




Application Form for
 Cold Chain Equipment Optimisation Platform
 Support in May-June 2017 only
 Document Dated: April 2017

<p>Application documents for 2017: Countries applying for Gavi Cold Chain Equipment (CCE) Optimisation Platform support in 2017 are advised to refer to the following documents in the order presented below:</p>	
	<p>Purpose of this document: This application form must be completed in order to apply for support related to the CCE Optimisation Platform. Applicants are required to first read the General Guidelines for all types of support, followed by the CCE Optimisation Platform guidelines. Thereafter, applicants should complete this CCE Application Form and submit by email to proposals@gavi.org.</p>
 	<p>Resources to support completing this application form: Technology guide for equipment selection for counties wishing to request CCE Optimisation Platform support is available here: www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/ Extensive technical resources relating to vaccine cold chain equipment management are available on TechNet-21: www.technet-21.org/en/resources/cold-chain-equipment-management</p>
<p>Weblinks and contact information: All application documents are available on the Gavi Apply for Support webpage: www.gavi.org/support/apply. For any questions regarding the application guidelines please contact countryportal@gavi.org or your Gavi Senior Country Manager (SCM).</p>	

	<p>Countries are informed that based on post IRC recommendations, final approved amounts may be different from what countries have requested. This final approved amount will be dependent on the availability of funding. Gavi will respect countries' equipment selection. However, countries could also receive their 2nd or 3rd preference based on their selection in the budget.</p>
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Part B: Mandatory attachments: National strategies and plans

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

	All documents listed in the table below are <u>mandatory</u> , 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			
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal	Yes	28 th April 2017		Endorsement of the CCEOP application
3	National Health Sector Development Plan	Yes	2015	2015 -2020	
4	cMYP	Yes	2015	2016 - 2020	
5	EVM Assessment	Yes	2015	2015 - 2018	
6	EVM Improvement Plan	Yes	2015	2015 - 2018	
7	EVM Annual Workplan and Progress Report on EVM Improvement Plan	Yes	2017	2017	
8	WHO CCEI Tool/UNICEF IMT/PATH CCEM Tool/CHAI tool	Yes			
9	Inventory Report and Facilities segmentation	Yes	2015	2016 - 2020	
10	Single document: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and Equity Improvements Chapter 3: Strategic Deployment Plan	Yes	2017		

	Chapter 4: Equipment Selection				
11	Maintenance Plan with financing and source(s)	Yes	2017		
12	Proof of status for CCE tariff exemptions waiver	Yes			
13	Terms of Reference for the relevant Coordination Forum (such as ICC) including all sections outlined in Section 5.2 of the General Application Guidelines	Yes			
14	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Yes			
15	Other relevant documents <ul style="list-style-type: none"> • Temperature monitoring study report • Guidelines for disposal of hazardous waste 	Yes			

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.

Background

The Tanzania Development Vision 2025 identifies health as one of its priority sectors and the government’s vision in this sector over the timeframe is laid out in the National Health Policy.

Immunization services are a key priority of the 4th Health Sector Strategic Plan (HSSP 4) for 2015-2020 (currently being implemented) and the cMYP 2016-2020 illustrates the concrete steps planned towards the goal of sustainable and equitable immunization coverage that reaches every last child. Ensuring an efficient and effective cold chain and logistics system is crucial to achieving this goal as it enables vaccines to be delivered to every child in a potent state, cost effectively. (Refer to cMYP page 22).

Coverage and Equity

The Immunization and Vaccines Department (IVD) programme has managed to maintain high immunization coverage of over 90%, since 2010 for all antigens given to under one year children. In 2015, 98% of the targeted children received third dose of

Penta vaccine, PCV13 (95%), second dose of Rota (98%) and MR (57%).

Despite the high coverage performance over the last five consecutive years, unvaccinated children and disparities remain in coverage across councils (districts). Specifically, there are 15 councils with coverage of PENTA 3 below 80% in 2016 that are of particular concern. These councils include; Kinondoni MC, Ileje DC, Makete DC, Kilosa DC, Kondoa DC, Mafia DC, Same DC, Wanging'ombe DC, Nanyamba TC, Korogwe TC, Kilombero DC, Mwanga DC, West District, North B and South District. (CCRE Plan Pg 15-16). Moreover, according to TDHS 2016 coverage varies by economic status, ranging from 35% among children in the poorest households to 76% among children in the wealthiest households. Overall, 2% of children age 12-23 months received no vaccines. (TDHS Pg 24-25)

These disparities point to some weaknesses in the immunization system which includes challenges with the supply chain.

Immunization supply chain and its weaknesses

The Immunization supply chain in the United Republic of Tanzania has 4 levels namely central, regional, council and health facility level. There are 2 Central stores, 27 Regional vaccines stores, 194 district vaccine stores and 5,905 immunizing health facilities.

The Effective Vaccine Management Assessment (EVMA) 2015 identified several weaknesses with respect to vaccine arrivals procedures, temperature mapping at national level, limited human resource capabilities, lack of standard guidelines and cold chain challenges. Specifically these challenges include:

- 80 (41%) of Councils and 1,059 (17.9%) of Health facilities having limited capacity to store vaccines to meet needs through 2020 to fulfill new vaccine introduction plans.
- Presence of outdated cold chain equipment technologies that are 77% Non-PQS or PIS compliant which are prone to frequent breakdowns.
- Disruption of immunization services due to power shortages (LP Gas) and frequently broken equipment resulting in missed opportunities to provide services.
- High operating and maintenance cost for gas based refrigerators, which impacts the ability to sustainably operate the immunization program -It is estimated district authorities spend \$1.2 million on procuring/refilling gas cylinders per year to operate gas refrigerators
- Delayed or untimely response to maintenance requests due to inaccurate reporting of cold chain functional performance status or insufficient temperature monitoring response process. These ultimately disrupt immunization service provision.
- Inadequate human resource and capacity for maintenance and repair of cold chain equipment at district and health facility level.

Efforts to address these challenges and linkage with HSS

The government has undertaken several efforts with support from partners and specifically from GAVI HSS to address some of these challenges. For example, to address the challenge of human resources the government through Health Sector Strategic plan (HSS-IV) has prioritized recruitment, training of both in service and pre service approach as well as advocating for increased budget lines for financing council health plans (CCHP).

To improve the coverage and quality of the immunization services: the Ministry has been supported by GAVI HSS to build the capacity of immunization managers at national, zonal, regional and district levels through training is very important to ensure that health care providers and their supervisors have the requisite skills and competencies to ensure delivery of quality and effective immunisation service delivery, disease surveillance and programme management. In addition to that GAVI HSS has been used to improve transportation for EPI enhance immunization coverage through procurement of 60 vehicles for the hard to reach districts and those without vehicles to facilitate distribution of vaccines and related supplies, surveillance activities, supportive supervision and mobile services. Hard to reach areas have been defined as those with very hostile terrain and poor road infrastructure.

Furthermore, to improve accuracy of reporting, response timelines and decision making on cold chain functional performance Tanzania is in process of rolling out an electronic information systems (VIMS) in January 2018 and procurement of temperature monitoring devices (Fridge Tags, freeze tags and remote temperature monitoring devices) with the support of partners has enabled improvement in temperature monitoring practices. The Government through the support of GAVI HSS, UNICEF, WHO and CHAI has been procuring 405 refrigerators, 400 cold boxes and 400 vaccine carriers for vaccines storage to address capacity constraints including replacement of outdated equipment technologies, equipping new facilities at service delivery points and Council vaccine stores. These activities aims at improving vaccines management, increasing and strengthening cold chain storage capacities at all levels to cover the identified gap so as to cope with the increased demand, introduction of new and under used vaccines, and to support the on-going primary health services development programme (MMAM).

(Refer to HSS 2016 report and EVM Improvement plan for further details on these interventions)

CCEOP objectives and target segments

The CCEOP application targets all 194 Councils with the core objectives in three folds as described below:

- 1) *Ensure sufficient cold chain capacity to enable introduction of new vaccines (e.g. HPV, IPV) and continue routine immunization through 2020.*

The cold chain capacity analysis (See WHO sizing tool) showed that, there will be

an increase in volume estimated per fully immunized child for Tanzania based on the future Vaccines introduction plan (HPV and IPV in 2018). (Increase of volume per FIC by 64% at national and subnational level and 63% at health facility level).

The CCEOP caters to this additional capacity need by procuring higher capacity equipment (doubling capacity at the facility from roughly 24L per site to over 50L) to replace existing low capacity sub-optimal equipment.

- 2) *Address coverage inequity by extending the cold chain network (equipping unequipped sites) especially in hard to reach areas and the 16 councils with immunization coverage <80%*

Since there are observed inequities across geographic and socioeconomic dimensions (See Chapter 2, CCERP), the priority will be to install the SDD refrigerators to rural, hard to reach health facilities and councils with coverage < 80%. (CCRE Plan Page 16-17). The effort to equip 552 unequipped sites across 135 councils, through this proposal is a targeted intervention to address coverage inequity and improve access to immunization services. Unequipped sites offering immunization services are constrained by the lack of cold chain equipment and offer roughly 1 immunization session per month. By equipping these sites, the frequency of immunization sessions will increase to 5 days a week enabling improved coverage and reduce missed opportunities. These sites that are unequipped have health care workers in place to perform services.

- 3) *Improve sustainability and effectiveness of the immunization program by reducing the logistical disruptions and additional operating expenditures that result from sub-optimal cold chain equipment.*

By replacing old and beyond repair and other sub optimal equipment, disruption to immunization services (example through CCE breakdown, shortage of LP Gas) will be reduced. This is expected to improve immunization coverage and raise the coverage levels beyond the target of above 90%

The 2017 CCI report indicates, roughly 81% of CCE are absorption refrigerators, 10.4% (674) are non-functional refrigerators, and over 37% (2,012) are over 10 years old. Tanzania's Temperature Monitoring Study (TMS 2014) also indicates that 36% of vaccine stocks are potentially at risk of freezing. Replacement of these sub-optimal units would therefore enable the provision of effective service delivery by preventing disruptions to services (e.g. due to CCE breakdown) and protect vaccine stock (worth roughly USD 51 Million as of 2016) due to freezing.

Prioritization approach

The above objectives are reflected in the prioritization approach of this proposal which is based on comprehensive analyses of the cold chain inventory, review of program parameters and plans and future immunization schedules following introduction of new vaccines. The criteria list below has guided the development of the cold chain

replacement and expansion plan per year.

- Equip newly established sites and existing sites without equipment (Year 1)
- Replacement of CCE which are broken beyond repair (Year 1)
- Expand Cold chain Equipment capacity at sites with inadequate storage to meet 2020 storage needs (Year 2)
- Replacement of functional CCE > 10 years old in hard to reach areas (Year 3)
- Replacement of functional CCE > 10 years old in remaining areas (Year 3)
- Replace functional cold chain equipment that operates on outdated absorption technology, which are less than 10 years or do not meet PQS standards. (Years 4-5)

CCEOP equipment request and equipment selection

As indicated in the Cold chain expansion and rehabilitation plan, equipment selection and deployment plan, Tanzania is requesting 5,640 units (394 ILR for council stores and electrified health facilities; 4,846 SDD for off-grid sites). During the initial phase in Year 1 unequipped facilities and sites with non-functional equipment are prioritized while council stores with inadequate capacity for 2020 needs and sites in hard to reach areas with functional sub-optimal equipment over 10 years old are targeted in Year 2. During the scale up phase (Years 3-5), the country intends to replace CCE over 10 years old in the remaining districts and replace non-PQS CCE. In estimating service delivery costs, Tanzania has fully considered the prices of delivery, installation and training which has not exceeded 20% of CCE price on average based on past experience across the country (regardless of technology or brand). Hence with the inclusion of the 7% buffer we believe that the assumed price of \$450 for ILR and \$650 is rational.

The above priorities take into account site segments by capacity needs of council and health facilities, electrification status and geographical areas for equipping sites. (See facility segmentation document). To fill these gaps, equipment has been selected based on their technical specifications (including holdover time, ambient operating temperature). Technology type (off grid vs. on grid), total cost of ownership and performance. (See CCERP chapter 4 equipment Selection).

Number of equipment and budget for procurement by CCE model

Targeted segment	Equipment Model	Manufacturer	Number of equipment (Requested)	Total budget (including service bundle)
District vaccine store	TCW 4000 AC	B Medical	140	\$601,378
District vaccine store	VLS 400A	Vestfrost	254	\$401,432
Health facilities (on grid)	VLS 200A	Vestfrost	1,015	\$1,235,823
Health facilities (off grid)	BFRV55 SDD	SunDanzer	2,149	\$8,808,751
Health facilities (off grid)	VLS 054 SDD	Vestfrost	2,082	\$7,889,864
Total CCEOP Budget (Incl. 7% Additional Buffer)				\$20,262,856
Total Country Budget (Incl. 7% Additional Buffer)				\$4,052,571
Total Gavi Budget (Incl. 7% Additional Buffer)				\$16,210,285

CCE Maintenance

Tanzania's cold chain maintenance plan describes the current multi-tier structure in

place to conduct preventive and curative maintenance activities. While there are well functioning guidelines and procedures in place to conduct these activities, bottlenecks remain in terms of funding for building technician cohorts, procuring spare parts and toolkits. Planned efforts to address these challenges have been included as part of the funded plan (See section 7 and Maintenance plan for more details).

Data Management

The government will be closely monitoring the implementation of the CCEOP using the indicators and tools described in the proposal (see Performance Framework, CCERP Page 13)

Governance and Tariff Exemption

The Government of Tanzania is committed to waiving CCE tariffs as evidenced by the CCE Tariffs Waiver document. The ICC approved this application which was developed by an established NLWG (see Minutes of Coordination forum meetings)

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 supply chain stakeholders and implementers have been involved through National ICC, which is stand-alone committee under the chairmanship of the Permanent Secretary of Ministry of Health. The members of ICC include country representatives from WHO, UNICEF, USAID, KFW, CDC, CHAI, Amref, PATH, Red Cross and Paediatric Association and other members include CCSO, Bakwata. For the main functions of the National ICC please refer to the attachment number 13, Terms of reference for ICC. Key implementers include President's office Regional Administration and Local Government Authority (PORALG), Regional and Councils Authorities.

With respect to CCEOP Application, ICC endorsed the application and relevant documents including the budget during the 83rd Meeting on 28/04/2017. The ICC will be overseeing the overall implementation process of the CCEOP plan.

Tanzania has a permanent National Logistics Working group that is the main technical committee for provision of advice to ICC on cold chain and immunization supply system. The logistic working group is chaired by the Head of cold Chain and Logistics

of Immunization Program and the members include IVD program officers (National logisticians), Representative from MSD, Logisticians from WHO, UNICEF, CHAI, JSI/MSCP and PATH.

With respect to CCEOP, NLWG conducted analytics of the cold chain inventory data using WHO CCIT and supply chain tool for identification of gaps and subsequent preparation of relevant documents. Other roles of NLWG are to identify priorities to strengthen immunization supply chain management and coordinate partners' support in these areas. The NLWG also provides evidence-based recommendations in the areas of immunization supply chains and logistics to government officials, other immunization groups such as National Immunization Advisory Groups (NITAG), and other logistical groups (i.e. pharmacy and medical stores department supply chain). Please refer attached terms of reference for the logistic working group.

All the Gavi requirements to ensure basic functionality of the above Coordination Forums were met. (ICC Attendance, minutes and endorsement signatures are attached)

Part C: Situation analysis and requested support

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

5. Situation analysis of country's supply chain and CCE (number, distribution, functionalities etc.) (Maximum 3 pages) Please respond to all questions
Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

How is the country's immunisation supply chain administered?

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

Through what interventions are these weaknesses currently being addressed?

Describe challenges that are hindering the implementation of these interventions.

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

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

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

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

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

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

What are the overall CCE needs?

How is the country's immunisation supply chain administered?

The Immunization supply chain in the United Republic of Tanzania has 4 levels namely central, regional, council and health facility level. There are 2 Central stores, 27 Regional vaccine stores, 194 district vaccine stores and 5,905 immunizing health facilities.

The national level provides oversight and support to the Central and Regional vaccine stores, Regions provides support to the Councils while Councils provide support to the health facilities. The national stores, located in Dar-es-salaam and Zanzibar has a collective net refrigeration capacity of 211,667 Litres, and two 20m³ walk-in freezer rooms to supply 27 Regional stores (RVS) on a quarterly basis. The regional stores provides supplies to district vaccine stores on quarterly bases. The districts vaccine stores distribute vaccines down to 5,905 health facilities on a monthly interval. (Refer to Cold chain expansion and rehabilitation, deployment and equipment selection plan) The government conducts the following activities to operationalize the immunization supply chain (Refer to cMYP, Page 21)

- **Procurement:** The Government procures traditional EPI vaccines (BCG, OPV, MR and TT) and their related injection devices and cold chain equipment. New vaccines including DPT-HepB-Hib, PCV-13, Measles Second Dose and Rotavirus vaccine are co-financed by the Government and Gavi. The government has, from 2008 to 2014 met its co-financing commitments to Gavi for procurement of new vaccines amounting to USD 14,775,061. The procurements of all vaccines, injection materials and cold chain equipment is through UNICEF.
- **Forecasting:** The National Bureau of Statistics (NBS) provides the target population for annual vaccines and supplies forecasting. Forecasting is done using the standard UNICEF forecasting tool. The IVD Logistics Unit receives requests from regions. Based on the requests IVD will order vaccines and supplies from MSD to be distributed to regions. The same mechanisms will be used for all future new and under-utilized vaccines that will be introduced into the national schedule.
- **Clearance and supplies management:** Upon arrival of Vaccines and related supplies MSD clears, stores and distributes to Regions. To ensure vaccine potency a fast-track mechanism (i.e. Upon arrival vaccines are prioritized for quality check, moved to Central vaccine store and fees paid later). This makes the clearance of vaccines to take place within 24 hours after arrival. Injection supplies and cold chain equipment are delivered through Dar es Salaam, seaport.
- **Distribution:** MSD delivers the vaccine and related supplies to the Regional Vaccine Stores (RVS), except for Dar es Salaam - where the delivery is done directly to the councils, and Zanzibar - which picks up its vaccines and supplies from MSD. Regions are required to deliver vaccine and related supplies to the councils and councils deliver to health facilities.

Supply chain weaknesses

Effective Vaccine Management Assessment (EVMA) 2015 (Report attached)

identified several weaknesses with respect to vaccine arrivals procedures, temperature mapping at national level, limited human resource capabilities, lack of standard guidelines and cold chain challenges. These cold chain challenges includes:

- 80 (41%) of Councils and 1,059 (17.9%) of Health facilities have limited capacity to store vaccines due increased volume estimated per fully immunized child for Tanzania based on the current routine immunization policy and future New Vaccine introduction plan till 2020.
- Presence of outdated cold chain equipment technologies that are 77% Non-PQS or PIS compliant which are prone to frequent breakdowns.
- 552 Unequipped facilities providing immunization services including increased number of newly constructed facilities (as per the government policy which recommends one dispensary per village). These would require additional cold chain equipment.
- Disruption of immunization services due power shortages (LP Gas) and frequently broken equipment resulting into missed opportunities for provision of services.
- Untimely and inaccurate reporting of cold chain functional performance status and temperature monitoring which delays response timeline and decision making process which ultimately disrupt service provision.
- Inadequate human resource and capacity for maintenance and repair of cold chain equipment at district and health facility level.
- High operating and maintenance cost for the gas based refrigerators, which impacts the ability to sustainably operate the immunization program. It is estimated district authorities spend \$1.2 million on procuring/refilling gas cylinders per year to operate gas refrigerators.

Interventions to address weaknesses

- The Government through the support of GAVI HSS, UNICEF, WHO and CHAI have been procuring 405 refrigerators, 400 cold boxes and 400 vaccine carriers for vaccines storage to address capacity constrains including replacement of outdated equipment technologies, equipping new facilities at service delivery points and Council vaccine stores.
- Through recent procurements the government has introduced the use of solar direct refrigerators to reduce reliance on LP Gas. This will ensure continuous power supply and reduced operational costs to run refrigerators.
- To improve accuracy of reporting, response timelines and decision making on cold chain functional performance Tanzania is in process of rolling out an electronic information systems (VIMS) in January 2018.
- To improve temperature monitoring partners have supported procurement of temperature monitoring devices (Fridge Tags, freeze tags and remote temperature monitoring devices)
- To address the challenge of human resource the Government through Health Sector Strategic plan (HSS-IV) has prioritized recruitment, training of both in service and pre service approach as well as advocating for increased budget lines for financing council health plans.

Challenges hindering the implementation of these interventions.

- The biggest challenges faced in addressing storage capacity needs are the limited budget for funding procurement of refrigerators.
- Funding for human resource capacity building efforts.
- The immunization component of the council integrated supervisory checklist was deemed insufficient for the management and improvement of immunization services. (Refer EPI review page 24)
- Inadequate space planning at council sites has hindered deployment of equipment particularly in the new councils.

Lessons to inform CCEOP

- For successful installation of solar direct refrigerators the Country should have adequate number of trained cold chain technicians.
- There is need to establish and sustain the system for building capacity of more cold chain technicians especially at Council level.
- For pre-installation preparations of the planned procurements the Country need to plan for space to accommodate refrigerators at the vaccine stores.
- Also there is a need to budget for contingency funds to manage unplanned costs that may arise during deployment.

Inventory Quality and impact on birth cohort

The percentage of Health facilities that have reliable access to grid electricity for up to or more than 8 hours per day is 32%. All the districts have access to grid electricity except 2 Districts (Mbogwe DC and Mpanda DC). The overall percentage of functional CCE is 87.2% (5,638). 22% (1,460) of all equipment is PQS-approved and 77% (5,144) are non-PQS-approved, the remaining 1% (48) is WICR/WIFR. The percentage of Cold chain equipment is over 10 years is 37% (2,012).

Currently 5% of the birth cohort is served by effectively functioning PQS approved cold chain equipment.

Addressed CCE bottlenecks

- With this support the equipment to be procured will be that of 50 - 60 L capacity and will address the capacity needs for new sites, sites with non functional equipment and capacity needs due to increased volume for future vaccine introductions in the routine immunization schedule by 2020.
- The support is expected to reduce the high operating and maintenance cost for the gas based refrigerators.
- The support will be replacing LP gas based equipment that will solve the problem of disruption of immunization services and potential wastage due to fuel shortages (LP Gas) and frequently broken equipment that usually resulted into missed opportunities.

- Unequipped sites offering immunization services are constrained by the lack of cold chain equipment and offer roughly 1 immunization session per month. By equipping these sites, the frequency of immunization sessions will increase to 5 days a week enabling improved coverage and reduce missed opportunities.

Overall CCE needs

The overall needs are there to equip newly established sites, existing sites without equipment, expand capacity for Councils with inadequate capacity and replace at sites with CCE which are broken beyond repair and non PQS. The table below summaries the number of equipment needed for District vaccine stores 394 fridges and Health facilities 5,246. Tanzania has selected two different models for similar capacity ranges (VLS054 and BFRV55) due to experience of diversity of performance risks of this equipment during piloting phase of the SDD refrigerators.

Targeted segment	Equipment Model	Manufacturer	Vaccine capacity (L)	Number of equipment
District vaccine store	TCW 4000 AC	B Medical	240	140
District vaccine store	VLS 400A	Vestfrost	145	254
Health facilities (on grid)	VLS 200A	Vestfrost	60	1,015
Health facilities (off grid)	BFRV55 SDD	SunDanzer	56	2,149
Health facilities (off grid)	VLS 054 SDD	Vestfrost	55.5	2,082
Total				5,640

Tanzania has fully considered the prices of delivery, installation and training and based on past experience this has not exceeded 20% of CCE price on average. Hence with the inclusion of the 7% buffer we believe that the assumed price of \$450 for ILR and \$650 is rational. (refer CCEOP budget template)

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 contributes to addressing identify 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)

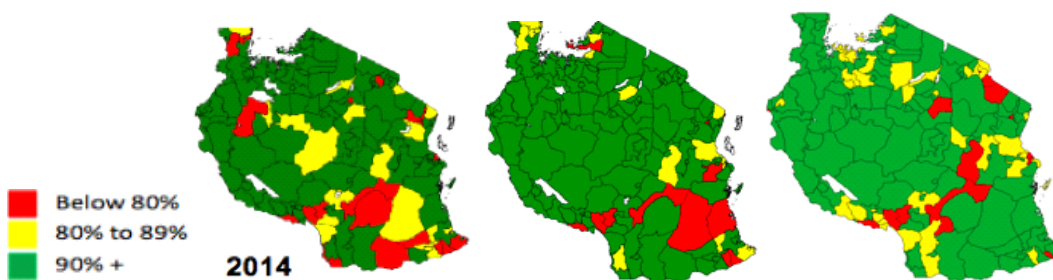
Communities where gender barriers are significant and/or where low levels of female education is common (as this is often associated with lower coverage)

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?

The IVD programme has managed to maintain high immunization coverage of over 90%, since 2010 for all antigens given to under one year children. In 2015, 98% of the targeted children received third dose of Penta vaccine, PCV13 (95%), second dose of Rota (98%) and MR (57%). Despite this high coverage performance for the last five consecutive years there are still reports of unvaccinated children in Tanzania and there are disparities in performance coverage among the districts and this is the main geographical equity issues that the country is striving to address (CCRE Plan Pg 15-16).



Moreover, according to TDHS 2016 coverage varies by economic status, ranging from 35% among children in the poorest households to 76% among children in the wealthiest households. Also basic vaccination coverage increases with household wealth, from 65% among children from the poorest households to 83% among children from the wealthiest households. Overall, 2% of children age 12-23 months received no vaccines. (TDHS Pg 24-25)

Tanzania began addressing equity in immunization services through operationalization of Reach Every child Strategy (REC). This strategy addressed immunization inequities between geographical areas. Through this strategy the number of districts with Penta 3 coverage <80% was reduced, from 55 in 2009 to 12 in 2016. Despite the fact that number of councils with coverage below 80% has been reduced, still there was 15 councils in 2016 with coverage of PENTA 3 below 80%. These councils include; Kinondoni MC, Ileje DC, Makete DC, Kilosa DC, Kondoa DC, Mafia DC, Same DC, Wanging'ombe DC, Nanyamba TC, Korogwe TC, Kilombero DC, Mwanga DC, West District, North B and South District.

These districts have been prioritized under the CCEOP especially in terms of equipping unequipped facilities and reducing access barriers to immunization services. Furthermore by replacing old and beyond repair and other sub optimal equipment, disruption to immunization services (example through CCE breakdown, shortage of LP Gas) will be reduced. This is expected to improve immunization coverage and raise the coverage levels beyond the target of above 90%.

Since there are observed inequity related to geographical, wealth and mother's education, the core of the requested platform will focus on addressing inequity.

Priority will be to install the SDD refrigerators to rural health facilities and this has been taken into consideration in this application. This will lead to increase access to immunization services in rural and hard to reach areas, reduce the number of missed opportunities and improve immunization coverage and equity. Furthermore, districts that have coverage below 80% will also be prioritized (CCRE Plan Pg 16-17).

Optimization of supply chain is based on comprehensive analyses that were made including cold chain inventory, reviewing program Parameters and plans and future immunization schedules following introduction of new vaccines. The criteria list below has guided the development of the cold chain replacement and expansion plan per year.

- Equip newly established sites and existing sites without equipment
- Replacement of CCE which are broken beyond repair
- Expand Cold chain Equipment capacity at sites with inadequate storage to meet 2020 storage needs
- Replacement of functional CCE > 10 years old in hard to reach areas
- Replacement of functional CCE > 10 years old in remaining areas
- Replace functional cold chain equipment that operates on outdated absorption technology, which are less than 10 years or do not meet PQS standards.

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

Most of the facilities are located in rural, remote areas where there is a challenge with electricity. Only 32% of the facilities are electrified and the remaining uses gas as the main source of power for refrigerators. Therefore, health facilities with no access or irregular electricity availability shall receive solar direct drive fridges depending on their capacity needs.

There has been an increase in the number of districts and health facilities. From 2013 to 2016 a total of 50 new districts have been formed and an increase of 14% of health facilities. This trend has also been considered in the establishing the number of Cold Chain Equipment required.

For sustainability immunization service is expected to cut down current expenditure for procuring/refilling LPG to run refrigerator at the facility level. The averted funds will be used to sustain cold chain equipment and maintenance plan through; procurement of new SDD refrigerators for replacement of defective equipment, spare parts and refrigerators for new health facilities.

Furthermore the platform is expected to replace 100% of the outdated absorption refrigerators; this will spare workers time for other supply chain tasks and reduce maintenance cost. Also platform is expected to expand immunization services, which allows reduced burden on health care workers allowing more time for support of supply chain tasks.

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:

How will the country ensure that aspects of maintaining the cold chain are addressed (e.g. preventive and corrective maintenance, monitoring functionality, technicians, financing for maintenance, etc.)?

What is the frequency of preventative and corrective maintenance that the country commits to (supported by partners)?

What technical support is anticipated for maintenance?

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

Which source(s) of funding will be used for maintenance, and to what extent are they assured?

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

Management system for maintenance and repair

Tanzania relies on in-house government based cold chain technician's capacity for equipment maintenance and repairs. Cold chain equipment maintenance and repairs are responded to in an escalation approach, with health facilities or store custodians notifying the respective immunization and vaccines officers at district level of any equipment failure by filling the job card and phone call.

Temperature is monitored through remote temperature monitoring device at Central, Regional and 33 Councils (17%), with the rest of the councils and health facilities using 30 Days Temperature Recorders for continuously monitoring Temperature at the fixed sites.

When repairs are undertaken, the technician fills out a job card, recording the date, what actions were taken, which parts replaced if any, the status of the device at the end of the visit, and any further actions to be taken. The job card is usually taken to the immunization and vaccine officer who is supposed to update functionality status of repaired equipment in the web based CCIT

Human resources for maintenance and repair

- **At Central level:** There are four qualified cold chain technicians who support the corrective maintenance and repair all over the country.
- **Regional level:** There are two technicians in each region; RIVOs are also trained on minor repair and maintenance at regional level.
- **Council level:** There are 33 Council technicians (out of 194 councils) who are trained on cold chain equipment maintenance and repair. The remaining councils rely on technical support from regions and Central technicians for more complex repairs. DIVOS are also trained on minor repair and maintenance at Council level.
- **Health facility level:** An immunization focal person at each facility is responsible for conducting routine preventive maintenance.

All technicians involved in maintenance and repair of cold chain equipment are Government employees; therefore remunerations are from either Central or Local Government budgets.

Frequency of Preventive and corrective maintenance

Preventive maintenance of cold chain equipment involves regular preventive maintenance done on daily, weekly and monthly basis by health worker at health facility level, immunization officers at Council and regional levels respectively. Corrective maintenances (repairs) are conducted whenever a report of broken equipment comes from the users. The number of broken equipment determines strategies for implementation of corrective maintenance either through assembled workshops or direct visit at the site.

Anticipated technical support for maintenance and repair

The program anticipates tailored enhancement of Cold chain technician's knowledge and skills in maintenance and repair of cold chain equipment supported in the GAVI CCEOP platform. In addition the program is planning to continue engaging in Country partners (WHO, UNICEF, CHAI and MCSP) to support regular trainings, provision of tool kits, job aids and temperature monitoring charts (sheets) to health facility workers, immunization officers and technicians. Government will continue to coordinate supportive supervision to booster technical competency to health facility workers to carry out equipment maintenance services schedules on timely manner.

Monitoring the completion of preventive and corrective maintenance

The key performance indicator for monitoring the effectiveness of repair is proportional of functional CCE at any point of time. The program is currently tracking the functionality of CCE through the web based Cold Chain Inventory Tool, which is updated on real time basis. On bi-annual basis, the Ministry of Health is conducting a periodic update of the Cold chain inventory data and analysed for action and sharing to other stakeholders. In 2018, the Ministry of Health expects to monitor this indicator through the Vaccine Information Management System (VIMS) when the tool is rolled out. VIMS is a comprehensive vaccine information management system that integrates all information on immunization supply, stock management, routine immunization utilization and cold chain equipment management.

Maintenance funding sources

CCE maintenance at Council level is funded through comprehensive health plans (CCHP). The funds are usually allocated for transport, procurement of spare parts, LPG cylinders, and paying electricity bills. However, funding released for CCE maintenance is in most cases inadequate to meet all the needs within the Council. The program is engaging Local Government Authorities through their Regional and Council Health Plans to ensure that each council is budgeting adequate funds for procurement of basic spare parts and technician allowances to support repairs in their respective areas.

Partners including UNICEF, WHO, CHAI and MCSP have provided funds to support procurement and distribution of spare parts and daily substance allowance for technicians to perform maintenance and repairs at Regional, Council and Health facilities levels. GAVI HSS has also been used to support procurement of spare parts. (Refer to CCE maintenance plan for detailed budget).

Disposal of Obsolete and Irreparable Equipment

Disposal of obsolete equipment follows the Guideline for Management of Hazardous Wastes (2013) under National Environmental Management Council and other government guidelines. All the unserviceable equipment are collected from the health facilities to the district level and commencement of disposal procedures starts. Equipment at Central and Regional levels, are disposed by the respective authorities. (Refer the attached guideline)

8. Other implementation details (*Maximum 1 page*) Please respond to all questions Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

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

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

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

The country will interact with the supplier and/or representative to ensure that the CCEOP is implemented smoothly. The country will provide to the manufacturers information to facilitate planning of installation and training for technicians and if necessary securing access to some existing storage and transportation facilities. Specifically the country will assist with:

- Operationalization of Deployment Plan (list of facilities where equipment is to be deployed)
- Providing site characteristics (including accessibility, quality of roads, distance to nearest supply point, etc)
- Provision of list and number of users and technicians to be trained
- Provision of access to existing storage facilities to temporarily store equipment if necessary
- Obtaining entry visas for supplier personnel, provision of contacts at various levels of government
- Provision of Safety Assurance for supplier team members
- Tracking and monitoring shipment documentation and installation reports
- Supervision the installation


The funding source expected for the co-financing of this plan is the 2015 Gavi Performance based financing (PBF). The country obtained USD 1,600,000 in 2015, which is available for co-financing CCEOP. This commitment is reflected in *[attached ICC minute meetings]*." Some additional funds amounting \$176,932 will be from Gavi HSS spare parts. This will also be reallocated towards the co-investment making the total secured co-investment \$1,776,932.


The remaining co-funding for CCEOP needs (~USD 2.2 million) is expected to be sourced through the 2016 PBF which if awarded would preferentially be allocated towards CCEOP co-financing. Given its historical track record of coverage and equity gains, Tanzania has a strong expectation of receiving PBF funds to secure these funds.

The Ministry has processed the waiver document for the Cold chain equipment models into the customs department exemption list. Refer the attached letter

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. Ministry of Health or other partners must finance operational costs.
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	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/
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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	To equip newly established sites, existing sites without equipment and replace at sites with CCE which are broken beyond repair (2018/2019) <table border="1"><thead><tr><th>Refrigerator</th><th>Model</th><th>Quantity</th></tr></thead><tbody><tr><td>Sundanner</td><td>BFVR 55</td><td>371</td></tr><tr><td>Vestfrost</td><td>VLS 054 SDD</td><td>438</td></tr><tr><td>Vestfrost</td><td>VLS200A Greenline</td><td>122</td></tr><tr><td>Bio Medical System</td><td>TCW4000AC</td><td>100</td></tr><tr><td>Vestfrost</td><td>VLS400A Greenline</td><td>151</td></tr></tbody></table>	Refrigerator	Model	Quantity	Sundanner	BFVR 55	371	Vestfrost	VLS 054 SDD	438	Vestfrost	VLS200A Greenline	122	Bio Medical System	TCW4000AC	100	Vestfrost	VLS400A Greenline	151
Refrigerator	Model	Quantity																	
Sundanner	BFVR 55	371																	
Vestfrost	VLS 054 SDD	438																	
Vestfrost	VLS200A Greenline	122																	
Bio Medical System	TCW4000AC	100																	
Vestfrost	VLS400A Greenline	151																	
Justification	To extend number of sites equipped with Cold chain equipment in order to improve access and availability of immunization services in Tanzania. Also this enables provision of immunization services without disruption therefore maximizing utilization of services. This will complement the government policy of constructing one dispensary per village with immunization as a primary service to be offered in the facility.																		
Expected outcome	Increased number of sites with Cold chain equipment with adequate functional capacity, which will ultimately improve immunization access and coverage.																		
Total CCE budget	\$4,299,296																		

Prioritised (Urgent) CCE Need #2

The need	Equip district sites with inadequate storage capacity to meet 2020 storage needs and replace health facility sites with equipment over 10 years old in hard to reach areas (2019/2020) <table border="1"><thead><tr><th>Refrigerator</th><th>Model</th><th>Quantity</th></tr></thead><tbody><tr><td>Sundanner</td><td>BFVR 55</td><td>240</td></tr><tr><td>Vestfrost</td><td>VLS 054 SDD</td><td>240</td></tr><tr><td>Vestfrost</td><td>VLS200A Greenline</td><td>200</td></tr><tr><td>Bio Medical System</td><td>TCW4000AC</td><td>10</td></tr><tr><td>Vestfrost</td><td>VLS400A Greenline</td><td>50</td></tr></tbody></table>	Refrigerator	Model	Quantity	Sundanner	BFVR 55	240	Vestfrost	VLS 054 SDD	240	Vestfrost	VLS200A Greenline	200	Bio Medical System	TCW4000AC	10	Vestfrost	VLS400A Greenline	50
Refrigerator	Model	Quantity																	
Sundanner	BFVR 55	240																	
Vestfrost	VLS 054 SDD	240																	
Vestfrost	VLS200A Greenline	200																	
Bio Medical System	TCW4000AC	10																	
Vestfrost	VLS400A Greenline	50																	
Justification	To enable councils to have adequate capacity to meet future needs based on new vaccine introductions. Hard to reach areas are vulnerable to bottlenecks in terms of supply of gas or technicians to conduct repairs. Hence, these facilities have been prioritized in this category.																		
Expected outcome	Expand capacity and reduce disruption of immunization																		

	sessions in hard to reach areas due to malfunctioning equipment or gas based absorption refrigerators.
Total CCE budget	\$2,416,856
GRAND TOTAL CCE BUDGET: "Initial phase support" (Years 1 & 2)	\$ 6,716,152

10. Summary of INITIAL SUPPORT PHASE replacement/rehabilitation, expansion and extension plan								
<p><i>All countries must fill this section to highlight the number of equipment and corresponding number of sites these equipment will serve to meet their replacement/rehabilitation, expansion and extension targets. See Section 6.2 of the CCE optimisation Platform Guidelines for the definitions of replacement/rehabilitation, expansion and extension. The values entered below must align with those in Section 9 above and in other parts of the application form.</i></p>								
	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 (District vaccine stores only)		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
Level	No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites
Council	11	11	0	0	195	80	53	15
Health facilities	1,059	1,059	0	0	0	0	552	552
Total	1,070	1,070	0	0	195	80	605	567

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 supports, on-going Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support. Describe planned or ongoing activities related to other supply chain fundamentals (see section 3.1 of the CCE Optimisation Platform Guidelines) during the initial support phase, including their sources of funding. Responses to this section should be linked to the EVM Improvement Plan.

<p>Supply chain managers <i>Describe all planned or on going activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</i></p>	<p>Objective: 100% of Managers involved in immunization services receive MLM training from national/regional/councils by end 2020.</p> <p>Activities</p> <ul style="list-style-type: none"> • Mapping availability of Cold Chain technicians at regional and district levels • Training of cold chain technicians and Immunization officers on maintenance and repair of CCE at regional and council level <p>Source of Funds: CHAI and UNICEF; USD 48,412.04</p> <p>Objective: Training to 90% of health staff on immunization by end of 2020</p> <p>Activities</p> <ul style="list-style-type: none"> • Training of immunization and vaccine officers on vaccine and logistics management at regional and district level • Conduct refresher trainings to District Immunization and Vaccine officers and health care workers <p>Source of Funds: GAVI HSS; USD 1,254,750</p>
<p>Data for supply chain management <i>Describe all planned or on going 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</i></p>	<p>Objective: Improve data management and quality of routine immunization data</p> <p>Activities:</p> <ul style="list-style-type: none"> • Develop Vaccine Information Management System including user manuals and training materials • Train national and sub national officer on the data management • Support roll out of Vaccine Information management system (VIMS) and BID initiative • Conduct Immunization Data Quality Review (DQR) <p>Source of Funds: GAVI HSS; USD 918,320, 355,43</p>

<p><i>management systems will improve the visibility of up-to-date and accurate vaccine stock records at each level of the vaccine supply chain.</i></p>	
<p>Optimised, efficient design of distribution system <i>Describe all planned or on going activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	<p>In order to reposition vaccine handling, storage and distribution at national level for more efficient and cost effective management, and reduce immunization cost per child (See EPI review recommendations), the government started transitioning central vaccine store from MSD to IVD Mabibo offices. As part of the transition, vaccine stock distribution from central to regional level will be transferred from MSD to IVD. The following activities will be undertaken:</p> <ul style="list-style-type: none"> • Renovation and expansion of warehouses, renovation of vehicle garage at IVD Mabibo • Shifting of facilities (refrigerated trucks, WICRs, generators and other related supplies) from MSD to IVD central level • Facilitate insurance policy provision for central vaccine stores (develop concept note, submit to MOHSW management, procure insurance policy) • Installation of WICRs and generators <p>Source of Funds: GAVI PBF USD 800,000 and CHAI; USD 300,000</p>
<p>Continuous improvement process <i>Describe all planned or on going activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>Objective: Improve and maintain availability of IVD Vaccines to 100% at all levels by 2020</p> <p>Activities</p> <ul style="list-style-type: none"> • Procurement of 4 refrigerated trucks at national level • Procurement of 50 Motorbikes • Procurement of 65 distribution vehicles to be used at district level <p>Source of Funds: GAVI HSS; USD 1,686,186</p>
<p>Temperature monitoring <i>Describe the temperature monitoring devices that are currently</i></p>	<p>Temperature is monitored through remote temperature monitoring device at Central, Regional and in 32 Districts, with the rest of the districts and Health facilities are using Fridge Tag 2 (FT2) and Freeze Tag for continuously monitoring Temperature at the fixed sites and transport respectively.</p>

available in the country? E.g. central level (CTMS), sub-national, lowest distribution and service delivery levels (30 DTRs and RTM devices), and during transportation (freeze tags). Furthermore, describe which measures are in place to a) obtain temperature data from the various devices; b) act following temperature alarms (curative maintenance); c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and d) Countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.

Routinely temperature data are obtained either through web portal for remotely monitored sites and printouts of fridge tags and filled monthly temperature monitoring sheets. The data on temperature alarms for remotely monitored equipment are obtained on escalation manner through SMS and email and for those on 30 DTRs through physical reading of the device and review of the daily temperature monitoring sheets.

The SOPs for the responders (Storekeepers, Immunization & Vaccines Officer, Medical Officers, Technicians, IVD logisticians and Program Manager) in temperature monitoring system are elaborated below;

Storekeepers (primary respondent):

- Upon receiving a freeze/heat alert SMS; the primary respondent must arrive at the site within 90 minutes or six hours respectively.
- Upon arrival at the facility, the primary respondent should press the 'Mute' button on the Beyond Wireless device. This will temporarily silence the alarm and notify the system that a respondent has arrived.
- If the cause cannot be determined or the situation resolved, the respondent should immediately. Begin processes to move the vaccine to alternate storage (i.e. engage contingency plan). Contact the RIVO, and request a repair and maintenance visit.
- If the cause is established and the situation resolved, the respondent should contact the RIVO, and discuss whether a technician visit is required.

Immunization and vaccine officers (Secondary respondent)

- Upon receiving SMS or email alert, the Immunization and vaccine officer's respondent should contact the primary respondent (storekeeper), to confirm that action is being taken.
- IF response is on going, they should monitor the situation, and provided resources as needed.
- IF response has *not* begun, they must contact alternate respondents capable of protecting the vaccine, or begin taking action themselves.
- Following a major excursion – any freeze event more than one (1) hour, or heat events longer than ten (10) hours – the immunization and vaccines officers is responsible for investigating the situation then they

should (i) inform the Medical Officers & IVD, and (ii) request a repair/maintenance visit.


Medical officers, IVD logisticians and program manager (Tertiary respondent)


- Upon receiving SMS or email alert, the Immunization and vaccine officer's respondent should contact the primary respondent (storekeeper), to confirm that action is being taken.
- IF response is on going, they should monitor the situation, and provided resources as needed.
- IF response has *not* begun, they must contact alternate respondents capable of protecting the vaccine, or begin taking action themselves.
- Medical officers are primarily responsible for authorizing repair and maintenance visits. As such, they should review the information provided by Immunization and Vaccines Officers, and approve any repair requests as are justified.
- For any excursion that reaches the third escalation stage represents substantial exposure for vaccines. It is critical that the IVD Logisticians or program manager do the following:
 - Confirm that vaccines have been protected and checked for potency (VVM)
 - Investigate the cause of the excursion, and determine whether follow-up actions are needed to prevent the situation in the future.
 - Review the responses taken by the primary respondent.

The program will be adding remote temperature monitoring to the rest of the districts and some of the Health facilities in Q3 2017, this will be supported by JSI. UNICEF will be supporting the program in procurement of fridge tags and freeze tags for all Health facilities. Therefore, Tanzania will not purchase these devices through this platform.

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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	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/
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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	<p>Replace CCE at health facility sites with non-PQS equipment over 10 years old in remaining areas (2020/2021)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Refrigerator</th> <th style="width: 30%;">Model</th> <th style="width: 40%;">Quantity</th> </tr> </thead> <tbody> <tr> <td>Sundancer</td> <td>BFVR 55</td> <td>600</td> </tr> <tr> <td>Vestfrost</td> <td>VLS 054 SDD</td> <td>600</td> </tr> <tr> <td>Vestfrost</td> <td>VLS200A Greenline</td> <td>149</td> </tr> <tr> <td>Bio Medical System</td> <td>TCW4000AC</td> <td>10</td> </tr> <tr> <td>Vestfrost</td> <td>VLS400A Greenline</td> <td>21</td> </tr> </tbody> </table>	Refrigerator	Model	Quantity	Sundancer	BFVR 55	600	Vestfrost	VLS 054 SDD	600	Vestfrost	VLS200A Greenline	149	Bio Medical System	TCW4000AC	10	Vestfrost	VLS400A Greenline	21
Refrigerator	Model	Quantity																	
Sundancer	BFVR 55	600																	
Vestfrost	VLS 054 SDD	600																	
Vestfrost	VLS200A Greenline	149																	
Bio Medical System	TCW4000AC	10																	
Vestfrost	VLS400A Greenline	21																	
Justification	These sub-optimal old equipment are prone to frequent breakdowns and require greater expenditure on repair and maintenance. Additionally, the expenditure required to procure fuel (LP Gas) to operate these equipment pose logistical challenges which would be averted.																		
Expected outcome	Vaccine stock will be protected from potential damage due to temperature excursions with higher quality equipment. Expenditure on LP Gas and potential disruptions to immunization sessions due to lack of fuel would be avoided.																		
Total CCE budget	\$5,486,828																		

Prioritised (Additional) CCE Need #2																			
The need	<p>Replace functional non-PQS CCE less than 10 years old and/PQS CCE that are sub-optimal (2021/2022)</p> <table border="1"> <thead> <tr> <th>Refrigerator</th> <th>Model</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>Sundanner</td> <td>BFVR 55</td> <td>871</td> </tr> <tr> <td>Vestfrost</td> <td>VLS 054 SDD</td> <td>871</td> </tr> <tr> <td>Vestfrost</td> <td>VLS200A Greenline</td> <td>544</td> </tr> <tr> <td>Bio Medical System</td> <td>TCW4000AC</td> <td>20</td> </tr> <tr> <td>Vestfrost</td> <td>VLS400A Greenline</td> <td>32</td> </tr> </tbody> </table>	Refrigerator	Model	Quantity	Sundanner	BFVR 55	871	Vestfrost	VLS 054 SDD	871	Vestfrost	VLS200A Greenline	544	Bio Medical System	TCW4000AC	20	Vestfrost	VLS400A Greenline	32
Refrigerator	Model	Quantity																	
Sundanner	BFVR 55	871																	
Vestfrost	VLS 054 SDD	871																	
Vestfrost	VLS200A Greenline	544																	
Bio Medical System	TCW4000AC	20																	
Vestfrost	VLS400A Greenline	32																	
Justification	Replacement of these cold chain equipment would offer better reliability, protection for vaccine stock (from incidents of freezing) which has been shown to be a risk for Tanzania. As per the latest temperature monitoring study, 36% of stocks at fixed sites were at risk of freezing.																		
Expected outcome	Protected vaccine stock with higher quality equipment and reduce expenditure on LP Gas																		
Total CCE budget	\$8,206,657																		
GRAND TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 & 5)	\$ 13,693,485																		

13. Summary of SCALE-UP SUPPORT PHASE replacement/rehabilitation, expansion and extension plan				
<p><i>All countries must fill this section to highlight the number of equipment and corresponding number of sites these equipment will serve to meet their replacement/rehabilitation, expansion and extension targets. See Section 6.2 of the CCE optimisation Platform Guidelines for the definitions of replacement/rehabilitation, expansion and extension. The values entered below must align with those in Section 9 above and in other parts of the application form.</i></p>				
	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-	Existing sites with (non) functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or	Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction	Equipping previously unequipped sites (providing immunisation services or not, including existing sites without

	term passive devices (including equipping sites with a larger equipment)		long-term passive devices (including equipping sites with a larger equipment)		and/or to serve an increasing population		active devices) and add new service sites	
<i>Level</i>	<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>	<i>No of Equipment</i>	<i>No of sites</i>
Council	52	52	83	52	0	0	0	0
Health facility	3,635	3,635	0	0	0	0	0	0
<i>Total</i>	<i>3,687</i>	<i>3,687</i>	<i>83</i>	<i>52</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

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

In this section, linkages must be drawn between requested CCE Optimisation Platform support, on-going Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support. Describe planned or on going activities related to other supply chain fundamentals (see section 3.1 of the CCE Optimisation Platform Guidelines) during the scale-up support phase, including their sources of funding. Responses to this section should be linked to the EVM Improvement Plan.

Supply chain managers <i>Describe all planned or on going activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.</i>	Same objectives and activities as in the initial phase, but the source of fund to be determined
Data for supply chain management <i>Describe all planned or on going activities related to data for management, their</i>	Same objectives and activities as in the initial phase, but the source of fund to be determined

<p><i>sources of funding, and partner support. In particular, provide information explaining how improvements to the functionality of logistics management systems will improve the visibility of up-to-date and accurate vaccine stock records at each level of the vaccine supply chain.</i></p>	
<p>Optimised, efficient design of distribution system <i>Describe all planned or on going activities related to distribution system design optimisation, their sources of funding, and partner support.</i></p>	<p>None planned</p>
<p>Continuous improvement process <i>Describe all planned or on going activities related to continuous improvement processes, their sources of funding, and partner support.</i></p>	<p>Objective 1: Improve and maintain effective vaccine management to above 90% at all levels by 2022</p> <p>Activities</p> <ol style="list-style-type: none"> 1. Procurement of cold chain equipment 2. Installation of cold chain equipment 3. Monitoring and evaluation of Cold chain equipment performance <p>Source of Funds: GoT, GAVI, WHO and UNICEF</p> <p>Objective 2: Improve vaccines and immunization information systems management to above 90% at all levels by 2022</p> <p>Activities</p> <ol style="list-style-type: none"> 1. Orientation of newly recruited healthcare workers on vaccines and immunization information systems 2. Conduct supportive supervision across all levels and institute data quality audits 3. Conduct data verification and validation to address issues identified during reporting and supportive supervision

	<p>Source of Funds: GoT through CCHP and MTEF, UNICEF and WHO</p>
<p>Temperature monitoring <i>Describe how the temperature monitoring system will evolve? Which devices will be used? <u>Furthermore, describe which measures are in place to</u></i> <i>a) obtain temperature data from the various devices;</i> <i>b) act following temperature alarms (curative maintenance);</i> <i>c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and</i> <i>d) Countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.</i></p>	<p>All central, regional, councils and some health facilities with high connectivity will be covered by Remote temperature monitoring devices (RTMD) while the remaining Health facilities will continue using Fridge Tag 2 (FT2) and Freeze Tag for continuously monitoring Temperature at the fixed sites and transport respectively.</p> <p>Facilities switching devices will adopt the necessary temperature recording and reporting protocols described in the initial phase and SOPs will be updated accordingly.</p>

Part F: Budget templates

This section details the number of requested equipment items and equivalent budget. A maximum investment amount (and indicative number of equipment items)

corresponding to the phased support request will be considered for recommendation of approval by the IRC and subsequent decision by Gavi.

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

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

15. CCE Optimisation Platform - Budget Template

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

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

Planning price ranges are provided in this template.

How to fill the attached budget template: Countries should:

Select appropriate 'Equipment Model' against the listed equipment types

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

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

Budgeting for Buffer and Procurement fees

Buffer fees: *A 7% buffer on total equipment cost is built into country yearly budgets. This will cover currency variations, demurrage and associated costs and will be returned to country, if unused.*

Procurement fees: *Countries will also need to pay UNICEF's procurement costs for the country joint investment portion, estimated to be up to 8.5%. Please obtain actual amounts from the UNICEF country office.*

Part G: Performance framework

Countries must include CCE Optimisation Platform indicators in the application. The indicators need to be included in the Performance Framework for the current and/or proposed Gavi HSS support, after Platform proposal approval.

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

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

CCE	Further information on developing relevant indicators, including a list of possible data sources, is provided in Section 7.2 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/
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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).

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)

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, such as demonstrated by remote temperature monitoring; and

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

USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS

<i>Indicator (Provide name of the mandatory indicator as</i>	<i>Definitio on (Provide definiti</i>	<i>Dat a Sou rce (ide</i>	<i>Rep ortin g freq uenc</i>	<i>Baseline (Year) (Provide numerator and</i>	<i>Target Year 1 (Provide numerator and</i>	<i>Target Year 2 (Provide numerator and</i>	<i>Target Year 3 (If applicable)) (Provide</i>
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<i>shown above)</i>	<i>on if not already specified)</i>	<i>ntify data source)</i>	<i>y (Annual, semi-annual, quarterly etc.)</i>	<i>denominator for calculating percentage)</i>	<i>denominator for calculating percentage)</i>	<i>denominator for calculating percentage)</i>	<i>numerator and denominator for calculating percentage)</i>
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)	CCIT tool	semi-annual	Numerator = 0 Denominator=4,809 Percentage=0%	Numerator =390 Denominator=4,809 Percentage= 8%	Numerator =1,070 Denominator=4,809 Percentage=22%	Numerator = 2,450 Denominator=4,809 Percentage=51%

<p>2. CCE expansion in existing equipped sites:</p>	<p>Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;</p>	<p>Sizing tool + CCI T tool</p>	<p>Annually</p>	<p>Numerator = 0 Denominator = 80 Percentage = 0%</p>	<p>Numerator = 0 Denominator = 80 Percentage = 0%</p>	<p>Numerator = 80 Denominator = 80 Percentage = 100%</p>	<p>Numerator = 80 Denominator = 80 Percentage = 100%</p>
<p>3. CCE extension in unequipped existing and/or new sites:</p>	<p>Percentage of previously unequipped sites (providing immunisation services or not, including existing sites without active</p>	<p>CCI T tool</p>	<p>Annually</p>	<p>Numerator = 0 Denominator = 567 Percentage = 0%</p>	<p>Numerator = 567 Denominator = 567 Percentage = 100%</p>	<p>Numerator = 567 Denominator = 567 Percentage = 100%</p>	<p>Numerator = 567 Denominator = 567 Percentage = 100%</p>

	devices) and new service sites being equipped with Platform eligible equipment.						
4. CCE maintenance	a. Percentage of functional CCE at Council level b. Percentage of functional CCE at Health Facilities	CCI T	Semi-annual	Numerator = 952 Denominator=960 Percentage=99% Numerator = 4,888 Denominator=5,760 Percentage =85%	Numerator = 1,204 Denominator=1,216 Percentage=99% Numerator = 6,021 Denominator=6,691 Percentage =90%	Numerator = 1,204 Denominator=1,216 Percentage=99% Numerator = 6,356 Denominator=6,691 Percentage =95%	Numerator = 1,204 Denominator=1,216 Percentage=99% Numerator = 6,624 Denominator=6,691 Percentage =99%
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	Not applicable, currently no non freeze cold boxes and no plans to procure them.					

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:

Functional status of cold chain equipment: Ratio of functional CCE and ratio of districts

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

USE THE TABLE BELOW TO COMPLETE ADDITIONAL INDICATORS

Indicator (Provide name of the additional indicators as shown above)	Definition (Provide definition if not already specified)	Data Source (Identify data source)	Reporting frequency (Annual, semi-annual, quarterly etc.)	Baseline (Year) (Provide numerator and denominator for calculating percentage)	Target Year 1 (Provide numerator and denominator for calculating percentage)	Target Year 2 (Provide numerator and denominator for calculating percentage)	Target Year 3 (If applicable) (Provide numerator and denominator for calculating percentage)
1.1. Functional status of cold chain equipment:	a. Percentage of functional CCE at Council level b. Percentage of functional CCE at	CCIT	Semi-annual	Numerator = 952 Denominator=960 Percentage =99% Numerator = 4,888 Denominator=5,760 Percentage =85%	Numerator = 1,204 Denominator=1,216 Percentage =99% Numerator = 6,021 Denominator=6,691 Percentage =90%	Numerator = 1,204 Denominator=1,216 Percentage =99% Numerator = 6,356 Denominator=6,691 Percentage =95%	Numerator = 1,204 Denominator=1,216 Percentage =99% Numerator = 6,624 Denominator=6,691 Percentage =99%

	<i>Health Facilities</i>						
<i>2. 4.Full stock availability:</i>	<i>Percent of Councils without vaccine stock out</i>	<i>Annual report</i>	<i>Annual</i>	<i>Numerator = 180 Denominator=194 Percentage =92.3%</i>	<i>Numerator = 189 Denominator= 199 Percentage =95%</i>	<i>Numerator = 194 Denominator=204 Percentage =95%</i>	<i>Numerator = 199 Denominator=209 Percentage =95%</i>