





**Application Form for
Cold Chain Equipment Optimisation Platform
support in 2019**

Document Dated: November 2018

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


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PART A: APPLICANT INFORMATION

1. Applicant information			
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Date	30 January 2019		
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Total funding requested from CCE Optimisation Platform (US \$)	<i>This should correspond exactly to the budget requested in the embedded template.</i> The total equipment budget = \$ 5,338,781 GAVI CCEOP (80%) = \$ 4,271,025 Country joint investment (20%) = \$ 1,067,756 This does not include the 6% buffer.		
Does your country have an approved Gavi HSS support on-going?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
	<i>Indicate the anticipated final year of the HSS: 2018</i> <i>But activities under the HSS2 are still ongoing, Grant for HSS2 received in Aug 2018 and will expire in Aug 2019. The country is submitting a PSR with HSS3 request along with this application.</i>		
Proposed CCE Optimisation Platform support start date <i>(please be informed the actual start date should be at least 8-10 months from application date):</i>	<i>Indicate the month and year of the planned start date of the support, based on the strategic deployment plan:</i> January 2020		
Proposed CCE Optimisation Platform support end date:	<i>Indicate the month and year of the planned end date of the support, based on the strategic deployment plan:</i> December 2022		
Signatures <i>Include signed (and official) CCE Optimisation Platform application endorsement by:</i> a) <i>Minister of Health and Minister of Finance (or delegated authorities)</i> b) <i>Members of the Coordination Forum (HSCC/ICC or equivalent body)</i>	<i>We the undersigned, affirm the objectives and activities of the Gavi CCE Optimisation Platform proposal are fully aligned with the national health strategic plan (or equivalent) and that the funds for implementing all activities, including domestic funds and any needed joint investment, will be included in the annual budget of the Ministry of Health:</i> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Minister of Health (or delegated authority) Name: Signature: Date: </td> <td style="width: 50%; vertical-align: top;"> Minister of Health (or delegated authority) Name: Signature: Date: </td> </tr> </table>	Minister of Health (or delegated authority) Name: Signature: Date:	Minister of Health (or delegated authority) Name: Signature: Date:
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PART B: MANDATORY ATTACHMENTS: NATIONAL STRATEGIES AND PLANS

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

	All documents listed in the table below are mandatory , must be attached to your application, and they must be final and dated . Only complete applications will be assessed.
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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	See comment			The REPs of UNICEF & WHO will sign this document when Application is ready. “ GAVI has a special waiver for Yemen”
2	Minutes of the Coordination Forum meeting (ICC, HSCC or equivalent) endorsing the proposal ¹	See comment			The full responsibility is assumed by WHO & UNICEF- The application is not required to be approved by ICC. “ GAVI has a special waiver for Yemen”
3	National Health Sector Development Plan/ Strategy (or similar)	Yes	2010	15 Years (2010- 2025)	
4	cMYP	Yes	10/2016	2016-2020	
5	EVM Assessment	Yes	7/ 2013	5 years	
6	EVM Improvement Plan	Yes	2013	3-5 years	
7	EVM Annual Workplan and Progress Report on EVM Improvement Plan ²	Yes	1 / 2017 5 / 2017	1 year 1 year	The IP is updated with current status as of Dec 2018.
8	WHO CCEI Tool	Yes	5 / 2018		
9	Inventory Report and Facilities segmentation	Yes	01 / 2019		
10	Comprehensive document on CCE needs: Chapter 1: Cold Chain Rehabilitation and Expansion Plan Chapter 2: Projected Coverage and Equity Improvements Chapter 3: Operational Deployment Plan, including deviation plan	Yes	01 / 2019		

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.

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	01 / 2019		
12	Proof of status for CCE tariff exemptions waiver	Yes			See. Art. VII, Para 3 & 6.
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			Health System Strengthening Coordination Committee (HSSCC). ToR is attached.
14	Minutes of the Coordination Forum meetings from the past 12 months before the proposal	Not required			UNICEF & WHO are managing the entire budget and the CCEOP programme. The proposal is hence not tabled to any ICC/HSSCC.
15	HeRAMs report	Yes	2016		
16	JRF 2017	Yes	2017		
17	Operational Deployment Plan (ODP)		Jan 2019	2020-2022	First 3 years of deployment details available in hand has been incorporated.
18	HSS plan	Yes			Updated copy of PSR document attached

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 poor health status in Yemen preceded the Nov 2014. The political crisis enhanced by the continuous war from March 2015, which led to the political instability and geographic inaccessibility has dramatically impacted the health system. Millions of Yemenis are at great risk of death, as they face the threat of conflict, cholera, VPDs outbreaks and economic decline. As per the 2016 report the operations of approximately 25% of the HFs are severely affected (#15-HeRAMS final report, pgs 8 & 9-Annex 1), and according to the 2017 OCHA report, some 22.2 million people need humanitarian assistance.

Currently, only 55 per cent of the total health facilities are functioning, and even these face severe shortages in medicines, equipment, and staff. 30% were partially functional and 15% not functional. (Staff availability, Staff displacement, Lack of electricity, Unavailability of funds to run the HFs and unavailability of logistics... etc.). All this leaves significant part of the populations without quality health care services.

Note that in the wake of this situation as support to Yemen and specifically to prevent the collapsing of the health services several donors (WB, KSA, UAE, USAID, Kuwait, KFW, DFID, EU, Sweden and UNICEF) are providing significant funds much of which is managed by UNICEF and other UN agencies. These funds have been used by Unicef to support the health system in general and specifically the health and nutrition activities of children and mothers through routine and emergency services. Part of these funds will be used for the country joint investment and to support the maintenance of the CCE.

In general, several of these activities are managed by the partners with the involvement of the country colleagues to the best of possibilities. The present crisis situation is often not so conducive to organise meetings and obtain formal approvals for all associated activities.

Given this context, support from CCEOP is requested to enhance the achievement of immunization service coverage and equity targets by strengthening the country's iSC by equipping existing HF that are conducting immunization but lack any CCE at present. The following relevant information are referred to and provided in support of this CCEOP corresponding to the country's policy and strategic documents indicated below.

The responsibility of the submission of this CCEOP proposal is undertaken entirely by UNICEF and WHO on behalf of the GoY and this is the agreed process with Gavi. As a consequence, the signatures of the representatives of Unicef and WHO are sufficient on the Annex sheet and the formal approval of the ICC or other coordination forum with partners consultation and endorsement of the CCEOP proposal is also not required.

- #3. National Health Sector Development Plan (2010-2025):

This plan is built on the achievements of the previous phases of implementation and the reports of the joint reviews of the health sector. It has eight strategic goals with emphasis on Health Service Delivery as the second goal. The major objectives of the second goal is to decrease the mortality rates across all the population groups, focusing on maternity, new births, infants and under five mortality and decreasing the rates of morbidity and infectious diseases affecting the population especially children and women in the reproductive age through the primary, comprehensive and quality health care services. The country aims to increase the coverage of the primary health services and thereby, improving the quality of preventive, diagnostic, therapeutic and rehabilitation services in all health facilities.

- #4. cMYP (2016 – 2020):

The cMYP is developed using the WHO-UNICEF guidelines, the Global Vaccine Action Plan (GVAP) and Eastern Mediterranean Vaccine Action Plan (EMVAP) as the basic frame work. It states clearly the objectives and strategies to meet and cover all the six strategic objectives in line with the decade of vaccines (DoV) over the 5 years period. The major emphasis of the cMYP is:

- 1) To scale up the coverage with emphasis on equity
- 2) Plan and act in the changing and insecure environment of the country
- 3) Emphasise on cold chain management in addition to its expansion.
- 4) Focus on demand creation
- 5) Strengthen EPI infrastructure.
- 6) Improving data quality and reporting system
- 7) Ensuring the financial sustainability in the changing environment

This working document also serves both as dashboard and advocacy tool.

- #5. Effective Vaccine Management Assessment report (EVMA report):

The last EVMA was conducted in 2013. A total of 58 sites were assessed across the country which included; the national store, 11 out of 23 governorate stores, 23 out of 333 district stores and 23 health facilities. The findings highlighted the need to replace all aging / obsolete cold chain equipment, to fill the storage capacity gaps, strengthen capacity building and supportive supervision to achieve iSC management objectives, and to implement continuous temperature monitoring devices at all levels (#5-pg. 27-29).

- #6-7a & b. EVM Improvement Annual work plan and status report:

This document is developed based on the recommendations of the EVMA and represents the country's Improvement Plan. It establishes the annual EPI activities, sets direction, prioritises the needs, defines the available resources. As of December 2018, 9 activities are completed, 11 are in progress which include 6 that are continuously ongoing and another 7 that will be carried out in 2019.

#8 & 9. The CCE inventory & the report on inventory and facilities segmentation: The 2017 CCA was further updated in May 2018 at 19 governorate stores; 284 district stores and 3,746 HFs as given below.

Summary of facilities assessed

Level	Total facilities / stores	Total Assessed		Missed out	
			%		%
National	1	-	0%	1	100%
Governorate	23	19	82.6%	4	17.4%
District	333	284	85.3%	49	14.7%

Health Facility	4,203	3,746	89.1%	457	10.9%
Total	4,560	4,049	88.8%	511	11.2%

It should be noted that:

- As a result of the ongoing crisis, approximately 17% are non-functional, 38% are partially functional and 45% are functional, 2% of the HFs are completely damaged, 6% are partially damaged (#19-HeRAM 2016 report, pgs 8 & 9-Annex 1). Obviously, health care services are presently not fully available in all these vulnerable sites leaving significant part of the populations without quality health care services.
- In 2018, approximately 50 (15%) of the district stores were sharing space with HFs. Progressively, the MoPHP has allotted separate building to house these vaccine stores. UNICEF has procured 300 SDD CCE during 2018, which have been installed by the MoPHP. These CCE have been used for expansion of most of the new and old district vaccine stores and some HF. The detailed analysis of the inventory data reflected that this information was not part of it as it was carried out in the later part of 2018. Some other information about the national store, Governorates and Districts vaccine stores are also missing (Ref. #9 p5 & #10 – sec. 3.2). Hence in this application we shall focus only on the HF level.

Facilities having more than 8 hours of electricity

Level	Facilities	w/o CCE	With CCE	Non-PQ	PQ	Non-Adequate capacity	Adequate Capacity
Health Facility	389	21	368	330	38	124	244

Facilities having less than 8 hours of electricity

Level	Facilities	w/o CCE	With CCE	Non-PQ	PQ	Non-Adequate capacity	Adequate Capacity
Health Facility	3,357	594	2,763	2,645	118	1,053	1,710

The two tables below summarize the current status of the CCE in terms of functionality, type and age.

Distribution of CCE per PQ norms and functional status

		PIS	PQS	Non-PQ	Total
Functioning well	F	2459	262	579	3,300
Not functional for breakage	NF	885	19	334	1,238
New , not installed yet	NI	101	8	26	135

Distribution of CCE per age and per functional status

		<=5 years	5-10 years	10-15 years	>15 years	Non-specified	Total
Functioning well	F	1006	759	1014	407	114	3,300
Not functional for breakage	NF	124	240	439	336	99	1,238
New, not installed yet	NI	41	30	24	4	36	135

In summary, out of a total of 4,673 CCE, 3,300 are currently operating and another 135 need to be installed. In addition, one needs to consider the 300 CCE installed during 2018. Another 500 CCE are in the process of procurement by UNICEF.

#10. Single document

This document details the actions required to strengthen the cold chain and improving the vaccination services, particularly at the service delivery point.

Besides the 300 Dulas SDDs procured and installed in 2018, another 500 CCE from Dulas are in the pipeline for procurement by UNICEF through the different donor funds managed by it. These 500 units are expected during the current year (2019) and shall be used for expansion at governorates and district vaccines stores and replacement of ageing and non-PQS CCE at all levels.

With the support of UNICEF and other development partners, the country will be able to meet the replacement / rehabilitation, expansion requirements for all the HFs and other higher supply chain level stores.

For the purpose of this application the country has decided to focus only on the extension requirements at the HF level that are as yet unequipped. It is hoped that, with all these supports the EPI iSCM will be strengthened with reliable storage capacity, enabling the country to enhance its immunisation coverage and equity target.

The MoPHP technicians have gained significant experience with Dulas models during the installation of the 300 CCE, and will gain even more through the installation of the 500 units arriving this year. Hence, for the future selection of the

CCE, the country has decided to continue the procurement from the same manufacturer in order to limit the inventory and training overheads. Moreover, for the extension purpose, it has also decided to procure on SDDs and even equip the 21 HF having sufficient electricity with SDDs since the future sustainability of the grid supply is questionable.

The table below summarises the requirements.

Type of HF and type of intervention & model of CC Equipment	SP							
	Total		2020		2021		2022	
	SPs	CCE	SPs	CCE	SPs	CCE	SPs	CCE
Extension at HF with grid supply	21	21	3	3	14	14	4	4
Extension at HF without electricity	594	596	403	405	79	79	112	112
Model of Solar (SDDs)	615	617	406	408	93	93	116	116
VC 60 SDD	600	600	395	395	92	92	113	113
VC 150 SDD	15	17	11	13	1	1	3	3

The proposal also includes 717 Remote temperature monitoring devices RTMDs model Fridge tag-3 GMS.

In summary- the total number of requested equipment over the 36-month period is 617 CCE and 717 RTMDs and these will be installed in 615 sites. The initial and scale up phases will consist in addressing extension needs with CCE powered by SDD and from one manufacturer which is an appropriate option:

- Off grid SDD refrigerators with freezer comp (57 lit.) VC 60 SDD: 600
- Off grid SDD refrigerators with freezer comp (102 lit.) VC 150 SDD: 17

The following table summarises how this extension will enhance the coverage of the routine immunisation:

	Facilities		Target	
Year -1	406	10.8%	119,471	11.6%
Year -2	93	2.5%	15,108	1.5%
Year -3	116	3.1%	38,776	3.8%
Total	615	16.4%	173,355	16.9%

Equity analysis of surveys and SIAs data shows disparities in vaccination coverage in terms of urban-rural, income and mother's education level. The 2013 DHS report shows that Penta 3 coverage among children of urban families are 23% more than those living in poor rural areas. It also shows a difference of 43% in MR coverage between children with educated mothers (93%) and non-educated (50%). To bridge the coverage gaps and to increase equity, Yemen will focus on targeted vaccinations that reach the most disadvantaged populations, rather than focusing only on increasing coverage at the national level. UNICEF is working with the MoPHP to prioritize different activities to make sure that uninterrupted supplies are in place continuously at all level of the vaccination service delivery levels and increase communities demands for vaccines and vaccinations to achieve an equitable access to immunization through provision of quality services through operationalization of EPI centres, ensuring availability of trained and skilled staff in the centres, focusing on high-risk communities and areas of low coverage areas. ensure sustainable vaccination services delivery at facility level through ensuring availability of vaccines, vaccines and functional cold chain equipment, reach / trace and vaccinate the unreached children and defaulters through conducting a facility-based regular outreach and mobile vaccination rounds, improve cold chain maintenance and repair system at all levels through central and regional hubs.

MoPHP and partners focus on health education and practice in order to increase demand through social mobilization and community engagement. Strategies, experiences and increase of community participation led to more community-based health activities, interventions provided through community health volunteers (CHVs) and workers (CHWs) in an integrated manner within the framework of community-based health programs and interventions to increased demand for PHC services including EPI services. First ever EPI communication strategy has been developed in consultation with all key stakeholders. However still efforts are required to educate parents about the frequency and type of vaccinations needed for their children.

UNICEF under the PFE TCA support the Consultants for Communication for Development. The overall purpose of deployment was to provide technical support and inputs in advocacy, communication and social mobilization for effective planning and implementation of Immunization programmes in governorates and districts of Yemen. UNICEF has recently hired a Health Officer (Health Education and Promotion) at Country office to supervise and coordinate with these

consultants to further strengthen the coordination with Governorate level regarding communication and social mobilization activities.

Due to IDPs movement, challenge regarding access to EPI increased both in routine and Supplementary Immunization activities (SIAs), to reach populations and IDPs in tier two and three with no or limited access to health facilities, integrated outreach activities and mobile services delivery providing integrated health & nutrition services to IDPs and extremely remote populations have been conducted aiming to reach these disadvantaged groups of population,

#11. Cold chain equipment maintenance plan:

The maintenance plan defines the strategy and implementation plan for periodic preventive maintenance. It also details the system of reporting any CCE failure and strategy of addressing and reporting it.

Thus, the CCEOP support will be a vital component to help in strengthening the immunization supply chain by extending the vaccine storage points closer to the population, especially those living in rural areas, and thereby improving the program by increasing routine immunization coverage and equity. It will complement the country's constant efforts towards improving effective vaccine management, increase sustainability of immunization financing and human resources, improvement in program efficiency which is supported by the different funds. Yemen benefits of funds from several donors such as the WB, KSA (Saudi Arabia), DFID, USAID, and UNICEF, much of which is managed by UNICEF.

Based on the proposal, the ODP provides the list of facilities for to be covered each year of the implementation.

In the present case, due to the several severe limitations faced by the MoPHP, this proposal has been prepared by the Unicef CO and RO, with the support of a consultant.

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 EPI and partners joint decision to apply for the Gavi CCEOP support was informed by series of recommendations arising from most of the national health strategic documents (e.g. Doc. # 5. EVMA report, pg. 27-29, Doc. # 4. cMYP 2016-2020 sec. 2.1 pt. 1.2 on pg.29). The emergence of this crucial deliberations was maintained at the monthly EPI & partners meetings, focusing on immunisation supply chain and logistics, with the objective to extend the equipped HFs that are or can conduct vaccination sessions at their service delivery points, to achieve the goals of immunization coverage and equity targets. The country plan to establish the national logistics working group (NLWG) however this will only be practicable once there is uniform thinking at national level and both authorities in Sana'a and Aden agreed on this..

Considering the present crisis and many competing priorities for the EPI programme, UNICEF in consultation with MoPHP decided to hire , a consultant to support the country in preparation of the proposal in collaboration with UNICEF and WHO country officers. The entire responsibility of the project will be undertaken by UNICEF CO.

EPI task force and HSSCC supported the decision to strengthen the iSCM by extending the CCE to equipped HFs through CCEOP. In that way, they also contributed to the CCEOP application.

MOPH&P leads the vaccination activities in close collaboration and coordination with the Health Cluster partners such as the regional and country offices of WHO and UNICEF as well as the World Bank that support the EHNP. WHO, Health

Cluster partners and other health sector actors (which include international organizations (INGOs), national nongovernmental organizations (NNGOs), affected communities, specialized agencies, academic and training institutes, and UN agencies) are delivering health services to the people of Yemen despite the critical security situation, logistical difficulties and the collapsing health system. WHO is working with UNICEF and partners to conduct integrated outreach activities in remote areas of the country. WHO is coordinating the humanitarian response to health issues with Yemen's Ministry of Health and 20 partner humanitarian organizations in Yemen, including the International Committee of the Red Cross (ICRC) and Médecins Sans Frontières (MSF). UNICEF is identifying specific capacity gaps and planning to conduct gap filling trainings and supporting as much as possible the implementation of activities through international and local NGOs.

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?
- l) Is the country policy to use cool water packs or conditioned ice packs?

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

The supply chain level in Yemen is structurally organised into four levels of storage and health facilities, they are operationally managed by the MoPHP, National EPI team and the development partners.

It consists of the central cold store located in Sana'a, twenty-three (23) governorate cold stores, 333 district stores and about 4,203 HFs. Vaccines and injection devices are distributed through both pull and push systems. They are all operationally managed by the MoPHP, National EPI team and the development partners.

National (PR): This primary (PR) level, besides having the national storage of the vaccines and accessories, it is also responsible for policy formulation, development of guidelines and coordination of the iSCM in the country.

Sub national (23-Governorates): This level coordinates and liaises between the central and lowest distribution levels, Vaccine stock inventories are held, managed and released when needed at this point.

Lowest Distribution (333-Districts): is the next lower level in the supply chain structure which is responsible for the immunization supply chain products management, distribution, transportation, organization and supervision of immunization activities at the HFs in their respective localities.

Service Points (4,203 Health facilities): Out of these 3,518 are functioning and 3,316 are regularly reporting to their respective district level. During the CCEI assessment 3,683 HFs have been visited and several found without CCE.

The operations at these levels are guided by the immunization supply chain components. Since 2015, the procurement of traditional vaccines and devices is financed through donors and managed by UNICEF. UNICEF handles the clearing. All this is jointly funded by the partners. The new vaccines are provided by Gavi, co-financing is through funds available with UNICEF.

All distribution from the national level to the governorates is on a quarterly basis, while at all the other levels it is on a monthly basis. UNICEF supports all distributions which is out-sourced to private agency by the MoPHP at the national, governorate and district level. At the HF, the HW usually comes to collect the vaccines at the district vaccine store.

The comprehensive cold chain assessment was conducted for the country in February / March 2017 and updated in May 2018.

A total of 4,673 units of CCE were evaluated across the supply chain levels. The distribution of the types and units at both storage and health facilities show their functional status as indicated below:

Distribution of CEE per PQ norms and functional status

		PIS	PQS	Non-PQ	Total
Functioning well	F	2459	262	579	3,300
Not functional for breakage	NF	885	19	334	1,238
New, not installed yet	NI	101	8	26	135

In summary, out of a total of 4,673 CCE, 3,300 are currently operating and another 135 need to be installed. In addition, one needs to consider the 300 CCE installed during 2018. The 1,236 CCE that are non-functional are being replaced through the donor funding managed by UNICEF.

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

1. The Government of Yemen (GoY) & MoPHP do not have their own resources.
2. The vaccine distribution across the country is affected due to the ongoing political instability.
3. Limited HR capacity and resources for EPI and cultural barriers to women's education have impacted the demand and coverage.
4. In the past as well, the national EPI program has demonstrated instability in performance since its implementation in the 1976.

There has been certain fluctuations in the national coverage, e.g. Penta 3 coverage dropped from 87% in 2010 to 82% in 2012, and then rose to 88% in 2013 and again dropped to 83% in 2017. Besides, as mentioned earlier, the instability and ongoing conflicts have worsened the situation of the health system, with malnutrition and infectious disease being of particular concern.

There is also important fluctuation in vaccination coverages in the security compromised areas

5. The long process for ordering, procuring and clearing of vaccine shipment due to long govt. administrative process, which originated following rejection of the govt. of 2 shipment of PCV in October 2017.
6. Lack of refrigerated vehicles.
7. Most part of the country is cut off from the national grid. There are some instances of scarcity of fuel / gas and oil.
8. Lack of motivation for HWs because of lack of salary or incentives affecting health services.
9. No timely and accurate reporting of vaccines and devices stocks from districts to governorate stores.

c). Through what interventions are these weaknesses currently being addressed?

1. The entire operations of the EPI (vaccine procurement, operational costs and incentives) are supported financially by the funds from the funding agencies managed by UNICEF and WHO.
2. MoPHP has contracted transport agency to carry out the distribution of vaccines to governorate and district stores. MoPHP staff undertake the distribution to the HFs. UNICEF covers the total cost through available funds.

Since 2016, there has not been any report of any vaccine stock out except for national or international shortages.

3. The low demand is addressed through making available specific communication plans in high risk areas, such as deployment of dedicated communication staff of MoPHP to all the identified areas and allocation of resources for communication activities from partners.
4. The number of integrated outreach sessions that have been increased from 3 to 5 rounds per year and Emergency Health and nutrition Project (EHNP) routine outreach from fixed sites have enhanced the coverage. This strategy has contributed to 30-35% increase in the coverage. Further 5% increase has been achieved through mobile teams. In addition, the support from the Community Health Volunteers, Involvement of female HWs and transit teams in accessible areas is also used.
5. In order to circumvent the admin delays, UNICEF requests the annual shipment plan. For each UNICEF initiates the process 2 weeks before the arrival of the shipment so as to obtain the acceptance letter from the GoY well in advance.
6. UNICEF is providing diesel generators and funds for the fuel for the national, governorate and the district vaccine stores. The country has also been upgrading the cold chain capacity storage with additional CCE including SDDs for the districts and the HFs without grid., procured through the different funds from partners.
7. Emergency Health and nutrition project funded by World Bank covers certain amount of incentives to health workers. UNICEF supports the incentive to the warehouses through the Gavi grant.
8. The MoPHP has initiated the training of governorate and district level statistician on computerised data management. The process is still ongoing.

d). Describe challenges that are hindering the implementation of these interventions.

1. Political instability, insecurity situation and non-accessibility of several districts : 53 districts with medium access constraint and 22 districts with severe access constraints.
2. High dependency on donor funding.
3. Possible brain drain and decrease in availability of trained man power.
4. Destruction of EPI centres and displacement of HWs.
5. Increase in the poverty level of population and the reduction of government resources in coming years, putting immunization in low ladder of priorities. (See cMYP 2016-2020 pg 13,para.2)

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

MoPHP procured 300 SDD (Dulas model VC 150 with a net capacity of 102 L of storage capacity) through UNICEF in 2018. These were installed mostly at district and a few HFs as part of expansion and replacement. **All installations were carried out by the local MoPHP technicians.** All installations were verified by the Health officer in-charge and recorded using pre-defined reporting form. These forms were further verified by the district and governorate EPI officers. The district EPI managers have expressed total satisfaction with the installations and the functioning of these units. Based on this the country is continuing to procure the same.

UNICEF is in the process of procuring another 500 SDDs and UNDP is procuring another 24 SDDs. All these will be received and installed during the current (2019) year by the MoPHP technicians and follow the same process of reporting. These will further contribute to the rehabilitation in form of expansion and replacement of existing CCE.

The exercise of installation of the 300 CCE has permitted the local team to gain sufficient experience to install other CCE in future. Further the team will also install the 524 SDDs when they arrive. They would be totally capable of installing all CCE provided through this CCEOP. **Note that, the CCE requested through CCEOP is from the same manufacturer (Dulas) and hence, the technicians would not require any major updating in the installation process. The average cost for installation of one unit is 100\$. However the cost varies from 90-110 \$ depending on the location. UNICEF will provide support for the installation.**

Based on these experiences, the MoPHP will follow the same process of ensure proper installations, verification of functionality and reporting. In addition, the MoPHP will also involve any new technician that is engaged by it, in view of further strengthening the maintenance services.

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

The following table summarises the status of electricity:

Level	Total facilities	Total Assessed		Facilities with Elec. > 8 hrs	
Governorate	23	19	82.6%	11	57.9%

District	333	284	85.3%	50	17.6%
Health Facility	4,203	3,746	89.1%	389	10.4%

The MoPHP has, however, decided to equip all HF's with SDDs in order to avoid any interruption of cold chain in case the grid supply is disrupted.

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?

Distribution of CEE by PQ norms and functional status

		PIS	PQS	Non-PQ	Total	PIS	PQS	Non PQ	Total
Functioning well	F	2,459	262	579	3,300	52.6%	5.6%	12.4%	70.6%
Not functional	NF	885	19	334	1,238	18.9%	0.4%	7.1%	26.5%
New, not installed yet	NI	101	8	26	135	2.2%	0.2%	0.6%	2.9%
Total		3,445	289	939	4,673	73.7%	6.2%	20.1%	100.0%

Basically, out of 4,673 CCE, only 270 (PQS) CCE are reliable and functional. The rest are PIS, non-PQ, or broken down.

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

The 2018 Gavi Factsheet data shows that the annual birth cohort is 828,275. The administrative data provides a birth cohort of an estimated 1,021,523 (see JRF 2015/2016 Annex 1) and 290,547 children were effectively reached with the 3rd dose of Pentavalent vaccine as of June 2017. The inventory data shows a total cohort of 1,027,631 in 3,746 facilities. Of these a total of 247 (6.6%) HF's are equipped with PQS CCE, which cover a birth cohort of 87,028 (8.5%).

The gap will be filled systematically through the donor funding for all expansion and replacement, and through the Gavi CCEOP for all extensions.

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

The priority requirements of expansion and replacements are currently being handled through the procurement of CCE by UNICEF, using the different funds available with it. The CCEOP will support exclusively the extension of CCE to HF's currently not having any CCE but conducting vaccination activities. Most of the support will go for procurement of SDDs at facilities not having sufficient grid current.

This will enable to extend the vaccination services closer to the population as well as increase the outreach activities to reach out to the yet difficultly reached target population. This will contribute to increasing coverage and equity.

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

Some part of the funds will also be used to procure Remote temperature monitoring devices (RTMDs) for the Governorate and District level vaccine stores. This will reduce emergencies related to the failure of CCE at these levels, because of remote monitoring and alerts received remotely in anticipating any possible malfunction of CCE before total breakdown, thus ensuring safe storage of vaccines.

k). What are the overall CCE needs?

The focus has been to use this platform to procure CCE for the extension of the vaccination service at HF's as yet not equipped. The table below summarises the overall CCE types and needs between 2020- 2022.

Type of HF and type of intervention & model of CC Equipment	SP							
	Total		2020		2021		2022	
	SPs	CCE	SPs	CCE	SPs	CCE	SPs	CCE
Extension at HF with grid supply	21	21	3	3	14	14	4	4
Extension at HF without electricity	594	596	403	405	79	79	112	112
Model of Solar (SDDs)	615	617	406	408	93	93	116	116
VC 60 SDD	600	600	395	395	92	92	113	113
VC 150 SDD	15	17	11	13	1	1	3	3

Year 1 will focus on the HFs in zones having higher population. Year 2 will focus on the zones having lesser population and year 3 will focus to CCE in HF where the access is restricted due to security reasons. In case the situation improves, the total of Year 2 & 3 may be combined at a later date.

l) Is the country policy to use cool water packs or conditioned ice packs?

The country is using conditioned icepacks.

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):
 - o Geographically remote districts or those with low coverage
 - o Poorer communities (e.g. in the poorest 10% of the population)
 - o 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?

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?

In order to better organise and optimise the immunisation service, 615 HF are part of the extension plan. This step will allow immunization services to be offered to the geographically remote HFs as identified on the access severity map (See Access severity map in Doc #10- sec. 1.1). The facilities belong to the low access constraints and poorer populations irrespective of gender or socio-economic status will be equipped in year 1 & 2. Those in medium and high access constraints will be equipped in Year 3.

The extension will contribute to the country's projected immunization coverage increase of 86% in 2016 to 92% by 2023, by moving closer to these populations.

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

The country has enormous logistical and programmatic challenge simply by its geographic, demographic and cultural diversity and above all due to the conflict situation. Under this context, it is unrealistic to envisage any supply chain design operations, except for the extension of CCE through the platform.

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

The extension of the 615 health facilities will be done using SDDs having combined refrigerator with freezers. The models selected are from the same manufacturer (Dulas) as those that the local MoPHP technicians have installed in 2018. Thus, the country can make use of their experience and thereby reduce the burden of inventory and training

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

The supply of the new technology CCE having have the following benefits:

- Provision of efficient CCE having long hold over time
- Provision of efficient CCE requiring low maintenance costs

- Improve and sustain immunization delivery through a sturdier and more reliable CCE
- Reduce inventory and capacity building costs

These new CCE and those procured recently by UNICEF, will also be a big relief for the country as the need for their replacement will be only after about 10 years.

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

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

Information is required to cover the following areas:

- a) How will the country ensure that aspects of maintaining the cold chain are addressed (e.g. preventive and corrective maintenance, monitoring functionality, technicians, financing for maintenance, etc.)?
 - What is the frequency of preventative and corrective maintenance that the country commits to (supported by partners)?
 - What technical support is anticipated for maintenance?
- b) How will the country monitor the completion of preventive and corrective maintenance?
 - Which source(s) of funding will be used for maintenance, and to what extent are they assured?
- c) How will the country dispose of obsolete and irreparable equipment replaced by CCE Optimisation Platform equipment?

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

First and foremost, the use of temperature monitoring devices (TMD / RTMD) will assist in identifying any deviations from the normal operation so that appropriate actions can be taken a timely manner.

For the preventive maintenance all HWs are trained to carry out the PPM regularly. In addition, the CC officers of UNICEF conduct supervisory visits during which they address minor complaints. These tasks are the routine tasks of the HWs and CO.

After the crisis UNICEF under the GAVI PEF support focused on strengthening the technical capacity for cold chain and vaccine management at central and governorate level. UNICEF in consultation with MoPHP and GHOs recruited the GAVI consultants at zonal level i-e Sa'ada, Sana'a, Taiz/lbb, Aden. In 2018 UNICEF recruited the Health Officer (Cold Chain and Vaccine Management) at Yemen Country Office level to provide technical support to MoPHP and to GHOs. The corrective maintenance in Yemen is decentralized and operates by the government (EPI) maintenance technician team. The country's decision is to build capacity and sustain a pool of skilled maintenance working group, for easy availability and accessibility whenever the need arises.

For any major corrective maintenance requirements, a system for reporting is in place as described in # 11- Ch 5. The repairs are carried out by trained technicians who are stationed at the central and governorates. All repairs are also recorded in pre-defined reporting forms and supervised by the respective district and governorate EPI managers.

All the traveling cost of technicians, maintenance, spare-parts and repairs are reimbursed to the MoPHP by UNICEF. An upper limit of corrective maintenance considering at least one intervention for each CCE is estimated as \$400,000 required annually for the corrective maintenance strategy. Estimated cost required for maintenance and repair of one cold chain equipment is 80 US\$, so for CCEs in 4000 EPI centers the estimated cost is 400,000. In the context and the security situation of Yemen the actual expenditure will much depend on demand; the number of complaints, and accessibility to the site. Any required fund will be made available from the donor funds available with UNICEF from the different donors and partners. In principle, this amount would represent only a small percentage of the total donor fund managed by UNICEF, Hence funds for CCE maintenance and repair is not an issue.

NB: Yemen is a receiver of funds from various donors, much of which is managed by UNICEF for the health programme.

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?

The regular PPM is recorded on the temperature monitoring chart which is supervised by the local health officer, and visiting supervisors and technicians. The UNICEF CC officers conducts quarterly scheduled visit to carry out the technical checking and PPM and intervene with minor repairs if found necessary.

All technical preventive and corrective maintenance is recorded and reported together with the follow-up inspection of CCE operation. Annexure 2 & 3 in Doc. # 11 provide the templates of the reporting form developed for this purpose and is to be filled whenever the equipment is subjected to maintenance or repair.

All reports are received and supervised by the National cold chain officer. Upon his satisfaction, the invoice for payment is raised for UNICEF who reimburses all the costs. The bunds from different funding agencies available with UNICEF is used for this. The past experience has led to the average cost of corrective maintenance to be about 80 to 100 \$ per annum. Considering a total of about 4000 CCE, a budget of 400,000\$ is required annually. This amount would easily be available from the funds provided to UNICEF for Yemen.

in the past, the WB, under the EHNP had also requested a third party to carry out monitoring of the newly installed CCE procured through its funding.

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

This point does not apply in the present context as all CCE procured through CCEOP will be used exclusively for extension. No CCE is being replaced through CCEOP funds.

For any other CCE being decommissioned the disposal process will follow the MoPHP regulation to the extent possible. Presently there is no policy and guidelines for the disposal of obsolete CCEs. There is need to develop a policy regarding disposal of however in current scenario it is not possible due to two authorities in country. For making a policy it will only be possible once there is uniform thinking at national level and both authorities in Sana'a and Aden agreed on this one policy. However the country will continue with available procedures.

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's or representative's role in equipment purchase, distribution and installation?
- What is the source of the joint investment and how much from each donor? Is the country's joint investment secured? Please complete the table below
- If the country joint investment is coming from HSS, is this leading to a reallocation of the HSS budget? If yes, please inform which HSS activities are being replaced by this joint investment?
- Has the country secured import tariff exemptions for CCE? If yes, attach proof.

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

Based on the recent experience of procurement and installation of CCE, the country would prefer to continue the same trend, to minimize spare part inventory and complexity of training the technicians on corrective maintenance. In continuation of the same policy similar CCE will be procured through the different funding sources including Gavi's CCEOP. Thus, Yemen has decided to continue the procurement with first preference for Dulas model having combined refrigerator and freezers for the HFs. In addition, considering the vulnerability of grid supply at all HFs, the decision is to procure and install only SDDs at all service points. For, District and Governorates, Dulas ILRS will be the first preference.

Due to the fragile situation of the country, the custom clearance of the CCE will be carried out by Unicef and handed over to the supplier or his representative. The agreement (Doc. #12-Art. VII para 3) authorises UNICEF to carry out all clearance free of customs duty for the GoY.

The MoPHP will provide detailed logistic information including that of security and accessibility for each of the defined HFs. The MoPHP will also provide at least one CC technician along with the team to collaborate and support any requirement including the installation. He will also record carry out the inspection of proper operation and record the details of installation for the purpose of annual reporting to Gavi.

Based on the past experience and expertise gained by the local MoPHP technicians on installation of the 300 SDDs CCE during 2018, the country would prefer to carry out all installation by themselves.

It should be noted that, it is not easy for external companies from outside Yemen to come and operate inside the country. It is also not so easy for a local company to send its people to all the places. The EPI & MoPHP staff are the most adequate people who can reach most of the HFs. Considering the current situation of the lack of salaries, the option of installation through the MoPHP technicians is a source of important revenue for these staff, which merits consideration.

b) Source of the joint investment

The joint investment by the country will be made through the donor funds available and managed by UNICEF. It is secure. It is not envisaged to use the Gavi HSS3 funds (through PSR) for this joint investment.

Total Equipment Budget	5,338,781
Country Joint Investment % (20% or 50%) Enter %	20%
Country Equipment Budget	1,067,756
Gavi Equipment Budget	4,271,025

Total Budget (Incl. 6% Additional Buffer)	5,659,108
Total Country Budget (Incl. 6% Additional Buffer)	1,131,822
Total Gavi Budget (Incl. 6% Additional Buffer)	4,527,286

c) If the country joint investment is coming from HSS, is this leading to a reallocation of the HSS budget? If yes, please inform which HSS activities are being replaced by this joint investment?


It is not from HSS


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

The agreement (Doc. #12-Art. VII para 3) authorises UNICEF to carry out all clearance free of customs duty for the GoY.

PART D: INITIAL SUPPORT PHASE³

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

	Budgets are not inclusive of operational cost. Operational costs must be financed by Ministry of Health or other partners.
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	Further information on CCE rehabilitation and expansion plan, equipment selection and strategic deployment plan requirements is provided in Application guidelines Section 5, available at http://www.gavi.org/support/process/apply/cceop/
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9. Prioritised (Urgent) CCE needs (Maximum 3 pages)

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

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

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

Prioritised (Urgent) CCE Need #1

The need	Dulas make - 13 units of VC 150 SDD and 395 units of VC 60 SDD, both combined type of CCE, all for extension at HF level.
Justification	<ul style="list-style-type: none"> • To extend the iSCM closer to populations that has been served till now only through integrated outreach and mobile teams. • Allow more frequent fixed service delivery • Support the integrated outreach and mobile activities from closer distance • Strengthen campaign support.
Expected outcome	<ul style="list-style-type: none"> • The Combo refrigerator will provide for proper storage of sufficient quantities of vaccines and ensure continuity of the EPI sessions. The Freezer will ensure adequate icepacks freezing capacity for more and regular fixed and integrated outreach sessions by which more of the target population will be reached and hence the coverage and immunity again VPD will increase. • The extension of the CCE at these 406 HFs is expected to cover 119,471 infants representing 11.6% of the target group.

³ Countries are kindly advised to apply for their full needs regardless of the Gavi CCEOP joint investment ceiling and the funding availability. It is important to inform however how CCEOP will be contributing towards fulfilling the needs identified.

	Immunization supply chain will be strengthened and ensure full and sustainable coverage and equity of all target. This will help towards reaching the projected immunization coverage of 95% penta3 which is targeted to be attained by 2023.
Total CCE budget	Total budget for the initial phase: Budget 1 = \$ 3,075,216. (does not include the cost of the RTMD)
Prioritised (Urgent) CCE Need #2	
The need	Dulas make - 1 unit of VC 150 SDD and 92 units of VC 60 SDD, both combined type of CCE, all for extension at HF level.
Justification	<ul style="list-style-type: none"> To extend the iSCM closer to populations that has been served till now only through integrated outreach and mobile teams. Allow more frequent fixed service delivery Support the integrated outreach and mobile activities from closer distance Strengthen campaign support
Expected outcome	<ul style="list-style-type: none"> The Combo refrigerator will provide for proper storage of sufficient quantities of vaccines and ensure continuity of the EPI sessions. The Freezer will ensure adequate icepacks freezing capacity for more and regular fixed and integrated outreach sessions by which more of the target population will be reached and hence the coverage and immunity again VPD will increase. The extension of the CCE at these 93 HFs is expected to cover 15,108 representing 1.5 % of the target group. Eligible and defaulter children in high risk population and in hard to reach and security compromised areas will be reached. <p>Immunization supply chain will be strengthened and ensure full and sustainable coverage and equity of all target. This will help towards reaching the projected immunization coverage of 95% penta3 will be attained by 2023.</p>
Total CCE budget	Total budget for the initial phase : Budget 2 = \$ 699,099
GRAND TOTAL CCE BUDGET: Initial support (Years 1 and 2)	\$ 4,465 117. (CCE : \$ 3,774,315 + RTMDs: \$ 690,802)

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

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

Replacement/Rehabilitation				Expansion		Extension	
No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites	No of Equipment	No of sites
						408	406
						93	93
Total=	Total=	Total	Total	Total	Total	Total = 501	Total =499

11. Ongoing or planned activities around other supply chain fundamentals in the initial support phase

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

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

Supply chain managers

Describe all planned or ongoing activities related to improving the availability and performance of supply chain managers, their sources of funding, and partner support.

NB: Yemen is a receiver of funds from various donors, much of which is managed by UNICEF for the health programme. (This applies for all activities stated in sec. 11)

As part of the system strengthening activities, many of which are included in the IP, these funds are used / shall be used for :

- a. Ongoing capacity building of cold chain technicians (CCT)
- b. Through the HSS funding, all store / supply chain managers and supervisors of the 23 governorates have been trained in VM. (See # 6-7 EVM IP- activities no. 6 & 7)
- c. Training of HW at HF level is ongoing.

For the future implementation the following are planned;

- a. Development of SOPs for preventative and corrective maintenance of CCE
- b. Development of annual capacity building plan
- c. Update of the training manuals to include training methodology and tools (e.g. competencies self-assessment)

Data for supply chain management

Describe all planned or ongoing activities related to data for management, their sources of funding, and partner support. In particular, provide information explaining how improvements to the functionality of logistics management systems will improve the visibility of up-to-date and accurate vaccine stock records at each level of the vaccine supply chain.

The following activities will be carried out with support from the HSS grant.

- Enhance the capacity (knowledge, skills and practice) of healthcare providers and managers of national immunization data. This skill is critical for managers at the country level to ensure that interventions and activities are supported by data. In addition, the activity includes

Provision of 107 computers and printers for vaccine stores at 23 governorates and 84 districts.

Computerised application for vaccine management will be finalised and implemented at all 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 trying to implement a holistic distribution through bundling of all health commodities under primary health care (EPI, Nutrition and IMCI). It is currently being implemented from the central level to the governorate stores. UNICEF is supporting all transport costs.

Continuous improvement process

Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.


UNICEF and WHO staff are providing:

- Supportive supervision to the EPI staff at Central, Governorate and district levels on vaccine management to enhance their performance and motivation.
- UNICEF cold chain officer carry out supervisory cum maintenance visits to all levels to ensure the good functioning of the CCE.
- The country is planning to conduct a new EVM in 2019 if the situation is conducive.

	<ul style="list-style-type: none"> • Develop a new comprehensive EVM-IP.
<p>Temperature monitoring</p> <p><i>Describe the temperature monitoring devices that are currently available in the country? E.g. central level (CTMS), sub-national, lowest distribution and service delivery levels (30 DTRs and RTM devices), and during transportation (freeze tags).</i></p> <p><u>Furthermore, describe which measures are in place to</u></p> <p><i>a) obtain temperature data from the various devices;</i></p> <p><i>b) act following temperature alarms (curative maintenance);</i></p> <p><i>c) in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and</i></p> <p><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>A combination of Fridge-Tag2 , stem and Dial thermometers are in use at all the levels of the supply chain. Manual temperature monitoring chart is in use for daily monitoring of the CCE at all places as part of the routine preventive maintenance exercise. .</p> <p>The country through CCEOP support plans to procure Remote temperature monitoring (RTM) devices for the governorate and district vaccine stores.</p> <p>Two RTMDs (Fridge Tag 3) will be procure for each of the governorate and District stores. A total of 717 unit (2x23 Governorates + 2 x 333 districts + 5 extra to adjust the budget) will be procured through the CCEOP for a total of \$ 690,802.</p> <p>The data will be monitored by the district and governorate level EPI managers, and corrective action taken in case of any alerts through the nearest technician.</p> <p>Any recurrent costs of communication or other services related to the RTMDs shall be covered through the donor funding by UNICEF.</p>

PART E: SCALE-UP SUPPORT PHASE⁴

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

	Budgets are not inclusive of operational cost. Operational costs must be financed by Ministry of Health or other partners.
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12. Prioritised (Additional) CCE needs (Maximum 3 pages)

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

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

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

Prioritised (Additional) CCE Need #1 (only 1)

The need	Dulas make 3 unit of VC 150 SDD and 113 units of VC 60 SDD, both combined type of CCE, all for extension at HF level located in difficult access zones.
Justification	<ul style="list-style-type: none"> • To extend the iSCM to populations that have has difficulty to access health services till now. • Facilitate regular and frequent fixed service delivery • Support the integrated outreach and mobile activities at these zones • Strengthen campaign support.
Expected outcome	<ul style="list-style-type: none"> • Eligible and defaulter children in high risk population and in hard to reach and security compromised areas will be reached. • This extension of the CCE at these 116 HFs is expected to cover 38,776 representing 3.8% of the target group. <p>Immunization supply chain will be strengthened and ensure full and sustainable coverage and equity of all target. This will help towards reaching the projected immunization coverage of 95% penta3 will be attained by 2023.</p>
Total CCE budget	Total budget for this phase: Budget 1 = \$ 873,663
GRAND TOTAL CCE BUDGET: "Scale-up support" (Years 3, 4 & 5)	\$ 873,663

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

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

⁴ Countries are kindly advised to apply for their full needs regardless of the Gavi CCEOP joint investment ceiling and the funding availability. It is important to inform however how CCEOP will be contributing towards fulfilling the needs identified.

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
						116	116
						Total=116	Total=116

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

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

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

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.

See sec. 11

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.

See sec. 11

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.

Continuous improvement process

Describe all planned or ongoing activities related to continuous improvement processes, their sources of funding, and partner support.

See sec. 11

Temperature monitoring

Describe how the temperature monitoring system will evolve? Which devices will be used?

Furthermore, describe which measures are in place to

- obtain temperature data from the various devices;
- act following temperature alarms (curative maintenance);
- in case of RTM devices, please elaborate on SOPs for each responder in the temperature monitoring system; and
- 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.

See sec. 11

PART F: BUDGET TEMPLATES

This section details the number of requested equipment items and equivalent budget. A maximum investment amount (and indicative number of equipment items) corresponding to the phased support request will be considered for recommendation of approval by the IRC and subsequent decision by Gavi.

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

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

15. CCE Optimisation Platform - Budget Template

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

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

Planning price ranges are provided in this template.

How to fill the attached budget template: Countries should:

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

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

Budgeting for Buffer and Procurement fees

- Buffer fees: A 7% buffer on **total equipment cost** is built into country yearly budgets. This will cover currency variations, demurrage and associated costs and will be returned to country, if unused.
- Procurement fees: Countries will also need to **pay UNICEF's procurement costs for the country joint investment portion**, estimated to be up to 8.5%. Please obtain actual amounts from the UNICEF country office.

PART G: PERFORMANCE FRAMEWORK

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

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

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

16. Indicator monitoring and reporting requirements

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

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

- 1) **CCE Replacement/Rehabilitation in existing equipped sites:** Percentage of existing sites with (non)functional and/or obsolete non-PQS and PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices (including equipping sites with a larger equipment)
- 2) **CCE Expansion in existing sites:** Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;
- 3) **CCE Extension in unequipped existing and in new sites:** Percentage of previously unequipped sites (providing immunisation services or not, including existing sites without active devices) and new service sites being equipped with Platform eligible equipment.
- 4) **CCE maintenance :** Well-defined indicator proposed by country to reflect appropriate maintenance of equipment; for example, percentage of equipped facilities with functioning cold chain,⁵ 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 (please note that indicators should be cumulative, where appropriate)

⁵ **Indicator definition:** % CCE functioning = (# functioning CCE devices) / (total # of CCE devices designated for use). CCE devices considered for this indicator include all refrigerators, fixed passive storage devices, walk-in cold rooms and freezers designated for string vaccines. Both the numerator and denominator should be collected from the same geographical area / period in time and should not include decommissioned equipment. Functionality of CCE is broadly defined to mean that the device is operable at a particular point in time for storing vaccine.

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 <i>(Provide name of the mandatory indicator as shown above)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 (If applicable) <i>(Provide numerator and denominator for calculating percentage)</i>
1. CCE Replacement/rehabilitation in existing Equipped sites	<i>Percentage of existing sites with (non)functional and/or obsolete non-PQS and PQS equipment to be replaced with platform-eligible ILR, SDD or long-term passive devices</i>						

Indicator <i>(Provide name of the mandatory indicator as shown above)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 (If applicable) <i>(Provide numerator and denominator for calculating percentage)</i>
Does not Apply	<i>(including equipping sites with a larger equipment)</i>						
2. CCE expansion in existing equipped sites: Does not Apply	<i>Percentage of existing sites being equipped with ADDITIONAL pieces of equipment for new vaccine introduction and/or to serve an increasing population;</i>						
3. CCE extension in unequipped existing and/or new sites:	<i>Percentage of previously unequipped sites (providing immunization services or not, including existing sites without active devices) and new service sites being equipped with Platform eligible equipment.</i>	<i>National installation report. WHO- Gap analysis tool 2017</i>	<i>Annual</i>	<i>Numerator = 0 Denominator=617 Percentage= 0%</i>	<i>Numerator = 408 Denominator=617 Percentage=66.1%</i>	<i>Numerator = 500 Denominator=617 Percentage=81.0%</i>	<i>Numerator = 617 Denominator=617 Percentage=100</i>
4. CCE maintenance		<i>National maintenance and verification report Monitoring and evaluation framework</i>	<i>Annual</i>	<i>Numerator = 0 Denominator = 4,673+300+500+617 = 6,190 Percentage = 0%</i>	<i>Numerator = 2,476 Denominator = 6,190 Percentage = 40%</i>	<i>Numerator = 4,333 Denominator = 6,190 Percentage = 70%</i>	<i>Numerator = 6,190 Denominator = 6,190 Percentage = 100%</i>
5. Freeze-free to	<i>Ratio of freeze-free cold</i>	<i>NA</i>		<i>NA</i>	<i>NA</i>	<i>NA</i>	

Indicator <i>(Provide name of the mandatory indicator as shown above)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 (If applicable) <i>(Provide numerator and denominator for calculating percentage)</i>
non-freeze-free carrier ratio Does not Apply	<i>boxes/carriers to non-freeze-free cold boxes/carriers in-country</i>						
Indicator <i>(Provide name of the additional indicators as shown above)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 (If applicable) <i>(Provide numerator and denominator for calculating percentage)</i>
1. Functional status of cold chain equipment	<i>Ratio of functional CCE and ratio of Districts with at least 90% functional equipment</i>	<i>Installation, and corrective maintenance report. And the CCEI database.</i>	<i>Semi-annual</i>	<i>Number of HFs equipped ad part of extension.</i>	<i>Number of HFs equipped ad part of extension.</i>	<i>Number of HFs equipped ad part of extension.</i>	<i>Number of HFs equipped ad part of extension.</i>
2. Temperature alarms:	<i>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</i>	<i>Routine monitoring with continuous temperature monitoring devices Daily monitoring chart</i>	<i>Monthly</i>	<i>Number of excursions per refrigerator/Total number of days a month</i>	<i>Number of excursions per refrigerator/Total number of days a month</i>	<i>Number of excursions per refrigerator/Total number of days a month</i>	<i>Number of excursions per refrigerator/Total number of days a month</i>
3. Full stock availability: Ratio	<i>Stocked according to plan: Percentage of</i>	<i>Monthly stock report at</i>	<i>Semi-Annually</i>	<i>Proportion of HFs that report stock-outs</i>	<i>Proportion of HFs that report stock-outs</i>	<i>Proportion of HFs that report stock-</i>	<i>Proportion of HFs that report stock-outs</i>

Indicator <i>(Provide name of the mandatory indicator as shown above)</i>	Definition <i>(Provide definition if not already specified)</i>	Data Source <i>(identify data source)</i>	Reporting frequency <i>(annual, semi-annual, quarterly etc.)</i>	Baseline (Year) <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 1 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 2 <i>(Provide numerator and denominator for calculating percentage)</i>	Target Year 3 (If applicable) <i>(Provide numerator and denominator for calculating percentage)</i>
<i>of facilities/districts without any stock out;</i>	<i>facilities/stores/districts that have stocks levels between set minimum and maximum stock levels;</i>	<i>Governorate and national level WHO/UNICEF joint reporting form (JRF)</i>				<i>outs</i>	

PART H: PROJECT MANAGEMENT

The effective and successful implementation of the CCEOP relies heavily on the in-country project management team (PMT) which needs someone to manage the PMT. This project manager, designated by the MoPHP, will have to:

- Establish the Project Management Team (refer to UNICEF's Project Management Support Package for ToRs)
- Coordinate the planning, rollout and monitoring of the CCE OP
- Mobilise the required resources for the project
- Provide status updates to the NLWG
- Coordinate with all stakeholders including the vendor and UNICEF
- Report on deviations
- Managing risks

17. Project Management

The country is asked to please provide the following information:

- a) *Name and contact details of the dedicated project manager designated by the MoPHP*
- b) *Describe how the project manager will be empowered and supported to ensure the smooth implementation of CCE OP*

- a) Project Manager details are presented below:
 - i. First and last Name: Dr. Fouzia Shafique
 - ii. Title: Chief – Health & Nutrition
 - iii. Department / Direction: UNICEF Yemen Country Office
 - iv. E-mail : FShafique@unicef.org
 - v. Cell phone: + (967) 712 223 112

- b) Project Manager details are presented below:
 - i. First and last Name: Dr Javed Iqbal
 - ii. Title: Medical officer EPI
 - iii. Department / Direction: WHO Yemen Country Office
 - iv. E-mail : iqbalj@who.int
 - v. Cell phone: + (967) 739 888 971