




Application Form for Cold Chain Equipment Optimisation Platform for May 2017

Document Dated: March 2017

Application documents for 2017:

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



	<p>Purpose of this document:</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 first read the General Guidelines for all types of support, followed by the CCE Optimisation Platform guidelines. Thereafter, applicants should complete this CCE Application Form and submit by email to proposals@gavi.org.</p>
 	<p>Resources to support completing this application form:</p> <p>Technology guide for equipment selection for countries wishing to request CCE Optimisation Platform support is available here: www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/</p> <p>Extensive technical resources relating to vaccine cold chain equipment management are available on TechNet-21: www.technet-21.org/en/resources/cold-chain-equipment-management</p>

Weblinks and contact information:

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



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

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

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

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PART A: APPLICANT INFORMATION

1. Applicant information									
Country	SENEGAL								
Date:	21 April 2017								
Contact name	Dr. Ousseynou BADIANE								
Email address	ouzbad@hotmail.com								
Phone number	(221) 77 651 43 76								
Total funding requested from CCE Optimisation Platform (US \$)	Seven million four hundred and two thousand nine hundred and twenty-two (7,402,922) \$US.								
Does your country currently have an approved Gavi HSS grant?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>								
	Indicate the anticipated final year of the HSS: 2019								
Proposed CCE Optimisation Platform support start date (please be informed the actual start date should be at least 8-10 months from application date):	Indicate the month and year of the planned start date of the support, based on the strategic deployment plan: January 2018								
Proposed CCE Optimisation Platform support end date:	Indicate the month and year of the planned end date of the support, based on the strategic deployment plan: December 2019								
Signatures Include signed (and official) CCE Optimisation Platform application endorsement by: a) Minister of Health and Minister of Finance (<u>or delegated authorities</u>) b) Members of the Coordination Forum (HSCC/ICC or equivalent body)	<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> <table border="0"> <tr> <td>Minister of Health (or delegated authority)</td> <td>Minister of Health (or delegated authority)</td> </tr> <tr> <td>Name:</td> <td>Name:</td> </tr> <tr> <td>Signature:</td> <td>Signature:</td> </tr> <tr> <td>Date:</td> <td>Date:</td> </tr> </table>	Minister of Health (or delegated authority)	Minister of Health (or delegated authority)	Name:	Name:	Signature:	Signature:	Date:	Date:
Minister of Health (or delegated authority)	Minister of Health (or delegated authority)								
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PART B: MANDATORY ATTACHMENTS: NATIONAL STRATEGIES AND PLANS

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



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

2. Mandatory attachments:

No.	Strategy / Plan / Document	Attached Yes/No	Final version (dated)	Duration	Comments
1	Signature sheet for the Minister of Health and Minister of Finance, or their delegates	Yes			
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal ¹	Yes			
3	National Health Sector Development Plan	Yes	2009	10 years	
4	cMYP	Yes	2015	5 years	Covers the 2014-2018 period. In 2015, the cMYP was revised so that it aligns with the NHDP.
5	EVM Assessment	Yes	2015	5 years	
6	EVM Improvement Plan	Yes	2016	5 years	
7	Annual Workplan for EVM implementation and Progress Report on EVM Improvement Plan ²	Yes			
8	WHO CCEI Tool/UNICEF IMT/PATH CCEM Tool/CHAI tool ^{3, 4}	Yes	2017		WHO inventory tool used
9	CCE Inventory Report and Facilities Segmentation Plan	Yes	2017		
10	Single document: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and Equity Improvements Chapter 3: Strategic Deployment Plan Chapter 4: Equipment Selection	Yes	2017		
11	Maintenance Plan with financing and source(s)	Yes	2016	5 years	

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

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

³The CCE inventory must have been updated within no more than one (1) year of applying for Platform support.

⁴ The tool must allow IRC members to determine the input that equipment deployment has in improvement of coverage and vaccine equity.

2. Mandatory attachments:

No.	Strategy / Plan / Document	Attached Yes/No	Final version (dated)	Duration	Comments
12	Proof of status for CCE tariff exemptions waiver	Yes			
13	Terms of Reference for the relevant Coordination Forum (such as ICC) including all sections outlined in Section 5.2 of the General Application Guidelines ⁵	Yes			
14	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Yes			
15	Other relevant documents				

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)

Immunisation has been stated as a priority in both the 2013-2035 Emergent Senegal Plan (PSE) and in the 2009-2018 National Health Development Plan (NHDP). Indeed, the PSE states that the health system will place more importance on prevention, the aims of which include reaching an 80% rate of children age 0-11 months fully immunised in 2017 and reducing maternal as well as infant and child morbidity and mortality.

These guidelines have been taken up in the following NHDP objectives:

- Reach 80% of children age 0-11 months fully immunised in 2017
- Reduce maternal as well as infant and child morbidity and mortality

The guidelines of the PSE and NHDP have also been taken into account in the 2014-2018 comprehensive Multi-Year Plan for Immunisation (cMYP) of the Expanded Programme on Immunisation (EPI). Indeed, the EPI, which was started in Senegal in 1979, aims at reducing morbidity and mortality linked to vaccine-preventable diseases. To reach these goals, the following is necessary:

- Achieve and maintain high immunisation coverage (of at least 90%) among children age less than 1 year for all antigens at the national level.
- Maintain what has been achieved in the fight against vaccine-preventable diseases, in particular polio, maternal and neonatal tetanus, and measles.

Special attention is paid to the quality of vaccine conservation, to injection safety through the use of single-use injection material, and to the management of sharps waste.

The major strategic directions of EPI are:

- health and immunisation system strengthening
- sufficient and long-term funding for the EPI
- strengthening of the supply chain, infrastructures and equipment maintenance
- improvement of communication and social mobilisation for the EPI
- improvement of the vaccine management system
- improvement of health data management
- strengthening of human resources
- strengthening of coordination at all levels

⁵Countries applying before May 2017 can submit their existing Terms of Reference

- involvement of civil society

These objectives can only be achieved if the country has a powerful system of vaccine supply, conservation and distribution. This necessarily requires the setting up of quality cold chain equipment adapted to each level and each facility. Many challenges remain, despite the efforts provided by the State and its partners in this field, including equipping the facilities lacking a cold chain and replacing obsolete or unsuitable equipment.

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 immunisation.

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)

Senegal has several EPI coordination, decision-making and execution of activities bodies. These are the Inter-agency Coordinating Committee (ICC) on technical and policy aspects and the Senegal consultative committee for immunisation (CCVS). Preparation for this application adhered to an inclusive process in which all national stakeholders and partners took part.

Within the Ministry's HSS platform there is a human resources, infrastructure and equipment commission that was established in 2016; however, it is not yet very active.

PART C: SITUATION ANALYSIS AND REQUESTED SUPPORT

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

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

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

Information is required to cover the following areas:

- How is the country's immunisation supply chain administered?*
- What weaknesses have been identified in the country's supply chain?*
- Through what interventions are these weaknesses currently being addressed?*
- Describe challenges that are hindering the implementation of these interventions.*

- e) *Describe lessons learnt from recent supply chain related support that inform the current request for CCE Optimisation Platform support.*
- f) *What percentage of facilities have reliable access to grid electricity for up to or more than 8 hours per day?*
- g) *Please give the quantity and percent of current CCE that is: a) functional; b) PQS-approved; c) non-PQS-approved; and/or d) obsolete.*
- h) *What percent of the birth cohort is served by effectively functioning, PQS-approved CCE currently?*
- i) *What are the bottlenecks that CCE can address in the current supply chain set-up (for example, capacity and technology constraints)?*
- j) *Describe any other supply chain challenges that CCE Optimisation Platform support will assist in mitigating?*
- k) *What are the overall CCE needs?*

a) Since 2001, a vaccine/supply procurement plan has been drafted and implemented each year. This ensures constant availability of vaccines and consumables at the national and intermediate levels. The standard procedures for reception of vaccines and consumables and for their transport from the airport or port to the national storage facility are generally respected.

Provision frequency by level:

- ✚ The national level is provisioned every six months.
- ✚ The regional level is provisioned every three months.
- ✚ The district level is provisioned every two months.
- ✚ Immunisation units are provisioned every month.

Significant progress has been observed in how regularly vaccines are provisioned at the national, regional and district levels. Vaccine availability rates have clearly improved at all levels. With the exception of the antigens stockouts observed in 2009, due to the non-disbursement of funds provided for in the 2008 budget item on vaccines and consumables procurement, the country is provisioned in a regular manner. Since 2010, disbursements have been carried out regularly, and as a result no stockouts have been reported. Estimation of the vaccine and consumables needs are based on the target population method, by using the wastage rates and the cMYP national objectives. For the national level, this is done during a workshop to forecast inputs, using UNICEF's "Forecast" tool. This workshop brings together the Directorate of Prevention; the National Procurement Pharmacy (PNA); the Directorate of General Administration and Equipment (DAGE); and the Directorate of Infrastructure, Equipment and Maintenance (DIEM). It is supported by the partners involved in immunisation activities (WHO, UNICEF, etc.). The target population used to estimate needs comes from 2013 general population census data from the National Agency for Statistics and Demography (NASD), with annual adjustment made by this agency.

Senegal's procurement process for traditional vaccines and consumables for the EPI is carried out through procurement-assistance via UNICEF. All the products received are WHO pre-qualified, and batches are released by the Directorate of Pharmacy and Medications (DPM). Vaccine vials received are all equipped with vaccine vial monitors (VVM). Donations of vaccines made to the country by its partners (Gavi, UNICEF and WHO) also go through UNICEF. At the national level, EPI vaccines and consumables are received by the PNA. These deliveries are documented and signed for by the suppliers. Orders from the regions are made using WHO's Stock Management Tool (SMT), which is filled in by the managers of the vaccine storage facilities. Validation of orders is carried out by the national head of EPI supply management. A plan for inputs allocation is sent to the ANP and to medical regions at least two weeks before delivery. The latter is ensured by the ANP upon request by the Directorate for Prevention (DP). The Health Districts present a purchase order/delivery form to obtain supplies every two months at the medical-region level; this is done every month for the immunisation units.

b) The deficiencies below have been observed in the country's supply chain:

- ✚ Lack of storage capacity at the region, district and immunisation unit levels (lack of cold chain equipment in some facilities);
- ✚ Recurrent failures of CCE;
- ✚ Insufficient preventive and curative maintenance;
- ✚ Shortages or insufficient energy supplies (gas or electricity);
- ✚ Lack of ground transportation for vaccine distribution (vehicles, motorbikes);
- ✚ Lack of passive cold chain equipment;
- ✚ Lack of continuing education for maintenance technicians.

c) Corrective actions: Some actions have been undertaken to improve the deficiencies noted in the supply chain:

- ✚ An EVM improvement plan was drafted in 2016, taking into account aspects related to strengthening personnel and cold chain equipment.
- ✚ A supply management rehabilitation plan is in the process of being implemented.
- ✚ A maintenance plan has been drafted to manage preventive and curative maintenance of equipment.

d) Obstacles encountered:

- ✚ Delay in setting up funds for HSS/Gavi;
- ✚ Lack of qualified personnel;
- ✚ Delayed availability of technical assistance for drafting SOP and training in vaccine management;
- ✚ Gap in funding plan activities.

e) Describe lessons learnt from recent supply chain related support that inform the current request for CCE Optimisation Platform support.

A great deal of effort has been made by the Government and its partners, in particular Gavi (HSS, NVS), but this did not make it possible to close CCE gaps. With the introduction of new vaccines (MR, Rota, PCV13, IPV, monovalent HepB), CCE needs have increased considerably in recent years. In addition, we have been seeing a regular increase in immunisation units to improve equity in accessibility to immunisation services. Moreover, cold chain equipment must be adapted to realities on the ground, in particular energy supply and spare parts availability and quality. Because of fluctuations in voltage, equipment must also have voltage regulators.

All of these considerations only increase the importance of CCE needs, with more requirements in terms of quality in a context of scarce resources.

The platform offers the opportunity not only of capitalising on resources but also to have innovative equipment that meets WHO PQS standards.

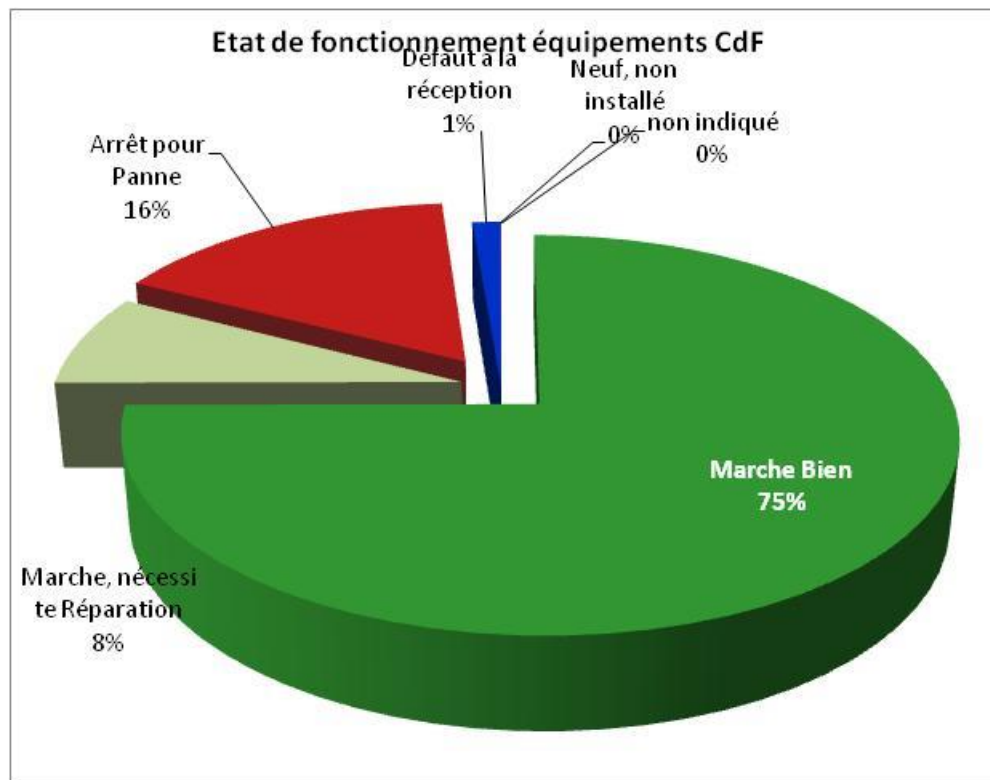
f) Availability of electricity

Senegal has a reliable and extensive electricity network, especially in urban areas. According to the January 2017 inventory, only 71% of immunisation units use this source of energy for cold chain equipment. Gas and solar sources represent 22% and 7% respectively of CCE energy sources.

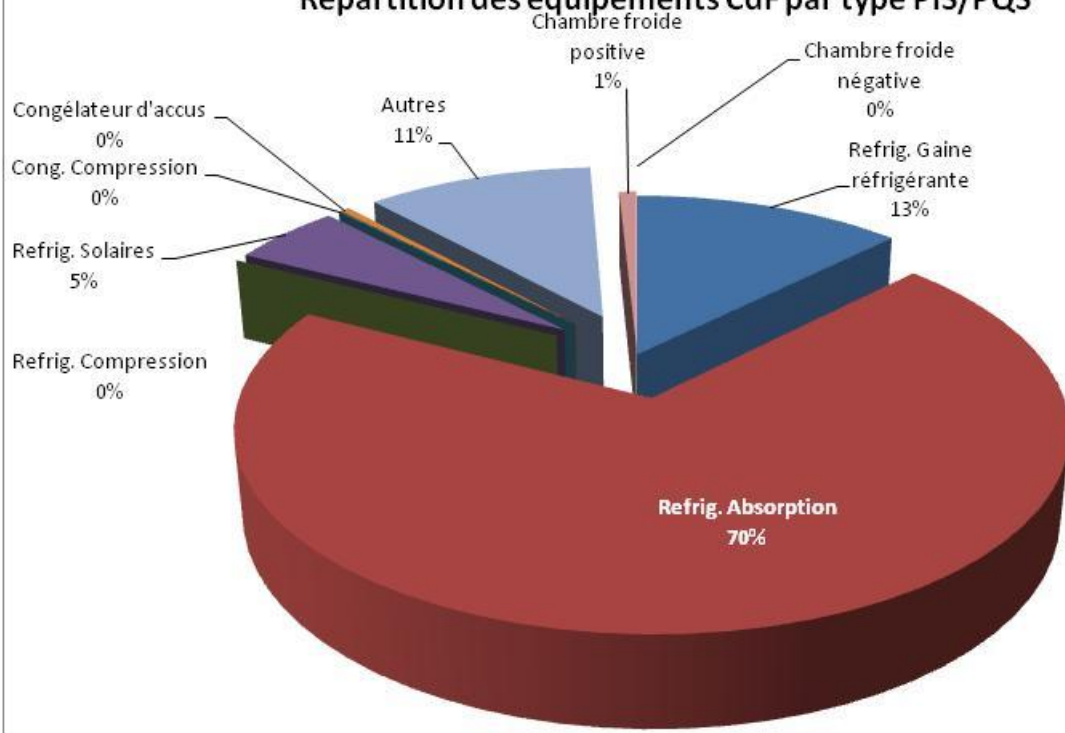
The CCE inventory of January 2017 indicates the following situation in the 14 regions, 76 districts and 1,465 immunisation units (1,402 main units and 63 secondary units):

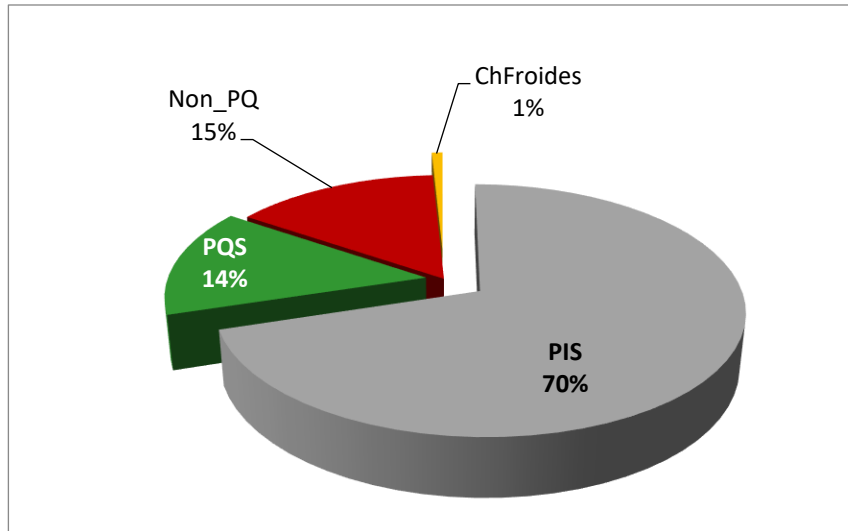
- In the entire the country, 1,835 CCE items were inventoried. Of these, 1,375 or 75% work well, 141 or 8% work but require repair, 295 or 16% are out of order and 23 or 1% were defective at time of reception.
- One thousand six hundred and twenty (1,620) out of the 1,835 existing equipment items (88%) are approved. These latter can be broken down into 1,348 or 83% CCE/PIS and 272 or 17% CCE/PQS.
- The 200 non-approved equipment items represent 11% of CCE.
- The number of pieces of absorption-type equipment is 1,283 or 70%, that of solar equipment 97 or 5% and that of ice-lined 231 or 13%.

Figure 1: Breakdown of equipment by operational status



Répartition des équipements CdF par type PIS/PQS





h) The proportion of the birth cohort receiving services based on functional equipment meeting WHO PQS standards is 7.10%, representing 117 immunisation units.

i) Bottlenecks:

Missed opportunities are an oft-cited reason given by stakeholders during coverage surveys. A cold chain equipment gap, under the circumstances mentioned below, is one of the health system-related determining factors explaining low immunisation coverages:

- ✚ Lack of cold chain equipment;
- ✚ Use of cold chain equipment that does not meet standards;
- ✚ Recurrent equipment failures;
- ✚ Shortages or insufficient energy supplies (gas or electricity).
- ✚ Insufficient storage capacity

j) Contribution of the application

To improve immunisation coverages, it is vital to have an approved, functional, reliable cold chain that is compatible with realities on the ground. Indeed, the latter, in addition to ensuring vaccine quality through optimal conservation, reduces the risks of missed opportunities thanks to the continuity of immunisation services.

k) Overall needs

The cold chain equipment available at the national level is made up of a 20-m³ negative-temperature cold room and 4 positive-temperature cold rooms (two 40-m³ and two 30-m³). This equipment provides a usable positive-temperature storage capacity of 32,740 litres and a usable negative-temperature storage capacity of 6,670 litres. However, the positive-temperature storage capacity

required in 2017 is 37,007 litres, representing a gap of 4,267 litres in 2017 that will reach 17,777 in 2022.

The installation of **one** positive-temperature 40-m³ cold room in 2018 will resolve the gaps.

At the region level, usable positive-temperature storage capacity is **72,988 litres** and that required is 27,337 litres. All regions have at least 1 positive-temperature cold room of 10m³; Dakar has 2, making a total of 15 cold rooms (CRs). They are all functional.

As for negative-temperature storage, 28 pieces of CCE have been inventoried, 3 out of the 14 regions show a gap.

The current need is for eight freezers with a capacity of more than 120 litres. Purchase of this equipment will help cover needs until 2022.

The equipment listed for districts mainly includes TCW3000, 1152 and 2000s.

At the districts level, all vaccines are kept in refrigeration mode. Required storage capacity was estimated based on a supply schedule of every two months and a one-month buffer stock.

Analysis of district-level storage capacities shows that **35** of them have a current or future deficit.

Installing 114 TCW4000 (111 at the peripheral level and a reserve of 3 at the national level) will help absorb the gap through 2022.

The inventory has helped identify 1,542 CCE items in 1,465 service delivery points. The number of service delivery points with at least 1 piece of equipment is 1,406, representing 96% coverage. There are still 59 service delivery points (4%) without any cold chain.

The percentage of functional CCE at the immunisation unit level is 83% (1,283). Two hundred and thirty seven (237) out of the 1,542 CCE items (16%) are not working because broken down; 21 refrigerators (1%) were defective at time of reception.

The majority of CCE (1,021, or 67%) operate on electricity. About 25% (391) of the refrigerators operate on gas, and 8% (130) are solar refrigerators.

The average age of refrigerators at immunisation units is of 5.4 years. It should be noted that 190 pieces of CCE (12%) are more than 10 years old, and for 300 others (19%) the age could not be determined.

Looking at the refrigerators in good working order, 1,006 of the 1,368 pieces of pre-qualified CCE work well, and among these 240 pieces of CCE (24%) are more than 10 years old or of indeterminate age.

Among the 340 refrigerators that are working because broken down or that are working but in need of repair, 191 are more than 10 years old or of indeterminate age.

Depending on the qualification, 126 pieces of CCE (8%) are PQS-approved, and 1,242 refrigerators (81%) are PIS-approved. There are approximately 174 domestic refrigerators (11%).

The purchase of 1,370 equipment items distributed as follows will meet the needs until 2022:

- ✚ 426 solar refrigerators with capacity between 5 and 36 litres;
- ✚ 689 electric refrigerators with capacity between 5 and 36 litres;
- ✚ 252 electric refrigerators with capacity between 36 and 70 litres;
- ✚ 3 electric refrigerators with capacity over 70 litres.

The choice of CEE models is shown in the Annex. For the electric refrigerators with capacity greater than 120 litres, first preference is for TCW 4000 AC; second preference is for VLS 350 A. Concerning the electric refrigerators with a capacity of less than 30 litres, preference is for ZLF 30 AC, followed by VLS 200A.

For the electric refrigerators with capacity between 30 and 60 litres, the only choice available is TCW 2000 AC.

For the electric freezers with capacity greater than 120 litres, preference is for TFW 800, followed by MF 314.

Concerning solar refrigerators, preferences are for TCW 40 SDD and VC 60 SDD.

Senegal will also need 2,000 TRIX-16-type continuous recorders.

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

Please respond to all questions.

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

Information is required to cover the following areas:

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

Geographical equity is measured using the proportion of districts with a Penta3 coverage above or equal to 80%. Equity with respect to gender, education and income level are measured respectively through immunisation data disaggregated according to sex, education and level of well-being.

According to survey data, the proportion of children who have not received any vaccine doses fell from 8% in 2000 to 3.4% in 2014 and 2.4% in 2015. This shows good accessibility to immunisation services. There is no difference in coverage of children by sex, for either Penta1 or Penta3. Immunisation coverages in urban areas are always slightly higher than those in rural areas. The coverage level is always higher in children of women who have a secondary or higher education level. Nevertheless, these differences are experiencing a downward trend. The difference in coverage for Penta3 in children whose mothers have no education and those with a secondary or higher level decreased from 15% in 2011 to 8% in 2014.

According to economic well-being quintiles, outcomes show relatively higher coverages in children with the richest mothers, although these differences have undergone a decrease over time. The difference in Penta3 coverage in children with the poorest mothers and those with the richest decreased from 16% in 2011 to 7% in 2014.

These differences in coverage can in part be explained by an unequal provisioning of service, which may be related to the lack of availability of a functional and suitable cold chain in some areas where the poorest and least educated populations live, in general.

To improve immunisation coverages, it is vital to have an approved, functional, reliable cold chain that is compatible with realities on the ground, wherever there are targets to be immunised. Indeed, the latter, in addition to ensuring vaccine quality through optimal conservation, reduces the risks of missed opportunities and inequalities thanks to the continuity of immunisation services.

A pilot project for optimising the design of the supply chain distribution system was implemented in the country's northern region (St.-Louis region) with the support of WHO and PATH (OPTIMIZE). Survey results were conclusive and recommended scaling up. Because of the lack of resources, scaling up was not possible. Currently, another study is under way, with the support of IntraHealth: The Informed Push Model (IPM) to evaluate the best distribution scenario that would make it possible to implement medications and essential products, including vaccines, up to the points of service delivery level, using the national provisioning pharmacy mechanism.

To optimise this distribution system, it will be necessary to have effective and innovative CCE across the entire chain (from receiving at the national level to administration of the vaccine to the target) to guarantee the security and effectiveness of vaccines. This must also take into account specificities on the ground, in particular energy supply availability and quality, in order to select the most suitable equipment for each type of facility. This is what will guide the choice of equipment in the range offered by the platform.

Profound changes to the supply chain are necessary as part of the introduction of new vaccines, in order to respect all steps of the process.

An effective cold chain is an fundamental component of the supply chain, making it possible to ensure vaccine quality from the manufacturer all the way to the beneficiaries. To improve effectiveness and efficiency of this supply chain, among other things, innovative and effective equipment must be used, a depreciation plan must be implemented and this equipment must be regularly maintained.

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 funding source(s) will be used for upkeep? To what extent are they secured?*
- c) *How will the country dispose of obsolete and irreparable equipment replaced by CCE Optimisation Platform equipment?*

CCE are resources that contribute to vaccine quality and they often need considerable investment with maintenance costs that are sometimes high.

Thus, as part of implementing cold chain maintenance and rehabilitation plans drafted by the DP, preventive and curative maintenance interventions are planned, in order to optimise equipment.

The CCE maintenance plan, whose objective is to help improve EVM, hinges on the following points:

- Defining the type of maintenance organisation;
- Defining roles and responsibilities of different stakeholders;
- Setting up mechanisms for managing purchases, procurement and spare parts;
- Coordination mechanisms;
- Monitoring and evaluation mechanisms.

Human resources play an important part in implementing the maintenance plan.

Expanding the regional maintenance offices, which will increase from 8 to 14, will make it possible to cover the territory. These offices will be provided with qualified staff that will receive continuing education in order to deal with constant changes in technology. As an illustration, when the new SDD refrigerators were installed in 2015, three technicians received training abroad on the solar cold chain. So their peers can benefit from this, two training sessions on the solar chain were organised by the DP in collaboration with the DIEM. These sessions were also the opportunity to conduct retraining on the cold chain in general, thus allowing 46 maintenance technicians to be brought up to speed. This strategy made it possible for the country to have local expertise in managing and maintaining CCE.

The frequency of preventive maintenance will be in compliance with manufacturer recommendations, according to the type of equipment.

Curative maintenance will be carried out every time there is a failure and the area maintenance technician will be brought in. Repair missions will be organised periodically by the regional maintenance technician.

A maintenance plan was drafted and will be implemented to make sure equipment is maintained. Local human resources will be utilised to conduct activities related to equipment maintenance.

In addition, standardised operational procedures (SOPs) on the maintenance of vaccine refrigerators and freezers have been developed. These describe in detail the duties and responsibilities of each actor involved in maintenance. The dissemination of these SOPs to the different levels of the pyramid is in progress.

The country has implemented the following organisational structure for carrying out maintenance:

- Directorate of Equipment and Maintenance Infrastructure (DIEM), which is responsible for conducting coordination and supervision activities. As such, it will provide training for maintenance technicians, procure spare parts and carry out twice-yearly supervision missions at the regional level. It will also centralise and make use of maintenance activity reports from the operational level.
- The Regional Maintenance Office (BRM) at the medical region level, which is responsible for preventive and curative maintenance for health facilities that do not have technicians. The BRM also coordinates all maintenance activities for the region with supervision missions.
- The technical maintenance unit (UTM) at the district level is responsible for performing preventive and curative maintenance.

Activities will be executed using the HSS/Gavi funds in addition to state and UNICEF contributions.

Following the example of medical equipment, a technical committee in charge of equipment reform for each facility will meet regularly in order to make a pronouncement on what will happen to scrapped refrigerators.

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.

Procurement of equipment will be through UNICEF "procurement assistance" according to the following diagram:

- Needs expressed by Ministry of Health departments (DP and DIEM), and order form sent to UNICEF;
- UNICEF sends cost estimates to the DP;
- DP endorses cost estimates;
- UNICEF sends order forms to the DP;
- UNICEF sends shipping documents;
- Ministry of Finance delivers waiver documents;
- Equipment removed by UNICEF;
- DP receives and distributes equipment;
- UNICEF delivers, installs, puts into operation and trains.

The deployment plan will be in compliance with the rehabilitation plan, taking into account emergencies and priorities. The following criteria for prioritisation have been adopted:

- ✚ Priority No. 1: Immunisation units with no cold chain or with non-approved refrigerators;
- ✚ Priority No. 2: Immunisation units with insufficient storage capacity;
- ✚ Priority No. 3: Immunisation units with depreciated refrigerators.

At the time of the purchase, the programme will provide suppliers the list of equipment destinations, specifying the towns and their distance from Dakar. It will be based on the segmentation list of immunisation units derived from the 2017 inventory.

Year	Source of funding	Funding amount (US\$)	Indication of funding situation	Inclusion in the budget
2018	State	0	Secured	Yes
	HSS/GAVI	584,937	Secured	Yes
	GAVI	2,339,748	Secured	
2019	State	275,304	Secured	Yes
	HSS/GAVI	620,343	Secured	Yes
	GAVI	3,582,589	Secured	


As with any medical equipment, the cold chain equipment planned as part of this platform will be exempted of all import duties, in compliance with the customs code (Decree 83-504 of 17 May 1983 on the application of Article 187 of the customs code) and WAEMU guidelines (Guidelines N°02/98/CM: UEMOA from 22 December 1998 on harmonising legislation for member States with regard to VAT).

For any equipment purchase, UNICEF will send shipping documents to the Ministry of Health in a timely manner, and the MoH will transmit them to the Ministry of Economy and Finance to obtain a customs duty exemption.



PART D: INITIAL SUPPORT PHASE

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

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

The need	<p>Priority need n°1: The facilities lacking a cold chain or having insufficient storage capacity, and facilities with non-approved refrigerators:</p> <ul style="list-style-type: none">  8 electric refrigerators with capacity over 120 litres;  41 electric refrigerators with capacity over 100 litres;  144 direct solar refrigerators with a freezer compartment and a storage capacity between 5 and 36 litres;  281 electric refrigerators with capacity between 5 and 36 litres;  130 electric refrigerators with capacity between 36 and 70 litres;
Justification	<p>Both administrative data and surveys show that the Senegal EPI is a dynamic program with increasing coverage rates since 2001. According to survey data, good accessibility to immunisation services can be noted.</p> <p>In spite of this, the objective of 90% for all antigens has not yet been achieved. In addition, there are great disparities between rural and urban areas, with higher coverages in the latter. There are also inequalities between the richest strata and the poorest ones. These inequalities might be related to a difference in the provision of service often linked to the lack of availability of functional CCE and appropriate energy sources.</p>
Expected outcome	All IUs have innovative cold chain equipment and the immunisation coverage objective of 90% for all antigens is achieved for each district.

Total CCE budget	The total budget for this priority need is US\$ 2,861,358.	
Prioritised (Urgent) CCE Need #2		
The need	Priority need n°2: Replacing depreciated and absorption-type equipment: <ul style="list-style-type: none"> ✚ 73 electric refrigerators with capacity over 100 litres; ✚ 282 direct solar refrigerators with a freezer compartment and a storage capacity between 5 and 36 litres; ✚ 408 electric refrigerators with capacity between 5 and 36 litres; ✚ 122 electric refrigerators with capacity between 36 and 70 litres; 	
Justification	Cold chain equipment has a useful life during which it meets a certain number of quality criteria. Replacing depreciated equipment will make it possible to ensure that each vaccine storage facility has appropriate cold chain equipment and is in good working order, in order to guarantee vaccine conservation and thus offer immunisation services in an effective way. Furthermore, absorption-type equipment is no longer pre-qualified by the WHO; hence the need to replace it with equipment that meets PQS standards.	
Expected outcome	All depreciated and absorption-type equipment is replaced by more efficient and innovative equipment that meets WHO's PQS standards.	
Total CCE budget	The total budget for this priority need is US\$ 4,478,237.	
Prioritised (Urgent) CCE Need #3		
The need	Priority need n°3: Replacement of 2,000 continuous temperature recorders	
Justification	Continuous temperature recorders have been used at all levels in the country since 2014. They must be replaced every two years. They help ensure good vaccine quality at the facilities, via continuous monitoring of conservation temperatures.	
Expected outcome	All refrigerators are equipped with a continuous temperature recorder.	
Total CCE budget	The total budget for this priority need is US\$ 63,327.	
Prioritised (Urgent) CCE Need #4		
The need		
Justification		
Expected outcome		
Total CCE budget		
GRAND TOTAL CCE BUDGET: Initial support (Years 1 and 2)	The total budget for these three priority needs is US\$ 7,402,922.	

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

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

	Replacement	Rehabilitation	Expansion
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Existing non-functional non-PQS equipment which must be replaced		PQS equipment (obsolete and non-functional) which must be replaced		Service delivery points offering immunisation, which do not have a refrigerator and must be equipped with one		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		New service delivery points to equip	
No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites
191	190	1,199	1,199	59	59	41	38		
191	190	1,199	1,199	59	59	41	38		

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, ongoing Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support.

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

<p>Supply chain managers</p> <p><i>Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</i></p>	Activities	Source of funding
	Train 425 supervisors on supportive supervision techniques incorporating EVM	Gavi/HSS
	Organise supportive supervision missions incorporating effective vaccine management	Gavi/HSS, WHO, UNICEF, USAID
	Train users of cold rooms	Gavi/HSS
	Train/retrain workers on EPI management, including EVM criteria	Gavi/HSS
<p>Data for supply chain management</p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, 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>Using the SMT tool makes it possible to have good visibility in monitoring stocks at the national and regional levels. This monitoring of stocks has a tendency to deteriorate along the health pyramid. Indeed, despite continually increasing promptness and completeness in forwarding monthly reports, one of the major weaknesses of the health information system is the lack of data on stock monitoring and the status of the cold chain for districts and immunisation units.</p> <p>To mitigate this deficiency, in 2016 the EPI initiated a process to harmonise immunisation data on the DHIS2 platform. Thanks to HSS/Gavi funds, two workshops were held. These made it possible to draft data entry forms at the platform level, with the setting up of validation rules making data regarding vaccine and supply stock movement mandatory data entry fields. This should enable inventory visibility at all levels. Data entry on the platform began in January 2017, to test the process. The feedback is currently being collected in order to make the necessary corrections so that the tool is improved and fully operational from the second half of 2017.</p>	
<p>Optimised, efficient design of distribution system</p> <p><i>Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	Conduct a comparative survey for distribution efficiency between the optimized system implemented in Saint-Louis and the country's traditional distribution system.	IntraHealth (USAID)
	Carry out a simulation study using the HERMES tool for consolidating regional and district storage facilities in order to optimise the "push" distribution system towards health posts.	UNICEF


<p>Continuous improvement process</p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>There are plans for setting up a working group for the management and the quality of data, under the leadership of the Division of Statistics and Health Information. This group will proceed with the evaluation of data quality and with development of a data-quality improvement plan by September 2017. The costs will be borne by HSS Gavi.</p>
<p>Temperature monitoring</p> <p><i>Describe the temperature monitoring devices that are currently available in the country? E.g. central level (CTMS), sub-national, lowest distribution and service delivery levels (30 DTRs and RTM devices), and during transportation (freeze tags).</i></p> <p><u>Furthermore, describe which measures are in place to</u></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, analysis etc., will be covered in this section.</p>	<p>All the cold rooms at the national level and regional levels are equipped with "beyond wireless' remote temperature control devices. The temperature data are regularly monitored and are the subject of a monthly report shared with all stakeholders. Corrective actions are undertaken whenever necessary.</p> <p>All equipment at the district level and at delivery points have log-tag-type continuous temperature monitors. The data are regularly monitored at the operational level, and temperature curves are shared during the quarterly monitoring meetings with the national level. At the HD level, the stakeholder data are presented at the monthly coordinating meeting. The explanations provided by the heads of units give us an idea of how well the equipment works. The facilities are also equipped with a freeze-tag-type indicator to monitor the vaccines' exposure to freezing during transport. The SOPs have already been developed for all levels and are being popularized.</p>

12. Reviewing implementation of initial support activities

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

PART E: SCALE-UP SUPPORT PHASE

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

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

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

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

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

Prioritised (Additional) CCE Need #1	
The need	Senegal's request is limited to two years. All the needs have already been taken into account in the scale-up support phase.
Justification	
Expected outcome	
Total CCE budget	
Prioritised (Additional) CCE Need #2	
The need	
Justification	
Expected outcome	
Total CCE budget	
Prioritised (Additional) CCE Need #3	
The need	
Justification	
Expected outcome	

Total CCE budget	
Prioritised (Additional) CCE Need #4	
The need	
Justification	
Expected outcome	
Total CCE budget	
GRAND TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 & 5)	

14. Summary of SCALE-UP SUPPORT PHASE replacement/rehabilitation and expansion plan

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

	Replacement				Rehabilitation		Expansion			
	Existing non-functional non-PQS equipment which must be replaced		PQS equipment (obsolete and non-functional) which must be replaced		Service delivery points offering immunisation, which do not have a refrigerator and must be equipped with one		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		New service delivery points to equip	
	No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites	No of equipment	No of sites
Total										

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

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

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

<p>Supply chain managers</p> <p><i>Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</i></p>	
<p>Data for supply chain management</p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, 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>Optimised, efficient design of distribution system</p> <p><i>Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	
<p>Continuous improvement process</p> <p><i>Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	
<p>Temperature monitoring</p> <p><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> <ul style="list-style-type: none"> <i>a) obtain temperature data from the various devices;</i> <i>b) act following temperature alarms (curative maintenance);</i> <i>c) in case of RTM devices, please elaborate on SOPs for each participant in the temperature monitoring system; and</i> <i>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.</i> 	

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**.

16. CCE Optimisation Platform - Budget Template

*To be filled by **ALL** countries after selection of equipment that best suits 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. This list is based on the "Type of equipment and energy source".*
- *Fill out the "Estimated service bundle cost" and "Number of equipment" requested.*
- *In Cells **CA and CB** of the sheet "Choice of specified CCE model" (to the right of the "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; budget variation in equipment; and differences in costs relative to all services, demurrage and associated costs.*
- **Procurement fees:** *Countries will also need to pay UNICEF's procurement costs for the country joint investment portion only. Its costs vary from 8% for countries with initial self-financing (20% by the country and 80% by Gavi) or 8.5% for those in a preparatory or accelerated transition phase (50% by the country and 50% by Gavi). This amount is paid to UNICEF.*

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.

ECF

Further information on developing relevant indicators, including a list of possible data sources, is provided in Section 7.2 of the CCE Optimisation Platform Guidelines, available at <http://www.gavi.org/soutien/processus/demander/>

17. Indicator monitoring and reporting requirements

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

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

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

- 1) **CCE replacement in equipped sites:** Percentage of equipped sites replacing CEE by any platform-eligible ILR (ice-lined refrigerator), SDD or long-term passive devices, irrespective of their funding source;
- 2) **Providing unequipped sites with CCE:** Percentage of previously unequipped sites, newly equipped with platform-eligible equipment (ILR, SDD or long-term passive devices);
- 3) **CEE rehabilitation in the existing sites:** Percentage of existing sites (other than those mentioned in Points 1 and 2 above) newly equipped with **ADDITIONAL** equipment of the platform (ILR, SDD or long-term passive devices) for new vaccine introduction and/or to serve an increasing population;

- 4) **CCE expansion in existing sites:** Percentage of sites being equipped with equipment of the platform (ILR, SDD or long-term passive devices);
- 5) **CCE maintenance:** Well-defined indicator proposed by the country to reflect appropriate equipment upkeep; for example, the percentage of facilities equipped with a working cold chain,⁶ such as shown by remote temperature monitoring;
- 6) **Freeze-free to non-freeze-free carrier ratio:** Ratio of freeze-free cold boxes/carriers to non-freeze-free cold boxes/carriers in-country?

USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS

Indicator (Provide name of the mandatory indicator as shown above)	Definition (Provide definition if not already specified)	Data Source (identify data source)	Reporting frequency (annual, semi-annual, quarterly etc.)	Baseline (Year) (Provide numerator and denominator for calculating percentage)	Target Year 1 (Provide numerator and denominator for calculating percentage)	Target Year 2 (Provide numerator and denominator for calculating percentage)	Target Year 3 (Provide numerator and denominator for calculating percentage)
CEE replacement in existing sites	Number of equipped facilities replacing CCE with any platform-eligible ILR, SDD or long-term passive devices, irrespective of their funding source	DP activity report	Annual	Numerator = number of sites with functional PQS CCE (126) Denominator = number of sites without functional PQS CCE (1,465) Percentage = 8%	Numerator = number of sites having received PQS CCE (555) Denominator = total number of sites using a non-PQS equipment item (1,339) Percentage = 41%	Numerator = number of sites having received PQS CCE (1,339) Denominator = total number of sites using a non-PQS equipment item (1,339) Percentage =	

⁶**Indicator definition:** % CCE functioning = (# functioning CCE devices) / (total # of CCE devices designated for use). CCE devices considered for this indicator include all refrigerators, fixed passive storage devices, walk-in cold rooms and freezers designated for string vaccines. Both the numerator and denominator should be collected from the same geographical area / period in time and should not include decommissioned equipment. Functionality of CCE is broadly defined to mean that the device is operable at a particular point in time for storing vaccine.

						100%	
Providing CEE in unequipped sites	Percentage of previously unequipped sites, newly equipped with platform-eligible equipment (ILR, SDD or long-term passive devices)	DP activity report	annual	<p>Numerator = number of sites without CC equipment (59)</p> <p>Denominator = total number of sites (1465)</p> <p>Percentage = 4%</p>	<p>Numerator = number of sites previously without CC equipment that received PQS equipment (59)</p> <p>Denominator = number of sites previously without equipment (59)</p> <p>Percentage = 100%</p>	<p>Numerator = number of sites previously without CC equipment that received PQS equipment (NA)</p> <p>Denominator =</p> <p>Percentage = NA</p>	
CEE rehabilitation in the existing sites	Percentage of existing sites (other than those mentioned in Points 1 and 2 above) newly equipped with ADDITIONAL equipment of the platform (ILR, SDD or long-term passive devices) for new vaccine introduction and/or to serve an increasing	DP activity report	Annual	<p>Numerator = number of sites with functional CCE and insufficient capacity (44)</p> <p>Denominator = total number of sites (1,465)</p> <p>Percentage = 3%</p>	<p>Numerator = number of sites with functional CCE and insufficient capacity that received additional PQS CC equipment (44)</p> <p>Denominator = number of sites with functional CCE and insufficient capacity (44)</p>	<p>Numerator = number of sites with functional CCE and insufficient capacity that received additional PQS CC equipment (NA)</p> <p>Denominator = number of sites with functional CCE and insufficient capacity (NA)</p>	

					Percentage = 100%	Percentage = NA	
CCE expansion in the new sites	<i>Percentage of sites being equipped with equipment of the platform (ILR, SDD or long-term passive devices)</i>			<i>Numerator = number of equipped sites using the platform equipment (0)</i> <i>Denominator = total number of sites (1,465)</i> <i>Percentage = 0%</i>	<i>Numerator = number of equipped sites using the platform equipment (555)</i> <i>Denominator = total number of sites (1,465)</i> <i>Percentage = 37%</i>	<i>Numerator = number of equipped sites using the platform equipment (1,389)</i> <i>Denominator = total number of sites (1,465)</i> <i>Percentage = 91%</i>	
CCE Maintenance	<i>Proportion of functional PQS equipment</i>	<i>DP activity report</i>	<i>Annual</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (126)</i> <i>Denominator = total number of health facilities providing immunization (1,542)</i> <i>Percentage = 8%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (681)</i> <i>Denominator = total number of health facilities providing immunization (1,542)</i> <i>Percentage = 44%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (1465)</i> <i>Denominator = total number of health facilities providing immunization (1,542)</i> <i>Percentage = 95%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (1465)</i> <i>Denominator = total number of health facilities providing immunization (1,542)</i> <i>Percentage = 95%</i>

Ratio of freeze-free to non-freeze-free	<i>Proportion of freeze-free cold boxes/carriers to non-freeze-free cold boxes/carriers in-country</i>						
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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 stockout;
 - 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 sent to monitor the supply chain and rate of monitoring activities reported.

USE THE TABLE BELOW TO COMPLETE ADDITIONAL INDICATORS

Indicator <i>(Provide name of the additional indicator)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 <i>(Provide numerator and denominator for calculating percentage)</i>
1. Proportion of immunisation units with all basic vaccines	Proportion of vaccine [sic] units with all basic vaccines	ECPSS (ongoing survey on the delivery of health services)	Annual	Numerator = <i>Number of immunisation units where all vaccines are found in a state of use on the</i>	Numerator = <i>Number of immunisation units where all vaccines are found in a state of use on the</i>	Numerator = <i>Number of immunisation units where all vaccines are found in a state of use on the</i>	Numerator = <i>Number of immunisation units where all vaccines are found in a state of use on the</i>

				<i>day of the survey (253)</i> <i>Denominator = total number of units surveyed (309)</i> <i>Percentage = 82%</i>	<i>day of the survey (263)</i> <i>Denominator = total number of units surveyed (309)</i> <i>Percentage = 85%</i>	<i>day of the survey (278)</i> <i>Denominator = total number of units surveyed (309)</i> <i>Percentage = 90%</i>	<i>day of the survey (294)</i> <i>Denominator = total number of units surveyed (309)</i> <i>Percentage = 95%</i>
2. CCE Maintenance	Proportion of functional PQS equipment	DP activity report	Annual	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (126)</i> <i>Denominator = total number of health facilities providing immunization (1,465)</i> <i>Percentage = 9%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (681)</i> <i>Denominator = total number of health facilities providing immunization (1,465)</i> <i>Percentage = 46%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (1,465)</i> <i>Denominator = total number of health facilities providing immunization (1,465)</i> <i>Percentage = 100%</i>	<i>Numerator = number of health facilities providing immunization using functional PQS CCE (1,465)</i> <i>Denominator = total number of health facilities providing immunization (1,465)</i> <i>Percentage = 100%</i>
3.							
Add more indicators HERE if needed.							