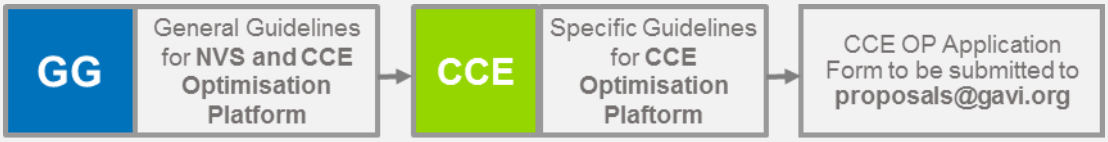
Application Form for
Cold Chain Equipment Optimisation Platform
Support in May-June 2017 only

Document Dated: April 2017

Application documents for 2017:

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



CCE Application Form

Purpose of this document:

This application form must be completed in order to apply for support related to the CCE Optimisation Platform.

Applicants are required to first read the General Guidelines for all types of support, followed by the CCE Optimisation Platform guidelines. Thereafter, applicants should complete this CCE Application Form and submit by email to proposals@gavi.org.

CCE TG

Resources to support completing this application form:

Technology guide for equipment selection for counties wishing to request CCE Optimisation Platform support is available here: www.gavi.org/support/hss/cold-chain-equipment-optimisation-platform/

Extensive technical resources relating to vaccine cold chain equipment management are available on TechNet-21: www.technet-21.org/en/resources/cold-chain-equipment-management

Weblinks and contact information:

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

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

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

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

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PART A: APPLICANT INFORMATION

1. Applicant information		
Country	Eritrea	
Date	05 May, 2017	
Contact name	Tedros Yehdego Mesghna	
Email address	Tedrosmy@gmail.com	
Phone number	291-1-125367 or 291-1-7184525	
Total funding requested from CCE Optimisation Platform **(US $)**	*This should correspond exactly to the budget requested in the embedded template**. $1,317,474 (total CCEOP budget (Incl. 7% additional buffer); $1,053,979 (80% Total GAVI budget request**); **$263,495 (20% total country budget)***	
Does your country have an approved Gavi HSS support on-going?	Yes ☑	No ☐
	*Indicate the anticipated **final year** of the HSS:*	
Proposed CCE Optimisation Platform **support start date** *(please be informed the actual start date should be at least 8-10 months from application date):*	*Indicate the month and year of the planned start date of the support, based on the strategic deployment plan:* **April 2018**	
Proposed CCE Optimisation Platform support end date:	*Indicate the month and year of the planned end date of the support, based on the strategic deployment plan:* **December 2021**	
Signatures *Include signed (and official) CCE Optimisation Platform application endorsement by:* *a) Minister of Health and Minister of Finance (or delegated authorities)* *b) Members of the Coordination Forum (HSCC/ICC or equivalent body)*	*We the undersigned, affirm the objectives and activities of the Gavi CCE Optimisation Platform proposal are fully aligned with the national health strategic plan (or equivalent) and that the funds for implementing all activities, including domestic funds and any needed joint investment, will be included in the annual budget of the Ministry of Health:* **Minister of Health (or delegated authority)** Name: H.E. Minister of Health Ms. Amina Nurhussien Signature: **Signature scanned and attached, see attachment #1** Date:	**Minister of Health (or delegated authority)** Name: H.E. Minister of Finance Mr. Berhane Habtemariam Signature: Date:

PART B: MANDATORY ATTACHMENTS: NATIONAL STRATEGIES AND PLANS

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

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

2. Mandatory attachments					
No.	**Strategy / Plan / Document**	**Attached Yes/No**	**Final version (dated)**	**Duration**	**Comments**
1	Signature sheet for the Minister of Health and Minister of Finance, or their delegates	Yes	NA	NA	
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal[1]	Yes	NA	NA	
3	National Health Sector Development Plan	Yes	Dec. 2016	2017-2021	
4	cMYP	Yes	Dec. 2016	2017-2021	
5	EVM Assessment	Yes	3 Dec. 2012	NA	
6	EVM Improvement Plan	Yes	21 Dec 2012	NA	
7	EVM Annual Workplan **and** Progress Report on EVM Improvement Plan[2]	Yes	Jan, 2015	NA	
8	WHO CCEI Tool/UNICEF IMT/PATH CCEM Tool/CHAI tool[3,4]	Yes	Jan, 2016	NA	
9	Inventory Report and Facilities segmentation	Yes	April, 2016	NA	
10	Single document: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and Equity Improvements Chapter 3: Strategic Deployment Plan	Yes	March, 2017	NA	

[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**
	Chapter 4: Equipment Selection				
11	Maintenance Plan with financing and source(s)	Yes	March 2017	2018-2021	
12	Proof of status for CCE tariff exemptions waiver	Yes	2013	Continuous	
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	Updated on Sep. 2016	NA	
14	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Yes	28th March 2017	NA	
15	Other relevant documents				

3. How do the above strategies, plans and documents inform the CCE Optimisation Platform support request (initial support and scale-up support)? *(Maximum 1 page)*

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

The main objectives of Cold Chain Equipment Optimization Platform (CCEOP) is to support countries to improve their cold chain system, compliment efforts to strengthen other supply chain strategy fundamentals and contribute efforts to sustainably strengthen the coverage and equity of immunization service in the country. In Eritrea, there are many plans and strategies that share similar objectives which the CCEOP support and can be complement to improve immunization supply chain system. These include country's Health Sector Strategic Development Plan (HSSDP), cMYP, HSS Grant, EVM and CCE assessment etc. All these strategies have improving cold chain as one of their main objectives which makes CCEOP as one of the good opportunity to ride on its implementation process.

GAVI HSS Proposal

Eritrea has an active GAVI HSS plan which covers period of 2017 to 2021.The document identified inadequate cold and dry storage capacity for storing traditional, new vaccines and injection safety materials as one of the logistic & supply chain management challenges that contributes to compromising quality of EPI Service delivery in the country. The plan sets its strategic objective and activity lines to ***"strengthen the logistics and supply chain management system aiming to improve the efficiency of distribution, storage and stock management of EPI/VPD and other essential medical commodities in the country"***[5] which will address the logistics and supply chain management bottlenecks. The document identifies inadequate cold and dry storage capacities as one of the bottle necks of immunization supply chain in the country. This objective is in line with that of CCE OP which is primarily for ensuring availability of potent vaccines in adequate quantity and good quality

[5] Eritrea HSS application 2016 pages 5 and 6

through provision of better performing equipment to address storage capacity issues.

Reference: *Details of the analysis can be found on page 28 of Eritrea HSS proposal 2017 – 2021 attachment no.15.1*

HSSDP II

The Second Health Sector Strategic Development Plan (HSSDP II) is designed to provide the overall strategic and implementation framework for the health sector priorities in the country for a period of five years; (2017– 2021). The HSSDP is aimed at contributing towards sustainable economic growth with social service equity and justice enshrined on the principles of self-reliance, as stated in the National Indicative Plan 2014- 2018 of the Government. This plan aims at improved health status, wellbeing, productivity and quality of life as indicated in the National Health Sector Plan. The development of this plan comes at a most appropriate time for our country as the first HSSDP ended in 2016. This created the need for development of a new strategic plan that takes into effect as of 2017 and all partners can use it as reference and required document during their support. The following major goals of the HSSDP are in agreement with those of the cMYP in relation with immunization services.

GOAL 1 (MNCH) **:**By 2021 Eritrea will implement comprehensive MNCH & nutrition interventions to reduce maternal mortality by 15%, neonatal mortality by 14% and child mortality by 31%.

GOAL 5 (EMS): By 2021, Eritrea shall have a supply of safe, quality and effective medical services provided in a fair and equitable manner to ensure demand satisfaction of above 80% nationwide.
See *page 14 of HSSDP - health service goals*

cMYP

The vision of Eritrea's cMYP which has a life span from 2017 to 2021 is to make immunization services accessible, available and equitable to all children and women in reproductive age group with a goal of reducing morbidity, disability and mortality of children due to vaccine preventable diseases as well as to increase immunization coverage of all antigens by improving access to and utilization of routine immunization services.

One of the specific objectives of the plan is to ensure that "***97% of the health facilities will have adequate vaccine storage capacity with functional and PQS standard cold chain equipment****"* which is in line with CCE OP main objectives for the coming five years.

See *pages 12 (vision) and 15 (specific objectives)in Eritrea cMYP 2017 to 2021 for details - attachment no 4*

Cold Chain Inventory Report

Eritrea conducted a comprehensive cold chain inventory assessment in 2016 which was reviewed and validated in the first quarter of 2017. Review of the inventory reveals that about 31% of CCE in the country is obsolete while 64% of the refrigerators used at SP level are solar battery type (SBRF) and frequently out of service due to problems associated with batteries and charge controllers (***See*** *cold chain inventory review report pages 11 and 12*).According to WHO protocol, equipment for vaccine storage are no longer optimum in performance after 10 years of operation hence their continuous use could lead to compromising vaccine potency.

EVM Assessment

Eritrea conducted EVM assessment in 2012. The country also conducted cold chain assessment in the first quarter of 2016. In the first quarter of 2017, EVM of the national vaccine store was also conducted. Moreover the country has prepared a plan of action to assess the remaining ISC levels in October 2017 using the GAVI HSS II grant for 2017 and the document is included in the annexes. Findings from both country-wide assessment in 2012 and national level assessment in 2017 revealed weaknesses in the area of quality of cold chain equipment in terms of age and size. Storage capacity gaps were also identified in some regional, and district stores as well as some service health facilities as a consequence of introduction of new vaccines and increasing population. The assessments made recommendations for immediate replacement of the obsolete and solar battery refrigerators in order to strengthen the cold chain system which is in direct agreement with the CCEOP objectives. Therefore CCEOP support will go a long way in assisting Eritrea to implement the recommendations of both 2012 country-wide assessment and 2017 national level EVM assessment. Pages 6 and 11 of national level assessment report attachment # 5.1

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

This application was developed by the EPI program in the Ministry of Health through consultation, technical support and full participation of a working group that comprises of WHO, UNICEF, Medical Equipment Engineering Division, EPI Logistics Officers and the EPI manager. Retreat workshop was conducted with all stakeholders to finalize the document in order to have sound full application and to make consensus on the application contents. The final application has been presented to ICC and endorsed unanimously in a meeting held on 28th April 2017. During this meeting the full quorum of ICC members were presented.

To further support the develop of the CCE OP application, UNICEF recruited an external consultant who works closely with EPI manager and EPI logistic officer in the Ministry of health to obtain the required information and reference documents for the CCE OP application development. In the process, WHO and UNICEF EPI focal persons have worked jointly to give technical support and facilitation of the application to meet the application dateline. UNICEF and WHO also provided financial support on the process and in conducting a retreat workshop to finalize the application.

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

Gavi and its Alliance partners encourage the establishment of such group that coordinates Government and non-Government partners 'activities and investments related to the health supply chain including immunization.

Were any of Gavi's requirements to ensure basic functionality of Coordination Forums not met? Then please describe the reasons and the approach to address this (refer to section 5.2 of the General Guidelines for the requirements) *(Maximum 1 page)*

In Eritrea, the Government is the sole purchaser and distributor of health supplies through a parastatal agency called PHARMECOR except EPI related supplies (vaccines, cold chain equipment and syringes, sharps and safety boxes).

The EPI supplies are procured and managed by the MOH EPI program through UNICEF with funding support from Government of Eritrea, GAVI, UNICEF and JICA. The distribution of the supplies is managed and monitored by the program, which has EPI logistic officers at the National and Zoba (regional) level. The non-Governmental partners (catholic and evangelical mission) are not allowed to procure EPI logistics materials hence they are given free of charge by the MOH and vaccines are procured and delivered through a centralized system.

Currently there is no National Logistic Working Group (NLWG) in the country. Though the country has limited partners working in EPI logistics, the program recognized the importance of having active NLWG and has taken steps to establish one with the following membership: EPI logistician, UNICEF logistic officer, JICA staff Medical Equipment Engineering Division staff, PHARMECOR staff, airport clearing staff and administrative & transport support staff Since staffs from these agencies are always involved in the EPI logistic activities, the EPI programme will establish a NLWG with standard ToR to work and report to the EPI manager beginning October 2017. The HR capcity building for the NLWG will be provided through UNICEF.

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.

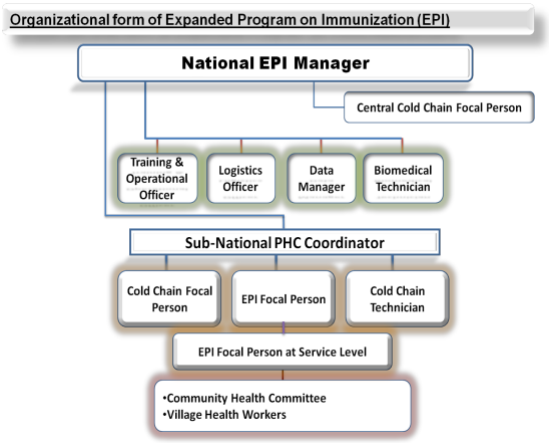
5. Situation analysis of country's supply chain and CCE (number, distribution, functionalities etc.)
(Maximum 3 pages) Please respond to all questions
Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

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?*

How is the country's immunisation supply chain administered?

The MOH is responsible for developing and setting all EPI policy guidelines, standards setting, priority setting, capacity building of the human resources on immunization program, introduction of new vaccines and technologies by making close links with other stakeholders and partners. In the management structure EPI is a unit in the organizational structure of the MoH. At national level, it is headed by a National Programme Manager who reports directly to the director of family and community health division within the department of public health at the MoH.



The national EPI manger is supported by central cold chain focal person, logistics officer, data manger, training and operational officers. In maintenance of the CCE the EPI program has direct support by the Medical Equipment Engineering Division. At the Zoba (regional) level, the EPI falls under the family and community health division and there is a zonal EPI focal person who is supported by cold chain focal person and solar technicians that work full time under EPI program. There are also officers designated to take charge of EPI activities at all the sub-zobas (districts) and health facilities as EPI focal persons. In general, there are at least two persons trained in EPI at each health facility providing rotuine immuniztion services.

Detailed EPI structure is contained on page 11 of the coutry HSS plan for 2017-2021 included as an attchment.

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

Major weaknesses of the country immunization supply chain include:

Low preventive maintenance activities due of lack of spare parts and non-availability of transport support to deploy technicians to carry out preventive maintenance and urgent repairs of the failed refrigerators. High proportion (31%) of obsolete CCE is also a constraint in the system because of their frequency of break down due to their age and long-time on service. In Eritrea more than 80% of the obsolete CCE served for 15 years and above. In terms of skilled human resource, the refrigeration (cold chain) unit of the Medical Equipment Engineering Division is under staffed. There is no full time working technicians at the national vaccine store. Furthermore, the two trained cold chain technicians at each sub-national level do not have adequate expertise, skills and capacity to perform maintenance on WICRs, refrigerators and freezers but are capable of installing and troubleshooting on PV (solar) refrigerators.

For details *See* *CC inventory review report 2017 – page 14 and Eritrea HSS proposal 2017 – 2021 page 28.*

Dry storage gaps: At national level there is no dry store. Syringes and needles are kept at Pharmaceuticals and Medical Corporation (PHARMACOR) stores while other dry consumables such as diluents, data tools are stacked and squeezed in cold room store corridors and in spaces adjacent to the walk-in cold rooms as well as in containers located outside the premises of the store. There is also no dry store in Gash Barka region while Northern Red Sea regional store is in need of total renovation. Similar issues of dry stores are common in most of the districts.

Reference: *EVM 2012 assessment report pages 22-23, 27-28, 30-34, 36, 45-49, 55-56, 59-60, cMYP Eritrea, 2015 pages 2, 9, 17, 20 and Eritrea HSS proposal 2017 – 2021 page 28.*

Through what interventions are these weaknesses currently being addressed?

In order to address the weaknesses identified, various actions are planned and are being taken. The Medical Equipment Engineering Division (MEED) is planning to incorporate its electrical section into refrigeration unit to re-enforce the human capital and skills for cold chain maintenance. All cold chain technicians have received initial/basic training on cold chain equipment maintenance. Two engineers from MEED had received training on cold chain equipment maintenance outside the country (**See:** page 8 of Eritrea implementation status of 2012 EVM assessment recommendations). Similarly list of spare parts have been compiled, procurement has started and is ongoing. Under objective 2 of the county's HSS plan a provision is made for training of 24 Biomedical Technicians in basic maintenance of the cold chain and other crucial medical equipment. The training will also cover technicians at all the six Zoba hospitals and 20 selected (strategically located) Sub-Zoba hospitals. Maintenance kits and spare parts are also planned to be procured for effective operations of the technicians. Furthermore, one equipped multi-purpose mobile workshop unit in an all weather vehicle will be procured to enhance scheduled routine maintenance visits and rapid response to maintenance requests by MEED technicians.

Reference: Activity nos. 2.4.1,2.4.2 and 2.4.3 of objective 2 of the 2017 – 2021 HSS plan (attachment # 15.1) page 42

Describe challenges that are hindering the implementation of these interventions.

The biomedical engineering division in the ministry of health has dedicated and well trained technicians at national level. Even though human resource skill is available in the ministry, there are challenges that hinder implementation of the planned activities to carry out preventive maintenance which include shortage of standby transport support, lack of spare parts and maintenance kits that enable the technicians to make on time repair and service of the cold chain equipment. The financial regulations and allocation of the daily subsistence allowance (DSA) for the technicians is also not adequate for deployed staff to travel to the field to carry out preventive maintenance on CCE at lower levels, however, MoH promised upward review of the allowances.

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

The Government of The State of Eritrea has been working closely with local and international partners to improve immunization supply chain especially as it relates to adequate capacity for storage of vaccines for routine and SIAs. In this regards a number of none standard and obsolete CCE were replaced with PQS equipment based on the WHO catalogue using funds provided from partners. JICA supported the country to introduce SDD refrigerators in 2016 which are found to be more effective and with less maintenance issues. The support also provided an avenue for training of more technicians. UNICEF also provided support for training of EPI staff on new technologies of temperature monitoring devices (Fridge Tag2) and procedures have been adopted for temperature monitoring at health facilities. It was discovered that using these devices provide information temperature conditions of vaccines unlike when using other thermometers that do not give continuous reading.

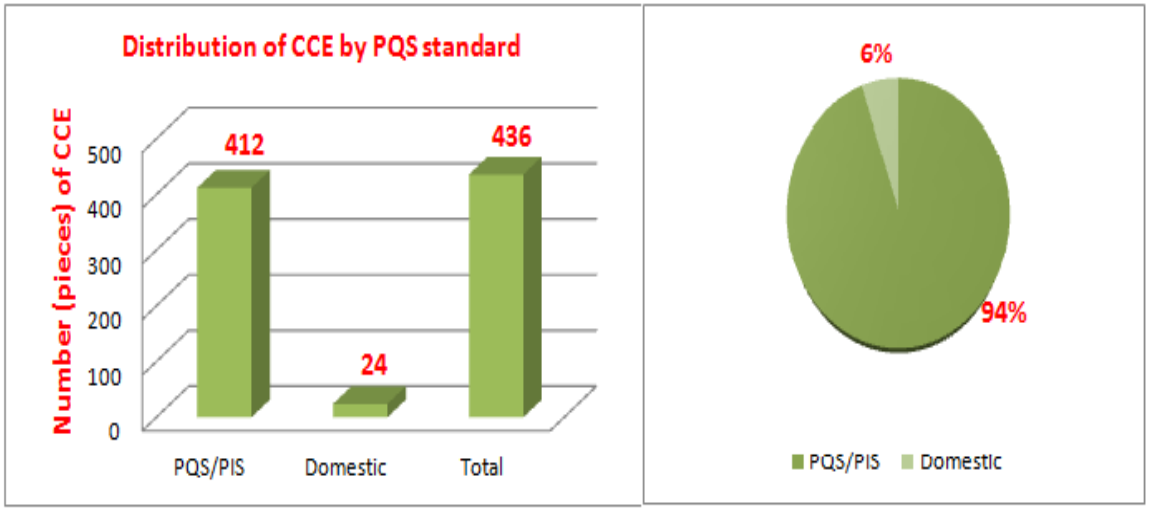
What percentage of facilities has reliable access to grid electricity for up to or more than 8 hours per day?

In Eritrea electricity is available at national store and all the six regional stores where most of them are using walk-in cold rooms with automatic standby generators. Similarly all the 58 district vaccine stores in the country have electricity for up to 8 hours and are hence using ILR to store vaccines. However there are up to 347 service health facilities using solar refrigerators due to lack of electricity. 34% of cold chain equipment in the country is using electricity. Detail of energy source for cold chain equipment is contained on page 11 of cold chain inventory review report 2017 attachment no 9.

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

From the review of cold chain equipment data in the country it shows that large majority of the equipment in Eritrea conforms to PQS standard. There are however very few equipment that falls short of the standard (domestic) for vaccine storage. The figure below gives summary of proportion of quality of equipment in the country.

Figure 2: CCE by PQS standard

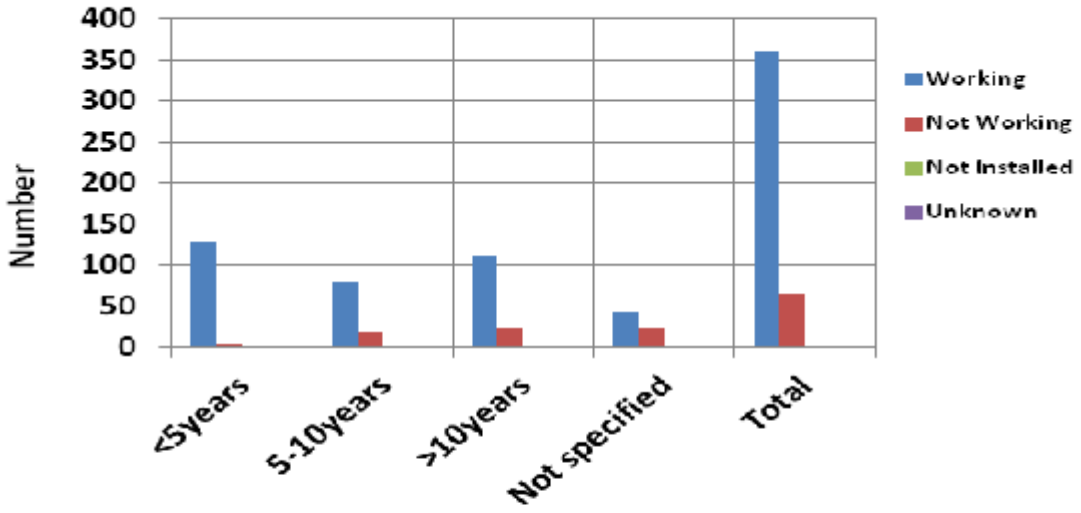


The cold chain inventory/assessment reveals that, about 31% of the total cold chain equipment is obsolete and 15.3% is not working due to various maintenance issues. The figure below shows the breakdown of equipment by age and their status of functionality in the country.

***See details** of cold chain equipment inventory status in section 2.1.3 on page 11 of cold chain inventory review report attachment no 9.*

Figure 3: CCE by age and working status

Distribution of CCE by age and functional status



Functional status	<5years	5-10years	>10years	Not specified	Total
Working	129	78	111	42	360
Not Working	3	18	22	22	65
Not Installed	0	0	0	0	0
Unknown	0	0	0	0	0
Total	132	96	133	64	425

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

Major bottle necks of the cold chain system in Eritrea are that about 31% of the equipment are obsolete while 64% of the refrigerators used at SP level are solar battery type (SBRF). According to WHO protocol, equipment for vaccine storage are no longer optimum in performance after 10 years of operation. Under this situation frequent breakdown occurs which overwhelm the available trained technicians and spare parts. High proportion of solar battery refrigerators also serves as a major bottle neck because of the rate of failure of the batteries and their associated charge controllers coupled with high cost of the batteries and charge controllers. They are also not very readily available due to new technology of the SDD which does makes them out of phase. Other bottlenecks of the system in the country include low skills of technicians and inadequacy of spare parts to implement planned preventive maintenance. With the introduction of new vaccines and switching of vaccine presentation into one dose vial, there is also inadequacy of storage capacity in some regional and district stores as well as some health facilities at service level. Details can be found in

References: *EVM 2012 assessment report pages 22-23, 27-28, 30-34, 36, 45-49, 55-56, 59-60 as well as cMYP Eritrea, 2015 pages 2, 9, 17, 20 and Eritrea HSS proposal 2017 – 2021 page 28.*

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

In addition to mitigating issues of inadeqaute storage capacity, replacement of obsolete and non-PQS equipment the platform support will further enable the country to extend training of technicians through the service bundle agreement provided by the platform which will result to increased number of trained technicians in the country which in turns facilitaes timely response to maintenance issues. The excess fund from HSS plan will be re-budgetted to adress transport issue for technicians.

What are the overall CCE needs?

The purpose of this application is to get the needed equipment to address the following issues

a) Replacements of equipment in areas with geographic challenges to enable them reach their distant population with immunization service delivery.

b) Provision of better performing equipment to areas of low routine immunization coverage

c) Scale up of storage capacity for new vaccine introduction and

d) Systematic replacement of obsolete equipment

Based on the above considerations equipment needed must be able to withstand the high temperatures of the areas and should have freer compartment to enable service providers to make ice packs needed to conduct distant outreach activities.

Critical review of the operating procedures and conditions, initial cost of purchase, operating cost, the required storage capacity and total cost of most common CCE was done in order to put the country in good stand to select appropriate equipment with optimum output and value for money. Details of the selected CC equipment can be found on #10, PAGE 20

As the number of CCE required to upgrade the infrastructure requirement is 250 units as per the summary table provided below, strategic decision is made to put all requirement in the initial phase for 2018 taking into consideration the Operational Deployment easiness and the fact that two suppliers will provide the required 250 units as per the table below. This will ease the deployment plan development, transport, custom clearance, installation and training.

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Table 1: Total CCE need by model and type

CCE model and capacity				2018: Initial phase				
				Initial need #1	Initial need #2	Initial need #3	Initial need #4	
Equipment model	Manufacturer	Capacity at +5°C in liters	Icepack freezer capacity in liters	District with geographic challenges and or Penta 3 coverage below 60%	District with low Pental three coverage (60% to 79%)	Equipping existing sites with additional CCE for NUVI & population increase	Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced	Total quantity
VLS 200A	Vestfrost	98	0	10	4	0	2	**16**
VLS 300A		98	0	14	10	1	7	**32**
VLS 400A		145	0	7	2	2	3	**14**
VLS 054 SDD		55	0	15	10	0	7	**32**
VLS 094 SDD		92	0	4	0	0	2	**6**
TCW 15 SDD	B. Medical	16	2.4	40	7	0	7	**54**
TCW 40 SDD		36	4.8	16	5	0	1	**22**
TCW 2043 SDD		70	42	11	3	0	4	**18**
MF 114	Vestfrost	0	105	20	14	2	11	**47**
MF 314		0	271	0	0	9	0	**9**
Total				137	55	14	44	250

6. Expected immunisation coverage, equity and sustainability results *(Maximum 2 pages)*
Please respond to all questions
Countries are encouraged to cross reference (document title, page number) attached mandatory documents.

Information is required to cover the following areas:

a) *How will the requested Platform support concretely contribute to addressing identified geographic and socio-economic inequities and gender barriers to sustainable improvements in coverage and equity of immunisation? Examples may include (not exhaustive):*
    - *Geographically remote districts or those with low coverage*
    - *Poorer communities (e.g. in the poorest 10% of the population)*
    - *Communities where gender barriers are significant and/or where low levels of female education is common (as this is often associated with lower coverage)*

b) *What analyses have been made, or what plans are underway, to optimise the design of the supply chain distribution system in order to improve the efficiency of the supply chain and contribute to achieving coverage and equity goals?*

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

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

How will the requested Platform support concretely contribute to addressing identified geographic and socio-economic inequities and gender barriers to sustainable improvements in coverage and equity of immunisation? Examples may include (not exhaustive):

- ***Geographically remote districts or those with low coverage***
- ***Poorer communities (e.g. in the poorest 10% of the population)***
- ***Communities where gender barriers are significant and/or where low levels of female education is common (as this is often associated with lower coverage)***

The above listed models of CCE are generally required to replace various models of obsolete and none standard CCE as identified and extracted from the national inventory of CCE. Here the priority emphasizes on equipping health facilities in districts with less accessible geographical areas and nomadic groups in their catchment area. These facilities will be equipped with SDD refrigerators that have adequate storage capacity and freezing compartment to enable them produce ice packs needed for continuous immunization service at static and their distant outreach centres thereby reaching more population, increasing immunization coverage and reducing dropout. Twenty one (21) districts (sub-zobas) namely Asmat, Habero, Halhal, Kerkebet, Sela, Tserona, Forto, La'lay gash, Logo anseba, Molki, Shambuko, Adobha, Afabet, Foro, Ghelaelo, Ghindae, Karora, , Nakfa, Araeta, D/denkalia and M/denkel have been identified that have geographically remotes facilities.All obsolete and none standard cold chain equipment will be replaced in this areas with better performing equipment that operate on latest technology. Various equipment models numbering 52 are planned for replacement under this category ***as detailed in facility segmentation attachment no. 9***

It is expected that new equipment will work more efficiently due to their age and improved technology which will eliminate all forms of risks that compromise vaccine potency. It will also reduce the repair and maintenance issues due to age and technology.

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?

In Eritrea distribution system is a mixture of push and pull. Distribution of the vaccines follows the administrative levels of the healthcare system in the country and most frequently vaccines are delivered in a pull system. Sometimes it does not follow sequence of ISC levels as some facilities receive vaccines from sub–national stores while some others receive from district stores because of geographical barriers and distance of their respective districts as well as transport issues. However, the country is planning to redesign the distribution system to push style where vaccines will be push from higher to lower level stores in more organised sequence. To achieve this plan the country is procuring two medium size refrigerated trucks and two all-weather, all-terrain normal trucks for distribution of vaccines and dry supplies for immunization. Similar efforts are also in pipeline to provide suitable transport facilities for lower levels in order to achieve the planned redesign of the distribution system based on the structure of the health care system. Provisions have also been made for fuelling and maintenance of the vehicles in order to ensure their unhindered operations.

Reference: *HSS 2017 – 2021 plan, activities no 2.2.1 and 2.2.2 page 42*

Under the improved distribution system there will be adequate transport infrastructures to push vaccines to all sites irrespective of their geographical locations. This will ensure timely availability of bundled vaccines in all areas so that immunization services will be equitable and accessible to all children and women in reproductive age group.

With uninterrupted supply of vaccines, more health facilities in will able to conduct scheduled outreach vaccination services in their catchment areas thereby reducing equity gap and increasing coverage.

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

Since the new distribution system will ensure timely availability of vaccines in more areas including geographically disadvantaged ones, better performing equipment must be deployed to ensure the potency of the vaccines that will be sent to the facilities. The types of CCE provided by CCE OP such as SDD refrigerators and low energy consuming ILRs are most suitable for the system. The SDD refrigerators will be deployed to remote areas and all those without electricity supply. The equipment will also provide the means of making ice packs needed for outreach immunization service in distant and nomadic areas that hitherto are impossible due to lack of better storage facilities. The low maintenance demand of the platform equipment such as SDD refrigerators is strength especially for remote areas where deployment of technicians is difficult.

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

The platform support will go a long way in enhancing the efficiency of the supply chain system in the country through:

a) Facilitating uninterrupted supply of vaccines to all levels of the supply chain including geographically disadvantaged areas
b) Provision equipment with low maintenance issues and less break downs which give better guarantee for vaccine potency
c) Training and re-training of in-country technicians through the service bundle package

d) Provision of spare parts for routine maintenance

All the above positive contributions from the platform support will contribute to sustainability of the activities of the supply chain system in the country.

7. Maintenance plan (and its source of funding) and equipment disposal *(Maximum 2 pages) Please respond to all questions*

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

Information is required to cover the following areas:

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

- *What is the frequency of preventative and corrective maintenance that the country commits to (supported by partners)?*
- *What technical support is anticipated for maintenance?*

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

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

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

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?***

In Eritrea, maintenance and installation of the cold chain equipment is carried out by the Medical Equipment Engineering Division that is managed under the Department of Clinical Service in the Ministry of Health. At national level, the division is led by a qualified Engineer who is supported by technicians trained in various fields of maintenance. At sub national level, there are at least two technicians who work full time on installation and maintenance of cold chain equipment and other relevant works. These technicians are supervised and supported by the Medical Equipment Engineering Division. The technicians are equipped with basic maintenance kits and training and refresher training have been provided for the them on a yearly base. At sub national level there are mini workshops where the technician could make maintenance of the cold chain equipment and spare parts kept.

Currently due to lack of transport and inadequacy of spare parts for maintenance activities the country does not have a regular frequency for preventive or corrective maintenance as well as a yard stick for responding to maintenance request. Maintenance activities are solely dependent on availability of spare parts and transport for technicians at a particular point in time.

These constraints have already been considered in the GAVI HSS grant II and are addressed to support the country to minimize them. The country plans procurement of well-equipped mobile workshop/vehicle for the Medical Equipment Engineering Division to enable it responds to maintenance requests timely and effectively. Provision has also been made in

the approved HSS plan for procurement of maintenance kits and spare parts relevant to CCE There is also provision for training of technicians working at sub national level and selected districts that will form technicians hub in the country.

***Reference: HSS** 2017 – 2021 plan, activities no 2.4.1, 2.4.2 and 2.2.4 page 42*

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?***

The Medical Equipment Engineering Division has a system through which maintenance request are raised and sent to it by requesting facilities through the hierarchy that is already in place. All completed works are reported by the technicians. These reports will be analysed and feedback will be given in order to track the effectiveness of responses to maintenance requests by the division.

Government of Eritrea has a system of paying sustenance allowances to staff assigned to work outside their duty station. This system will be strengthened with additional support from GAVI HSS plan where provision is made for procurement of tools and training. Already there is provision for procurement of spare parts in the CCE OP. Furthermore the country will save some funds set for cold chain activities in the HSS plan that will be taken care of by the CCE OP. These funds will be re-budgeted to re-enforce maintenance activities.

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

In Eritrea all obsolete and damaged medical equipment including CCE are withdrawn from service through centralized method. There is an agency called Property and General Service Division within the Ministry of Health to which this equipment are handed to for proper disposal in consultation with ministry of finance.

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.

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

In order to facilitate quick flow of activities, yearly forecast of CCE requirement by their specifications and quantities have been made and facilities to deploy them have been also identified[6].

Procurement of all cold chain equipment in Eritrea is done through UNICEF supply division

[6] Mandatory annex 10, Selection and deployment plan page 17

which relates directly with the manufacturers ensuring compliance with all standards. Therefore all equipment to be procured under this platform will be procured through the same channel. Deployment plan will be re-reviewed to ensure that facilities where CCE will be deployed are ready in terms of quality of physical structures, skilled personnel and general security.

The Ministry of Health in collaboration with UNICEF will ensure distribution of equipment as planned. National EPI programme and its partners will facilitate logistics activities for distribution of the equipment with manufacturers or their representatives. In- country technicians will be available to benefit from the "service bundle agreement of the CCEOP by fully participating in training for installation and maintenance.

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

The country currently has approved active HSS proposal for the next 5 year period of 2017 to 2021. The country joint investment funding of 20% will be available from the HSS proposal. This is because a sum five hundred and twenty United States' Dollars (US$ 520,000:00) have been budgeted for procurement of 130 units of SDD refrigerators in the HSS plan and another sum of two hundred and fifty United States' Dollars (US$ 250,000:00) have been planned for procurement of 500 dry sealed batteries for solar refrigerators currently in the country's cold chain system. From these sums of moneys, 25% country co-investment funding can be realized leaving a large surplus to be re-budgeted for other activities around cold chain since CCE OP will provide 135 units SDD refrigerators part of which are for replacement of all the solar battery refrigerators hence no need for procurement of the batteries.

The total budget for the support required by the state of Eritrea for cold chain equipment optimization is in total sum of One million Three hundred and Seventeen thousand, Four hundred and Seventy Four United States Dollars ($ 1,317,474:00). This therefore requires the sum of about Two hundred and Sixty Three thousand Four hundred and Ninety Five United States dollars ($ 263,495:00) as counterpart funds from Eritrea government which can be secured from the HSS budgeted amounts for SDD refrigerators and dry sealed solar batteries that will be provided through the platform. Requirement from GAVI is in the sum of One million, Fifty Three Thousand Nine hundred and Seventy Nine United States' Dollars ($ 1,053,979:00).

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

In Eritrea all cold chain equipment is procured through UNICEF Supply Division. In accordance with a Memorandum of Understanding (MoU) signed between UNICEF and state of Eritrea in 2013, government is responsible for tariff on all supplies procured through UNICEF. This provision exempt UNICEF from payment of all taxes on all goods procured including vaccines and cold chain equipment. Previous procurements through UNICEF were all tariff free. This provision is contained in *item 18, on page 7 of the MoU under a section that deals with custom clearance.*

The full MoU is attached as attachment #11.

PART D: INITIAL SUPPORT PHASE

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

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

CCE	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/

9. Prioritised (Urgent) CCE needs *(Maximum 3 pages)*	
*Provide information on **2 to 4 prioritised (urgent) CCE needs** as identified in the 'CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements'.* *For each prioritised (urgent) CCE need, please provide the following information:* *1. **The need:** Type of activity (e.g. replace obsolete CCE, extend CCE to unequipped facilities, etc.); specific CCE site (facility); type of equipment required; quantity of equipment items.* *2. **Justification:** Reasons for urgent need (e.g. low CCE and/or immunisation (Penta3) coverage area, gender barriers, mobile population, etc.); current CCE and immunisation (Penta3) coverage in the population area.* *3. **Expected outcome:** Anticipated increase in CCE and immunisation coverage (Penta3); anticipated progress against identified inequity (describe, in alignment with country Performance framework).* *4. **Total CCE budget:** includes Gavi and country joint investment share*	
Prioritised (Urgent) CCE Need #1	
The need	Replace obsolete & non- optimal 137 CCE for district with geographic challenges and or Penta 3 coverage below 60%
Justification	137 CCE is required of which 87 are SDD. These CCE are generally required to replace various models of obsolete and none standard CCE as identified and extracted from the national inventory of CCE. Here the priority emphasizes on equipping health facilities in districts with less accessible geographical areas and nomadic people groups in their catchment area. Further consideration is given to the areas with penta 3 coverage below 60%. These facilities will be equipped with SDD refrigerators that have adequate net storage capacity and freezing compartment to enable them produce ice packs needed for continuous immunization service at static and their distant outreach centres thereby reaching more population, increasing immunization coverage and reducing dropout. All obsolete and none standard cold chain equipment will be replaced in this areas with better performing equipment that operate on latest technology. Various equipment models numbering 52 are planned for replacement under this category in 2018.
Expected outcome	It is expected that new equipment will work more efficiently due to their age and improved technology which will eliminate all forms of risks that

	compromise vaccine potency. It will also reduce the repair and maintenance issues due to age and technology. Especially for solar battery refrigerators that needs intensive follow-up and service will gradually be replaced with solar direct drive refrigerators. Furthermore, on-grid ice lined refrigerators and freezers will be replaced with new version that have less energy consumption which in turn will reduce the burden of energy cost and stress on standby generator especially at the national and sub national vaccine store warehouses.
Total CCE budget	**USD $768,113**
Prioritised (Urgent) CCE Need #2	
The need	55 CCE to districts with District with low Penta 3 coverage (60% to 79%)
Justification	This priority is to address storage capacity gap at facilities in districts with low routine immunization coverage. 27 districts have been identified to have Penta 3 coverage of 60% to 79% are therefore planned as priority number 2 in order to provide more effective equipment to facilities under them to enable them store more vaccines, reach more people to boost their coverage.
Expected outcome	New equipment is expected to boost storage capacity, replace old and failed equipment and reduce frequency of equipment down time. With more effective equipment there will be possibility of uninterrupted supply of vaccines at the faculties. The new equipment mostly comprising SDD refrigerators with freezer compartment will enable the facilities to carry out outreach service with vaccines under good cold chain.
Total CCE budget	**USD $245,773**
Prioritised (Urgent) CCE Need #3	
The need	14 CCE to equip existing sites with additional CCE for NUVI & population increase
Justification	This is planned to scale up storage capacity at regional and district stores. It is also meant to replace obsolete equipment and solar battery that are still working at service delivery levels.
Expected outcome	The new equipment will provide the needed storage capacity for all vaccines including new ones as well as replace non performing ones. New technology like in SDD will reduce equipment break down and less spending on repairs and maintenance. The equipment is also expected to provide safer storage for vaccines which removes danger of losing them to temperature excursions.
Total CCE budget	**USD $31,193**
Prioritised (Urgent) CCE Need #4	
The need	44 CCE for existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced
Justification	This intervention is meant to address very obsolete and non-optimal cold chain equipment as per the CCI findings. (Please provide some statics from the national CCI report.
Expected outcome	The new equipment will provide the needed storage capacity for all vaccines including new ones as well as replace non performing ones. New technology like in SDD will reduce equipment break down and less spending on repairs and maintenance. The equipment is also expected to provide safer storage for vaccines which removes danger of losing them to temperature excursions.

Total CCE budget	**USD $ 204,665**
GRAND TOTAL CCE BUDGET: Initial support (Years 1 and 2)	**USD $1,249,743**

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

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

Replacement/Rehabilitation				**Expansion**		**Extension**	
Existing sites with (non)functional and/or obsolete non-PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Existing sites with (non)functional and/or obsolete PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)		Equipping existing sites with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population		Equipping previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and add new service sites	
No of Equipment	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*	*No of Equipment*	*No of sites*
211	167	24	24	15	10		
Total 211	***Total 167***	***Total 24***	***Total 24***	***Total15***	***Total 10***	***Total***	***Total***

11. Ongoing or planned activities around other supply chain fundamentals in the initial support phase	
In this section, linkages must be drawn between requested CCE Optimisation Platform support, on-going Gavi investments (especially through the Health Systems Strengthening support) and other partner supply chain support. *Describe planned or ongoing activities related to other supply chain fundamentals (see section 3.1 of the CCE Optimisation Platform Guidelines) during the initial support phase, including their sources of funding. Responses to this section should be linked to the EVM Improvement Plan.*	
Supply chain managers *Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.*	At national and sub national level, the program has full time working cold chain focal person and EPI logistic officers. Moreover, there are solar technicians who closely follow-up, maintenance and installation of the CCE at sub national and service level. On a yearly base training and refreshment training has been given to these staffs on cold chain management and maintenance of broken down CCE using funds provided from UNICEF and Government. The national EPI logistician has been attending a regional workshop on EPI supply chain management organised by WHO/UNICEF has acquired new information on cold chain and logistics management in 2016.
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.*	At national level, vaccine forecast is yearly done jointly by the MOH and UNICEF and shared with UNICEF supply division. Stock management tool is used at national and sub national level to record data on availability and status of vaccines and to monitor on expiry date, VVM of vaccine stock level based on the target population for immunization. The data is compiled and shared on a monthly base and also analysed and used for planning and decision making purposes, ordering, and distribution and discarding of expired vaccines. At service level, stock cards are used to track the availability and usage of vaccines, the data generated at this level is reported to the sub-national level for estimating

	consumption and distribution. This system has been instituted with technical and financial support from WHO and UNICEF. Availably of adequate storage capacity and standard CCE at all levels will help to maintain the potency and stock level of the vaccines. Cold chain inventory is regularly updated and used to monitor the distribution and functionality of cold chain equipment at all levels. This could help to determine if there is gaps on CCE. Training and supervision on good progress at sub national level for managing the cold chain equipment.
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.*	The country is planning to redesign the distribution system to push style where vaccines from higher to lower level stores in more organised sequence. To achieve this plan, the country is procuring two medium size refrigerated trucks and two all-weather, all-terrain normal trucks for distribution of vaccines and dry supplies for immunization. Similar efforts are also in pipeline to provide suitable transport facilities for lower levels in order to achieve the planned redesign of the distribution system based on the structure of the health care system. All planned procurement of vehicles for the distribution system are budgeted in the approved HSS plan for 2017 -2021 Under the improved distribution system there will be adequate transport infrastructures to push vaccines to all sites irrespective of their geographical locations which calls for provision of suitable CCE to have adequate net storage capacity to make vaccines are always available in this remote areas using the type provided by the CCE OP so that immunization services will be equitable and accessible to all children and women in reproductive age group in all setting.
Continuous improvement process	The country is working on improvement

Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.	of the cold chain system by working closely with local and international partners to gradual replace nonstandard and obsolete CCE. With support from JICA about 173 equipment have been procured and distributed in the past years. Future partner support will focus mainly on ISCM system, the HR capacity building and maintenance assuming the CCEOP will address the infrastructure requirement. Effective Vaccine Management (EVM) assessment has been conducted every three years and improvement plan has been developed and implemented. The country has done EVM assessment for the national vaccine store in the first quarter of 2017, followed by a country wide EVM assessment by the end of 2017, the plan and budget requirements are secured.
Temperature monitoring *Describe the temperature monitoring devices that are currently available in the country? E.g. central level (CTMS), sub-national, lowest distribution and service delivery levels (30 DTRs and RTM devices), and during transportation (freeze tags).* *Furthermore, describe which measures are in place to* *a) obtain temperature data from the various devices;* *b) act following temperature alarms (curative maintenance);* *c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and* *d) Countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.*	At national level, Multi log temperature monitoring device, is installed and functional with support from UNICEF. In addition to this, dial thermometer and fridge tags are used for temperature monitoring. The focal persons are well oriented to conditioning the ice packs and proper placement of the coolers and vaccines in the cold box. 30DTRs are used to monitor temperature. Training of staff members has been conducted for health workers at all levels to strengthen their capacity of temperature monitoring activities and responding to temperature alarms. Most health facilities use dial thermometers and record data on temperature monitoring chart two times per day. With support of UNICEF, SOP is being develop on temperature monitoring and responding in case of any temperature fluctuation and alarms has happened. The country has conducted temperature monitoring study at all levels to identify

	areas that need strengthening on temperature monitoring.

PART E: SCALE-UP SUPPORT PHASE

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

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

CCE	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Annex 3 of the CCE Optimisation Platform Guidelines, available at www.gavi.org/support/apply/

12. Prioritised (Additional) CCE needs *(Maximum 3 pages)*

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

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

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

Prioritised (Additional) CCE Need #1(2019)	
The need	No CCE procurement. Procurement of 70 Fridge-Tag 2 and 30 voltage stabilizers for existing equipment
Justification	There are about 70 Fridge- Tag2 which will finish its life-span after being used since 2016. As all new CCE will be equipped in 2018, the existing 70 CCE will require replacement of FT2. Besides, there are about 30 CCE used mainly at regional level without having voltage stabilizer and frequent fluctuation of power supply need to be protected to ensure the functionality of the CCE.
Expected outcome	70 Fridge- Tag2 will be replaced and temperature monitoring will not be interrupted to ensure the monitoring of the storage temperature and the performance of the CCCE. Besides, the 30 voltage stabilizer will ensure the protection of the CCE from power fluctuation which is a challenge in the context of the country
Total CCE budget	**USD $17,548**

Prioritised (Additional) CCE Need #2 (2020)	
The need	No CCE procurement. Procurement of spare parts for 70 new and 30 existing will take place after wo years of the initial phase completion by end 2018
Justification	To ensure Planned Preventive Maintenance (PPM) effectiveness, timely procurement of spare parts is important.
Expected outcome	Availability of of spare parts to response to planned preventive maintenance and repair will improve
Total CCE budget	**USD 50,183**
GRAND TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 & 5)	**$ USD 67,731**

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

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

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

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

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

Supply chain managers *Describe all planned or ongoing activities related to improving the availability and performance of*	Continuous retraining of service providers, store managers and technicians is planned for in the HSS covering 2017 to 2021 in

supply chain managers, their sources of funding, and partner support.	order to keep them up to date in relevant techniques for discharging their duties. The Medical Equipment Engineering Division that is responsible for maintenance of CCE is planning to expand its refrigeration unit by co-opting electrical unit in cold chain monitoring activities
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.*	As part of the training and retraining package, cold chain technicians and service providers will be trained on regular update of cold chain inventory and timeline will be set for submission of update from service to national level.
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.*	The country is redesigning its vaccine distribution system moving from pull to push. To strengthen this effort SOPs have been developed on icepack conditioning, use of refrigerated truck and responding to emergencies during transport. Use of the SOPs will be incorporated in the planned refresher training for personnel
Continuous improvement process *Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.*	EVM assessment has been conducted at national store and planned is drawn to carry out the assessment at other levels in October 2017 after which comprehensive improvement plan for the overcalled ISC system will be developed.
Temperature monitoring *Describe how the temperature monitoring system will evolve? Which devices will be used?* *Furthermore, describe which measures are in place to* *a) obtain temperature data from the various devices;* *b) act following temperature alarms (curative maintenance);* *c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and* *d) Countries wishing to purchase such devices are required to demonstrate how the recurrent costs, such as HR, data transmission, analysis etc., will be covered in this section.*	The country conducted temperature monitoring studies across the supply chain levels. Temperature mapping has also been conducted on cold rooms at national store. To strengthen the two activities, in-country capacity has been built to carry out mapping of cold rooms at regional stores and monitor the required actions identified at national level. Refresher training of staff will also emphasize on various ways of enhancing monitoring of temperature such as icepack conditioning, reading and interpretation of Fridge tag 2 as well as shake test procedures.

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..*

Standard budget template provided by the platform is used to prepare the budget for the requested support. The link below leads to details of the budget.

#0.1 Eritrea_June 2017 CCE OP Budget

PART G: PERFORMANCE FRAMEWORK

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

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

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

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

16. Indicator monitoring and reporting requirements
*As a **minimum**, countries need to monitor and report on:* • ***5 MANDATORY intermediate results indicators;*** • ***1 MANDATORY intermediate result indicators 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,[7] such as demonstrated by remote temperature monitoring;* ***and***

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

USE THE TABLE BELOW TO COMPLETE MANDATORY INDICATORS

Indicator *(Provide name of the mandatory indicator as shown above)*	***Definition*** *(Provide definition if not already specified)*	***Data Source*** *(identify data source)*	***Reporting frequency*** *(Annual, semi-annual, quarterly etc.)*	***Baseline (2017)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 1 (2018)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 2(2019)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 3 (If applicable)*** *(Provide numerator and denominator for calculating percentage)*
1. ***CCE Replacement/rehabilitation in existing Equipped sites***	*Percentage of existing sites with (non)functional and/or obsolete non-PQS and PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)*	*Inventory Management Tool (IMT)*	*Semi annual*	*Numerator =* ***# of sites replacing non functional, obsolete and non PQS CCE =0*** *Denominator=* ***Total # of sites planned to replace non functional, obsolete and non PQS CCE =176*** *Percentage= 0%*	*Numerator =* ***Cumulative # of sites replacing non functional, obsolete and non PQS CCE =176*** *Denominator=* ***Total # of sites planned to replace non functional, obsolete and non PQS CCE =176*** *Percentage= 100%*	*Numerator =* ***Cumulative # of sites replacing non functional, obsolete and non PQS CCE =176*** *Denominator=* ***Total # of sites planned to replace non functional, obsolete and non PQS CCE =176*** *Percentage= 100%*	*Numerator =* ***Cumulative # of sites replacing non functional, obsolete and non PQS CCE =176*** *Denominator=* ***Total # of sites planned to replace non functional, obsolete and non PQS CCE =176*** *Percentage= 100%*
2. ***CCE expansion in existing***	*Percentage of existing sites being equipped with ADDITIONAL pieces of*	*Inventory Management Tool*	*Semi annual*	*Numerator* ***= # of existing sites being equipped with***	*Numerator* ***= Cumulative # of existing sites being***	*Numerator* ***= Cumulative # of existing sites being***	*Numerator* ***= Cumulative # of existing sites being***

[7] **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.

equipped sites:	*equipment for new vaccine introduction and/or to serve an increasing population;*	*(IMT)*		***ADDITIONAL pieces of equipment for new vaccine and/or increasing population =0*** *Denominator=* ***Total # of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population = 14*** ***Percentage=0%***	***equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population = 14*** *Denominator=* ***Total # of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population =14*** ***Percentage= 100%***	***equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population =14*** *Denominator=* ***Total # of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population =14*** ***Percentage= 100%***	***equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population =14*** *Denominator=* ***Total # of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine and/or increasing population =14*** ***Percentage= 100%***
3.. CCE extension in unequipped existing and/or new sites:	*Percentage of previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and new service sites being equipped with Platform eligible equipment.*	*Deployment plan*	*NA*	*Numerator =* ***# of unequipped facilities receiving platform CCE*** *Denominator=* ***Total # of facilities equipped with platform CCE(176)*** *Percentage=* ***0%***	*Numerator =* ***Cumulative # of unequipped facilities receiving platform CCE = 0*** *Denominator=* ***Total # of facilities equipped with platform CCE =0*** *Percentage=* ***0%***	*Numerator =* ***Cumulative # of unequipped facilities receiving platform CCE =0*** *Denominator=* ***Total # of facilities equipped with platform CCE =0*** *Percentage=****0%***	*Numerator =* ***Cumulative #o of unequipped facilities receiving platform CCE =0*** *Denominator=* ***Total # of facilities equipped with platform CCE =0*** *Percentage=****0%***
4. ***CCE maintenance***	***Percentage of CCE maintenance requests timely responded to***	*Maintenance records*	*Quarterly*	*Numerator = # of functional CCE equipment=0* *Denominator=* ***Total # of CCE to be equipped***	*Numerator = # of functional CCE equipped=****225*** *Denominator=* ***Total # of CCE to be equipped through***	*Numerator = # of functional CCE equipped=****230*** *Denominator=* ***Total # of CCE to be equipped***	*Numerator = # of functional CCE equipped=****230*** *Denominator=* ***Total # of CCE to be equipped***

				through CCEOP=250 *Percentage= 0%*	***CCEOP=250*** *Percentage= 90%*	***through CCEOP=250*** *Percentage= 92%*	***through CCEOP=250*** *Percentage= 92%*

ADDITIONAL intermediate results indicator(s): *Countries are required to suggest 1 to 3 intermediate results indicators to track performance of rehabilitation, expansion, maintenance and/or other supply chain fundamentals (include baseline, data source, targets and frequency of reporting).*

Examples *of additional intermediate results indicators options are:*

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

USE THE TABLE BELOW TO COMPLETE ADDITIONAL INDICATORS

Indicator *(Provide name of the* ***additional*** *indicators as shown above)*	***Definition*** *(Provide definition if not already specified)*	***Data Source*** *(identify data source)*	***Reporting frequency*** *(Annual, semi-annual, quarterly etc.)*	***Baseline (2017)*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 1*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 2*** *(Provide numerator and denominator for calculating percentage)*	***Target Year 3 (If applicable)*** *(Provide numerator and denominator for calculating percentage)*
1. CCE inventory update	Percentage of districts reporting cold chain inventory every six months	*CCE inventory report from districts*	*Semi annual*	*Numerator =* ***No of districts submitting CCE inventory report =0*** *Denominator=* ***Total no of***	*Numerator =* ***No of districts submitting CCE inventory report=29*** *Denominator=* ***Total no of districts***	*Numerator =* ***No of districts submitting CCE inventory report=43*** *Denominator=* ***Total no of***	*Numerator =* ***No of districts submitting CCE inventory report=58*** *Denominator=* ***Total no of***

				districts=58 *Percentage=25 %*	*Percentage= 50%*	***districts*** *Percentage=75%*	***districts*** *Percentage=100%*
2. Temperature alarm	*Percentage of districts reporting temperature alarm (heat and/or freezing)*	*Temperature review report*	*Quarterly*	*Numerator = #* ***CCE reporting Zero temperature alarm= N/A*** *Denominator=* ***Total # of CCE equipped= 250*** *Percentage=N/A*	*Numerator = #* ***CCE reporting Zero temperature alarm= 200*** *Denominator=* ***Total # of CCE equipped= 250*** *Percentage=80%*	*Numerator = #* ***CCE reporting Zero temperature alarm= 225*** *Denominator=* ***Total # of CCE equipped= 250*** *Percentage=90%*	*Numerator = #* ***CCE reporting Zero temperature alarm= 225*** *Denominator=* ***Total # of CCE equipped= 250*** *Percentage=90%*