

Evaluation of CCEOP1 country-led deployment modality

Gavi, the Vaccine Alliance

9 December 2025



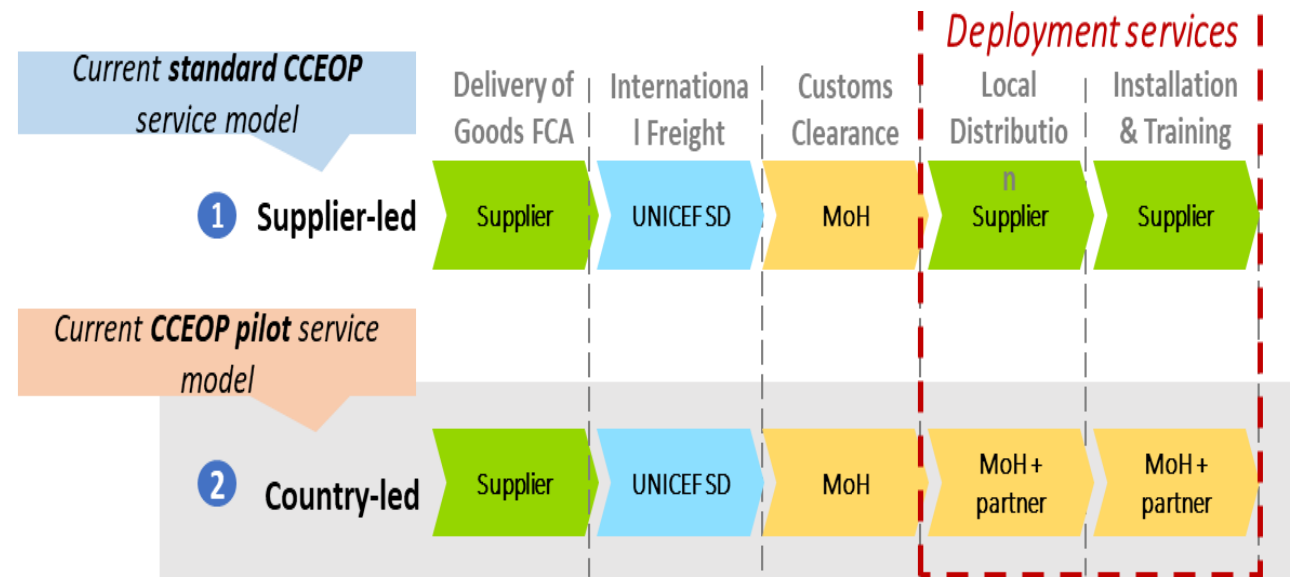
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1: Background to Gavi CCEOP and the country-led deployment modality

Background

- **CCEOP launched in 2015** to accelerate rehabilitation, expansion and upgrading of cold chain equipment (CCE)
- **US\$400m investment to date** – US\$250m in Gavi 4.0 and US\$150m in Gavi 5.0
- Standard CCEOP model – “**supplier-led**” – supplier manages deployment including warehousing, distribution, installation, training of HCWs on preventive maintenance
- **Country-led** modality introduced in 2019 as:
 - High supplier deployment costs
 - Access limitations (security contexts)
 - Limited government ownership
 - Limited local technician empowerment
- **COVAX CCE** leveraged country-led approach



2: Evaluation objectives, methodology and scope

Evaluation objectives and scope

- Evaluation of **country-led deployment modality** under:
 - **CCEOP1** (Gavi 4.0, 2019-25 implementation period)
 - **COVAX CCE** (2021-24 implementation period)
- **Lessons learnt and recommendations to inform Gavi 6.0 (2026-30)**
- Focus areas:
 - **Processes** – application, review, legal agreement, funding flows, reporting
 - **Outcomes** – cost efficiency, quality, timeliness, government ownership, technical capacity
 - **Enablers/ challenges**, how to optimise country-led deployment, **country eligibility criteria** for Gavi 6.0
- **Timeline:** Implementation Jul – Nov 2025, Dissemination Dec
- **Not in scope:** CCEOP2 (Gavi 5.0), supplier-led deployment, CCEOP global level objectives on market shaping

Country	CCEOP1	COVAX CCE	Gavi country status	Deployment Status
Afghanistan	✓		Initial self-financing, Fragile	Complete
Syria Damascus	✓	✓	Initial self-financing, Fragile	Ongoing (CCEOP1) Complete (COVAX CCE)
Yemen	✓	✓	Initial self-financing, Fragile	Ongoing (CCEOP1) Complete (COVAX CCE)
Sudan	✓		Prep. transition (until 2019), Initial self-financing, Fragile (currently)	Ongoing
Laos	✓		Accelerated transition, High capacity	Complete
Kenya	✓		Accelerated transition, High capacity	Complete

Evaluation framework

Evaluation of Processes

Application and review process

1. How well did the application and review process work?

Legal agreement

2. How well did the process for establishing the legal agreement work and was it adequate to manage risks and government accountability?

Funding flows

3. How well did the funds transfer process happen?

Reporting

4. How well did the reporting requirements work in practice?

Evaluation of Outcomes

Cost efficiency

5. How does delinking costs compare with a service bundle approach and what savings were generated and how were they repurposed?
6. To what extent have actual delinking costs been close to estimated budget costs, and if costs were higher what were drivers of these costs?

Quality

7. Who was responsible for the installation of equipment, did it meet quality standards and what mitigations were in place?

Timeliness

8. To what extent was the implementation of the delinking approach conducted in a timely manner, what were supporting factors and how have delays affected operational outcomes?

Government ownership

9. To what extent have governments taken increased ownership?
10. What other synergies / benefits have been identified through the delinking approach?

Technical capacity

11. Was training well done, and if not, what mitigations were put in place?
12. Were government capacities strengthened for maintenance through this deployment modality?

Cross-cutting

Enablers/Barriers

13. What have been key enablers (and barriers) for the successful (or challenging) implementation of the delinking approach and achievement of outcomes?

Implementation strengthening

14. What are key insights for each country to strengthen implementation of cold chain programmes?

Evaluation methodology

Theory based approach using retrospective ToC developed by CEPA, with the following methods:

Methods	Details
 Document review	Applications and review documents, legal agreement/commitment letters, progress and financial reports, etc. – <i>challenges with complete access → use of triangulation</i>
 KIIs/ FGDs	16 global and 51 country interviews (Gavi, UNICEF, MOH, technicians, other partners)
 Site assessments	Site assessments (in-person and remote) conducted through standardised tool Sampling selection followed level 1 inspection requirements of ISO 2859 (<i>all not complete due to access issues</i>) • Afghanistan: 50 (16% by CEPA evaluator, 84% in-person through EPI) • Kenya: 50 sites (100% in person) • Laos: 28 (43% in person, 57% remote) • Sudan: 32 (34% in person, 66% remote) • Syria: 9 (100% in person) • Yemen: 9 (100% in person)
 Quantitative analysis	Excel-based, costing analysis of country-led vs supplier-led (counterfactual)

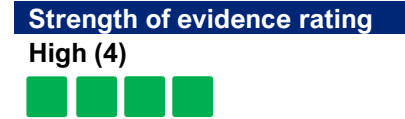
Key limitations:

- Comparisons with supplier-led not in scope – some conclusions without context/comparisons
- No country case studies on non conflict/ fragility and low capacity – limits generalizability

3: Evaluation findings and overall conclusions

Strength of evidence rating	Assessment
High (4) 	The finding is supported by multiple sources of data of generally good quality, allowing for robust triangulation including documents, site assessments, different stakeholders in different contexts and majority of consultations (both quantitative and qualitative sources)
Medium (3) 	The finding is supported by a few data sources of good quality, limited triangulation, where corroborative sources allow for reasonable but evidence coverage not complete.
Low (2) 	The finding is supported by very limited evidence (1 or 2 sources) or by multiple sources of lower quality and no triangulation.
Insufficient (1) 	The finding is supported by incomplete or unreliable evidence or contradictory consultations. Should not be included in report.

Findings – Processes (1/4)



Application & Review process

(-) Inefficient & lengthy application process, also due to fragile & conflict setting of many pilot countries

- Additional process to standard CCEOP application resulting in increased burden on countries
- Insufficient upfront guidelines to countries
- Cumbersome application process
- Constrained country resources; application required heavy administrative workload and coordination

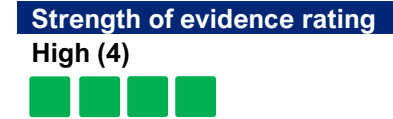
External factors also extended timelines (e.g. COVID-19 & conflict)

→ *improvement under COVAX CCE & CCEOP2 – streamlined application process integrated in standard CCEOP application; simplified delinking application tools, e.g. delinking toolkit*

CCEOP1	
Country	Time from application submission to clearance & approval
Afghanistan	~ 8 months
Kenya	~2 years*
Laos	~ 8 months
Sudan	~1 year
Syria Damascus	~1 year*
Yemen	~ 8 months
COVAX CCE	
Country	Time from application submission to clearance & approval
Syria Damascus	~ 3 months
Yemen	~ 4 months

* clearance and approval date not available; based on GA date and assuming 3 months for GA process

Findings – Processes (2/4)



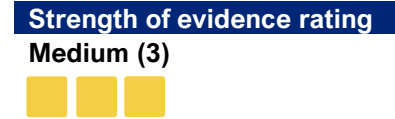
Application & Review process

(+) Review process identified key risks and appropriate mitigations measures.

Peer Group Review ensured quality reviews of applications and identified key risks and ensured appropriate mitigation measures

- Key risks and mitigation measures identified: limited country experience, unrealistic timelines, insufficient human resources, site unreadiness and budget inconsistencies
- Pre-Post Installation Inspection (PII) requirement successfully helped to limit implementation risks
- Key risks related to maintenance and spare parts deployment were not sufficiently identified – curative maintenance not in CCEOP scope, but a limitation in design

Findings – Processes (3/4)



Legal agreements

(+) Legal agreement & Accountability Framework largely worked well for managing roles & responsibilities

- Tripartite agreements = standard template; Country request for bilateral agreement were approved under specific circumstances (e.g. Yemen, Sudan and Syria due to UN sanction policy)
- Legal agreement could have been improved by including standardised annexes (incorporating risk matrix, deployment timelines and monitoring requirements) → *improvement under CCEOP2 (standardised annexes)*

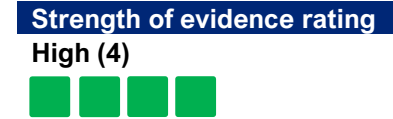
Funding management

(+) Funding transfer largely viewed efficient between Gavi, UNICEF & government

- Dependent on sufficient financial management capacity of UNICEF CO & effective coordination with MoH

(-) However, reprogramming of unspent funds was cumbersome and lengthy. Reprogramming of unused funds was more complicated and delayed

Findings – Processes (4/4)

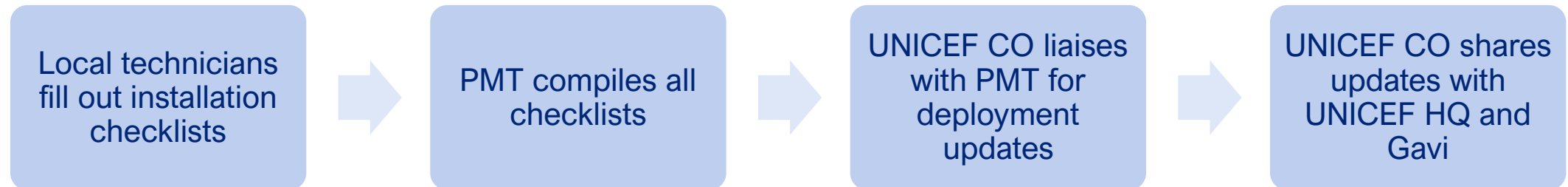


Reporting

(-) Programmatic reporting did not work well, leading to incomplete and inconsistent updates on the deployment status & limiting ability to exercise oversight.

Ad-hoc and non-standardised reporting – e.g. different formats of UNICEF progress reports, content & level of details inconsistent, different formats across technicians' reports

- Involvement of multiple stakeholders:



- Poor timelines (e.g. installation reports not shared in a timely manner; deployment status updates only requested bi-annually by Gavi by design)
- Inadequate monitoring capacity due to lack of resources at Gavi to oversee CCEOP both at HSS and CT levels

(-) Standard UNICEF financial reporting limits budget-expenditure comparison – no clarity on CCEOP budget line spending

→ *some improvement under CCEOP2 (e.g. standardised monthly/quarterly implementation status reports; addition of a project-specific “non-standard financial utilisation sheet”)*

Findings – Outcomes (1/7)

Cost-efficiency

(+) Country-led deployment modality offered significant cost savings which were context-specific

- Savings are context-specific, but cost reductions are in the range of **40-65%** in most countries, when compared against (modelled) benchmarking supplier-led service bundles*
- Key driver in high-capacity countries: **Leveraging of existing human resources** and, to a lesser degree, vehicles**
- Key driver in fragile / conflict settings: Lower project management costs driven by **risk premium / insurance costs**

(+) Cost savings from country-led deployment were used to purchase additional CCE

(+) Actual delinking costs largely matched budget costs when there were no long implementation delays

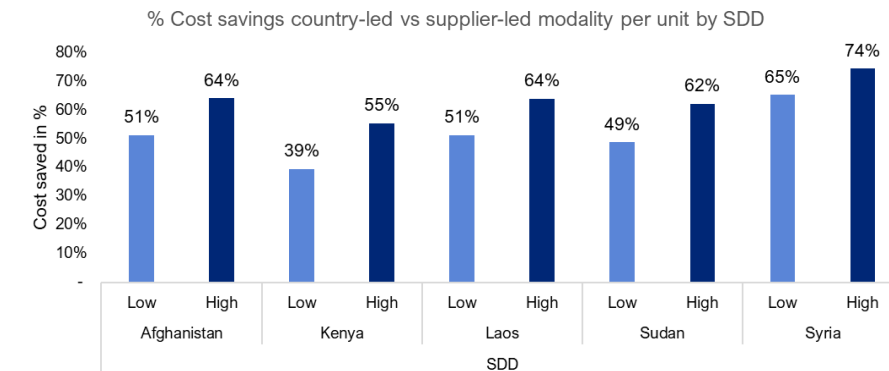
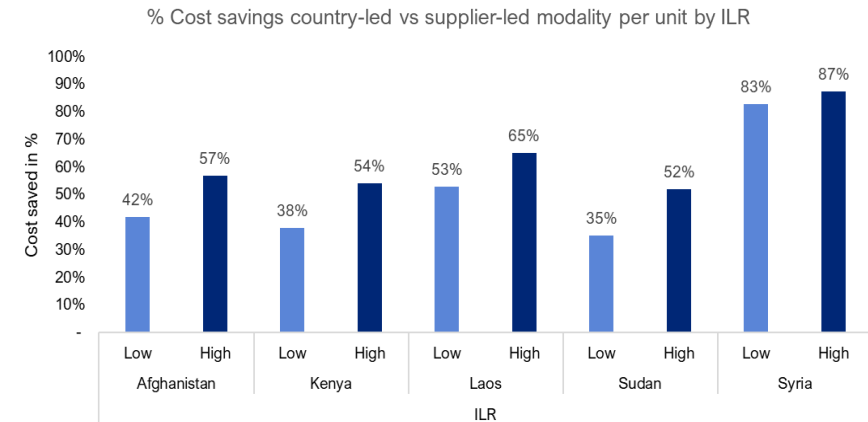
Strength of
evidence rating
High (4)



Strength of
evidence rating
Medium (3)



Strength of
evidence rating
Low (2)



CEPA analysis based on weighted average per unit data from the COP for country-led and the UNICEF benchmarking model for each country

* Service bundles are not identical – e.g., country-led with custom clearance but some supplier-led have longer warranty provisions

** Existing HR / vehicles (to a lesser extent) can be considered a “sunk cost” by governments that can be leveraged as long as there is spare capacity (e.g., technicians can take on installation and vehicles can be used for delivery etc).

Findings – Outcomes (2/7)

Strength of evidence rating

High (4)



Quality of installation (1/2)

(+) Installations were largely acceptable and in line with specifications. Majority of CCE installations (>95%) were done to an acceptable or at least adequate quality

- Minor issues occurred more often with SDD installation in remote and hard to access areas
- No significant difference in quality across government technicians and private sector providers
- Deviations from ODP observed in some countries – with justification mostly around planning/public health reasons

Country	Installation conducted by	% of sites with acceptable & adequate installation
Afghanistan	National technicians	49/50 (98%)
Kenya	County & sub-county government technicians	50/50 (100%)
Laos	Local technicians for installation, delivery through Laos Industrial Solutions	28/28 (100%)
Sudan	MoH-certified technicians (not under government payroll)	32/32 (100%)
Syria	Private contractor	9/9 (100%)
Yemen	National technicians	9/9 (100%)

Legend: Red = less than 80% / Orange = between 80 - 90% / Green = above 90%

Findings – Outcomes (3/7)



Quality of installation (2/2)

(-) Reporting on completed installations can be further improved

- Inconsistent use of installation checklist
- Limited entry into inventory databases and no use of digital inventory database (*general issue not linked to modality*).

(+) Functionality of equipment largely working well, with some emerging challenging due to weak monitoring, lack of spare parts and issues around warranty

- Functionality mostly working well in most countries
- Emerging challenges: (i) weak monitoring system & issues on curative maintenance (clarity on warranty terms & process). *General issue not linked to modality*

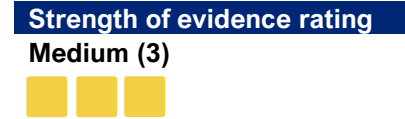
Country	% of sites with completed installation checklist
Afghanistan	35/50 (70%)
Kenya	50/50 (100%)
Laos	20/28 (71%)
Sudan	28/32 (86%)
Syria	6/9 (67%)
Yemen	8/9 (89%)

Legend: Red = less than 50% / Orange = between 50-80% / Green = above 80%

Country	% of sites with full functionality
Afghanistan	49/50 (98%)
Kenya	46/50 (92%)
Laos	23/28 (82%)
Sudan	30/32 (94%)
Syria	7/9 (78%)
Yemen	9/9 (100%)

Legend: Red = less than 80% / Orange = between 80 - 90% / Green = above 90%

Findings – Outcomes (4/7)



Timeliness of deployment (1/2)

(-) Total time from equipment arrival to end of deployment has ranged between 1.5 years (Kenya, Laos) and ~2.5+ years (Afghanistan, Sudan, Yemen) when adjusting for deployment stops

- Key reason for extended timelines is COVID-19 and complexity of countries (conflict, government change)
- Challenges related to the country-led modality: lower economic incentives, coordination across multiple stakeholders with own internal processes, unavailability of technicians and logistical constraints
- Slower than supplier-led modality (though clear benchmarking difficult)

Country	Application to Grant Agreement (GA)	Actual deployment (from equipment arrival to deployment end)*	Actual deployment (adjusted for deployment stops)	Total timeline (actual)	Total timeline (adjusted)	Total # of units	Deployment status
Afghanistan	~ 10 months	~ 3 years 2 months	~ 2 years 8 months	~ 4 years 5 months	~ 4 years	1,300	Completed
Kenya	~ 2 years 6 months	~ 1 year 6 months	~ 1 year 6 months	~ 4 years 6 months	~ 4 years 6 months	2,061	Completed
Laos	~11 months	~ 1 year 6 months	~ 1 year 6 months	~ 3 years 11 months	~ 3 years 11 months	539	Completed
Sudan	~1 year 6 months	> 3 years 5 months (ongoing)	~ 2 years 7 months (ongoing)	> 5 years 3 months	> 4 years 5 months	1,138	Y1 completed (193) Y2 ongoing (946 pending)
Syria	~ 1 year 3 months	> 1 year 10 months (ongoing)	> 1 year 5 months (ongoing)	> 3 years 3 months	> 2 years 9 months	186	Ongoing (79 installed; 107 pending)
Yemen	~1 year 6 months	> 2 years 6 months (ongoing)	> 2 years 3 months (ongoing)	> 5 years 6 months	> 5 years 3 months	638	Y1, Y2 completed; Y3 ongoing (608 installed; 30 pending)

*Procurement timelines covered by UNICEF SD and Gavi (e.g. tendering, disbursement, placement of orders) are not included in the deployment timelines and would further extend the timelines reported in the table

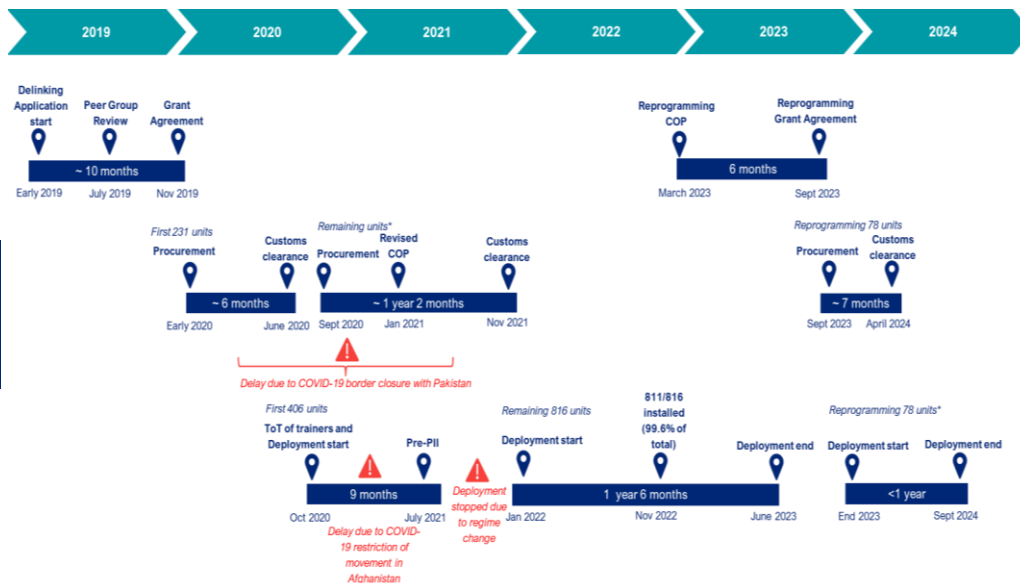
Findings – Outcomes (5/7)

Timeliness of deployment (2/2)

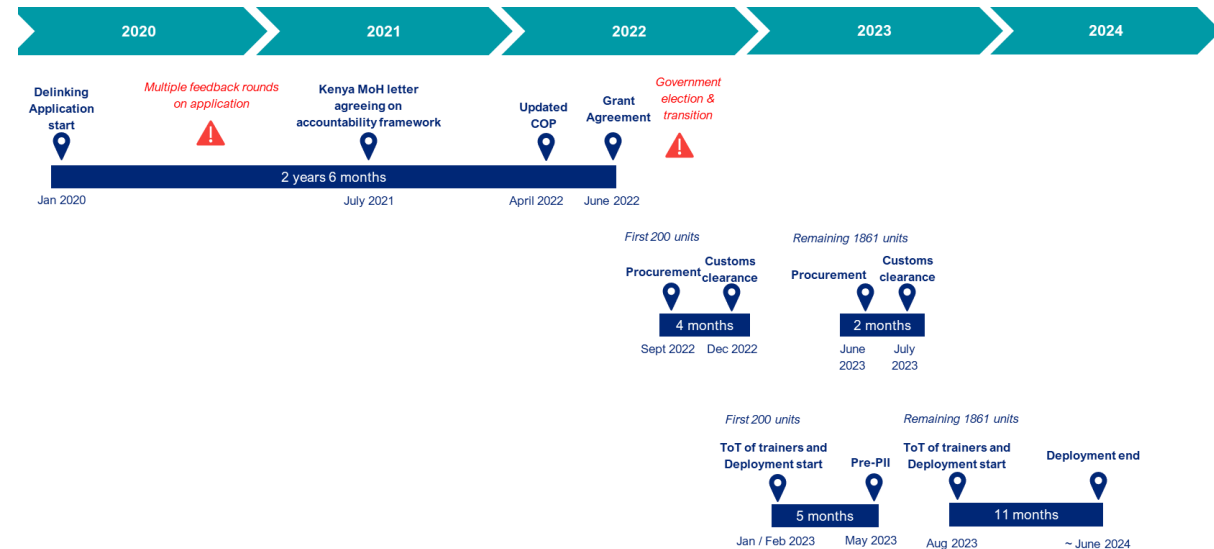
(-) Country-led modality deployment averaged around 6-12 months per deployment round in high-capacity countries and considerably longer – but not unexpected – in fragile and conflict-affected countries (exceeding 18 months in some cases)

Examples for Afghanistan and Kenya provided below with overarching findings presented on next slide

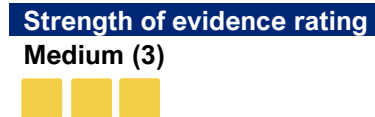
Afghanistan timeline



Kenya timeline



Findings – Outcomes (6/7)



Government ownership

(+) Country-led deployment modality has improved country ownership in high-capacity countries and less so in fragile countries

- Key benefits: (i) local technicians expressed greater commitment and responsibility; (ii) greater involvement and visibility including at sub-national/community levels and (iii) PMT / NLWG engagement & leadership
- In fragile & conflict settings, weaker government responsibilities and approach considered “UNICEF CO-led deployment” with implications on transition

Laos: The PMT worked swiftly to approve ODPs and introduced remedial actions after the pre-PIL. Local innovations and local solutions were introduced.

Kenya: County-level technicians reported to feel more accountable for CCE they installed themselves.

Syria: Due to the sanction policy and limited country capacity, the responsibility was largely held with UNICEF and its contractors

(+) Minor synergies identified to-date

- Applying learnings and improved capacity to manage deployments for other donor funding for CCE (e.g. Laos and Kenya)

Findings – Outcomes (7/7)

Training & capacity building

(+) Training of technicians on installations and end-users on preventive maintenance was overall well done

- Key challenges highlighted: (i) delays in some trainings due to COVID-19; (ii) high staff turnover; (iii) lack of refresher trainings impacting sustainability of training provided (*not funded*)

Maintenance & Monitoring

(-) Monitoring & curative maintenance remained key challenge

Maintenance not directly funded under modality, but a number of challenges were flagged (*not directly linked to modality*):

- Weak monitoring system including lack of an effective (digital) asset inventory and systematic temperature monitoring in many settings
- Challenges in procuring spare parts and lack of understanding of warranty terms
- Weak preventive maintenance (e.g. lack of maintenance protocols, documentation, appropriate usage and cleaning)

Strength of evidence rating

Medium (3)



Country	# of technicians trained	% of sites with more than two trained staff available at facility level	Refresher trainings conducted for both technicians and healthcare workers
Afghanistan	83	37/50 (74%)	Limited
Kenya	10 national level trainers and, 188 country & sub-county technicians	43/50 (86%)	No
Laos	18	12/28 (43%)	Limited
Sudan	66	22/32 (69%)	Limited
Syria Damascus	25 (21 MoH technicians and 4 UNICEF staff)	9/9 (100%)	No
Yemen	N/A	9/9 (100%)	Limited

Country	% of sites with functional RDTMs	% of sites with a 30-day logger in use	% of sites with data included in national dashboard
Afghanistan	48/50 (96%)	50/50 (100%)	0/50 (0%)
Kenya	21/50 (42%)	45/50 (90%)	4/50 (8%)
Laos	0/28 (0%)	22/28 (79%)	0/28 (0%)
Sudan	0/32 (0%)	22/32 (69%)	24/32 (75%)
Syria	1/9 (11%)	7/9 (78%)	0/9 (0%)
Yemen	6/9 (67%)	7/9 (78%)	0/9 (0%)

Legend: Red = less than 50% / Orange = between 50-80% / Green = above 80%

Findings – Cross-cutting

Strength of evidence rating

High (4)



Country-led deployment success relies on:



Strengthening cold chain systems requires improving monitoring and maintenance

- Enhancing monitoring mechanisms, (e.g. introduction of digital asset inventory and integration with RTMDs)
- Improving curative maintenance systems (including spare parts and warranty use)
- Strengthening preventative maintenance practices to reduce equipment downtime and extend lifespan

Conclusions

- Country-led deployment modality is a **positive approach**, but **requires several enabling factors** to be in place and **risks appropriately managed**

Key advantages	Key enablers	Risks to be managed
Lower cost than supplier-led	Country leadership & coordination	Timeliness for deployment
Increased country ownership	Well-capacitated UNICEF CO	Country capacity building for application
Higher reach	Adequate technician capacity	Effective reporting
Acceptable quality of installation		Sunk costs
		Monitoring and maintenance

- Gavi systems have evolved over time under CCEOP2 and COVAX CCE, but **require further improvement if the modality is scaled-up** and offered to more countries
- While not linked to the deployment modality per se, **effective monitoring and maintenance are major challenges** and require more emphasis

4: Recommendations for Gavi 6.0

Recommendations on how Gavi can effectively scale-up the country-led modality, including:

- **Recommendation 1:** Develop and apply clear, evidence-based eligibility criteria for use of the country-led deployment modality
- **Recommendation 2:** Streamline, integrate and standardise Gavi CCE processes for the country led modality
- **Recommendation 3:** Place greater emphasis on country-level monitoring and maintenance
- **Recommendation 4:** Expediate approval and deployment timelines
- **Recommendation 5:** Support country transition and sustainability

1: Country eligibility criteria

- **Overall principle – country demanded not Gavi imposed, as high level of country engagement needed**
 - Preparatory & accelerating transition countries could be encouraged to adopt this modality in the path to self-sufficiency
- **Step 1: Screening mechanism – initial capacity threshold checks for all**
 - *Quantitative*
 - *Indicator #1 - CCE technician capacity: EVM HR score > 80%*
 - *Indicator #2 – Existing financial resources: EVM financial resource score > 80%*
 - *Indicator #3 – Functioning Coordination Mechanism: NLWG maturity using data from SCIP tool*
 - *Qualitative* – functioning of NLWG/ PMT, CCE technician capacity, UNICEF CO capacity, financial management capacity
 - *Exceptions* where there is a strong rationale (e.g. fragile/conflict with prohibitively expensive suppliers, countries demonstrating commitments to improving capacity over time)
- **Step 2: Application review criteria**
 - Building on COVAX CCE and CCEOP2: previous CCE experience, functioning coordination mechanism, availability of cold chain inventory and ODP, dedicated HR capacity at UNICEF CO and MoH, identified risks and mitigations, good financial management, clear roles and responsibilities (*tradeoff: simplicity*)
 - *Additionally*, monitoring systems and capacity as well as provisions for maintenance should be emphasised

2: Improvements in CCE processes

Streamline, integrate and standardise CCE processes for country-led deployment modality:

Application & review

- Streamline CCEOP application (building on CCEOP2) – incorporate in one Gavi-wide application & review 6.0 process
- Ensure clear guidance to countries upfront
- Build on positive changes from COVAX and CCEOP2 (e.g., delinking toolkit)

Legal agreement

- Streamline CCEOP legal agreement into Gavi HSS GA as part of Gavi-wide 6.0 process to ensure simplification and streamlining
- Use tripartite agreements for all countries, with exemptions where not feasible (e.g. some fragile states)

Financial management

- Consider risk of country joint investment delaying process & purchases, e.g. payment in tranches (*tradeoff: risk*) - this applies for both supplier-led and country-led modality

Reporting to Gavi

- Introduce standardized + comprehensive reporting templates & leverage Thrive360
- Agree with UNICEF on financial report which allows for systematic reporting against the CCEOP service-bundle budget lines

Documentation & capacity

- Develop SOPs on which documents, data and progress reports are owned and managed by which partner
- Consider Gavi & UNICEF capacity for increased country-led deployment (as more LoE heavy) (*tradeoff: resources*)

3: Emphasis on reporting and maintenance

Place greater emphasis on improving in-country monitoring and preventative & curative maintenance
– Gavi requirement and/ or TA to encourage → aligns with upcoming Immunisation Supply Chain Strategy 6.0

All the below points are relevant across supplier and country-led modalities

- **Improve use of digital inventory databases (eLMIS) and reporting of functionality of CCE**
- **Improve processes on curative maintenance, including access to spare parts – e.g.**
 - UNICEF SD to share details on warranty / responsibilities with countries to aid enforcement; clarify responsibilities around warranty & spare part provision at national and local level
 - Encourage countries to have a curative maintenance plan (not consultant driven but owned by them)
- **Improve processes on preventative maintenance**
 - Preventive maintenance plan and implementation
- **Expand coverage & use of TMDs, where feasible**
 - Encourage countries to expand use of TMDs
 - Ensure regional & local level staff have access to data from TMDs (e.g., manufactures required to share)

4: Expediate approval and deployment timelines

- Require countries to **deliver as per their approved Gantt/work plan** in their applications
- **Introduce timeline benchmarks** to guide countries and manage expectations towards faster implementation
- **Provide TA** to countries through the UNICEF CO to ensure rapid update of country ODPs & troubleshoot any operational challenges (e.g. site readiness)
- Encourage countries to **use the private sector local service providers** to expedite installations where public sector technician capacity is weak.
- *Tradeoff: expedition of timelines should not be at the cost of risk mitigation measures*

5: Support country transition and sustainability

Implement appropriate measures to ensure longer term transition and sustainability for countries:

Gavi – Encourage countries to take on greater responsibilities – as reflected in the Accountability Frameworks included with the legal agreements

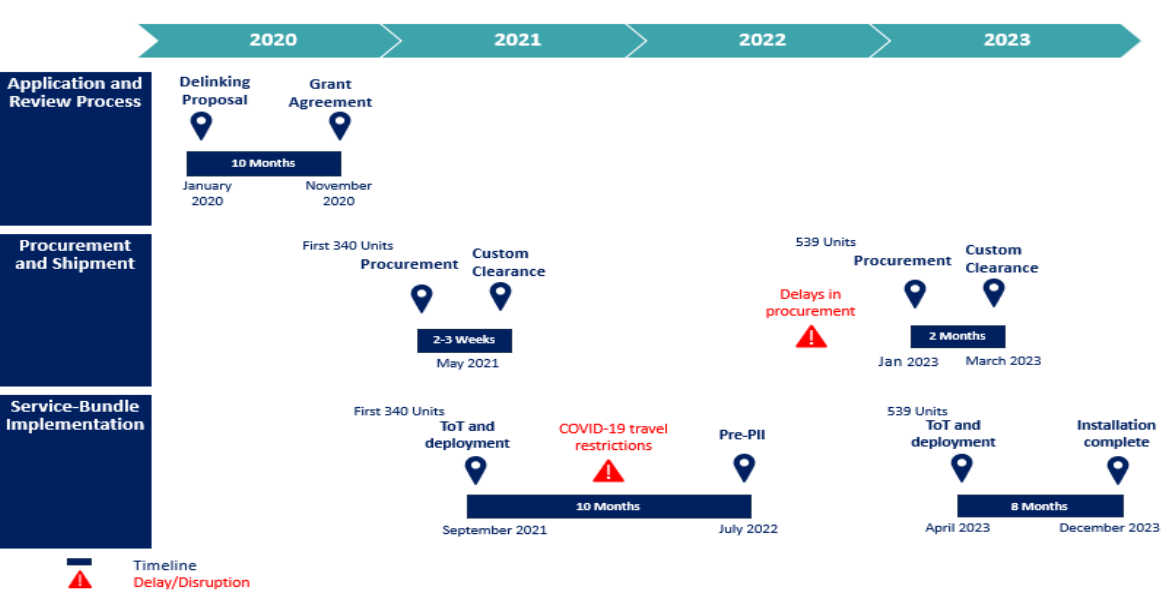
UNICEF CO – Explore areas where countries can benefit from TA to develop the needed skills and systems to ensure effective delivery and management of this modality

Country governments – Develop transition plans with increased responsibilities with government and reduced responsibilities with UNICEF, whilst effectively managing risks

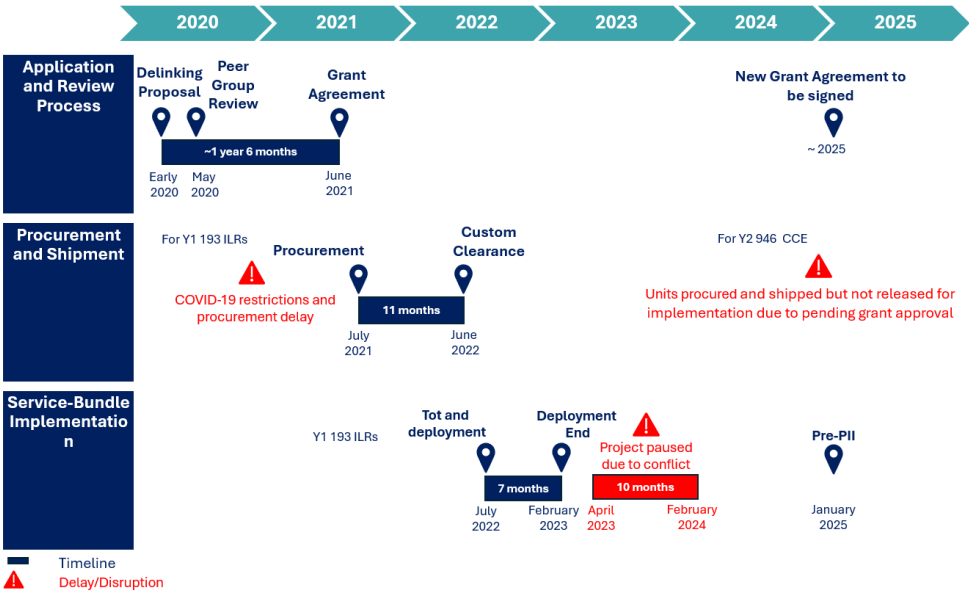
Annexes

Annex: Deployment timelines

Laos timeline

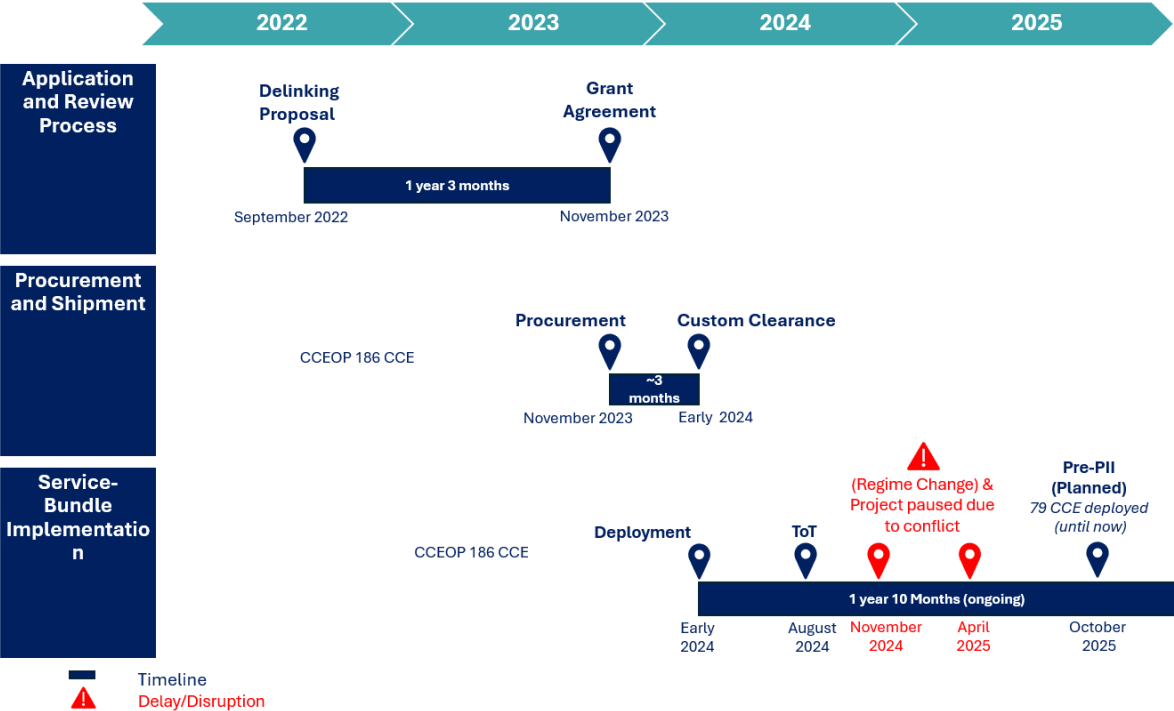


Sudan timeline

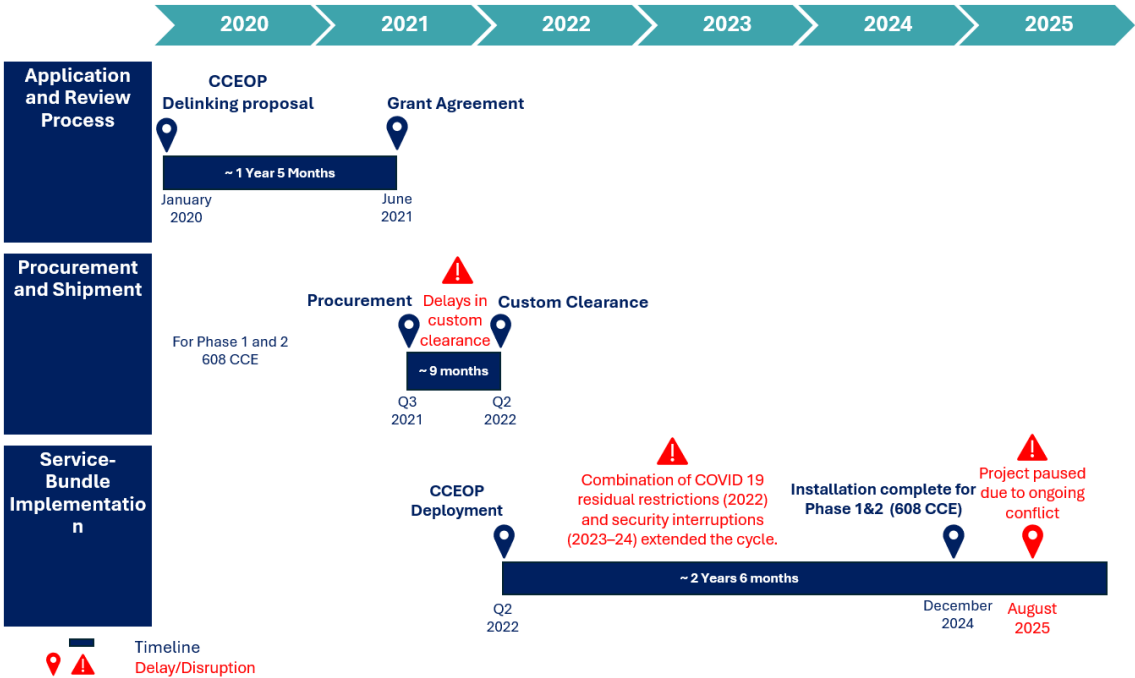


Annex: Deployment timelines

Syria Damascus timeline



Yemen timeline





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