop/">http://www.gavi.org/support/process/apply/cceop/</a>. For any questions regarding the application guidelines please contact <a href="mailto:countryportal@gavi.org">countryportal@gavi.org</a> or your Gavi Senior Country Manager (SCM).</p>	
	<p>Countries are informed that based on post IRC recommendations; <b>final approved amounts may be different</b> from what countries have requested.</p> <p><b>This final approved amount will be dependent on the availability of funding.</b></p> <p><b>Gavi will respect countries' equipment selection. However, countries could also receive their 2<sup>nd</sup> or 3<sup>rd</sup> preference based on their selection in the budget.</b></p>

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**PART A: APPLICANT INFORMATION**

**1. Applicant information**

Country	Nigeria	
Date	13 <sup>th</sup> June 2018	
Contact name	Dr. Faisal Shuaib <i>Faisal Shuaib 4/10/18</i>	
Email address	<a href="mailto:faisal.shuaib@nphcda.gov.ng">faisal.shuaib@nphcda.gov.ng</a>	
Phone number	+234(0)98404884	
Total funding requested from CCE Optimisation Platform (US \$)	USD 73,250,374	
Does your country have an approved Gavi HSS support on-going?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>
Proposed CCE Optimisation Platform support start date (please be informed the actual start date should be at least 6-10 months from application date):	<p>Indicate the anticipated <b>final year</b> of the HSS: 2028</p> <p>Indicate the month and year of the planned start date of the support, based on the strategic deployment plan.</p> <p>July 2019</p>	
Proposed CCE Optimisation Platform support end date:	<p>Indicate the month and year of the planned end date of the support, based on the strategic deployment plan.</p> <p>July 2023</p>	
<p><b>Signatures</b></p> <p>Include signed (and official) CCE Optimisation Platform application endorsement by:</p> <p>a) Minister of Health and Minister of Finance (or delegated authorities)</p> <p>b) Members of the Coordination Forum (HSCC/ ICC or equivalent)</p>	<p>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.</p> <p>Minister of Health (or delegated authorities) Name: Prof. L. F. Adewole</p> <p>Minister of Finance (or delegated authorities) Name: Hajia Zainab Ahmed</p> <p>Signature: <i>L. F. Adewole</i> Date: 4/10/18</p> <p>Signature: <i>Hajia Zainab Ahmed</i> Date: 2/11/18</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 <b>mandatory</b> , must be <b>attached</b> to your application, and they must be <b>final</b> and <b>dated</b> . Only <b>complete applications</b> will be assessed.
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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	Yes			
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal <sup>1</sup>	Yes			
3	National Health Sector Development Plan (NHSDP)/ Strategy (or similar)	Yes	2018		NHSDP II
4	2016-2020 Comprehensive Multi Year Plan (cMYP).	Yes	2018	5 years	Updated
5	2017 EVM Assessment Report	Yes	2017		
6	EVM Improvement Plan	Yes	2018	3 years	
7	EVM Annual Work plan <b>and</b> Progress Report on EVM Improvement Plan <sup>2</sup>	Yes	2018	1 year	
8	WHO Cold Chain Inventory Gap Analysis Tool <sup>3</sup>	Yes	2018		
9	Inventory Report and Facilities segmentation	Yes	2018		
10	Comprehensive document on CCE needs: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and Equity Improvements Chapter 3: Operational Deployment Plan, including deviation plan Chapter 4: Equipment Selection	Yes	2018		
11	Maintenance Plan with financing and source(s)	Yes	2018	1 year	
12	Proof of status for CCE tariff exemptions waiver- Import Duty Exemption Certificate (IDEC)	Yes	2018	1 year	

<sup>1</sup> In the case of HSS and CCE Optimisation Platform requests, minutes must reflect that both were discussed and endorsed.

<sup>2</sup> The EVM IP and annual work plan progress report must have been updated within three (3) months before applying for Platform support.

<sup>3</sup> Tool should allow reviewers to understand targeting of equipment to locations relative to contribution towards improving coverage and equity of immunisation.

13	Other relevant documents				
	13.1 Nigeria Strategy for Immunization and PHC System Strengthening [NSIPSS] 2018 – 2028	Yes	2018	10 years	
	13.2 National Routine Immunization Strategic Plan: 2013 – 2015.	Yes	2013	3 years	
	13.3 NICS/MICS Report (2016/2017)	Yes	2016		
	13.4 Nigeria National Immunization Policy (NIP)	Yes	2014		
	13.5 EVMA 2014 report	Yes	2014		
	13.6 1-year Minutes of NLWG meetings	Yes	2018		
	13.7 Planned Preventive Maintenance (PPM) Guideline	Yes	2017	1 year	
	13.8 Basic Health Care Provision Fund (BHCPF): Implementing the NPHCDA Gateway	Yes	2018		
	13.9 SOP for temperature monitoring	Yes	2015		
	13.10 Task shifting and task sharing policy for essential health care services in Nigeria	Yes	2014		
	13.11 NLWG Minutes November 2017 – November 2018 and 24 <sup>th</sup> February 2016.	Yes	2016		
	13.12 Minutes of NIG.TAG meeting	Yes	2016		
	13.13 Sarley et al. (2017) Transforming vaccines supply chains in Nigeria		2017		
	13.14 Aina et al. (2017) Preliminary results from direct-to-facility vaccine deliveries in Kano, Nigeria	Yes			
	13.15 Nigeria import guidelines	Yes	2017		
	13.16 Secondary and Tertiary Health Facility Assessments	Yes	2017		
13.17 Budget Narrative	Yes	2017			
		2018			

### 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)

#### How do the above strategies, plans and documents inform the CCE Optimisation Platform support request (initial support and scale-up support)?

The discussion that initiated the decision of the country to apply for CCEOP started on 24<sup>th</sup> February 2016, while the formal application process started in February 2017 (#13.11\_NLWG Minutes \_Pp 4-5).

The decision to apply for this support through the CCEOP carries the authority and signature of the country's highest technical advisory group, the Interagency Coordinating Committee (ICC). Membership of the ICC cuts across partners and the political leadership represented by the Ministers of Health and Finance (#2\_ Minutes of the ICC meeting\_Pp2,5)

The National Strategic Health Development Plan (NSHDP) recommends greater emphasis on immunization as the most cost-effective child survival intervention (# 3\_NSHDP\_p 26). To implement this recommendation, the National Routine Immunization Strategic Plan set the goal of guaranteeing 100% adequacy of quality bundled vaccines for safe immunization always (# 13.2\_ NRISP: 2013 – 2015\_p 25). These strategic plans informed the Nigeria Strategy for Immunization and PHC System Strengthening [NSIPSS] 2018 – 2028

To enable achievement of our coverage and equity targets while also considering new vaccine introductions and population growth, the country adopted the policy of at least one functional cold chain equipment in each political ward (#13.4\_NIP: 2016\_p 24). The 2017 Effective Vaccine Management Assessment highlighted the cold chain capacity gap and the urgent need to improve cold chain capacity and equipment maintenance at the service delivery level # 5\_EVMA 2017 report\_Pp 52-53). Three-year EVM continuous improvement plans (cIPs) have been developed for all levels with varying level of implementation (#6\_ EVM Improvement Plan p 4; # 7\_ EVM Annual Work plan and Progress Report on EVM Improvement Plan).

The 2018 cold chain inventory and assessment indicated that 59% of wards were not equipped, 48% of total number of PQS equipment are non-functional, 40% are aged equipment (greater than 10 years) (#9\_Inventory report and facilities segmentation 2-4). Based on the gaps identified, a cold chain expansion and rehabilitation plan was developed (#10\_ Comprehensive document on CCE needs chapter 1) which will leverage on the GAVI Cold Chain Equipment Optimization Platform (CCEOP). A total of 10,930 equipment will be procured with the successful CCEOP application

The country has adopted the policy of at least one functional cold chain equipment per ward to ensure the availability of potent vaccines at the service delivery level across the country. The ward is the smallest political unit in Nigeria and equipping all wards will ensure that all individuals irrespective of socioeconomic status have access to a functional cold chain equipment. Equipment allocation will focus initially on PHCs in unequipped large wards including secondary and tertiary Health Facilities that are offering Routine immunization services daily. Equipment allocation thereafter will systematically reach all unequipped wards ultimately extending services to all small wards where there is currently no CCE (see Question 9). This will support the country's priorities of achieving sustainable coverage and equity. The CCEOP will thus address the supply side barriers of increasing population and new vaccines introduction (#13.1\_NSIPSS\_p 17).

A robust operational deployment plan to guide the deployment of CCE (#10\_ Comprehensive document on CCE needs chapter 3) was developed as part of the CCEOP Application.

To address the gaps in maintenance, a costed comprehensive Maintenance Plan has been developed by the National Logistics Working Group (NLWG) in line with processes articulated in the country's revised Guidelines for Preventive Maintenance of Immunisation Cold Chain Equipment (#13.7\_PPM Guideline) and guided by the findings of the 2018 Cold Chain Inventory and Assessment. These will be implemented at the different immunization supply chain levels in all 36 states and Federal Capital Territory (FCT) in the country.

The Federal Government of Nigeria annually grants a custom waiver called -Import Duty Exemptions Certificate (IDEC) (for all vaccines, injection devices and cold chain equipment that are procured for Nigeria's EPI programme (#12\_ Proof of status for CCE tariff exemptions waiver). This waiver will cover all equipment procured through CCEOP

**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 (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.*

**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)**

**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?**

The decision to apply for the CCEOP was informed by a series of in-country deliberations by immunization stakeholders at the national, zonal and state levels about bridging cold chain gaps at all levels of the supply chain down to the health facilities, to enable achievement of our coverage and equity targets. These discussion forums include the National Logistics Working Group (NLWG) and Core Group meetings. The country's immunization technical advisory group (NGi-TAG) recommended CCE expansion before the introduction of Men A and Rotavirus vaccines into the routine immunization schedule. (#13. 12)

This application was developed by the CCEOP Team of the NLWG consisting of representatives from the National Primary Health Care Development Agency (NPHCDA), and Partners (Bill and Melinda Gates Foundation (BMGF), Clinton Health Access Initiative (CHAI), United Nations Children's Fund (UNICEF), World Health Organization (WHO) and Solina Group). At the state level, SLWGs (composed of SPHCDA/B and state level partners) with support from the NLWG, conducted the Cold Chain Inventory and Assessment (CCIA) required for determination of the cold chain gaps factored into this application.

Final approval was obtained from Interagency Coordination Committee (ICC) meeting that held on December 4<sup>th</sup>, 2018 with representation from relevant agencies. The meeting also approved the country's HSS Proposal, from which funding will be drawn to cover 50% of the cost of equipment (\$26 Million) (# 2\_ Minutes of the ICC meeting Pp 4). The ICC has met 4 times in 2018, and has provided guidance and approval on the following key national activities; Issues relating to the development of Nigeria Strategy for Immunization and PHC System Strengthening (NSIPSS); Review and approval of Nigeria's initial Application on the CCEOP; Adoption of the results of the post-campaign Coverage Survey for the 2017/2018 Measles campaign; Final review and endorsement of NSIPSS document for submission to Gavi and the Review and approval of the Preventive Yellow Fever mass campaign in the country.

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

Nigeria has a fully functional National Logistics Working Group (NLWG) that meets three times a week and similar coordination structures exist at the state level which meet monthly. The NLWG is the technical advisory group to the ICC on logistics, cold chain and vaccine security issues in the country (#13.6\_1-year Minutes of NLWG Meeting).



## 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 has 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?*

### **a) How is the country's immunisation supply chain administered?**

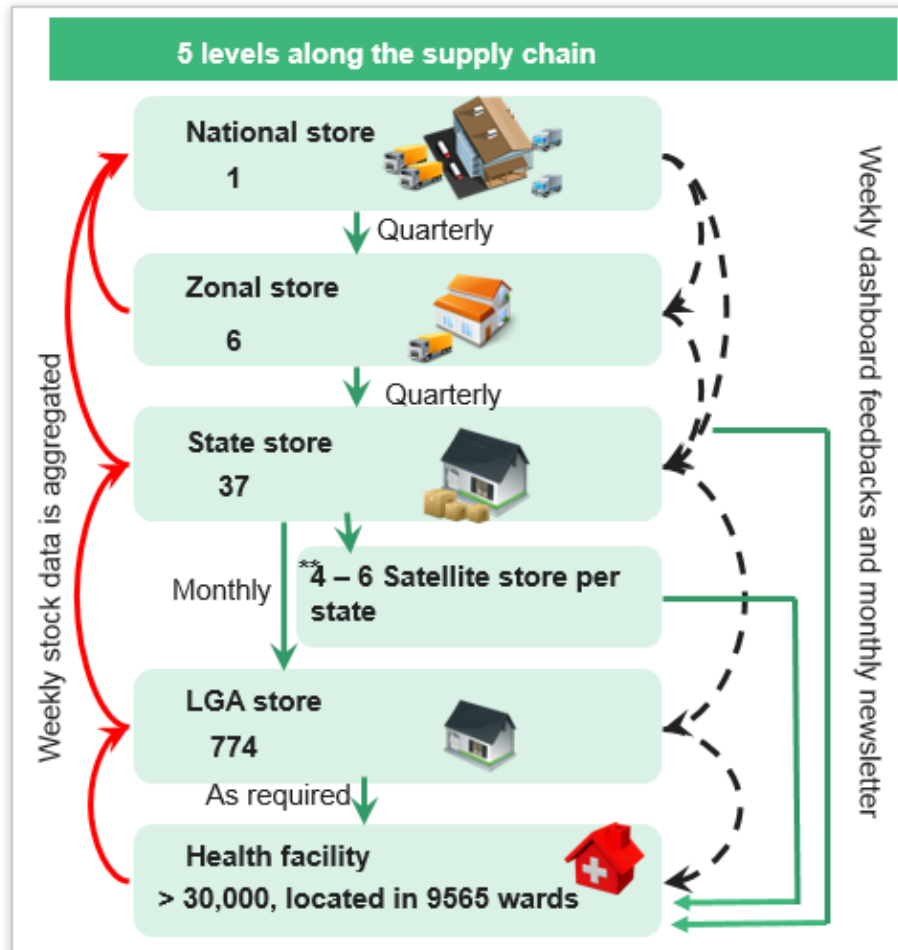
Nigeria is a federal republic comprising 36 states and a Federal Capital Territory (FCT); within these states are 774 LGAs and 9,565 wards. The country has over 30,000 health facilities spread across the 9,565 wards and 26,243 health facilities offering routine immunization (#13.1\_NSIPSS\_Pp 12-14).

Immunization supply chain services are coordinated at the national level by NPHCDA through the Department of Logistics & Health Commodities (DL&HC). The department is headed by a Directorate cadre Officer. The Department oversees the operations of the National Strategic Cold Store (NSCS) in Abuja and the six Zonal Cold Stores, located in the six geopolitical zones. Approval has been secured for redesign of these zones into 3 Hubs (Lagos, Kano and Abuja) with funding currently secured for the Lagos Hub only. The completion of the 3 hubs redesign will effectively and efficiently close the identified National level cold chain storage capacity gap in the country up to 2040.

At the state level, the State Primary Health Care Management Agency/Boards manage the 36 states plus FCT cold stores while Primary Healthcare (PHC) Departments perform similar functions at the LGA level. Vaccines and immunisation supplies are distributed, through a push system, to the thirty-six states of the federation plus the Federal Capital Territory (FCT) through the zonal cold stores.

Depending on the supply chain system design in the state, monthly allocations of bundled vaccines are distributed to LGA cold stores or directly to health facilities with cold storage capacity (see overview of the immunization supply architecture in the chart below).

### Overview of the Immunization Supply Chain Architecture



\*\*This system exists in Kano and Bauchi, Borno, Katsina, Kaduna, Sokoto and Yobe states. Satellite stores conduct direct vaccine deliveries to health facilities

The NLWG provides technical guidance at the national, zonal and state levels. While SLWG provides technical guidance for the states and LGAs. The LGA team, which reports to the SLWG, is responsible for the vaccine supply chain at the LGA level. There are direct linkages between the NLWG and all other working groups in the country.

**b) What weaknesses have been identified in the country's supply chain?**

- a) c) Through what interventions are these weaknesses currently being addressed?**  
**b) d) Describe challenges that are hindering the implementation of these interventions.**

#### b) Challenges

##### I. Distribution:

##### a) Challenges

- The distribution from National to States is very efficient because it is outsourced to Third Party Logistics firms (3PL). However, distribution to the lower levels (State to LGA – HF) has remained problematic. The States adopt different distribution mechanisms thus PUSH for MoU States (Kano, Bauchi, Borno, Katsina, Kaduna, Sokoto and Yobe) and PUSH-PULL

in the other States. In the States where PUSH-PULL system is implemented, there is no standardized mechanism in place for the funding of the vaccine delivery. Health workers use out of pocket expenses to push-pull bundled vaccines which is very ineffective and inefficient. These challenges have resulted in irregular bundled vaccine availability.

- Over the years, vehicles were procured for all the states by the Federal Government and donors for vaccine distribution. However, these vehicles when they are functional and fuelled are mostly used for supervision and other expanded programme on immunization (EPI) activities rather than for vaccine distribution. The state and LGA levels in the country still rely on a mixed *push-pull* system with significant reliance on out-of-pocket expenses by health care workers for vaccine distributions between LGA stores and health facilities.
- Though freeze indicators are used for monitoring of temperatures during transport from the national level to the zones, the numbers are grossly inadequate. Freeze indicators are however not used for temperature monitoring in transit at subnational level (state to LGAs and health facilities).

#### **b) Interventions for distribution**

- The DL&HC instituted the Push-plus bundled vaccines distribution policy<sup>4</sup>, where vaccines are distributed from the state stores directly to health facilities with functional CCE which then cascade to unequipped health facilities with buffer stock stored at the LGA level. The NPHCDA has sourced funds to support implementation over the next 12 months after a successful 2014 pilot in Kano, Lagos, Bauchi and Niger states. Vaccine stockout rates in Kano and Lagos declined from a baseline of 41% and 43% to 10% and 0% respectively during the pilot period (#\_13.13\_Transforming vaccines supply chains in Nigeria; #13.14\_ Preliminary results from direct-to-facility vaccine deliveries in Kano, Nigeria). The long-term plan is to institutionalize a sustainable system nationwide with preference for use of Third-Party Logistics systems in a phased scale-up.
- The country is also working to ensure that freeze indicators for freeze sensitive vaccines are used during deliveries across all levels.
- Recent procurements of double cabin Hilux trucks by state governments and partners has enabled some states cold stores to push vaccines to LGA stores and equipped HFs. In addition, some states have already rolled out Push-plus with cascade deliveries to unequipped facilities.

#### **C) Barrier(s) to Implementation of Intervention for distribution**

- The main barrier to implementing the Push Plus intervention is the unwillingness and/or inability of states to commit funds for implementation.

## **II. Temperature monitoring and control**

### **a) Challenges**

At the National, zonal and state levels, a Remote Temperature Monitoring system is in place, (BeyondWireless®) including a country-specific Alarm Response and Escalation system guided by the WHO Guidelines for Temperature Monitoring and Control of vaccines. Although informed by WHO Guidelines, the country implemented a modified and more stringent Alarm Response and Escalation system, with short response intervals, to ensure prompt response.

Although RTMDs have been deployed at the national, zonal and state levels, some of the devices are currently non-functional and inadequate numbers of probes were installed.

Temperature mapping of cold rooms was not done in all state cold stores. At the LGA stores and health facilities, while 30DTRs have been placed in most of the CCEs used for vaccine storage, data harvesting and use of data from the loggers for action is not being done.

### **b) Interventions**

To address the gaps highlighted above, the country plans to complete temperature mapping for all the WICRs and WIFRs in the country, replace non-functional RTMDs and ensure that the appropriate numbers of probes are installed per cold room, in line with EVM requirements. 30-DTRs have been placed at all health facilities and LGAs with CCE to aid the systematic review of TMC data. In addition to provision of on-the-job mentoring, health workers will also be retrained on the use of TMDs and review of TMC data.

### **c) Barrier(s) to Implementation of Intervention**

The intervention is on course and there is no barrier.

## **III. Cold Chain Equipment maintenance**

### **a) Challenges**

Cold chain equipment maintenance has remained a significant problem in the Nigerian iSC and the principal causes are inadequate funding at the state and LGA levels and insufficient numbers of trained CCE technicians in the iSC system.

### **b) Interventions**

There has been sustained improvement in maintenance at the national (83%), zonal (72%) and MoU states (70%) (#5\_ EVM Assessment Report p viii) where both preventive and curative maintenance have been outsourced to third-party vendors. Ahead of the deployment of Gavi-funded 1,656 CCEs, Dometic S.A.R trained 7

NPHCDA technicians on Preventive maintenance of CCE. These technicians cascaded the training to 111 technicians and CCOs who in turn trained end users/health care workers in facilities where the SDDs were deployed.

Planned Preventive Maintenance (PPM) posters were distributed to all the 1,656 SDDs sites to guide preventive maintenance by healthcare workers. Following the June 2018 Gavi IRC review of the country's CCEOP application, the national planned preventive maintenance policy and guideline (#13.7\_PPM guideline) has also been revised. Plans are ongoing for printing and dissemination to all sites with cold chain equipment.

The country implements a mixed model of CCE maintenance involving PPM by health workers on a daily, weekly and monthly basis and recommends outsourced quarterly PPM and curative maintenance at all levels. One hundred and fifty (150) CCE technicians from the six zones of the country have been trained as part of the Project Last Mile (PLM) , on best practices in Preventive maintenance. While 8 national CCE technicians were retrained on Curative and Preventive maintenance as well as equipped with tool kits.

#### **c) Barrier(s) to Implementation of Intervention**

Lack of budget line by states for CCE maintenance. However, high level advocacy to states for establishment of Maintenance Units at SPHCDAs/Bs, that will give states access to fund CCE maintenance through the Basic Health Care Provision Funds (BHCPF) and/or Saving One Million Lives (SOML) funds, are underway.

### **IV. Stock performance monitoring and management**

#### **a) Challenges**

Data quality issues still exist at all levels of the iSC, with poor triangulation of stock and program data, which limit data-driven decision making. This is underlined by poor documentation practises and deployment of multiple data management tools and processes being utilised in parallel.

#### **b) Interventions**

The process of integration of data tools commenced with the integration of Vaccine Stock Performance Management Dashboard (VSPMD) into NAVISION in 2016 and its deployment across the national, zonal and state stores with over 95% reporting rates. This is part of a larger Visibility and Analytics Network (VAN) strategy that will lead to integration of DHIS2 and the National Immunisation Supply Chain management information system (NISCmis), as well as other approved stock management solutions, into an efficient platform to inform decision making by EPI managers. The country received funding from the BMGF for implementation by

UNICEF and CHAI over an 18 month period leading up to November 2018. Thereafter, it will be sustained by the NPHCDA.

**c) Barrier(s) to implementation of interventions**

There are gaps in software utilization, timeliness of reporting, data completeness and accuracy on NISCMIS and DHIS2 which are critical success factors for data integration and use of data for action. These areas are more critical with DHIS2 that was completely rolled out in December 2017. The DLHC has established a Data Team to address these barriers.

**V. Human resources**

**a) Challenges**

There is insufficient number of staffs to manage the demands of the programme which is compounded by frequent staff redeployment across all levels iSC. Poor attitudes of some health care workers, despite accessing training opportunities, and limited supportive supervision at national and sub-national levels have remained a huge challenge. Disruption of service delivery due to long standing health care workers strikes, lack of clearly defined career path and inadequate knowledge and skills on new innovations in iSC management are also noted as problems. Insecurity and insurgency in the North-East of the country particularly Adamawa, Borno and Yobe, have contributed to poor service delivery in the last 2 years. Sustainable funding for health worker capacity building is a challenge. Additionally, the slow pace of implementation of existing capacity building interventions for staff development has resulted in suboptimal synergies to achieve organizational KPIs.

**b) Interventions**

Between 2014 and 2016, the Department of Logistics & Health Commodities (DL&HC), with support from BMGF and McKinsey & Company implemented a Supply Chain Leaders Development Program (SCLD) targeted at building technical, organizational and managerial capacity of all staff of the Department. Additionally, there have been other capacity building activities by partners such as exchange programs by CHAI and Africa Resource Centre (ARC), online courses by UNICEF and Gavi Strategic Training Executive Programme (STEP). Basic Guide Training for immunization service providers, which includes iSC modules, for health care workers has been conducted. Plans are also ongoing for mid-level managers (MLM) and Vaccine Management Training (VMT). Following human resource for health (HRH) assessment in the agency, efforts are on-going to institutionalize task shifting to bridge identified human resources gap.

**c) Barrier(s) to Implementation of Intervention**

Slow pace of implementation of existing capacity building interventions for development has resulted in suboptimal synergy in performance as staff capacity are in different stages of development.

**c) Describe lessons learnt from recent supply chain related support that inform the current request for CCE Optimisation Platform support?**

Through Gavi support, Nigeria deployed 1,656 SDD vaccine refrigerators in 2014.

Lessons learned include:

- Deployment of off-grid CCE led to increase in access to vaccines for the immunization programme, thus contributing to improved coverage and equity. The current request will enable scale-up and consolidation of the gains of the 2014 support. The deployment of the 1,656 SDDs also afforded the country lessons in massive CCE deployment process, which include:
- Training of more technicians and HCWs to maintain cold chain equipment is critical to improving equipment uptime.
- A strong Project Management Team (PMT) is required to coordinate equipment deployment processes.
- Strong involvement of SLWGs from inception ensures ownership of CCE installation processes and reduces risks of deviations.
- Community engagement by SLWGs is required to ensure ownership and security of the CCE and solar panels.
- State governments must earmark funding for CCE maintenance, post-warranty maintenance, to ensure CCE uptime over the equipment's lifespan.

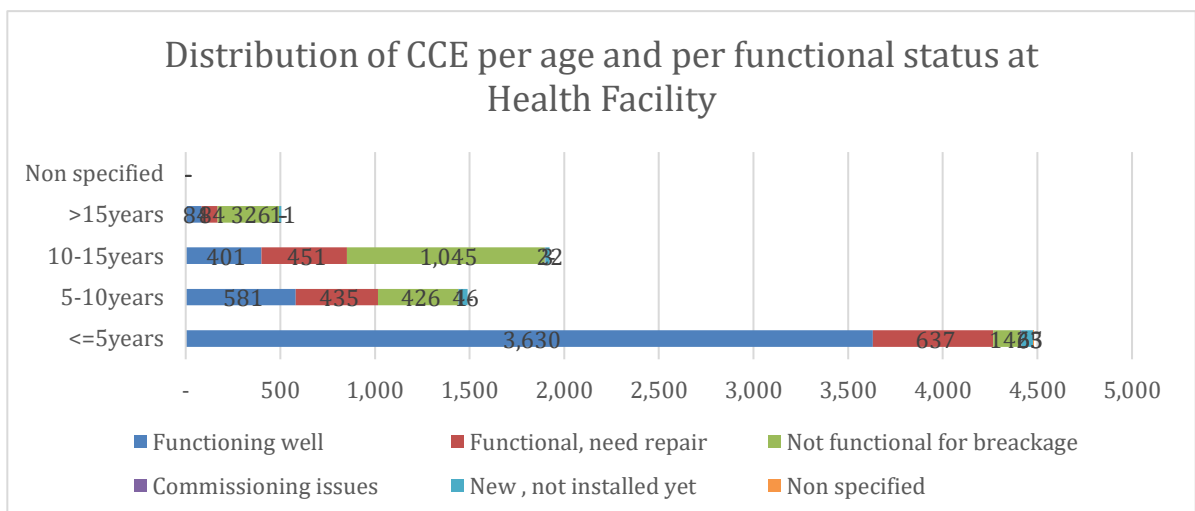
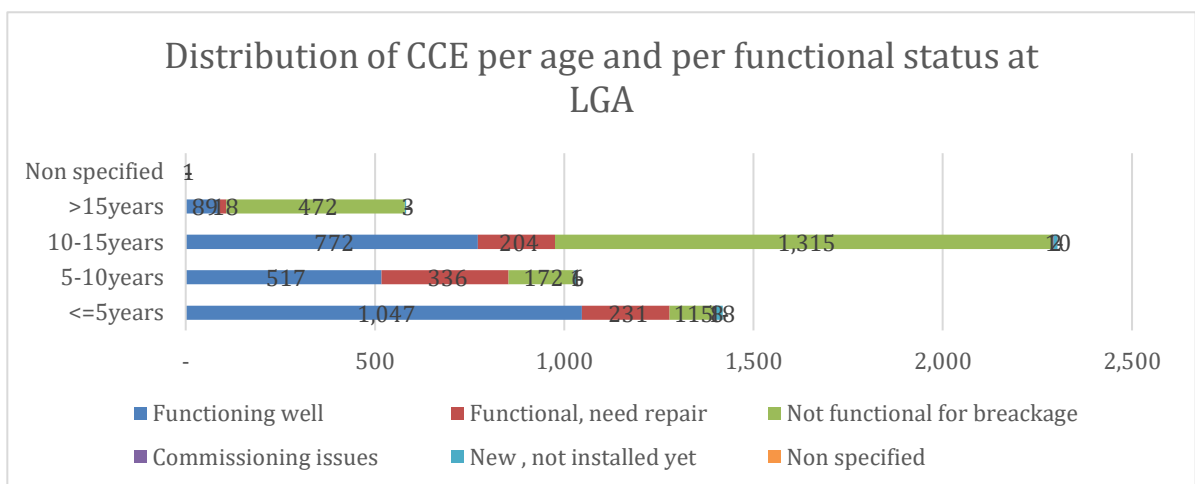
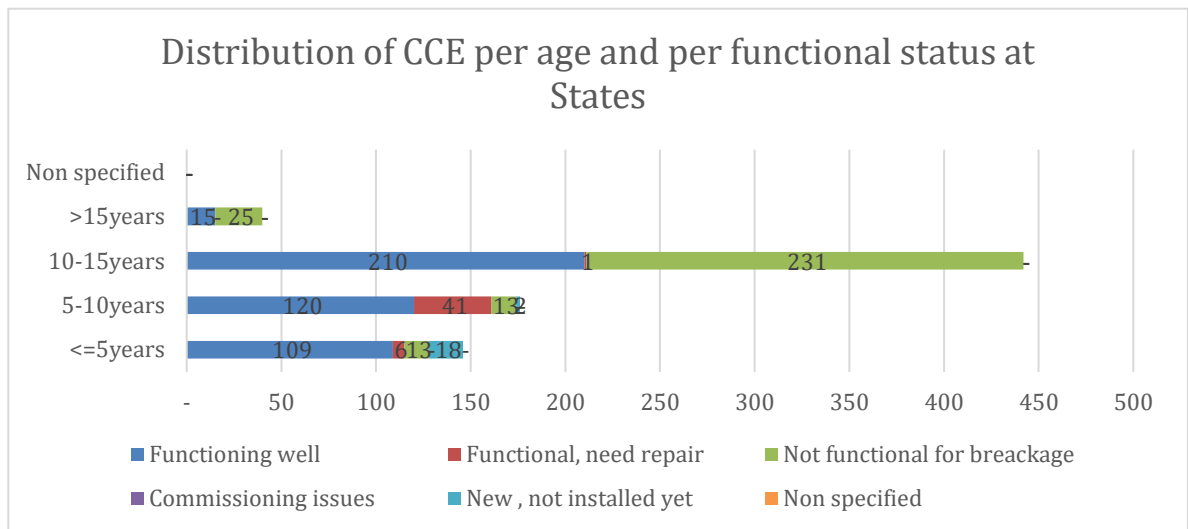
**d) What percentage of facilities have reliable access to grid electricity for up to or more than 8 hours per day?**

The IRP analysis shows that 7% of service points (PHC, secondary and tertiary health facilities) have more than 8 hours of guaranteed electricity supply daily. These service points with guaranteed electricity supply are secondary and tertiary facilities prompting our equipment selection rationale. (#9\_ Inventory Report and Facilities Segmentation 2-4).

**e) Please give the quantity and percent of current CCE that is: a) functional; b) PQS-approved; c) non-PQS-approved; and/or d) obsolete?**

The IRP summed the number of CCE in the country as 14,596. As shown in table 1 below, irrespective of PQS status, 52% (7,624) of the CCE in the country are functional, 36% (5,245) and 42% (6,110) of all CCE are PIS and PQS approved respectively while 21% (3,101) are non-PQS-approved. Approximately 32% (4,680) of the total CCE are aged ( $\geq 10$  years) including 179 obsolete technologies (Gas and Kerosene powered) installed as far back as 1986.

**Include graphs on Distribution of CCE per age and functional status at state, LGA and HF levels as Situational analysis of Nigeria's CCE at all levels**





**f) What percent of the birth cohort is served by effectively functioning, PQS-approved CCE currently?**

Currently ~47% of 2018 birth cohort (3,827,766) is served by effectively functioning, PQS-approved CCE at the ward level (#8\_ WHO Cold Chain Inventory Gap Analysis Tool).

**g) What are the bottlenecks that CCE can address in the current supply chain set-up (for example, capacity and technology constraints)?**

The proposed Gavi support of USD46 Million, Scenario 1, will meet 40% of the country's need, Scenario 2, USD73.2 will meet 60%, while the 3<sup>rd</sup> Scenario USD 124.7 Million will satisfy 100% of the country's needs in equipping wards that are currently unequipped which will contribute to improvement in vaccine availability at the last mile. The platform will also provide equipment with new technology that offers user-independent freeze protection thereby eliminating the risk of freezing.

**h) Describe any other supply chain challenges that CCE Optimisation Platform support will assist in mitigating?**

With the replication of Project Monitoring Teams at state level under SLWG, accountability, coordination and ownership will be improved. The platform will improve the coverage of last mile delivery by equipping additional sites with CCE especially in the hard to reach areas which are in very remote areas with poor infrastructure and difficult to access during rainy season. The HFs in these areas will benefit by having higher capacity SDD CCE not requiring electricity This will minimize the cost of vaccine delivery, ensure quality and availability of vaccine at the last mile

**i) What are the overall CCE needs?**

Despite procurement of a total of 3,205 CCE by government and partners which have improved cold storage capacity at the health facility level in recent years, the proportion of wards without solar driven CCE is 59% as determined through the 2018 Cold Chain Inventory and Assessment. Deployment of optimal CCE in the health facilities will complement the on-going effort to expand storage capacity at the national level through the construction of 3 Hubs and closure of state level gaps by state governments with walk-in cold rooms and freezers. The 3 Hub capacity expansion is expected to provide net cold storage space of 1,071m<sup>3</sup> and ensure that the country has adequate national storage capacity up till 2040.

The overall need for the country is 10,930 at a total cost of USD 129,674,111 (see breakdown below)

	Category	CCE Type	# of CCE		Total CCE Cost (\$)	Total Spare part Cost (\$)	RTMD Cost (\$)
			Units	Unit Cost (\$)			
(Yr 1 – 5)	• Unequipped Large Wards	TCW 2043	4,631	10,987	50,880,797	453,838	203,764
	• Unequipped Small Wards	TCW 40	1,012	7,760	7,855,144	99,176	44,528
	• Secondary Health Facilities	TCW 2043	738	10,987	8,108,406	72,324	32,472
	• Tertiary Health Facilities	HBC 260	105	2,292	240,660	10,290	4,620
	• Expansion in LGAs for NV introduction	TCW 2043	1,913	10,987	21,018,131	187,474	84,172
	• Replacement of CCE in PHCs in large wards with non-functional aged PQS equipment	TCW 2043	2,012	10,987	22,105,844	197,176	88,528
	• Replacement of non-functional CCE > 10years	TCW 2043	519	10,987	5,702,253	50,862	22,836
	• 30DTR for existing equipment	FridgeTag2 <sup>*</sup>	14,694	44			165,616
		Total			115,911,235	1,071,140	646,536
		Total cost of CCE, Spare parts and 30DTR			117,628,911		
		6% Additional Buffer (on total cost)			7,057,735		
		8% Procurement Fees on FGoN Co-Financing (62,343,322.83)			4,987,466		
	<b>Grand Total (CCE + Spare Parts +TMD + Handling Fees)</b>			<b>\$129,674,111</b>			

## 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:

- 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)
- 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?
- How have these system design considerations impacted the choice of CCE to be supported by the Platform?
- Concretely, how will Platform support help improve the sustainability of the supply chain system?

- 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)**

The results of the 2016/2017 NICS/MICS revealed that immunization coverage in Nigeria varies by educational level (9% for mothers with non-formal education versus 74% for mother with post-secondary school education), socioeconomic status (10% for those in the poorest wealth quintile versus 63% for those in the richest wealth quintile) and geographical location (25% for rural dwellers versus 51% for urban dwellers). The 2016/2017 NICS/MICS also identified non-availability of vaccines (6%) as one of the contributory factors to poor access to immunization services which may be due to lack of CCE for vaccine storage (#13.3\_2016/2017 NICS/MICS Report\_Pp\_81).

The country has prioritized hard to reach wards (10% of the total wards) and those in security compromised areas for equipment allocation in order to bridge equity gap. Immunization services will also be offered to all population irrespective of gender or socioeconomic status. All of these will contribute to the country's achievement of her equity target of reducing Penta 3 coverage difference between the highest and lowest socio-economic quintiles from 70% in 2013 to 30% by 2020 (#4\_cMYP 2016 – 2020\_p 82).

**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?***

The country has adopted the “PUSH” system for vaccine distribution from the national level through to the health facility level. At the National level, three megastores are to be constructed to serve as Hubs for storage and distribution of vaccines to the states. At the sub-national level, the plan is for institutionalized direct delivery of vaccines from the State stores to health facilities with functional CCE, one in each ward with buffer stock at the LGA level.

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

In line with the policy of the Federal Government of having one functional health facility per ward, this will be designated as the “apex facility” and will hold the vaccine stock for the ward thus serving as the “storage store” for other unequipped facilities in the ward (#13.4\_Nigeria National Immunization Policy 24). The equipped facility will also serve as a storage point for outreach vaccination activities within the ward. These will require capacity to produce ice packs thus the decision to equip each ward with a functional dual compartment refrigerator that will align perfectly with the new system design. The CCE are being selected with the Ward target populations in mind.

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

The choice of optimal SDDs will support sustainability of the supply chain system through the technological advantages of minimal maintenance costs, freeze protection that will reduce risks of closed vial wastage and ease of operation.

Equipping every ward in Nigeria with optimal CCE and scaling up direct delivery, will lead to improved stock availability at the health facility. Other benefits include reduction in the frequency of resupply, elimination of loss of vaccines due to freezing and reduction in CCE maintenance cost.

**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 (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?**

### **Preventive Maintenance**

The Guidelines on Planned Preventive Maintenance (PPM) for CCE, developed in 2016, has been revised. In addition, PPM posters which spelt out specific maintenance tasks and their frequencies have been distributed to all sites with CCE. At the national level, cold rooms and generators are maintained on a quarterly basis by an outsourced vendor on a Long-Term Agreement (LTA). To carry out its maintenance mandate, the DL&HC has strengthened its Maintenance Unit by capacity building of its Cold Chain Engineers and Technicians. Eight cold chain technicians at the national and zonal levels from the DL&HC were trained and provided with repair kits by the PLM on refrigerator maintenance and repairs in November 2016 at the NBC/Coca-Cola HQ in Lagos.

The DL&HC Maintenance Unit, under PLM (Project Last Mile on CCE maintenance), has provided refresher training on CCE preventive maintenance performed by health workers. Additionally, 37 cold chain technician and 37 Cold Chain Officers (CCOS) were trained on preventive maintenance. The DL&HC is therefore well equipped to assist states with the establishment and management of efficient PPM systems.

DL&HC has advocated to states to establish Maintenance Units at the SPHCDA/B and dedicated Refrigeration Technicians should be seconded there from either the State Ministry of Health (SMOH) or State Ministry of Works (SMOW). These technicians will be trained on curative and preventive maintenance, with deployment of the CCEOP CCE, and will be responsible for maintenance in the post-deployment period. Furthermore, the State CCE Technicians will accompany CCE Technicians, providing preventive maintenance, on maintenance visits during the warranty period.

While the States are building their maintenance units, they will be advised to outsource complex preventive maintenance. The cost of each bi-annual PPM visit to each equipment site has been determined at \$37.5/equipment. This will be borne by the States.

Based on the lessons learned from the outsourcing of CCE maintenance to third party logistics (3PLs) at the National level, the country will ensure that contracts are drafted with strong clauses for service level agreements. Also critical to success is constant oversight and regular monitoring of key performance indicators, and penalties for failure in performance.

### **Curative Maintenance**

As a condition for deployment of new equipment, each State will be mandated to repair their currently non-functional equipment. The cost of repairs of this equipment has been determined at \$200/equipment. Curative maintenance will be the responsibility of both the dedicated state-level Maintenance Units and outsourced vendors through an escalation process. Periodic CCE servicing and simple maintenance requests will be directed to the dedicated state CCE technicians and escalated to outsourced vendors if they are unable to resolve the maintenance issue. Therefore, within its established structures the SPHCDA/Bs will be encouraged to establish long term agreements (LTAs) with 3PLs CCE maintenance vendors with guidance from DL&HC and NLWG. The LTAs will ensure uptime of the equipment and include details on the maintenance frequency (corrective and preventive), with functionality of the system monitored using the state quarterly cold chain inventory (CCI) updates submitted to the national level.

Partners who have supported maintenance in the past will continue to provide technical assistance.

Provision will be made to address repairs in cases of possible breakdown among the new equipment. The possible breakdown rate is estimated at about 1.8%.

Provision will also be made for periodic training of Health Workers on preventive CCE 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?**

Oversight and monitoring of the operations of the 3PLs will be provided by the SLWG at the state level with support from NLWG. The terms of reference (ToR) and KPIs that have been developed and is currently in use at the national level will be replicated at the state level.

This extended warranty and long-term maintenance including spare parts will be paid for by the respective state governments with some states leveraging on the Saving One Million Lives (SoML) funds. Another source of funds for maintenance would be from the recently approved (by the National Assembly) Basic Healthcare Provision Fund (BHCPF) which will be made up of 1% of Nigeria's consolidated revenue. Fifteen percent (%) of this fund is going directly to the health facilities and has been earmarked for maintenance of facilities, equipment and distribution (#13.8\_ BHCPF: Implementing the NPHCDA Gateway\_Pp5).

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

**Equipment Decommissioning**

Unserviceable, aged and obsolete cold chain equipment will be decommissioned and disposed of using the government system detailed in the Cold Chain Equipment Decommissioning Framework. This will be informed by assessment of the CCE with respect to whether it can be traded-in; if it still has residual value to the index location, if it has value to any other locations and if it is of value to external parties and can be traded or donated to them.

The Board of Survey under the Ministry of Finance (MOF) at the state level carries out an annual audit of all obsolete and unserviceable equipment with the objective of developing the Decommissioning and Disposal Lists as well as Costed Decommissioning Plan. These are shared with the Authorised Decommissioning Committees (ADC) for approval and execution of recommendations. The ADC's are chaired by Executive Secretaries (ES) of the SPHCDA/B and comprised of representatives from the Ministry of Environment, Ministry of Finance, Director of Pharmaceutical Services from both the SPHCDA/B and SMOH, the State Immunisation Officer (SIO), partners (international and non-governmental organisations), a qualified CCE technician and the State Logistics Officer/Cold Chain Officer. Licensed auctioneers are invited for valuation of equipment and oversight of the disposal process. Options for disposal include donation, sale (auctioning), transfer, destruction or cannibalisation for harvesting useful spare parts. Useful spare parts will be stored in the SPHCDA/B Maintenance Units, as part of their floating assembly, while the CCE shells will be disposed of as scraps after decontamination.

The auctioneer, who will manage the auction, is independently commissioned. Proceeds of the auction will be remitted to the National Treasury while any dismantling of CCE will be the responsibility of the bid winner (#13.7\_PPM Guideline 11). Plans are currently on-going to ensure that states implement the provisions of this guideline.

**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.

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

Procurement of all equipment with funding from the CCEOP will be done through UNICEF Supply Division (SD). The terms of procurement will include a service bundle with manufacturers responsible for distribution of the equipment to benefiting sites, installation, commissioning, post-installation training and equipment maintenance services that are covered by the manufacturers' warranty, within the traditional CCEOP service bundle. This will be under the supervision of the NPHCDA's Project Management Team (PMT) that successfully managed Gavi funded procurement and deployment of 1,656 SDD vaccine refrigerators in 2014.

Prior to equipment deployment the PMT will conduct a pre-deployment assessment of the selected sites. The PMT will work with the suppliers throughout the period of deployment by providing a list of sites ready for equipment installation and monitor key processes to track progress of deployment, installation and functionality.

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


The joint investment amount of USD 23,000,000 for Scenario 1 is secured as it will be drawn from the GAVI Health Systems Strengthening (HSS) grant. Other sources of Joint Investment are the Save One Million Lives funds and Basic Health Care Provision Fund which will be leveraged to support Scenario 2 or 3. The ICC approved Scenario 3 (Budget 3) for the country.

**c) Has the country secured import tariff exemptions for CCE? If yes, attach proof.**

All vaccines, devices and equipment procured on behalf of NPHCDA are exempted from import tariff. The agency works with the Federal Ministries of Health and Finance to obtain the necessary waiver called Import Duty Exemption Certificate (IDEC) approvals required for all the equipment procured for the programme. Secured waiver (IDEC) will be shared with the Nigeria Customs Service to ensure timely clearance (# 12\_ Proof of status for CCE tariff exemptions waiver).

## 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 <b>not inclusive</b> 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 Application guidelines Section 5, available at <a href="http://www.gavi.org/support/process/apply/cceop/">http://www.gavi.org/support/process/apply/cceop/</a>
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### 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

<b>The need</b>	To equip PHCs in unequipped large wards per PHC Revitalisation prioritisation list, including secondary and tertiary facilities, but excluding health centres in security compromised areas (Extension)
<b>Justification</b>	All wards are classified into small and large wards based on the total storage capacity required, 2023 total populations and the FIC volume. Large wards are those that will require more than 36Litres storage space by 2023. Demographically 92% of the population reside in these wards therefore; equipping them will protect most of the population. In line with the government policy of offering daily RI sessions in secondary and tertiary facilities these are being prioritised in the first phase.



	<table border="1"> <thead> <tr> <th>Categorization</th> <th>Number</th> <th>CCE Type</th> </tr> </thead> <tbody> <tr> <td>PHCs in Unequipped large wards</td> <td>4,316</td> <td rowspan="2">TCW 2043 SDD</td> </tr> <tr> <td>Secondary health facilities</td> <td>738</td> </tr> <tr> <td>Tertiary health facilities</td> <td>105</td> <td>HBC 260</td> </tr> </tbody> </table>			Categorization	Number	CCE Type	PHCs in Unequipped large wards	4,316	TCW 2043 SDD	Secondary health facilities	738	Tertiary health facilities	105	HBC 260
	Categorization	Number	CCE Type											
	PHCs in Unequipped large wards	4,316	TCW 2043 SDD											
	Secondary health facilities	738												
Tertiary health facilities	105	HBC 260												
<b>Expected outcome</b>	Equipping 4,316 wards, 738 secondary health facilities and 105 tertiary health facilities with double compartment large equipment (60L to 90L) and 105 tertiary health facilities with electric refrigerators will provide easier access to immunization services to over 3.27 million under 1 children across the country.													
<b>Total CCE budget</b>	\$55,768,958													
<b><i>Prioritised (Urgent) CCE Need #2</i></b>														
<b>The need</b>	To equip PHCs in unequipped large and small wards in previously security compromised areas due to insurgency, communal clashes and hard to reach areas (Extension)													
<b>Justification</b>	<p>Security compromised areas due to insurgency and communal clashes (Adamawa, Benue, Cross River and Taraba States) have been prioritized for CCE procurements (#10_, Chapter 2) in line with the government’s strategy of Reaching Inaccessible Children (RIC). These areas have poor access on account of recurrent insurgencies and conflicts leading to low immunisation coverage. Although Borno and Yobe are security compromised, they will not be eligible for the CCEOP support as they are already covered by the tripartite MoU with BMGF and Dangote Foundation.</p> <p>From 2017, as the affected communities are liberated, and the areas gradually become less security compromised, the country has prioritised resource deployment to these areas including RI resources.</p> <p>Hard to reach (HTR) areas are operationally defined as geographically difficult terrains with any of the following characteristics namely having water-logged or riverine areas and not easy to access health care facilities (greater than 5 kilometres from the community). Equipping hard to reach wards will allow the country to equitably reach the marginalized populations, tying into the country’s concept of “Reaching Every Child” – REC.</p>													

	<table border="1"> <thead> <tr> <th>Categorization</th> <th>Number</th> <th>CCE Type</th> </tr> </thead> <tbody> <tr> <td>PHCs in Unequipped large security compromised wards</td> <td>105</td> <td>TCW 2043 SDD</td> </tr> <tr> <td>PHCs in Unequipped small security compromised wards</td> <td>515</td> <td>TCW 40 SDD</td> </tr> <tr> <td>PHCs in Unequipped HTR large wards</td> <td>210</td> <td>TCW 2043 SDD</td> </tr> <tr> <td>PHCs in Unequipped HTR small wards</td> <td>61</td> <td>TCW 40 SDD</td> </tr> </tbody> </table>	Categorization	Number	CCE Type	PHCs in Unequipped large security compromised wards	105	TCW 2043 SDD	PHCs in Unequipped small security compromised wards	515	TCW 40 SDD	PHCs in Unequipped HTR large wards	210	TCW 2043 SDD	PHCs in Unequipped HTR small wards	61	TCW 40 SDD
Categorization	Number	CCE Type														
PHCs in Unequipped large security compromised wards	105	TCW 2043 SDD														
PHCs in Unequipped small security compromised wards	515	TCW 40 SDD														
PHCs in Unequipped HTR large wards	210	TCW 2043 SDD														
PHCs in Unequipped HTR small wards	61	TCW 40 SDD														
<b>Expected outcome</b>	Equipping the 620 wards with dual compartment medium and small sized equipment will provide easier access to immunization services to the children under the Reach Inaccessible Children (RIC) strategy. In addition, equipping PHCs in the 271 HTR wards across the country with dual compartment medium and small sized equipment will provide easier access to immunization services.															
<b>Total CCE budget</b>	\$7,931,817															
<b><i>Prioritised (Urgent) CCE Need #3</i></b>																
<b>The need</b>	To equip PHCs in remaining unequipped small population wards (Extension)															
<b>Justification</b>	Small population wards are defined as wards requiring less than 36 Litres Cold storage space, based on their FIC volume requirements. Equipping the remaining unequipped small population wards will reduce the unequipped gap at the ward level <table border="1"> <thead> <tr> <th>Categorization</th> <th>Number</th> <th>CCE type</th> </tr> </thead> <tbody> <tr> <td>PHCs in Small population wards</td> <td>31</td> <td>TCW 40 SDD</td> </tr> </tbody> </table>	Categorization	Number	CCE type	PHCs in Small population wards	31	TCW 40 SDD									
Categorization	Number	CCE type														
PHCs in Small population wards	31	TCW 40 SDD														
<b>Expected outcome</b>	Equipping 31 small population wards with dual compartment medium sized equipment will provide easier access to immunization services.															
<b>Total CCE budget</b>	\$240,622															
<b><i>Prioritised (Urgent) CCE Need #4</i></b>																
<b>The need</b>	To replace non-functional CCE that would be > than 10 years															
<b>Justification</b>	About one third of the non-functional PQS equipment are older than 10 years and will require replacement per the country's policy. These CCE are no longer economically viable due to the high costs of maintenance and repairs. In replacing the aged CCE, the country will take into consideration the need for production of ice packs for HF conducting outreach sessions and the volume of vaccine based on the ward population.															

	<table border="1"> <tr> <th>Categorization</th> <th>Number</th> <th>Type of CCE</th> </tr> <tr> <td>Replacement of CCE that will be older than 10 years</td> <td>519</td> <td>TCW 2043 SDD</td> </tr> </table>	Categorization	Number	Type of CCE	Replacement of CCE that will be older than 10 years	519	TCW 2043 SDD
Categorization	Number	Type of CCE					
Replacement of CCE that will be older than 10 years	519	TCW 2043 SDD					
<b>Expected outcome</b>	Increased cold chain capacity Eligible children in the wards will be reached which will ultimately contribute to improved coverage and equity.						
<b>Total CCE budget</b>	\$5,702,253						
<b>Country will procure 1,312 sets of spare parts and 8,136 extra 30DTR</b>	<b>The country would be procuring:</b> <ul style="list-style-type: none"> <li>• <b>1,312 sets of spare parts for existing CCE at \$642,684</b></li> <li>• <b>8,136 extra 30DTR devices at a cost of \$357,984</b></li> </ul> Total = \$1,000,668						
<b>TOTAL CCE BUDGET: Initial support (Years 1 and 2)</b>	\$69,643,650						

## 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 this equipment will serve to meet their replacement/rehabilitation, expansion and extension targets. 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 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

<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>
519	519	0	0	4,631	4,631
0	0	0	0	738	738
0	0	0	0	105	105
0	0	0	0	607	607
0	0				
<b>Total = 519</b>	<b>Total = 519</b>	<b>Total = 0</b>	<b>Total = 0</b>	<b>Total = 6,081</b>	<b>Total = 6,081</b>

## 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 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.*

In line with the 2014 EVM IP and cMYP 2016 - 2020 the government prioritised development of human resources for health, including supply chain leaders for effective programme management. Following determination of the DL&HC organisational health index; which included gap analyses of staff capacities, revision of the departmental organogram and articulation of roles and responsibilities of key staff, a Supply Chain Leaders Development programme (SCLD), is being implemented. Key staff have attended different training programmes e.g. Pharmaceutical Cold Chain on Wheels in Greece and Turkey; Warehouse Management Trainings in South Africa and a Supply Chain Workshop in Cotonou with support from government and partners. A series of exchange programs for DL&HC staff in partner and private sector organisations involved in the supply chain activities are ongoing while an online Vaccine Management Training (eVMT) for subnational cold chain managers is also ongoing. One hundred and fifty CCE technicians have been trained on planned preventive maintenance.

The Primary Health Care Revitalisation Supply Chain Committee (PHCrSCC) which is supporting the overarching PHC revitalisation strategy of the FGoN and the Nigeria Supply Chain Integration Project (NSCIP) of the Federal Ministry of Health (FMoH), has developed strategies for improving supply chain staff capacities sub-nationally across the country. This intervention is country wide and is funded by the Federal Government of Nigeria (FGoN) and partners. The funds for the implementation are currently

	<p>included in the country's budget and work plan for 2018.</p> <p>The 2017 EVMA also flagged gaps in knowledge of vaccine handlers especially at the operational level. Ongoing efforts include supportive supervision to all vaccine stores in addition to selected visits to health facilities by the NLWG and NERICC.</p>
<p><b>Data for supply chain management</b></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>Building a visibility and analytics network (VAN) is a core strategy for the DL&amp;HC to achieve its goal of guaranteeing 100% adequacy of bundled vaccines for safe immunisations.</p> <p>VAN is an initiative that will broadly integrate all supply chain data sources pertaining to vaccine availability and potency, principally NISCmis and DHIS2, and present them on a single platform for evidence-based management actions. VAN will articulate and operationalize an approach for how people, processes, policies and tools or systems will interact to achieve set goals. This will help national and state supply chain managers view their entire system to solve problems and make decisions. VAN is currently being funded by the Bill &amp; Melinda Gates Foundation through UNICEF and CHAI.</p> <p>Other health programmes in the country are working with the immunization programme to expand the scope of VAN to include all other public health commodities on the Navision platform. VAN will eventually integrate all last mile solutions for health commodities supply chain management. This expansion is being funded by USAID, Global Fund and other UN agencies.</p>
<p><b>Optimised, efficient design of distribution system</b></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>Bundled vaccine distribution from the national level through the zonal levels to the states has been outsourced to the private sector (3PL) with LTAs in place in line with the government's iSC transformation strategy.</p> <p>Plans are also in place to expand national storage capacity through the construction of the 3 Hubs (3 megastores in Abuja, Kano and Lagos). Vaccine arrivals, and direct distribution to states, will be managed by these Hubs bypassing the zonal levels</p>

	<p>currently being operated. The other 4 zonal stores will continue to serve as contingency stores. Partial funding for construction and outfitting of the Lagos hub and renovation of Kano hub has been secured through a World Bank loan facility.</p> <p>At the lower levels, iSC system redesign will see states distributing bundled vaccines directly to CCE equipped health facilities. This is informed by the pilots conducted on Push Plus vaccine delivery in Bauchi, Kano, and Lagos states. Funding support has been secured through the World Bank loan for scale up to remaining 27 states and the FCT.</p>
<p><b>Continuous improvement process</b></p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>The country conducts regular Effective Vaccine Management Assessments (EVMA) which serve as a basis for the development of supply chain improvement plans. The plans are used to inform all supply chain strengthening efforts in the country which are then implemented by all supply chain staff, led by their EPI managers.</p> <p>Quarterly supportive supervision, including data validation exercises to evaluate system data with source documents will be instituted at all supply chain levels. This will be used to deploy corrective action/preventive action (CAPA) systems and build health workers' capacities to identify and respond to incidences.</p> <p>The last EVMA was conducted in May 2017 and the 2017 – 2020 EVM continuous Improvement Plan (cIP) is based on the gaps identified in the 2017 EVMA. This 3-year improvement plan was developed through a collaborative stakeholder development process involving EPI Managers from national, state and LGA. The EVMA cIP was developed through a <i>bottom-up</i> approach, rather than the previous top-down approach, and is tailored along the five fundamentals of iSC. States have annualized these EVMA cIPs into annual workplans which are being implemented and tracked by the SLWGs. (#7_EVM Annual Workplan and Progress Report on EVM Improvement Plan).</p>

### **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).*

*Furthermore, describe which measures are in place to 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 Remote Temperature Monitoring Device, Beyond Wireless® is deployed at the national, zonal and state stores. While 30-day temperature recorders (30-DTRs) are deployed at the LGA stores and health facilities. The system for temperature monitoring and control (TMC) is built around early detection of temperature excursions and timely response. (see #13.9\_SOP for temperature monitoring). Although guided by WHO standards for Temperature Monitoring and Control; the NLWG designed and implemented a modified and more stringent Alarm Response and Escalation system – at shorter response time intervals – with the objective of ensuring prompt response to alarms.

At the national level, the first respondent, the Warehouse Manager investigates and addresses the cause of alarm. Failure to resolve the alarm results in escalation to the second respondent, the Head of Operations and ultimately the third respondent the Director, Logistics & Health commodities who has the responsibility for addressing any unresolved issues. This response system is replicated at the zonal level with the respondents as the assistant zonal cold chain officer (AZCCO), the zonal cold chain officer (ZCCO) and the Zonal Director as first, second and third respondents respectively. At the state level, the respondents are the state cold chain officer (SCCO), the state immunization officer (SIO) or state logistics officer (SLO) and the Executive Secretary of the State Primary Healthcare Board or the Director Primary Health care at the Ministry of Health as the first, second and third respondents respectively.

For the LGA level where 30 DTRs are used, the LCCO reports to the LIO who the need arises, escalates it to the Director Primary Health care in the LGA. Where repeated temperature alarms occur on the same equipment, this is escalated to the state through the State Logistics Working Group which advises the appropriate government authority to repair or decommission the equipment.




At the health facility level, health workers report temperature excursions to the LGA cold chain officers (LCCO) who then escalate the alarm to the LGA immunization officer (LIO) for resolution of any problems.

Repeated alarms due to power fluctuation have in the past informed the relocation of cold stores to more appropriate facilities in Cross River, Rivers, Nasarawa and Imo States.

## 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 <b>not inclusive</b> of operational cost. Operational costs must be financed by Ministry of Health or other partners.
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### 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

<b>The need</b>	To equip PHCs in remaining small population wards		
<b>Justification</b>	Equipping the remaining small population wards will allow the country to equitably reach the unreached populations, tying into the country's concept of "Reaching Every Child" – REC		
	<b>Categorization</b>	<b>Number</b>	<b>CCE type</b>
	PHCs in Small population wards	405	TCW 40 SDD
<b>Expected outcome</b>	All Eligible children in the wards will be reached which will ultimately contribute to improved coverage and equity		
<b>Total CCE budget</b>	\$3,143,610		

#### Prioritised (Additional) CCE Need #2

<b>The need</b>	To replace non-functional PQS CCE that would be > than 10 years in PHCs in large population wards - Replacement
<b>Justification</b>	About one third of the non-functional PQS equipment are older than 10 years and will require replacement per the country's policy. These CCE

	<p>are no longer economically viable due to the high costs of maintenance and repairs.</p> <p>In replacing the aged CCE, the country will take into consideration the need for production of ice packs for HF conducting outreach sessions and the volume of vaccine based on the ward population.</p> <table border="1"> <thead> <tr> <th>Categorization</th> <th>Number</th> <th>Type of CCE</th> </tr> </thead> <tbody> <tr> <td>PHCs in Large population wards with non-functional aged (&gt;10 years) PQS equipment</td> <td>2,012</td> <td>TCW SDD 2043</td> </tr> </tbody> </table>	Categorization	Number	Type of CCE	PHCs in Large population wards with non-functional aged (>10 years) PQS equipment	2,012	TCW SDD 2043
Categorization	Number	Type of CCE					
PHCs in Large population wards with non-functional aged (>10 years) PQS equipment	2,012	TCW SDD 2043					
<b>Expected outcome</b>	Eligible children in the wards will be reached which will ultimately contribute to improved coverage and equity.						
<b>Total CCE budget</b>	\$22,105,844						
<b>Prioritised (Additional) CCE Need #3</b>							
<b>The need</b>	To expand storage capacity at the LGA level to meet new vaccine introduction requirements (Expansion)						
<b>Justification</b>	<p>Currently 476 LGA cold stores do not have adequate capacity for planned new vaccine introductions (NVIs), equipping these cold stores with additional CCE will ensure that they have adequate capacity for safe storage of vaccines.</p> <table border="1"> <thead> <tr> <th>Categorization</th> <th>Number</th> <th>Type of CCE</th> </tr> </thead> <tbody> <tr> <td>CCE for LGA stores that require additional storage capacity for NVI</td> <td>1,913</td> <td>TCW 2043 SDD</td> </tr> </tbody> </table>	Categorization	Number	Type of CCE	CCE for LGA stores that require additional storage capacity for NVI	1,913	TCW 2043 SDD
Categorization	Number	Type of CCE					
CCE for LGA stores that require additional storage capacity for NVI	1,913	TCW 2043 SDD					
<b>Expected outcome</b>	Increased cold chain capacity to support the planned NVI						
<b>Total CCE budget</b>	\$21, 018, 131						
<b>Prioritised (Additional) CCE Need #4</b>							
<b>The need</b>							
<b>Justification</b>							
<b>Expected outcome</b>							
<b>Total CCE budget</b>							
<b>Country will procure 874 sets of spare parts and 6,558 extra 30DTR</b>	<ul style="list-style-type: none"> <li>874 sets of spare parts for existing CCE at \$428,456 and</li> <li>6,558 extra 30DTR devices at a cost of \$288,552</li> </ul> <p>Total = \$717, 008</p>						

<b>TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 &amp; 5)</b>	\$46,267,585
	\$114,465,211

<b>Replacement/Rehabilitation</b>		<b>Expansion</b>		<b>Extension</b>	
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	
<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>
2012	2012	1913	476		
0	0	0	0	405	405
		0	0	0	0
0	0			0	0
<b>Total= 2012</b>	<b>Total= 2012</b>	<b>Total= 1913</b>	<b>Total= 476</b>	<b>Total = 405</b>	<b>Total = 405</b>

**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 on-going activities related to other supply chain fundamentals 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 on-going activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.*

Building on the trainings conducted in Year 1 to 2 of the CCEOP support, the DL&HC will continue to conduct gap analysis of staff capacities and design trainings to fill technical skill gaps. The series of internship placements for DL&HC staff in partner and private sector organisations will continue based on identified needs. Online vaccine management training (eVMT) will continue during this period leveraging the UNICEF Agora learning platform. Refresher trainings will also be conducted for technicians in planned preventive maintenance. NPHCDA and partners will continue to monitor the impact of these trainings on the discharge of work functions and responsibilities.

Additionally, the outfitting for operationalization of the three hubs will include employing new staff by the FGoN to support the management of the new mega stores.

**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.*

The country will continue to implement the VAN strategy in the bid to sustain 100% adequacy of bundled vaccines for safe immunisations. Triangulation of service delivery data and stock data will be a continuous exercise.

The VAN initiative will be transitioned to the Government in 2019 and funding for its operations sustained by the Government with technical support provided by UNICEF and CHAI.

A Data Management Team (DMT) exists in the DLHC, whose capacity is being up skilled in the use of Data for Action and will be responsible for managing the systems.

The integration of immunization VAN with other public health commodities using the NAVISION platform will

	<p>result in cost sharing among programmes in the areas of licencing, application upgrade and technical support. Deployment of CCE will include training of HWs on vaccines stock data reporting and management and will contribute to improved use of data for action.</p>
<p><b>Optimised, efficient design of distribution system</b> <i>Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	<p>There are plans to ensure that direct deliveries to health facilities (PUSH PLUS) are implemented and sustained across all the 36 states and the FCT.</p> <p>Operationalization of the 3 Hubs is expected to be completed in Lagos by 2019 while Abuja and Kano will be ready by 2020.</p>
<p><b>Continuous improvement process</b> <i>Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>Quarterly supportive supervision at all immunization Supply Chain levels will continue to be the primary driving force for continuous improvement.</p> <p>These supportive visits will provide an opportunity for data validation, on-the-job mentoring and development of corrective actions for identified issues. Implementation of the 2017 EVM cIP will be funded by the Government and monitored annually. The country is expected to conduct its next EVMA in 2020 with financial and technical support from UNICEF and WHO with development of a 3-year EVMA cIP thereafter.</p>
<p><b>Temperature monitoring</b> <i>Describe how the temperature monitoring system will evolve? Which devices will be used? <u>Furthermore, describe which measures are in place to</u></i></p> <p>a) obtain temperature data from the various devices;</p> <p>b) act following temperature alarms (curative maintenance);</p> <p>c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and</p> <p>d) countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission,</p>	<p>The country will continue to use the existing devices and system for temperature monitoring and control in already deployed equipment. The CCEs to be procured with the CCEOP support will be bundled with electronic data loggers (RTMD) with facility for data transmission and analysis. The existing SOPs (#13.9_SOP for temperature monitoring) will be adapted for the ward level.</p> <p>Options for consolidating temperature data from different devices and triangulating them with the IRP to determine functional cold chain capacity are being considered. Currently, this system is being piloted in Lagos, Rivers, Niger and Kano under the supervision of SLWG for possible scale-up based on outcomes.</p> <p>The Beyond Wireless® system is deployed at the national, zonal and state stores and will continued to be in use.</p> <p>Additional logistics parameters will be included on the District Health Information Systems (DHIS2) RI module</p>

*analysis etc., will be covered in this section.*

that will include data on temperature monitoring at the ward level. These will be analysed to provide feedback within the VAN system.

## 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.

### 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 if countries are procuring User independent freeze protected cold boxes and vaccine carriers; 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,<sup>5</sup> such as demonstrated by remote temperature monitoring; and*

*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?*

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<sup>5</sup> **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.

**USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS**

<b>Indicator</b>	<b>Definition</b> <i>(Provide definition if not already specified)</i>	<b>Data Source</b> <i>(identify data source)</i>	<b>Reporting frequency</b> <i>( Annual, semi-annual, quarterly etc.)</i>	<b>Baseline (2018)</b> <i>(Provide numerator and denominator for calculating percentage)</i>	<b>Target Year 1 (2019)</b> <i>(Provide numerator and denominator for calculating percentage)</i>	<b>Target Year 2 ((2020)</b> <i>(Provide numerator and denominator for calculating percentage)</i>	<b>Target Year 3 (2021)</b> <i>(Provide numerator and denominator for calculating percentage)</i>	<b>Target Year 4 (2022)</b> <i>(Provide numerator and denominator for calculating percentage)</i>	<b>Target Year 5 (2023)</b> <i>(Provide numerator and denominator for calculating percentage)</i>
<b>1. CCE Replacement /rehabilitation in existing Equipped sites</b>	<i>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)</i>	<i>LGA/State CCIA/IRP-T update system</i>	<i>semi-annual, for CCIA/IRP-T and Annually for CCEOP Progress</i>	<i>Numerator = 0 Denominator= 2531 Percentage= 0% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced )</b></i>	<i>Numerator= 300 Denominator= 2531 Percentage = 6. 11.8% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced</b></i>	<i>Numerator = 519 Denominator= 2531 Percentage= 20.5% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced</b></i>	<i>Numerator = 1519 Denominator= 2531 Percentage60% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced</b></i>	<i>Numerator =2000 Denominator= 4,2531 Percentage=79% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced</b></i>	<i>Numerator = 2531 Denominator= 2531 Percentage= 100% <b>(Numerator= No to be replaced &amp; Rehabilitated Denominator total existing sites with CCE to be replaced</b></i>

<p>2. <b>CCE expansion in existing equipped sites:</b></p>	<p>Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;</p>	<p>LGA/State CCIA/IRPT update system</p>	<p>semi-annual, for CCIA and Annually for CCEOP Progress</p>	<p>Numerator = 0 Denominator= 476 Percentage= 0% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>	<p>Numerator = 0 Denominator= 476 Percentage= 0% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>	<p>Numerator =0 Denominator= 476 Percentage= 0.0% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>	<p>Numerator =190 Denominator= 476 Percentage= 40.0% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>	<p>Numerator =395 Denominator= 476 Percentage= 83.00% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>	<p>Numerator = 476 Denominator= 476 Percentage= 100.00% <b>Numerator:</b> Sites being equipped for expansion. <b>Denominator:</b> Total sites to be equipped for expansion</p>
<p>3. <b>CCE extension in unequipped existing and/or new sites:</b></p>	<p>Percentage of previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and new service sites being equipped with</p>	<p>LGA/State CCIA/IRP-T update system</p>	<p>semi-annual, for CCIA/IRP-T and Annually for CCEOP Progress</p>	<p>Numerator = 0 Denominator= 6486 Percentage= 0% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>	<p>Numerator = 2911 Denominator= 6486 Percentage= 44.8% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>	<p>Numerator = 5159 Denominator= 6486 Percentage= 79.5% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>	<p>Numerator =6050 Denominator= 6486 Percentage= 93.2% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>	<p>Numerator = 6081 Denominator= 6486 Percentage=93.7% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>	<p>Numerator =6486 Denominator= 6486 Percentage= 100% <b>Numerator:</b> Sites being equipped for extension. <b>Denominator:</b> Total sites to be equipped for extension</p>

	<i>Platform eligible equipment.</i>								
<b>4. CCE maintenance</b>	<i>Percentage of functioning CCE devices versus (total # of CCE devices designated for use (Note: functional status of 77.78% is taken as a baseline taking into consideration the 2018 CC inventory report)</i>	<i>Cold Chain Inventory report/IRP-T; LGA/State CCI update system</i>	<i>semi-annual,</i>	<i>Numerator = 7,624 Denominator= 9,801 Percentage= 77.78%  *7624 CCE are functional out of 9801</i>	<i>Numerator = 9801 Denominator= 9,801 Percentage= 100%  States are expected to have repaired the 2,177 Non-functional CCE before deployment of CCEOP equipment (100% functionality of CCE designated for use will have been achieved</i>	<i>Numerator = Denominator= 9,801 Percentage=</i>	<i>Numerator = Denominator= 9,801 Percentage=</i>	<i>Numerator = Denominator= 9,801 Percentage=</i>	<i>Numerator = Denominator= 9,801 Percentage=</i>

**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 dispatched for supply chain oversight function and rate of reported monitoring activities.

## USE THE TABLE BELOW TO COMPLETE ADDITIONAL INDICATORS

Indicator	Definition	Data Source	Reporting frequency	Baseline (2018)	Target Year 1 (2019)	Target Year 2 (2020)	Target Year 2 (2020)	Target Year 3 (2021)	Cumulative Target Year 1, 2 & 3
(Provide name of the <b>additional</b> indicators as shown above)	(Provide definition if not already specified)	(identify data source)	(annual, semi-annual, quarterly etc.)	(Provide numerator and denominator for calculating percentage)	(Provide numerator and denominator for calculating percentage)	(Provide numerator and denominator for calculating percentage)	(Provide numerator and denominator for calculating percentage)	(Provide numerator and denominator for calculating percentage)	
<b>1.CCE inventory update</b>	Percentage of LGA reporting up to date cold chain inventory of all facilities under them	CCE inventory report from LGAs	Semi-annual	Numerator = <b>No of LGAs submitting CCE inventory report = 768</b>  Denominator= <b>Total no of LGA=774</b>  Percentage = <b>99.22%</b>	Numerator = <b>774 of LGAs submitting CCE inventory report</b>  Denominator= <b>Total no of LGAs=774</b>  Percentage= <b>100</b>	Numerator = <b>774 of LGAs submitting CCE inventory report</b>  Denominator= <b>Total no of LGAs=774</b>  Percentage= <b>100%</b>	Numerator = <b>774 of LGAs submitting CCE inventory report</b>  Denominator= <b>Total no of LGAs=774</b>  Percentage= <b>100%</b>	Numerator = <b>774 of LGAs submitting CCE inventory report</b>  Denominator= <b>Total no of LGAs=774</b>  Percentage= <b>100%</b>	Numerator = <b>774 of LGAs submitting CCE inventory report=774</b>  Denominator= <b>Total no of LGAs=774</b>  Percentage= <b>100%</b>
<b>3. Proportion of required repairs performed over a 6-months period</b>	Number of broken-down equipment repaired out of the total number of the broken-down equipment during 6-month period	Zones and States CCE maintenance log	Semi-annual and annual	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=  *Numerator and Denominator will depend on number of deployed CCE that develop faults	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=	Numerator=Number repaired  Denominator=Total number of broken down (PQS <10 Years)  Percentage=

