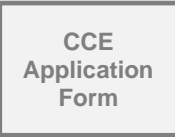





Application Form for Cold Chain Equipment Optimisation Platform support in 2018

Document Dated: November 2017

	<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 read the Application guidelines and How to request new Gavi support documents. 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 counties 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>
<p>Weblinks and contact information:</p> <p>All application documents are available on the Gavi Apply for Cold Chain Equipment support webpage: http://www.gavi.org/support/process/apply/cceop/. For any questions regarding the application guidelines please contact countryportal@gavi.org or your Gavi Senior Country Manager (SCM).</p>	
	<p>Countries are informed that based on post IRC recommendations, final approved amounts may be different from what countries have requested.</p> <p>This final approved amount will be dependent on the availability of funding.</p> <p>Gavi will respect countries' equipment selection. However, countries could also receive their 2nd or 3rd preference based on their selection in the budget.</p>

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PART A: APPLICANT INFORMATION

1. Applicant information	
Country	Zimbabwe
Date	September 10, 2018
Contact name	Joan Marembo
Email address	jmarembo@gmail.com
Phone number	+263 773 935 466
Total funding requested from CCE Optimisation Platform (US \$)	<i>This should correspond exactly to the budget requested in the embedded template.</i> The Total Budget (Incl. 6% Additional Buffer) \$3,970,036.
Does your country have an approved Gavi HSS support on-going?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	<i>Indicate the anticipated final year of the HSS: 2018-2021</i>
Proposed CCE Optimisation Platform support start date <i>(please be informed the actual start date should be at least 8-10 months from application date):</i>	<i>Indicate the month and year of the planned start date of the support, based on the strategic deployment plan:</i> September 2019
Proposed CCE Optimisation Platform support end date:	<i>Indicate the month and year of the planned end date of the support, based on the strategic deployment plan: September 2021</i>
Signatures <i>Include signed (and official) CCE Optimisation Platform application endorsement by:</i> <i>Minister of Health and Minister of Finance (or delegated authority)</i>	<i>We the undersigned, affirm the objectives and activities of the Gavi CCE Optimisation Platform proposal are fully aligned with the national health strategic plan (or equivalent) and that the funds for implementing all activities, including domestic funds and any needed joint investment, will be included in the annual budget of the Ministry of Health:</i> Minister of Health or Delegated Authority Name: Signature..... Minister of Finance or Delegated Authority Name: Signature: The Program Support Rational (PSR) signature of the two Ministers is attached ([see attachment #1]

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.
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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	Aug 2017		Signature submitted as part of PSR
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal ¹	Yes	Sep 2018		
3	National Health Sector Development Plan/ Strategy (or similar)	Yes		2016-2020	
4	cMYP	Yes	Jan 2017	2016-2020	
5	EVM Assessment	Yes	June 2016		
6	EVM Improvement Plan	Yes	June 2016		
7	EVM Annual Workplan and Progress Report on EVM Improvement Plan ²	Yes	August 2018	Jan-Dec 2018	
8	WHO CCEI Tool/UNICEF IMT/PATH CCEM Tool/CHAI tool ^{3,4}	Yes	August 2018		WHO CCEI Tool
9	Inventory Report and Facilities segmentation	Yes	Sep 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	Sep 2018		

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

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

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

⁴ Tool should allow reviewers to understand targeting of equipment to locations relative to contribution towards improving coverage and equity of immunisation.

2. Mandatory attachments					
No.	Strategy / Plan / Document	Attached Yes/No	Final version (dated)	Duration	Comments
11	Maintenance Plan with financing and source(s)	Yes	August 2018	On-going	
12	Proof of status for CCE tariff exemptions waiver	Yes	Oct 2017		
	Other relevant documents				
13	CCEOP Budget	Yes	Aug 2018		
14	CCEOP Operational Deployment Plan Priorities	Yes	Sep 2018		
15	Operational Deployment Plan 2019	Yes	Sep 2019		
16	Operational Deployment Plan 2020	Yes	Sep 2019		
17	Project Management Team and ToR	Yes	Sep 2018		
18.1	CCE Disposal of Public Assets	Yes	Sep 2018		
18.2	Public Procurement and Disposal Act	Yes	May 2017		
19	Zimbabwe Program Support Rationale (PSR) 2018-2021	Yes	Sep 2018		
20	Zimbabwe Total Cost of Ownership (TCO) Tool	Yes	Aug 2018		
21	Inventory Management tool	Yes			
22	Immunisation Supply Chain Strategy 2018	Yes	Aug 2018		
23-25	Board of Survey Report 1,2,3	Yes			
26	2018 CCEOP WHO Pre-review Assessment Report & country Feedback	Yes	Oct 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)

Countries are encouraged to reference relevant sections of the above documents as much as possible.

- Immunization services to children and mothers in Zimbabwe are provided through approximately 1,666 fixed health facilities of different types and are free of charge. The private sector also contributes to immunization services in Zimbabwe. These services are augmented by outreach immunization services catering for approximately 30% of the population. The populations covered by outreach services are mostly in districts with problems of access due to fewer health centres, long distances to health facilities and other geographical areas.
- Zimbabwe has many absorption refrigerators within the health system. As reported in the 2018 Cold Chain Inventory, absorption refrigerators are no longer compliant with WHO standards. Some of these refrigerators have outlived their life span i.e. they are more than 10 years old. There are new health

centres which have been established in Zimbabwe over the last 1 year or so and they do not have refrigerators for EPI. [Attachment #9]

- Based on the previous assessments (2016 EVMA and 2018 Cold Chain Assessment) it has been observed that there are knowledge gaps in vaccine management at sub-national and service delivery points. These assessments also noted that there is need for cold chain technicians and vaccine store keepers at Provincial level.
- For the past few years, the country introduced rota, pneumococcal conjugate vaccine, and measles second dose including switch from trivalent oral polio vaccine to bivalent oral polio vaccine. In the coming years, the country is planning to introduce IPV, Td, HPV HepB birth dose, TCV and OCV. To accommodate these extended storage capacity requirement and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE, the country has developed multi-year expansion and replacement plan. [Attachment #10.]
- Continuous temperature monitoring devices are lacking and the EVMA recommended that these should be purchased. Cold chain equipment needs to be maintained operational.
- As per Zimbabwe Program Support Rationale (PSR) 2018-2022 (attachment #xx), in June 2017 15.9% of the districts in Zimbabwe had a DTP3 coverage of less than 80% and these districts were: Mbire (76%), Shurugwi (78), Murewa (79), Masvingo (79%), Mwenezi (75%), Bulilima (74%), UMP (59%), Centenary (78%), Marondera (79%), Chiredzi (69%). Besides, there are five districts having difficulties of access during rainy seasons and poor infrastructure impacting performance. These include Chiredzi, Mbire, Mt Darwin, Kariba and Mwenezi districts.
- Shortages of LP gas for running refrigerators have recently been reported in Zimbabwe and this results into cancellation of immunisation services as all vaccines are transferred to the nearest health facility which has a functional refrigerator. The cancellation or postponement of immunisation clinics generally reduces the confidence which mothers have in the health system.

The immunization supply chain in Zimbabwe is designed to match the distribution of health facilities in the country. According to the ISCM strategy, The objectives of the immunization supply chain are:

- To provide safe and potent vaccines to all eligible recipients in the country
- To maintain 100% vaccine and supplies availability in the country
- To optimize vaccine and supplies distribution to 100% of planned deliveries at all levels
- To minimize stock outs at service delivery to less than 10%
- To achieve and sustain 100% of availability of well-functioning and reliable cold chain equipment and temperature monitoring devices
- To attain and sustain the Effective Vaccine Management (EVM) recommended standard at all levels

These (immunization Supply Chain (iSC) objectives are in-line with goal number 3 of the National Health Strategy, which seeks to improve the enabling environment for service delivery by improving supply chain visibility, including:

- Integrate and harmonize supply chain systems
- Employ technology in logistics and supply chain management to increase visibility and commodity security
- Integrate and maintain cold chain supply chain systems

To achieve the iSC objectives, the country CCE strategy (also supported by the Program Support Rationale already submitted to Gavi) is aimed at rehabilitating and strengthening the country wide cold chain equipment management by providing capacity and sustainable power solutions with fewer maintenance requirements. Under the CCEOP application, the country will co-finance procurement and installation of cold chain equipment from 2019 to 2020. More specifically, the CCEOP application is expected to improve access by providing reliable solar direct drive equipment in all facilities where power for cold chain is unreliable. The provision of SDD refrigerators will improve vaccine supply at peripheral levels thereby reducing missed opportunities. In addition, the availability of cold chain equipment in other service delivery points with inadequate capacity will also help to improve coverage and equity issues country wide.

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)

The CCEOP application was developed jointly with the involvement of MoH EPI team, WHO and UNICEF country offices and UNICEF ESARO and the final endorsement from the ICC was obtained at its meeting held on 05 September 2018 [#2.1].

Currently there is an EPI logistic working group comprised of MoH, UNICEF and WHO country offices without formal ToR and establishment. A discussion has already taken place to establish one which will also be part of the Project Management Team for the implementation of the Operational Deployment Plan.

PART C: SITUATION ANALYSIS AND REQUESTED SUPPORT

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

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

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

Information is required to cover the following areas:

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

a) The country's Immunisation Supply Chain (iSC)

Logistics structure:

Zimbabwe procures all its vaccines and supplies through UNICEF Supply Division with funding for traditional vaccines from UNICEF and for new and underutilized vaccines from GAVI. The government co-finances GAVI procured vaccines.

The vaccine supply chain of the country is made up of four levels which are the central, provincial, district and service delivery. All vaccines in the immunisation program are imported and stored at the Central Vaccine Stores (CVS) which is a Primary Level. The CVS distributes vaccines to Provincial Vaccine Stores (PVS) quarterly and PVS distribute further vaccines to District Vaccine Stores (DVS) on two monthly basis and in turn districts to service points every two month.

The whole vaccine supply chain of distribution from CVS to service delivery uses a pull system. The pull system referred to here is basically the system where lower levels order their requirements according their supply period needs as opposed to push system where higher level just pushes supplies down whether needed or not.

Fixed infrastructure:

A new Central Vaccine Stores built by the Government of Zimbabwe was commissioned in 2014. The new building has a workshop for refrigerator repairs, store rooms for diluents and spares, four offices and a boardroom. It has six cold rooms of 40m³ and four 30 m³ new cold rooms and one 30 m³ freezer room installed. Each of the eleven provincial vaccine store has one 30 m³ cold room installed and commissioned in 2014. District vaccine stores are equipped with the conventional PQS refrigerators, mainly the ice lined refrigerator. At service delivery level, there are mainly three types of refrigerators for vaccine storage – gas/electric, electric and solar direct drive.

Transport infrastructure:

Vaccine and related supplies are distributed between supply chain levels mainly government with partners chipping in at district level. Gavi HSS procured vaccine delivery trucks for central and provincial levels. The central level now delivers the vaccines to provinces, provinces to districts and districts to service delivery.

Recording and reporting systems:

- Temperature recording and monitoring is being done using Remote Temperature Monitoring devices at both central and provincial levels while district and service delivery levels use 30 day electronic temperature loggers, Fridge-tag 2®. RTMS at Central and Provincial Vaccine Stores was installed in 2017 in response to the 2016 EVMA recommendations.
- Stock management is computerised at central, provincial & district levels. The tool in use is the WHO Excel based Stock management tool (SMT) for vaccines and supplies. A paper based system is in place at service delivery points.
- There is a standard Vaccine order form at lower levels. This order form is first completed at service delivery level once every two months indicating what was received for the past supply period, what was consumed in terms of administered and wasted, what is the balance in stock and what is to be ordered for the next supply period for all antigens. This order is submitted to the district vaccine store who will scrutinize it before supplying the ordered vaccine. After supplying, the district will consolidate orders from all facilities for that supply period and prepare a district order along the same lines. The order is submitted to the provincial store once every two months who in turn supplies the districts accordingly. Once every quarter, the provincial stores consolidates data from the district vaccine orders for the past three months and prepares a provincial vaccine order that is submitted to the national level. The CVS uses this order to supply provincial stores. As for the dry materials the bundling system is in use at all level.

b) Weaknesses identified in the country's supply chain

- The Feb 2018 national cold chain inventory [Attachment #9] captured 3,465 Cold Chain Equipment among which:
 - 798 Cold Chain Equipment (CCE) units are obsolete and are classified as 'kept for disposal' in the inventory.
 - 2,164 out of 2,667 CCE are functional. This represent approximately 81% of the total CCE.
 - 1,620 out of 2,667 CCE are non PQS-approved, translating to approximately 60%.
 - Only 35% (919 out of 2,667 CCE) are age of 5 years of less indicating the majority (65%) of existing equipment need of replacement 722 CCE age of 10 years and more. 1,026 are of equipment age between 8 to 10 years of age.

- According to the 2016 Effective Vaccine Management Assessment [attachment #5], the main weakness identified and yet not addressed are building maintenance, stock records and distribution reports.
- The assessment also noted some weaknesses. Central and provincial vaccine stores cold rooms are not equipped with appropriate continuous temperature monitoring devices. Temperature mapping has not been done on all cold rooms. Critical stock levels of vaccines and supplies have been breached at most facilities. Vaccine stock out has been experienced. Updating of stock records is not consistently being done within a day of stock transaction. Although computers for computerising vaccine management at district level were distributed some months back, they are not being used because users have not been trained on use of the software. There are no standard issue/receipt vouchers for vaccines and supplies at provincial and district vaccine stores. Health care workers' knowledge is low on some vaccine management aspects and technologies e.g. the shake test, calculation of vaccine wastage, forecasting vaccine and supplies requirements and use of fridge and freeze tags.
- The Zimbabwe Comprehensive Immunization Program Review Integrated with Vaccine Preventable Diseases Surveillance, Data Quality and Post-Introduction Evaluation of Measles and Rubella Vaccine and Measles Second Dose 2016 identified the following weaknesses.
 - There has been a lack of operational funding from government towards vaccine supplies distribution. Vaccine and supplies distribution requires fuel for vehicles. The officers who do vaccine distribution must be paid travel & subsistence allowances equivalent to the period they spend in the field. Gavi is currently funding this activity with the hope that Government will take over at some point.
 - There are no substantive posts for Provincial Vaccine Storekeeper and Provincial Cold Chain Technician and districts have no maintenance plans. The officers who are managing Vaccine Stores are seconded because the current establishment does not have such posts. However, efforts are being made to have substantive posts for storekeepers and technicians.
 - Wastage monitoring at subnational and service delivery levels is suboptimal. BCG has a high wastage which is not sustainable when using the supermarket approach. The other challenge has been that some subnational levels staff have inadequate knowledge & skills on use of the SMT.
 - High numbers of obsolete CCE being used at service delivery level.
- Currently there is no web based system for immunisation supply chain management. The country is using the SMT which is not online to have real time monitoring at least at the provincial level.
- An Evaluation of the RED Strategy implementation in three Provinces in Zimbabwe: Measuring Performance and Associated Challenges and Enabling Factors Stock outs of vaccines at service delivery level; January 2018 noted the following weaknesses:
 - Sixty two percent (13 out of 21) of the districts in Manicaland, Mat North & Mat South had stock outs of vaccines in 2017. Similarly eighty-one (34 out of 42) percent of the facilities reviewed experienced stock outs of different products during the same period. OPV and BCG were the hardest hit at health facility and district respectively.
 - District level staff revealed that HF staff lack adequate knowledge on forecasting vaccine needs and pointed it as one of the major factors for continuous vaccine stock-outs.

c) Interventions to address current weaknesses

- Engagement of Ministry of Local Government who own the buildings: In Zimbabwe, public sector properties are owned and managed by the Ministry of Public Works. All maintenance plans and activities are done by this department hence the Ministry of Health is currently working with Public Works so that maintenance is in line with EVM standards.
- Use a real time supply chain management system to enable visibility. A proposal has been submitted to Gavi for supporting JSI Zimbabwe through the extended partner support so that the country rolls out an online immunisation logistics management system. However, there is need to make sure that financial sustainability is taken into consideration.
- Reporting template developed for distribution reports. A reporting template to enable standardisation of reporting has been developed and will be shared to all levels. It is also hoped that with the

introduction of an online LMIS, central level will be able to have information on distribution done by provincial and district levels.

- On job training to improve knowledge and skills. Continuous training in EVM through workshops and during supportive supervision will aim to enhance the knowledge and skills of health workers. Although the provincial and district levels have been trained in use of the SMT, there are gaps which have been identified and these need to be addressed. The country will utilise the opportunity created by RED funding from Gavi to train subnational and service delivery points beginning 2018 onward.
- Application to Gavi for support through the CCEOP. The country submitted an application to Gavi for support through this CCEOP. The country got TA from the UNICEF ESARO to develop the application for Gavi support. The country has also procured spare parts and has developed a budgeted maintenance plan to enable timely preventive and breakdown maintenance of all CCE.
- A remote temperature monitoring system is now in place at central and provincial levels while further working to ensure the effective use of Data for Action (D4A).

d) Challenges hindering the implementation of these interventions.

- Funding for procurement of an online LMIS. An online LMIS could have been introduced earlier but the country could not raise the funds required for the purpose. Although a proposal for support has been submitted to Gavi, sustaining this may be a challenge but it is hoped that the country economic situation will soon improve paving way for better health financing.
- Knowledge and skills inadequacies as well as competing priorities. Although provinces and districts have been trained in use of the SMT, some lack basic computer skills to enable use of the application. This has resulted in varied performance across districts and, in a few cases, absence of an updated inventory.
- Inadequate human resources at subnational levels. Provinces have seconded officers to manage vaccines at all levels but still face challenges because these are not substantive arrangements. At district level, the officers who manage vaccines have many other priorities which make it difficult for them to have adequate time for immunisation work. In addition, there are knowledge gaps among some.
- Ownership of buildings is continuously affecting proper maintenance. As alluded to earlier on, buildings are owned and managed by a different department hence it has been difficult to have work plans which meet standards expected by each department.

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

- Immunisation supply chain can be sustained with partner support. Zimbabwe's immunisation supply chain is mainly funded by partners. Procurement of vehicles for distribution, computers for inventory management, CCE, vaccines and supplies are all procured with support from development partners. Although the government plays a critical role in policy, human resources and political will, much still needs to be done in terms of immunisation financing.
- Development partner support enables achievement of coverage & equity (C & E) objectives. The country realises that achievement of objectives has been heavily reliant upon support from development partners. This has been achieved by advocacy and resource mobilisation activities. In addition, the country has been able to achieve set objectives and has the enabling political commitment which has seen partners willing to support the country.
- Supply Chain support has resulted in sharing of knowledge. Partners organise training workshops and provide financial support for country participants. New technologies and innovations have also empowered general service delivery all with support from partners.
- Coordination of the supply chain among country stakeholders bears fruit
- All parties must be well informed of the unique requirements of immunisation systems. The Interagency Coordination Committee is made up of several partners, non-governmental organisations and civic society who play a critical role in governance of the immunisation program.

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

- The Zimbabwe Cold Chain Inventory conducted in February 2018 found out that 100% of 62 district vaccine stores and 56% of the 1,666 facility assessed do have more than 8 hours per day grid electricity supply.

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

The 2018 national Cold Chain Inventory findings provided the following information:

- The inventory captured 3,465 Cold Chain Equipment among which 798 units are obsolete and are classified as 'kept for disposal' in the inventory. These refrigerators have been in storage for long owing to non-activation of disposal procedures by different levels. Nonetheless, these refrigerators will be disposed of before the end of 2018. Hence, these equipment are not included in the functionality analysis and the total equipment is 2,667.
- **Functionality:** 2,164 out of 2,667 Cold Chain Equipment (CCE) are functional. This represent approximately 81% of the total CCE. The CCEOP support will have a positive effect on the functionality of CCE in the country.
- **PQS-approved:** 1,047 out of 2,667 CCE are PQS-approved, translating to approximately 40%.
- **Non PQS-approved (PIS and others):** 1,620 out of 2,667 CCE are non PQS-approved, translating to approximately 60%.
- **Obsolete:** There 722 CCE age of 10 years and more. 1,026 are of equipment age between 8 to 10 years of age. There are 919 CCE age of 5 years of less.

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

- At service delivery level, approximately 48% of the birth cohort is served by PQS-approved CCE. This represent 717 health facilities out of 1,666 service points assessed during the national cold chain inventory. Most of the remaining are using the old PIS-approved CCE which is absolute technology. [Attachment #8]
- At district vaccine store, 90% of the birth cohort is served by effectively functioning PQS-approved CCE currently. [Attachment #8]

i) Bottlenecks to be addressed in the current CCE supply chain set-up (for example, capacity and technology constraints)

- Five out of sixty-two district vaccine stores and two hundred fifty five service delivery level do not have at all cold chain equipment impacting ease access to supplies and services. [Attachment #8].
- 60% of the CCE used are non PQS-approved type. They are PIS compliant and most are absorption type. Hence, the CCE to be procured will meet technological requirements for quality and efficiency. As mentioned earlier on, about 50% of the equipment are obsolete (age of 10 years and more) thus failing to meet WHO EVM standards. Procurement of up-to-date technology will ease the challenge. [Attachment #8].
- 19% of existing CCE are not functional mainly due to old technology and the CCEOP support will have a positive effect on the functionality of CCE in the country. [Attachment #8].
- 51 district vaccine stores and 1,197 service delivery level are expected to benefit from replacement, expansion or equipping CCE meeting program requirement. [Attachment #8].
- Cancellation of immunisation sessions due to power outages will be reduced because of SDD technology in facilities with unreliable grid electricity. The country plans to replace some AC refrigerators in facilities with unreliable power supply with SDD refrigerators so that there is no interruptions to sessions.

j) Other supply chain challenges that CCE Optimisation Platform support will assist in mitigating

- SDD technology will replace at least 691 units of gas power refrigerators which is used at service delivery level and is expensive and unsustainable. The country does not have adequate

resources for procurement of LP gas to power the cold chain. At present, partner support is used for procurement of LP gas amounting about US\$700,000 per year. Hence the need to have sustainable source of power for cold chain management is vital. The country realises the potential benefits of solar energy to efficiency and the environment.

- 35 service points remotely located in five districts (Chiredzi, Mbire, Mt Darwin, Kariba and Mwenezi) having difficulties of access during rainy seasons and poor infrastructure impacting performance will greatly benefit by having higher capacity SDD cold chain equipment not requiring LPG delivery. This will fully reduce the cost and logistics challenges to supply LPG.

k) Overall CCE needs

CCE model		2019: Initial				2020: Scale-up			2019 & 2020
Equipment model	Energy source	Priority 1	Priority 2	Priority 3	Sub-total	Priority 1	Priority 2	Sub-total	Grand total
VLS 200A Greenline	Electricity	210	4	136	350	53	212	265	615
VLS 300A Greenline	Electricity	13	0	6	19	0	7	7	26
VLS 400A Greenline	Electricity	62	6	40	108	7	56	63	171
VLS 024 SDD Greenline	Solar	136	16	107	259	37	144	181	440
VLS 054 SDD Greenline	Solar	25	14	15	54	1	18	19	73
VLS 094 SDD Greenline	Solar	6	1	1	8	0	0	0	8
MF214	Electricity	15	5	13	33	7	22	29	62
Grand Total		467	46	318	831	105	459	564	1,395

Key note: As part of bundling, 874 units of Voltage regulators for electric Cold Chain Equipment and 1,395 units of Fridge-Tag 2 E Berlinger Temperature monitoring device 30 DTR for 1,333 unit of cold chain equipment and spare parts requirement is also considered as bundle procurement.

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?

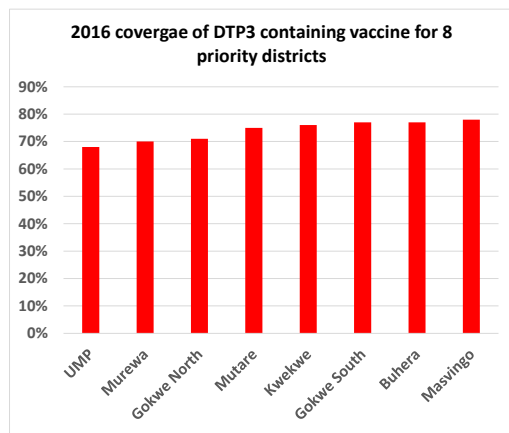
a) The requested Platform support contribution

The country has a comprehensive multi-year plan (cMYP) running period 2016 – 2020. This is the document that guides operations of the immunization program. The document stipulates strategies to address challenges in immunization including equity issues. According to the 2015 EPI Routine

Coverage Survey, there were no remarkable equity issues to access immunization services based on gender. However it was noted that there were some disparities in accessing immunization services due to distance and road non-availability. Some districts were well covered by static facilities such that over 80% of the population was within the 5 km radius to access health services from fixed facilities whereas, in some districts over 70% of the population was being served by outreach services. The Government of Zimbabwe continues to construct health facilities in hard to reach areas to address issues of access due to distance hence some new health facilities have not been issued with cold chain equipment. The Government of Zimbabwe has also approved the setting up of health posts in wards as a way of increasing access to health services.

- Zimbabwe is on course to achieve the targets of the GVAP 2011-2020. One of the GVAP targets is that all districts should have a DTP3 coverage of 80% and above. To this extend, the country has placed districts into three categories depending on their DTP3 coverage – <80%, 80%-90% and >90%.

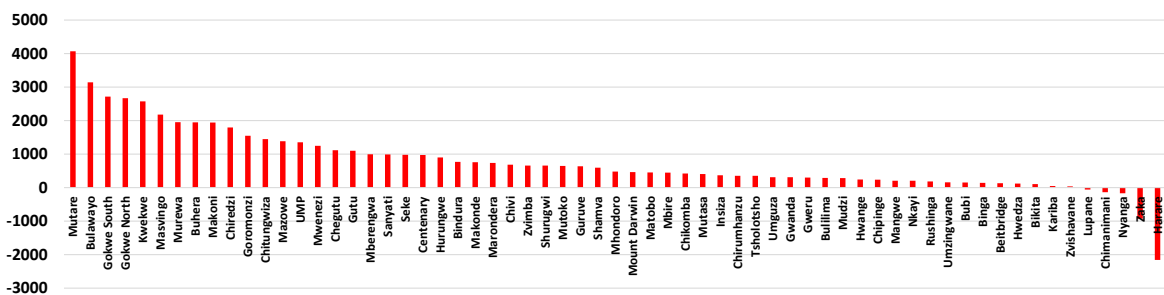
Fig 1. Eight priority district having DTP3 containing coverage less than 80% in 2016.



As per the 2016 JRF, 8 districts had their DTP3 containing vaccine coverage of less than 80% and these included UMP (68%), Murewa (70%), Gokwe North (71%), Mutare (75%), Buhera (77%), Masvingo (78%), Gokwe South (77%), and Kwekwe (76%).

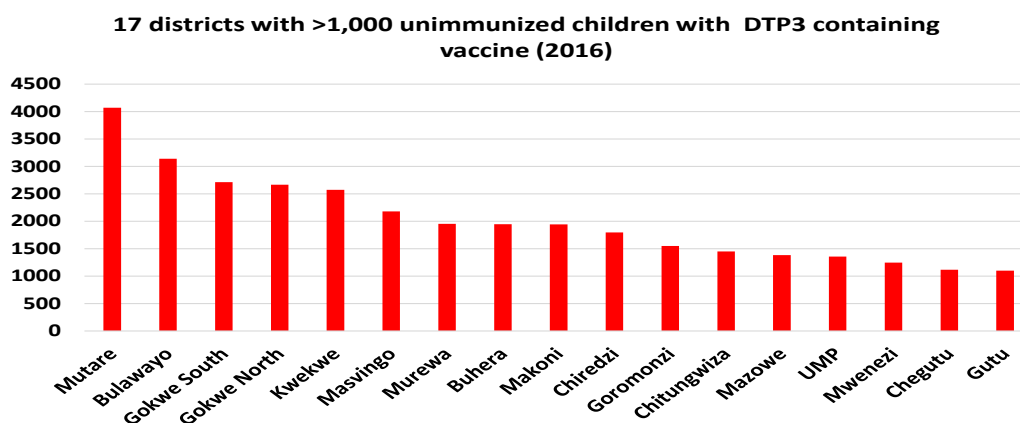
- 17 districts are also identified based on the number of unimmunized children. The graph below shows further the 2016 unimmunized children for DTP 3 containing vaccines. 17 districts do have more than 1,000 unimmunized children where priority will be given in addition to coverage data.

Fig 2. DTP 3 containing vaccine unimmunized children at district level (2016 JRF)



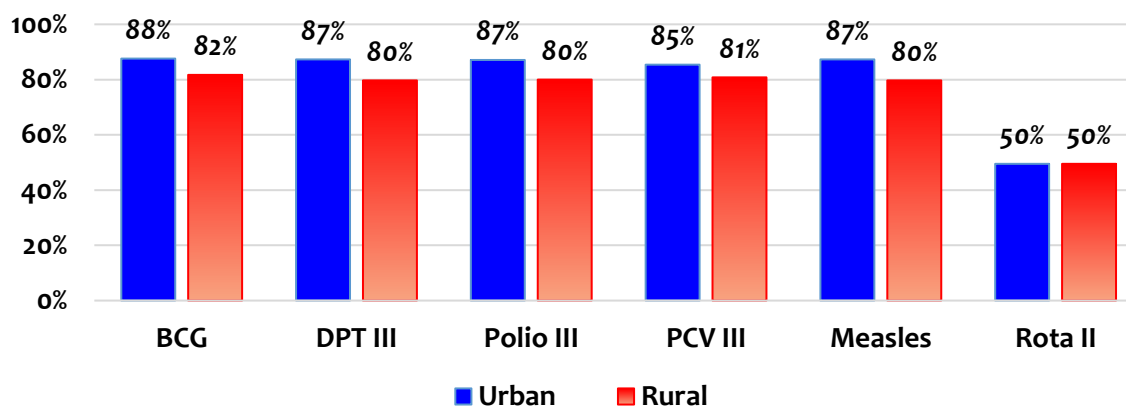
Taking into consideration those districts with more than 1,000 unimmunized with DTP3 containing vaccines, 17 districts as outlined below have been identified to be considered in the priority lists.

Fig 3. 17 districts with >1,000 unimmunized children with DTP3 containing vaccine (2016)



- In addition, there are five districts with poor access during the rainy season. These include Chiredzi, Mbire, Mt Darwin, Kariba and Mwenezi districts. The poor performance is attributed to among other things long walking distances to fixed facilities, physical barriers like flooded rivers during rainy season and bad road network.
- Twenty-eight districts had their coverage between 80%-90% and the remainder >90%.
- The ZDHS and the MICS have consistently shown that immunization coverage is higher in urban than in rural areas as shown in the graph below.

Fig 4. Coverage for different antigens by rural/urban residence (2015 ZDHS)



- In the 2015 ZDHS the proportion of children aged 12-23 who did not receive any vaccination at the time of the survey was 9.8% and this was higher in rural (11.6%) compared to urban areas (5.7%). The proximity of the health facilities to households in urban areas increases the likelihood of children being vaccinated compared to rural areas.
- The priority of CCEOP will be given to facilities with low vaccination coverage and those with low access during the rainy season and by so doing addressing coverage inequalities. The government has constructed or will construct and operationalize during the lifespan of the CCEOP new health facilities that have never been issued with cold chain equipment. These facilities are constructed in hard to reach and underserved communities. The provision of new equipment will improve access to health services including vaccinations to the communities. In addition, previous assessments have

indicated minimum participation of the private sector in provision of immunization services. The government has considered allocation of cold chain equipment to some of the private health service providers under the CCEOP to address access of immunization services by the elite. Overall, it is hoped the CCEOP will increase access to vaccination services in the identified communities.

b) Plans underway

There has been a re-look at the current supply chain structure in the country with view to optimizing the system. It was noted one of the bottlenecks to efficient and effective vaccine management was the manual system of stock management. The country took a deliberate effort to introduce the computerized stock management tool (SMT) at provincial and district levels. This resulted in the country witnessing zero vaccine stock outs and efficiently using available capacities at subnational level in 2017. The SMT also facilitated the sharing of stock management reports with the national level. Furthermore, the country has proposed through the GAVI extended partner support the procurement of web-based real time logistics management information systems (LMIS) to improve on immunization supply management system.

- The country also procured nine vaccine delivery trucks under GAVI support, one for central level and eight for rural provinces (each of the eight received one truck). The trucks have significantly averted transport problems experienced previously and improved on timeliness of deliveries to provinces and districts.
- The last effective vaccine management assessment and the comprehensive EPI review noted inadequate knowledge on vaccine management in health workers at subnational and service delivery levels. Through GAVI support, the country managed to train health workers at all levels on effective vaccine management in 2017. In addition, the country has revised its stock holding policy to have service delivery facilities increasing their safety stock from two weeks to four weeks. These initiatives have resulted in improvements in stock availability at service delivery level as evidenced by the Vital Medicines Availability and Health Services Survey of 2017.
- Cold chain equipment maintenance was also found to be problematic in the 2016 EVMA. To improve this, the country has proposed the financing of establishment of provincial cold chain technicians' posts under the new GAVI HSS proposal. The plan being the government takes over the financing of the posts when the GAVI support lapses.

c) Platform support enabling sustainability

The CCEOP will facilitate the revamping of the cold chain system in Zimbabwe by providing new equipment to hard-to-reach and underserved communities. All absorption refrigerators currently using liquefied petroleum gas (LPG) will be replaced with more reliable and renewable energy SDD refrigerators thereby making savings of about US\$700,000 per annum in LPG consumption. Moving out from the old technology to new technology will also improve on quality and availability of vaccines. The new technology will reduce energy consumption and maintenance costs when compared to existing cold chain equipment running costs. In addition, the planned capacity expansion under CCEOP will go a long way in addressing equity issues in underserved and hard-to-reach communities where distribution is interrupted due to flooding and bad roads during rainy seasons.

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.)?
 - o What is the frequency of preventative and corrective maintenance that the country commits to (supported by partners)?
 - o What technical support is anticipated for maintenance?
- b) How will the country monitor the completion of preventive and corrective maintenance?
 - o 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) Preventive and emergency repair [attachment #11]

- The Zimbabwe cold chain equipment maintenance system comprises of three level; Central, Provincial and district levels. The Central level is manned by a qualified National Cold Chain Technician currently support by GAVI. The technician oversees maintenance and repair of complex CCE at all levels. Each of the eleven provinces has a designated Provincial Cold Chain Technician who takes care of CCE maintenance requirements in respective provinces. The same applies at district level where each of the sixty districts has a designated technician to do maintenance and minor repairs to equipment at service delivery level and district level. All technicians at sub-national level are semi-skilled and have capacity to carry out most of the maintenance requirements at their level.
- The technicians are equipped with basic maintenance tool kits to facilitate their work. The technicians have been going out at least twice per year for routine preventive maintenance
- The country has developed a standard operating procedure that provides guidance on the frequency of preventive maintenance. The SOPs indicate daily, weekly and monthly preventive maintenance tasks to be performed by users. The SOPs also contains periodic maintenance to be performed by district technicians. However, when it comes to the provincial and central level technicians, maintenance is conducted according the annual maintenance plan. Throughput time for attending the CCE breakdowns is 48 hours. Spare parts funding has been from UNICEF through Health Development Fund (HDF).
- The technicians have been able to sustain the working status of CCE equipment as evidenced by the 2018 Cold Chain Assessment report which provided close to 85% functionality status without adding very old non-functional CCE.

b) Monitoring of preventive and corrective maintenance [attachment #11]

- The national cold chain technician has the overall responsibility of overseeing the functionality of the cold chain equipment in the country. The country has put in place mechanisms for reporting functionality of the CCE in the country. There is a daily temperature record chart for each vaccine storage equipment at every level from national to service delivery. The temperature chart, besides daily recordings of temperature also contains a space for recording maintenance work carried out on the equipment. The original copy of the chart is submitted to the next higher level at the beginning of each month. The higher level analyses the data and provided feedback accordingly. Equipment breakdowns are to be reported within 24 hour of occurrence with a response time of 48 hour from

receipt of report. Major breakdowns are usually attended to by provincial or district technicians. As a matter of procedure, a technician opens a job card for each maintenance/repair work carried out and shares their monthly reports with the national technician.

- In order to improve the effectiveness of immunization supply chain which includes cold chain equipment repair and maintenance, the country has under the new GAVI HSS application 2018 – 2021, objective 5 “To strengthen cold chain and vaccine logistics management system in Zimbabwe” included CCE maintenance [Attachment #19]. A provision was made in the application for training of Cold Technicians and vaccine store managers in basic maintenance of the cold chain and vaccine management. To address one of the findings of the 2016 Effective Vaccine Management Assessment [Attachment #5] where some sub-national facilities did not have equipment preventive maintenance plans, SOPs have been developed to guide the production of annual maintenance plans at all levels. The country is also planning under GAVI new HSS to procure cold chain spares and technicians tool kits to support the immunisation supply chain. Supervision will be enhanced at all levels to ensure preventive maintenance plans are religiously followed to ensure maximum vaccine safety.

- The country carried out a comprehensive cold chain assessment in Feb 2018. The cold chain assessment report [Attachment #9.1] outlines the various types of equipment placed at all levels, the type of energy in use and the age of equipment. Functionality of the equipment is also stated among other information. The priority areas especially the less accessible geographical areas that need SDD refrigerators are identified. Upon arrival of the new platform equipment, delivery and installation of the equipment will be coordinated by national EPI logistic office by capturing where they are. At the same time the data of all equipment deployed and installed will be incorporate into the Cold Chain Equipment Inventory Management Tool [Attachment #21] to monitor their performance. On a bi-annual basis, an update of the CCE inventory shall be conducted by Ministry of Health to ascertain status of all equipment in the country.

If there happens to be movement of CCE, the responsible health entity will update accordingly in their asset register indicating the relocation of the equipment. On a quarterly basis, review of performance of the equipment will be conducted by district cold chain technicians with support from provincial cold chain technicians and the reports will be forwarded to the national level to guide program decisions.

The country requires an annual CCE maintenance budget of US\$160,640 [Attachment #11] to cover daily subsistence allowances and transport for national and provincial cold chain technicians. This budget is include in the new HSS application to GAVI[Attachment #19]

c) Disposal of obsolete and irreparable cold chain equipment

The Government of Zimbabwe has laid down instructions and procedures on how to decommission and dispose of unrequired, excess, redundant, obsolete and unserviceable assets. The guidelines are contained in the Treasury Instructions [Attachment #18.1 & #18.2]. It is the responsibility of the user department to inform Ministry of Health, Administration Department on the availability of any such equipment or assets and reasons for recommending decommissioning and disposal. The information is contained in a standard Board of Survey reporting form singling out each piece of equipment including serial numbers reasons for decommissioning and disposal. If any such equipment is identified, the requirement is that the Administration Department convenes a Board of Survey to consider the proposed decommissioning and disposal. Members of the Board of Survey are drawn from the Administration of the Ministry concerned, Ministry of Public Works and Zimbabwe Republic Police and the Department recommending disposal. The Ministry of Environment may also be co-opted as member if final disposal is destruction.

The mandate of the Board of Survey is to assess the referred to equipment, consider reasons given for disposal and to come up with independent recommendations for final approval by Accounting Officer. The Accounting Officer in this respect is the Head of the Ministry and this is the Permanent

Secretary of each Ministry. When Accounting Officer approval is received, the equipment is disposed of as recommended.

The Ministry of Health and Child Care will follow Government procedures in decommissioning and disposal of obsolete, redundant and unserviceable CCE as stipulated in the Treasury Instructions. Procedures for disposal are according to the attached Act 5 of 2017 on Public Procurement & Disposal of Public Assets [Attachment #18.2]

The Ministry of Health and Child Care, Head Office, last disposed a number of obsolete, redundant and unrepairable cold chain equipment in 2013 where the standing Government procedures were followed. EPI had various pieces of cold chain equipment that needed disposal and the Administration Department is already informed of these equipment by way of completing and submitting Board of Survey forms to Administration (three sample signed form are attached [Attachment #23, #24 and #25). Administration Department has already convened a Board of Survey as specified above and examined all the pieces of equipment to be disposed of after which they recommended methods of disposal. The report was submitted to the PS who also scrutinized the report and authorized the disposal. Most of the items were disposed of by sale through public auction and funds realized, though very little ploughed back to the Ministry.

**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) country facilitation of the manufacturer's or representative's role in equipment purchase, distribution and installation

- The Ministry of Health through its EPI program will facilitate logistics activities for deployment and installation of the equipment with manufacturers or their representatives. Ministry of Health will oversee the overall activities and support the manufacturer for any administrative problems they might encounter. All areas identified for Operational Deployment Plan will be further communicated once the CCE order and arrival dates are defined and deployment timeline is agreed with the supplier to ensure deployment of CCEs to areas that they will be optimally put to use.
- The Ministry of Health and Child Care and partners will collaborate with the manufacturers and coordinate the training and installation of new equipment procured under CCEOP. Installation of the new platform equipment will involve cold chain technicians in the country that are currently carrying out installation of CCE in the districts and health centres. These technicians participated in similar installation work before and have requisite experience that makes them ideal to participate in installation of the equipment under the guidance of the manufacturer as included in the service bundle. The opportunity of the service bundle agreement will provide further means of building capacity of the technicians in installation of new equipment.
- The Ministry has budgeted, outside of CCEOP, for all cold chain technicians who will participate in the installation of the new equipment. Besides capacity building, the country requires that these technicians be part of the installation so that they provide support in terms of some important decisions to be made. In addition, our experience with previous installations has shown that it is necessary that the Ministry be represented during installation to provide oversight and ensure effectiveness. The country is fully aware of the financial obligation emanating from this arrangement and will mobilise resources to ensure that the teams are fully funded.

b) Source of the joint investment & Technical assistance need


- The 2019 & 2020 CCEOP 20% country budget (Incl. 6% Buffer + 8.5% procurement) is \$861,498 from which the initial phase for 2019 will require \$522,444. [Attachment #13]
- The country joint investment will be covered from The Program Support Rationale (PSR) 2018-2022 and from Government of Zimbabwe. \$700,000 is allocated in the submitted PSR where there are funds allocated for cold chain equipment procurement under the Objective 5. [Attachment #19]. The remaining funding gap for 2020 which is \$161,498 will be covered from Government of Zimbabwe
- Technical assistance will be required in finalization of the Operation Deployment Plan, monitoring support during installation, training and commissioning and in establishing appropriate data sources to report on CCEOP program implementation. This support is usually provided by WHO and UNICEF at country level and as needed from UNICEF regional office. . The country looks forward to continued support from these two organizations and any others that may be identified at later stage as required.

c) Import tariff exemptions

The country has made a written commitment of import tariff exemption for the platform funded cold chain equipment [Attachment #12].

PART D: INITIAL SUPPORT PHASE

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

	Budgets are not inclusive of operational cost. Operational costs must be financed by Ministry of Health or other partners.
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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 http://www.gavi.org/support/process/apply/cceop/
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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	467 cold chain equipment for extension or expansion and or replacement of non-functional and/or obsolete non-PQS and PQS equipment [attachment #10, Table #5]
Justification	<ul style="list-style-type: none"> - Eight districts with DTP3 vaccine containing coverage below 80%: Buhera (77%) Mutare (75%), Murewa (70%), UMP (68, %) Masvingo (78%), Gokwe North (71%), Gokwe South (77%), and Kwekwe (76) and - Seven districts contributing to more than 1,000 unvaccinated children as per the 2016 JRF: Bulawayo (3,140), Chitungwiza (1447), Makoni (1,942) Mazowe (1,383), Goromonzi (1,549), Chegutu (1,114) and Gutu (1,098).
Expected outcome	- Extension and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE to provide the needed capacity and a safer storage environment for the vaccines.
Total CCE budget	\$1,313,170

Prioritised (Urgent) CCE Need #2

The need	46 cold chain equipment for extension or expansion and or replacement of non-functional and/or obsolete non-PQS and PQS equipment [attachment #10, Table# 5]
Justification	Five districts having difficulties of access during rainy seasons of and poor infrastructure impacting performance and having obsolete and non-optimal

	<i>cold chain equipment with capacity shortfall These includes: Chiredzi (84%), Mbire (85%), Mt Darwin (94%), Kariba (98%) and Mwenezi (80%) districts. (To supply interval considered every 2 months for service delivery and 3 months for districts stores.)</i>
Expected outcome	<i>Extension and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE to provide the needed capacity including during rainy seasons and a safer storage environment for the vaccines.</i>
Total CCE budget	\$176,937
Prioritised (Urgent) CCE Need #3	
The need	<i>318 cold chain equipment for extension or expansion and or replacement of non-functional and/or obsolete non-PQS and PQS equipment as per the table x, and attachment #x.2</i>
Justification	Seventeen district with DTP3 vaccine containing coverage between 80% and 85% or DTP3 unvaccinated children between 500 and 1,000: Bindura (88%), Centenary (80%), Chivi(87%), Guruve (85%), Hurungwe(93%), Mbire (85%), Matobo (83%), Makonde(91%), Marondera(88%), Mberengwa (84%), Mutoko(87%), Sanyati(87%), Seke (91%), Shamva(85%), Shurugwi(80%), Wedze (0%), Zvimba(93%),
Expected outcome	<i>Extension and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE to provide the needed capacity and a safer storage environment for the vaccines.</i>
Total CCE budget	\$917,470
GRAND TOTAL CCE BUDGET: Initial support (Years 1)	Grand Total= \$2,407,577 [attachment 13] Note: <ul style="list-style-type: none"> - 80% Gavi budget including 6% additional buffer= \$1,926,062 - 20% country budget including 5% additional buffer=\$481,515 - All Country budget including 8.5% procurement cost=\$522,444

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

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

Replacement/Rehabilitation				Expansion		Extension	
Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Existing sites with (non)functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites
470	469	190	165	47	14	124	116
Total=470	Total=469	Total=190	Total=165	Total=47	Total=14	Total=124	Total=116

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 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.

- The country has four levels of vaccine management – the national, provincial, and district and service delivery. The Logistics Manager with technical support from UNICEF and WHO have oversight role for management of the immunisation supply chain in the country. GAVI are currently supporting positions of Cold Chain Technician, Stores Officer, Stores Assistant and Security guards at national level. The plan is for the Government to absorb these positions at the expiry of GAVI support. All other staff at central level are funded by government. There are also plans to establish new positions – M&E at national, 8 provincial cold chain technicians – to be funded by GAVI under the new HSS support.
- Vaccine management is the responsibility of the EPI officer at provincial level, and the Community Health Nurse at district level. The Nurse in Charge manages vaccines at service delivery level.
- GAVI has procured 72 computers for vaccine management and these have facilitated the smooth rollout of the SMT at subnational level. GAVI also provided fund for training of health workers on the computerised SMT and effective vaccine management. Cold chain technician were also trained on

	<p>refrigerator installation, maintenance and repairs using the same source of funding.</p> <ul style="list-style-type: none"> - The national level and technical partners will continue carrying out supportive visits and on job training to subnational level to ensure effective management of the immunisation supply chain. - World Vision funded the construction of the Midlands Provincial Vaccine Store and construction of the store is complete. The stores is planned to be opened in 2018.
<p>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.</p>	<ul style="list-style-type: none"> - The country is using both computerised and manual stock recording system depending on the level of care. The Central and Provincial Vaccine Stores have been using the computerised vaccine stock management tool (SMT) for over 4 years while the SMT was rolled out to district level in 2017. The service delivery level uses a standardized manual stock recording system. The SMT is shared with the national level monthly for review, analysis and feedback. The vaccine consumption and wastage for service delivery is summarised on the monthly vaccine orders submitted to the district. The order also contains a space for recording stock outs for each antigen and for how many days. This information is consolidated and submitted to the provincial level. Funding for these activities is largely by government - The country has taken on board the visibility for vaccines (VIVA) technology of sharing data. This has greatly improved the periodic sharing of vaccine management data with partners.
<p>Optimised, efficient design of distribution system Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</p>	<ul style="list-style-type: none"> - GAVI has supported the procurement of nine vaccine distribution trucks, one each per national and provincial vaccines stores. These vehicles have come handy and are facilitating timely delivery of vaccines and supplies. GAVI is also currently providing funding for vaccine distribution, vehicle maintenance and fuel for logistics management. The country has proposed that one of the GAVI extended partners, JSI, fund introduction of the Logistics Management Information System to enhance real time sharing of stock management data for vaccines and supplies at all levels.
<p>Continuous improvement process Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</p>	<ul style="list-style-type: none"> - The country plans to orient/train health workers on vaccine management periodically so as to keep them abreast with new developments. The country is also planning to roll out, under GAVI new HSS support, of remote temperature monitoring devices at district level. The immunisation program has revised the stock minimum stock level policy at service delivery level from two weeks to four weeks.
<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</p>	<ul style="list-style-type: none"> - The Central and Provincial Vaccines Stores are equipped with cold rooms and all the cold rooms are using the Beyond Wireless remote temperature monitoring devices. For the Central and Provincial levels, temperature records are downloaded, analysed and feedback provided monthly and data filled electronically. All other levels are using the 30 day DTRs, Fridge Tag 2. Each level has a manual temperature record chart

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.

that is completed daily in duplicate. The chart also contains an area for recording repairs and maintenance carried out to the refrigerator. The original copy is submitted to the next higher level at the end of each month for review and consolidation. Each level reviews the submitted data and provides feedback and corrective action where necessary.

- The country is planning to embrace new technology as it comes e.g. the 5 year shelf life fridge tag.
- Freeze tags are also in use at all levels during transportation of vaccines.

Part E: Scale-up support phase

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

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

The need	- 105 cold chain equipment for extension or expansion and or replacement of non-functional and/or obsolete non-PQS and PQS equipment [attachment #10, Table #5]. These equipment is for the following six districts: Chikomba, Mhondoro Ngezi, Umguza, Bulilima, Insiza and Tsholotsho.
Justification	- All facility in the six district with (a) DTP3 coverage between 85% and 90% and having obsolete and non-optimal cold chain equipment with capacity shortfall
Expected outcome	- Extension and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE to provide the needed capacity and a safer storage environment for the vaccines.
Total CCE budget	\$289,829

Prioritised (Additional) CCE Need #2

The need	- 459 cold chain equipment for extension or expansion and or replacement of non-functional and/or obsolete non-PQS and PQS equipment [attachment #10, Table #5]. These equipment will be deployed in the following nineteen districts: Harare District, Chimanimani, Chipinge, Mutasa, Nyanga, Rushinga, Mudzi, Bikita, Zaka, Bingo, Bubi, Hwange, Lupane, Nkayi, Beitbridge, Gwanda, Mangwe, Umzigwane, Gweru and Zvishavane.
Justification	- Having obsolete and non-optimal cold chain equipment with capacity shortfall
Expected outcome	- Extension and replacement of non-functional and/or obsolete non-PQS and PQS equipment with new technology and freeze free CCE to provide the needed capacity and a safer storage environment for the vaccines.
Total CCE budget	\$1,272,630

GRAND TOTAL CCE BUDGET: “Scale-up support” (Years 2)	Grand Total= \$1,562,459 [attachment 13] Note: <ul style="list-style-type: none"> - 80% Gavi budget including 6% additional buffer= \$1,249,967 - 20% country budget including 6% additional buffer=\$312,492 - All Country budget including 8.5% procurement cost=\$339,054
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13. Summary of SCALE-UP SUPPORT PHASE replacement/rehabilitation, expansion and extension plan

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

Replacement/Rehabilitation				Expansion		Extension	
Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Existing sites with (non)functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites
270	270	121	114	26	12	147	146
Total=270	Total=270	Total=121	Total=141	Total=26	Total=12	Total=147	Total=146

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

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

Describe planned or ongoing activities related to other supply chain fundamentals 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 Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</p>	<ul style="list-style-type: none"> - As the initial support phase is only for 2019, the planned and ongoing activities in the initial support phase will also continue in the scale-up support phase in 2020. - More emphasis will be given to formalization of the existing logistic team to structure National Logistics Working group playing pivotal role in the five fundamentals of Immunization Supply Chain Management. In terms of staffing, along the same line, GAVI support will continue for Cold Chain Technician, Stores Officer, Stores Assistant and Security guards at national level. The plan is for the Government to absorb these positions at the expiry of GAVI support. All other staff at central level are funded by government. There are also plans to establish new positions – M&E at national,
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	<p>8 provincial cold chain technicians – to be funded by GAVI under the new HSS support.</p> <ul style="list-style-type: none"> - Vaccine management will continue to be the responsibility of the EPI officer at provincial level, and the Community Health Nurse at district level. The Nurse in Charge manages vaccines at service delivery level. - Emphasis will be given more on transition from SMT excel based to web-based application starting 2021 on-wards while focusing on current system. Cold chain technician were also trained on refrigerator installation, maintenance and repairs using the same source of funding. - The national level and technical partners will continue carrying out supportive visits and on job training to subnational level to ensure effective management of the immunisation supply chain. - The country will continue using the Visibility for vaccines (VIVA) online tool which has great impact on availability of supplies ensuring no stockouts and overstocking.
<p>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.</p>	<ul style="list-style-type: none"> - As the initial support phase is only for 2019, the planned and ongoing activities in the initial support phase will also continue in the scale-up support phase in 2020. - More emphasis will be given on how to make use of Data for Action and the use of technology such as web-based applications and Remote Temperature Monitoring System.
<p>Optimised, efficient design of distribution system Describe all planned or ongoing activities related to distribution system design optimisation, their sources of funding, and partner support.</p>	<ul style="list-style-type: none"> - As the initial support phase is only for 2019, the planned and ongoing activities in the initial support phase will also continue in the scale-up support phase in 2020. - Introduction of the Logistics Management Information System to enhance real time sharing of stock management data for vaccines and supplies at all levels will be given emphasis.
<p>Continuous improvement process Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.</p>	<ul style="list-style-type: none"> - As the initial support phase is only for 2019, the planned and ongoing activities in the initial support phase will also continue in the scale-up support phase in 2020. - Besides, the new EVM tool and methodology will be used in 2020 and onwards for continuous improvement targeting the 80% EVM scores to achieve.
<p>Temperature monitoring Describe how the temperature monitoring</p>	<ul style="list-style-type: none"> - As the initial support phase is only for 2019, the planned and ongoing activities in the initial support phase will also continue in the scale-up support phase in 2020.

system will evolve? Which devices will be used?

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.

- Additional emphasis will be given on how to efficiently utilize the 30 Day DTRs to ensure timely action. Besides, RTM devices will gradually introduced at district level once the technology become easily accessible and affordable.

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.~

See Attachment #13

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,⁵ such as demonstrated by remote temperature monitoring; **and**

⁵ **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.

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

USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS

Indicator <i>(Provide name of the mandatory indicator as shown above)</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>	Cumulative Target Year 1 & 2
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)	District/Prov CCI update system	semi-annual for CCEI and Annually for CCEOP Progress	Numerator = 0 Denominator=1,008 Percentage=0% (Denominator total existing sites with CCE to be replaced =1,008)	Numerator = 629 Denominator=1,008 Percentage=62%	Numerator = 379 Denominator=1,008 Percentage=38%	Numerator = 1,008 Denominator=1,008 Percentage=100% All 1,008 existing sites with (non)functional and/or obsolete non-PQS will be equipped and there will be no sites
2. CCE expansion in existing equipped sites:	Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;	District/Prov CCI update system	semi-annual, for CCEI and Annually for CCEOP Progress	Numerator = 0 Denominator=26 Percentage= 0% (There are 26 stores requiring additional CCE)	Numerator = 14 Denominator=26 Percentage= 54%	Numerator = 12 Denominator=26 Percentage= 46%	Numerator = 26 Denominator=26 Percentage=100% All 26 district vaccine store will be equipped
3.. CCE extension in unequipped existing and/or new sites:	Percentage of previously unequipped sites (providing immunization services or not, including existing sites without active devices) & new service sites being equipped with Platform eligible equipment.	District/Prov CCI update system	semi-annual, for CCEI and Annually for CCEOP Progress	Numerator = 0 Denominator=257 Percentage=0% (There are 257 facilities requiring additional CCE)	Numerator = 116 Denominator=257 Percentage=45%	Numerator = 146 Denominator=257 Percentage=55%	Numerator = 257 Denominator=257 Percentage=100%

4. CCE maintenance	<i>percentage of functioning CCE devices) versus (total # of CCE devices designated for use (Note: functional status of 85% is taken as a baseline taking into consideration the 2018 CC inventory report)</i>	<i>Cold Chain Inventory report; District/Prov CCI update system</i>	<i>Semi-annual</i>	<i>Numerator = 2,164 (total # of functional CCE equipment as of 2018) Denominator= 2,556 (Total # of CCE in use without 111 not installed and 798 ready for disposal) Percentage= 85%</i>	<i>Numerator = 2,300 (total # of functional CCE equipment as of 2018) Denominator= 2,556 (Total # of CCE in use without 111 not installed and 798 ready for disposal) Percentage= 90%</i>	<i>Numerator = 2,428 (total # of functional CCE equipment as of 2018) Denominator= 2,556 (Total # of CCE in use without 111 not installed and 798 ready for disposal) Percentage= 95%</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 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 <i>(Provide name of the additional indicators as shown above)</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>	Cumulative Target summary (Year 1 & 2) <i>(Provide numerator and denominator for calculating percentage)</i>
1.CCE inventory update	Percentage of districts reporting up to date cold chain inventory of all facilities under them	CCE inventory report from districts	Semi-annual	Numerator = No of districts submitting CCE inventory report =0 Denominator= Total no of districts=62 Percentage=0%	Numerator = No of districts submitting CCE inventory report=40 Denominator= Total no of districts=62 Percentage= 65%	Numerator = No of districts submitting CCE inventory report=62 Denominator= Total no of districts=62 Percentage=100%	Numerator = No of districts submitting CCE inventory report=62 Denominator= Total no of districts=62 Percentage=100%
2. Temperature alarm	Percentage of CCE reporting temperature alarm (high alarm /low alarms) total FT 2 E to procure in 2019=798; in 2020=535	Monthly Temperature report from facilities	Quarterly/ Semi-annual	Numerator = # CCE reporting temperature alarm= 0 Denominator= Total # of CCE to be equipped with FT2 E= 1,333 Percentage=N/A	Numerator = # CCE reporting temperature alarm= 798 Denominator= Total # of CCE equipped= 1,333 Percentage=60%	Numerator = # CCE reporting temperature alarm= 535 Denominator= Total # of CCE equipped= 1,333 Percentage=40%	Numerator = # CCE reporting temperature alarm= 1,333 Denominator= Total # of CCE equipped= 1,333 Percentage=100%