

How Immunization Supply Chains (iSC) contribute to reaching zero-dose communities



The Supply Chain and Zero Dose COP webinar series

Webinar 1: Supply chain guidance and strategies to reach under-served zero-dose communities

9 February, 1.00-2.30 pm UTC



Webinar 2: Immunization Supply Chain (iSC) interventions: lessons and best practices for reaching under-served zero-dose communities

15 February, 1.00-2.30 pm UTC

Webinar 3: Integrated supply chain approaches to reach under-served zero-dose communities with vaccination and PHC services

23 February, 1.00-2.30 pm UTC

Webinar 2:

Immunization Supply Chain (iSC) interventions: lessons and best practices for reaching under-served zero-dose communities.

Experience sharing from:

- **Democratic Republic of Congo (DRC)**
- **Nigeria**
- **Pakistan**



UNICEF's Support to the reconfiguration and optimization of the supply chain of vaccines and other health products in the DRC

Speaker:

Dr. Deo Manirakiza

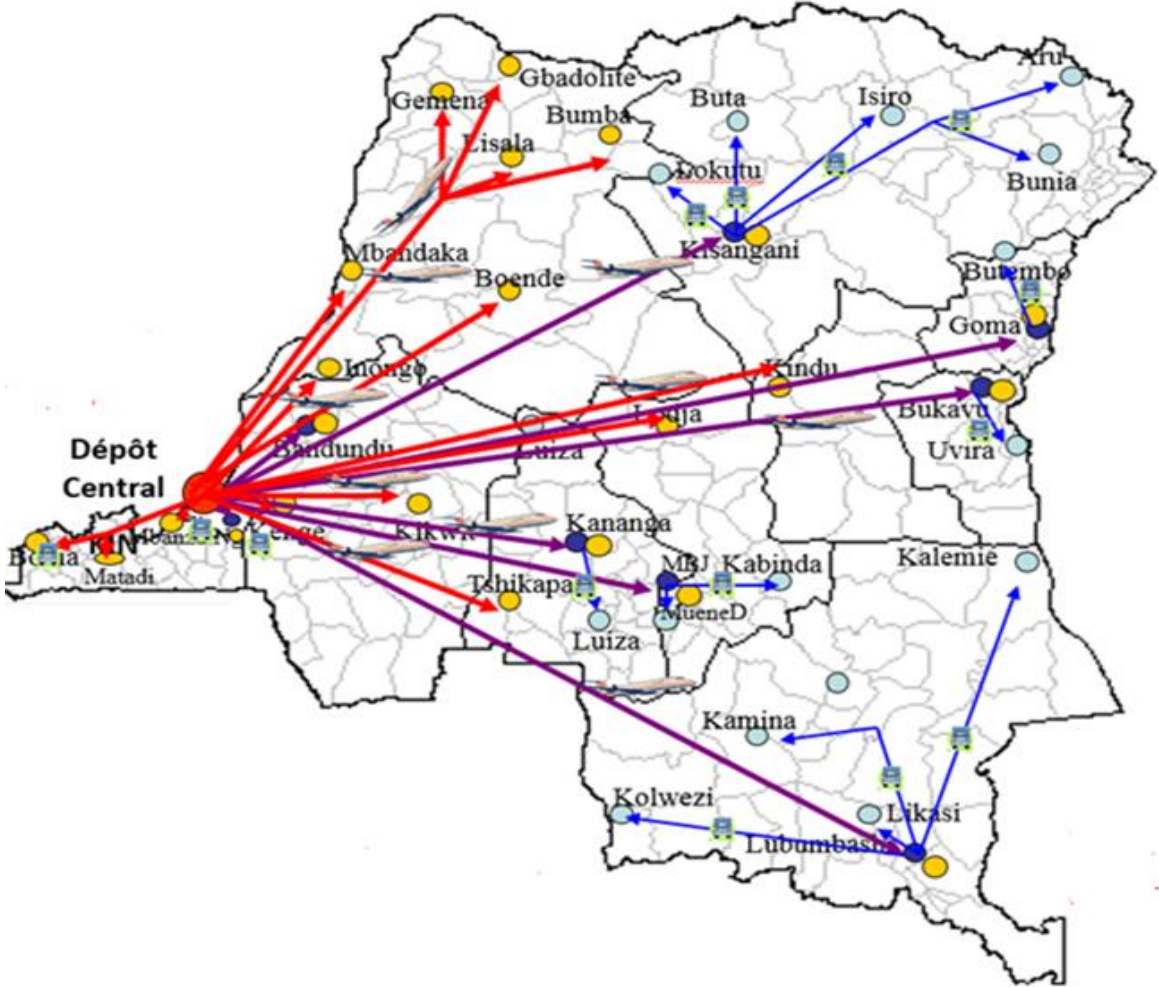
Health Specialist

UNICEF DRC

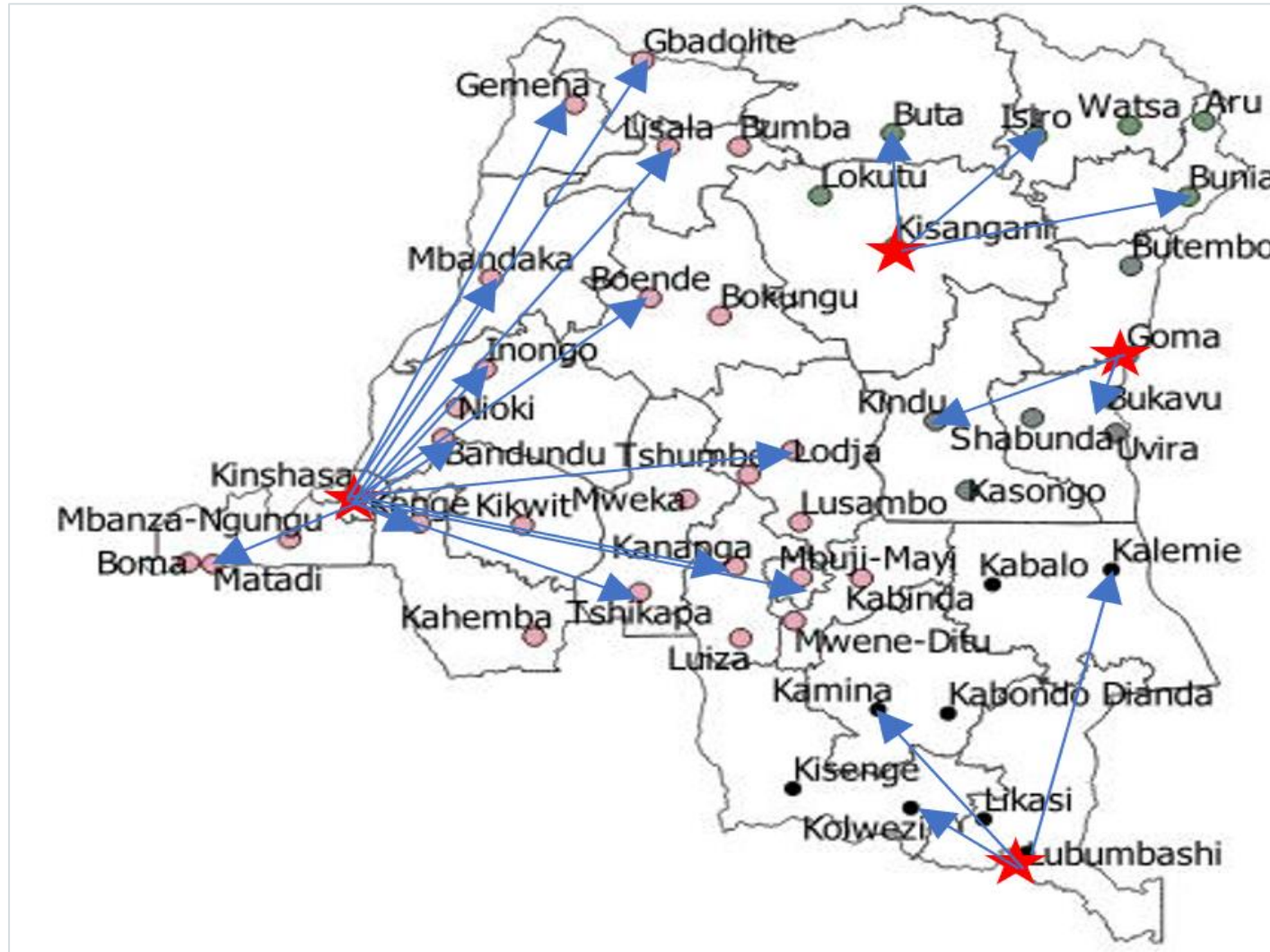


Current distribution flow of vaccines from Kinshasa to the 26 provinces via coordination and Antenna

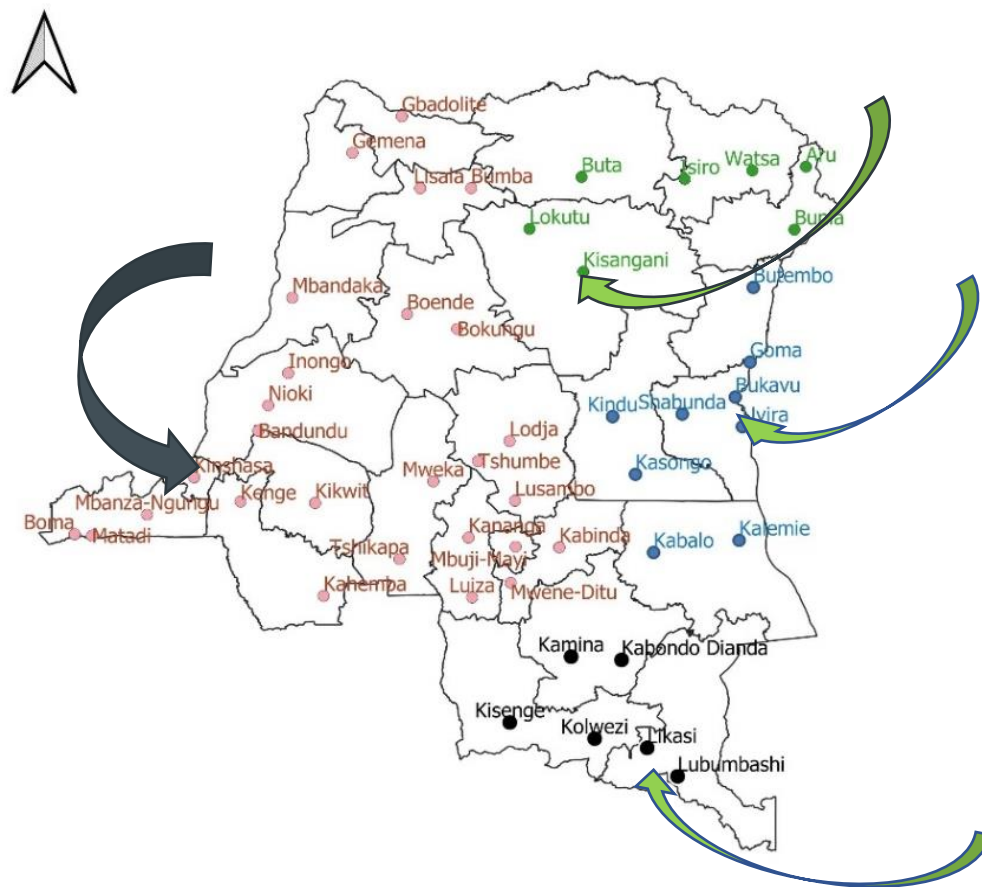
1 entry point



New configuration of supply Chain with the 4 entry points

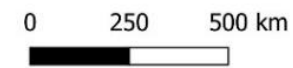


Map : reconfiguration of supply chain: 4 entry points



LEGENDE DES POINTS D'ENTREE

- Hub Kisangani
- Hub Kinshasa
- Hub Goma
- Hub Katanga

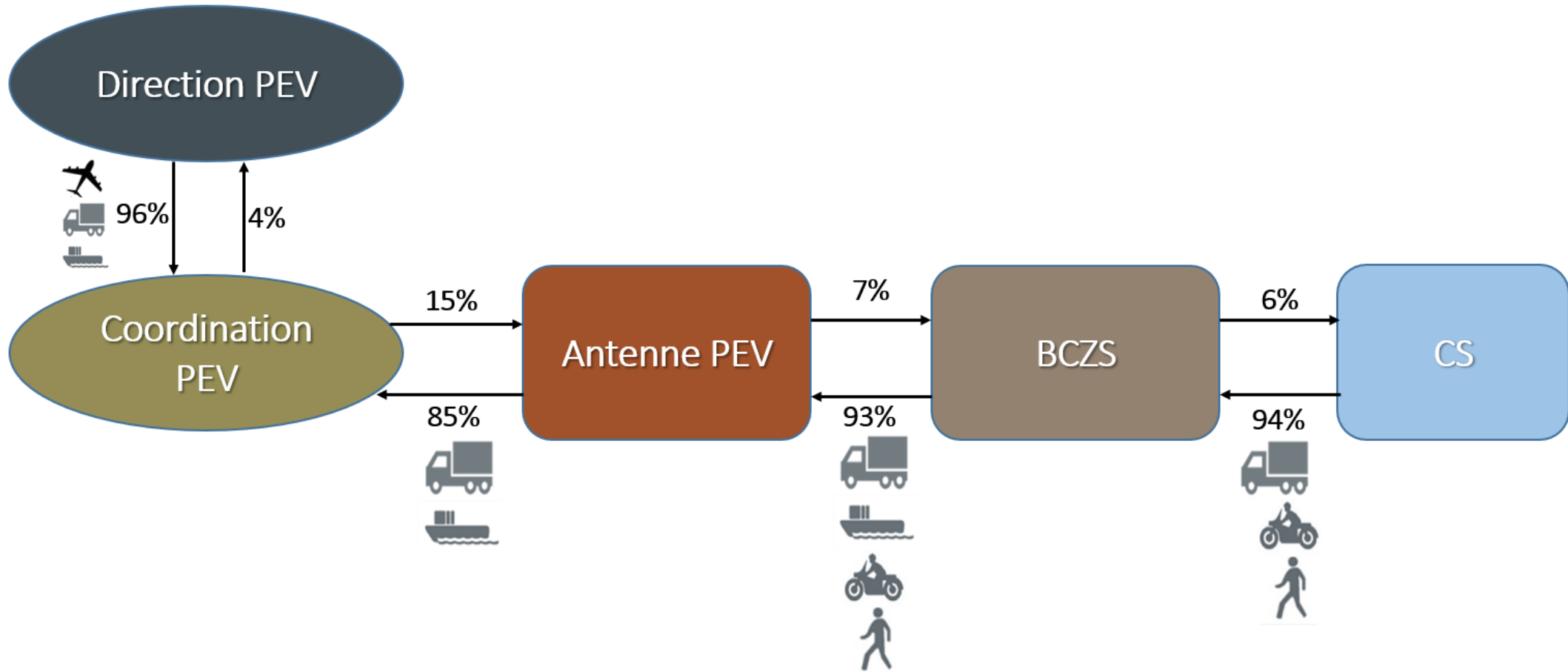


Réalisation : VillageReach **VILLAGE REACH X**

Avec l'appui de l'UNICEF

Gavi The Vaccine Alliance

Current Supply Chains for Vaccines and Health Products



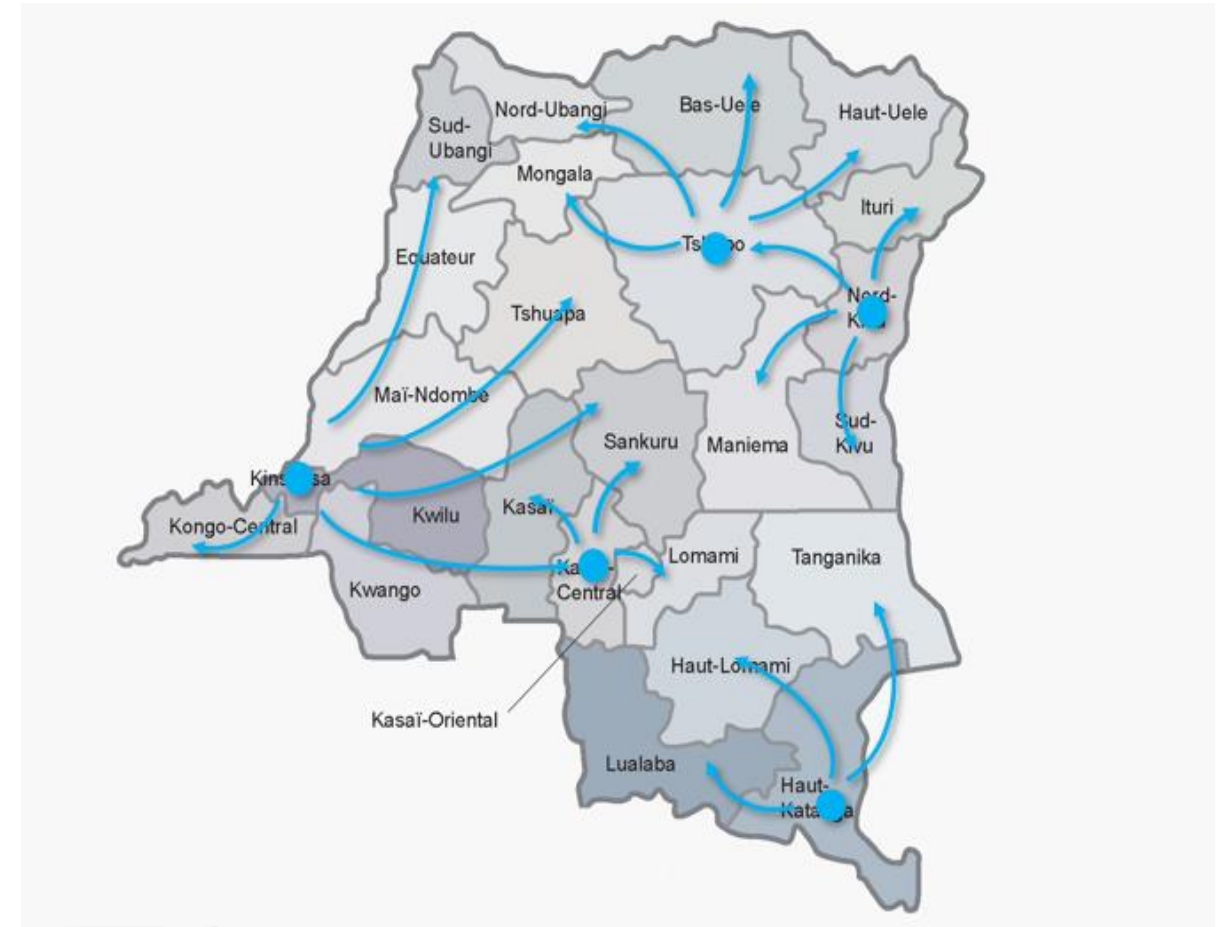
UNICEF's Contribution to the vaccines availability and distribution at last mile

Support to Vaccines supply (VII)

- Vaccines for routine Immunization
- Vaccines SIAs
- Vaccines COVID-19 Vaccines
- Inection Materials

Support to Supply chain/storage and distribution

- Construction of the Hubs (Kinkole, Kisangani, Lubumbashi)
- LTA for distribution within the provinces (Via field offices)



Increase and strengthening cold chain Capacity

Réfrigérateurs
TCW40SDD for CS: **3000**



Réfrigérateurs
TCW4000SDD for BCZ: **134**



Freezers
TFW40SDD for BCZ: **289**



Solar Cold rooms : **14**



Power Generators : **50**



Frigde-Tag2: **3000**



Log-Tag: **12000**



Parsyl: **2000**



- Acquisition and installation of **3134 solar** réfrigérateurs:
 - **3000** TCW40SDD for HF
 - **134** TCW4000SDD for HZ
- Acquisition and installation of **289** Freezers for
- Acquisition and installation of **14** Solar Cold rooms 30 m3 for Antenna
- Acquisition and installation of **50** power Generators 25 KVA for Antenna
- Acquisition and distribution de **2000** Cool Boxes and **10000** vaccine carriers
- Acquisition and distribution of remote temperature monitoring devices
 - Frigde-Tag2: **3000** units
 - Log-Tag: **12000** units
 - Parsyl: **2000** units

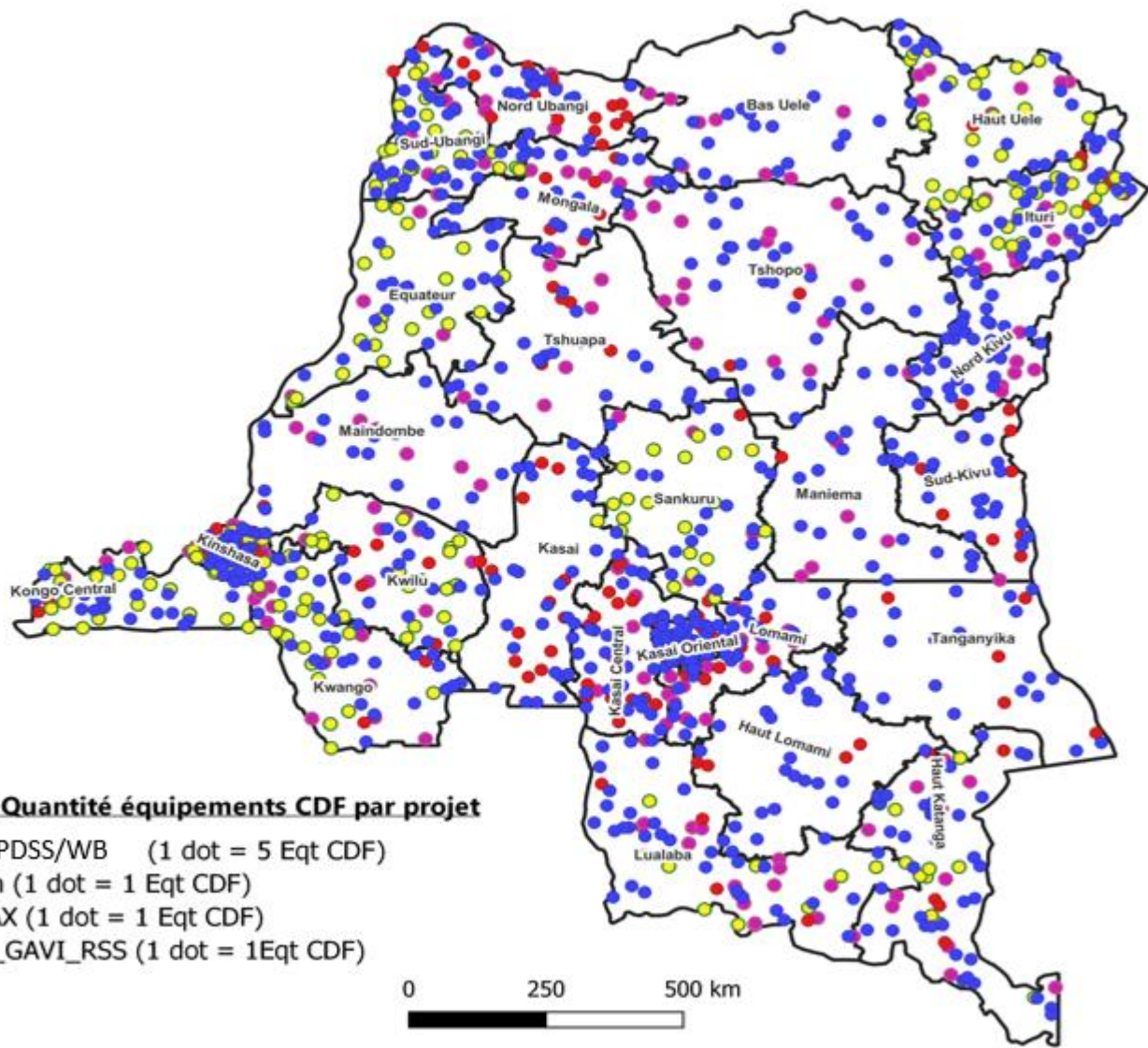
Cool box: **2000**



Vaccine carriers: **10000**



Mapping of installation sites



Province	GAVI_RSS	COVAX	UG-PDSS/WB	Japon
Bas Uele	7	0	95	0
Equateur	5	0	103	20
Haut Katanga	11	5	188	10
Haut Lomami	0	4	118	0
Haut Uele	7	2	77	20
Ituri	11	4	174	20
Kasai	0	13	144	0
Kasai Central	10	16	180	0
Kasai Oriental	0	11	213	0
Kinshasa	20	23	148	20
Kongo Central	5	2	100	20
Kwango	12	2	148	20
Kwilu	8	5	88	20
Lomami	15	5	135	0
Lualaba	16	5	156	10
Maindombe	8	1	101	0
Maniema	5	1	103	0
Mongala	7	6	111	0
Nord Kivu	7	1	171	0
Nord Ubangi	9	15	97	0
Sankuru	5	2	85	20
Sud-Kivu	1	10	115	0
Sud-Ubangi	9	2	182	20
Tanganyika	0	5	102	0
Tshopo	16	2	178	0
Tshuapa	5	5	111	0
Total	199	147	3423	200



**Preventive maintenance
for refrigerators**



**Preventive maintenance
for refrigerators**



Thank You

VillageReach: The experience of drones and NGCA for reaching zero-dose communities

Speaker:

Patou Musumari, MD, PhD
Deputy County Director, VillageReach DRC



République Démocratique du Congo
**Ministère de la Santé Publique
Hygiène et Prévention**

Vision

A world where every person has the health care needed to thrive

Mission

Transform health care delivery to reach everyone



Pathways to primary health care

VillageReach builds pathways to PHC services, increasing access for the under-reached



Products to people

VillageReach makes health products available when and where they are needed



Drive sustained impact

VillageReach works with governments and the private sector to drive sustained impact at scale.

Our Impact in 2021

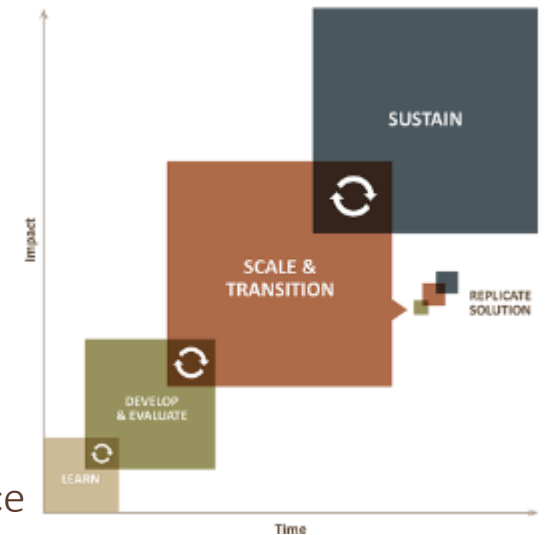
in 2021, VillageReach, in collaboration with its partners have

- Helped increase access to quality health care for **58 million people** in sub-Saharan Africa.
- Supported **380,000 health workers'** ability to deliver products and quality health services to the most under-reached.
- Assisted in the delivery of health products to **2,500 health facilities**.

Where we are



Our Approach



Our footprint in DRC

LÉGENDE



Drones pour la Santé



Nouvelle Génération des
Chaines d'Approvisionnement (NGCA)



Coordination et plaidoyer dans les investissements
de la chaîne d'approvisionnement (SCICA)



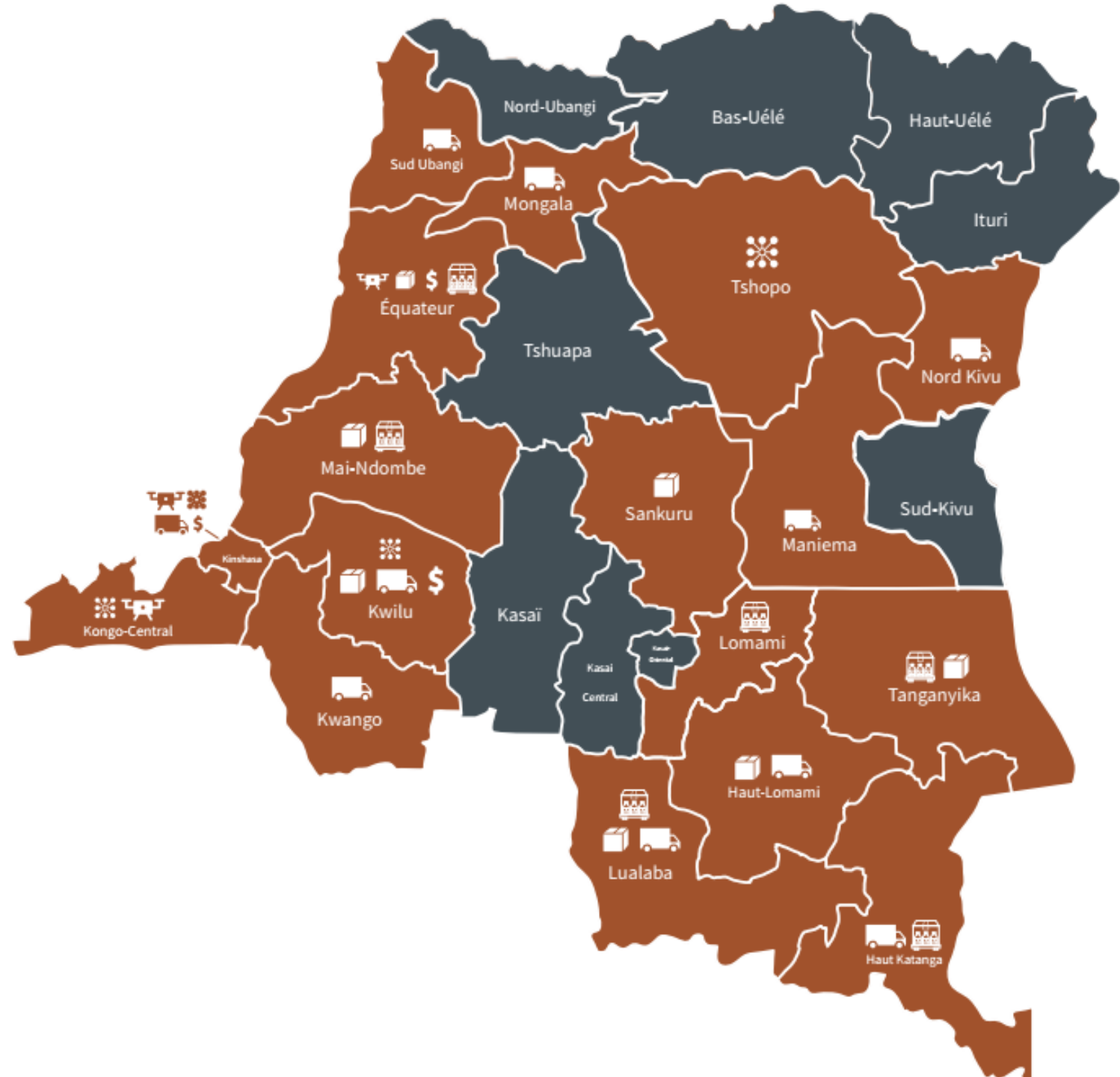
Intégration des Distributeurs Privé (PSE)

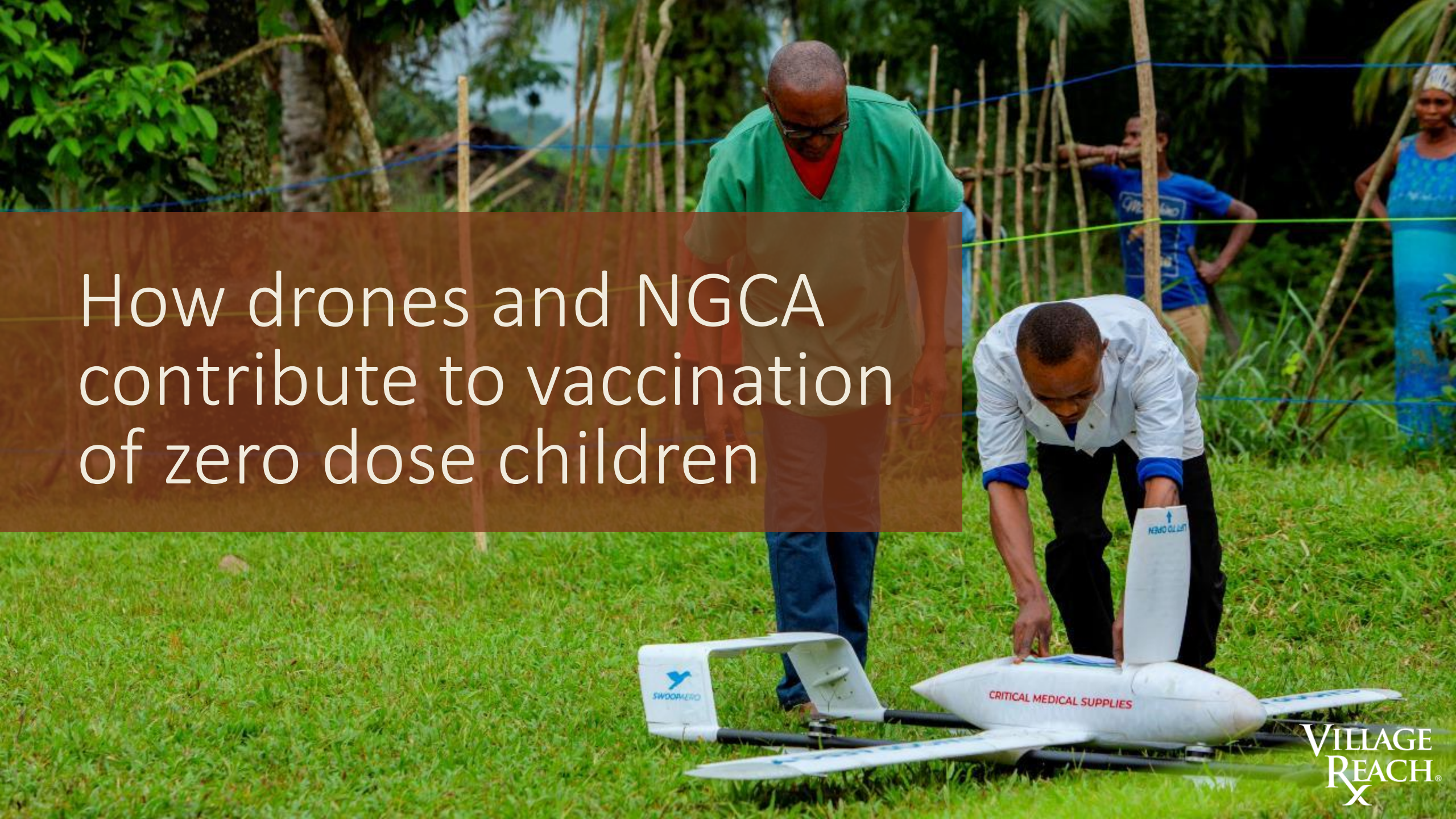


Financement Durable pour le Plan Transition Polio



Transport polio



A man in a white lab coat is loading a white drone with medical supplies in a rural field. The drone has "CRITICAL MEDICAL SUPPLIES" written on its side and "SWOONERO" on the tail. Another man in a green shirt is standing nearby. In the background, there are other people and a fence made of wooden poles and blue string. The scene is outdoors with lush green grass and trees.

How drones and NGCA contribute to vaccination of zero dose children

DRONES POUR LA SANTÉ



LE PLUS GRAND RÉSEAU BIDIRECTIONNEL DE TRANSPORT DES PRODUITS DE SANTÉ PAR DRONE AU MONDE



VACCINS DE ROUTINE
VACCINS CONTRE LA COVID-19
DILUANTS DES VACCINS
SERINGUES
MÉDICAMENTS



ÉCHANTILLONS DE LABORATOIRE:

- COVID-19
- VIH/SIDA
- TUBERCULOSE
- POLIOMYÉLITE
- ROUGEOLE
- FIÈVRE JAUNE



LES ÉQUIPEMENTS DE PROTECTIONS INDIVIDUELLES (EPI)

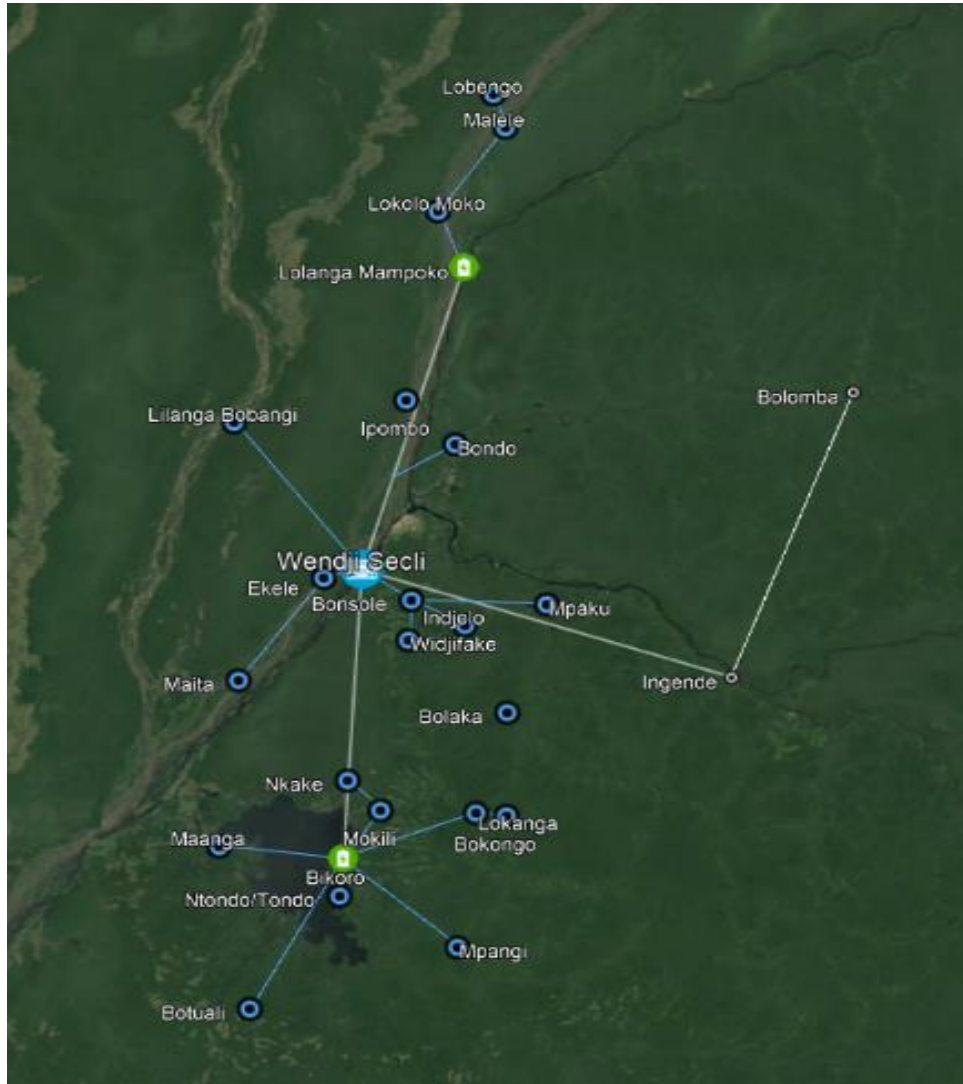


RAPPORTS DES DONNÉES SANITAIRES

Capacités 3kg

Distance 115Km

Drones network transportation



Principal distribution Center at Wendji Secli, 20 km from Mbandaka :

- 2 drone pilotes + 3 drone operators + health care providers

Secondary distribution center at Bikoro et Lolanga-Mampoko:

- 2 drone operators + health care providers

Site for drone batteries recharging at Bolomba et Ingende:

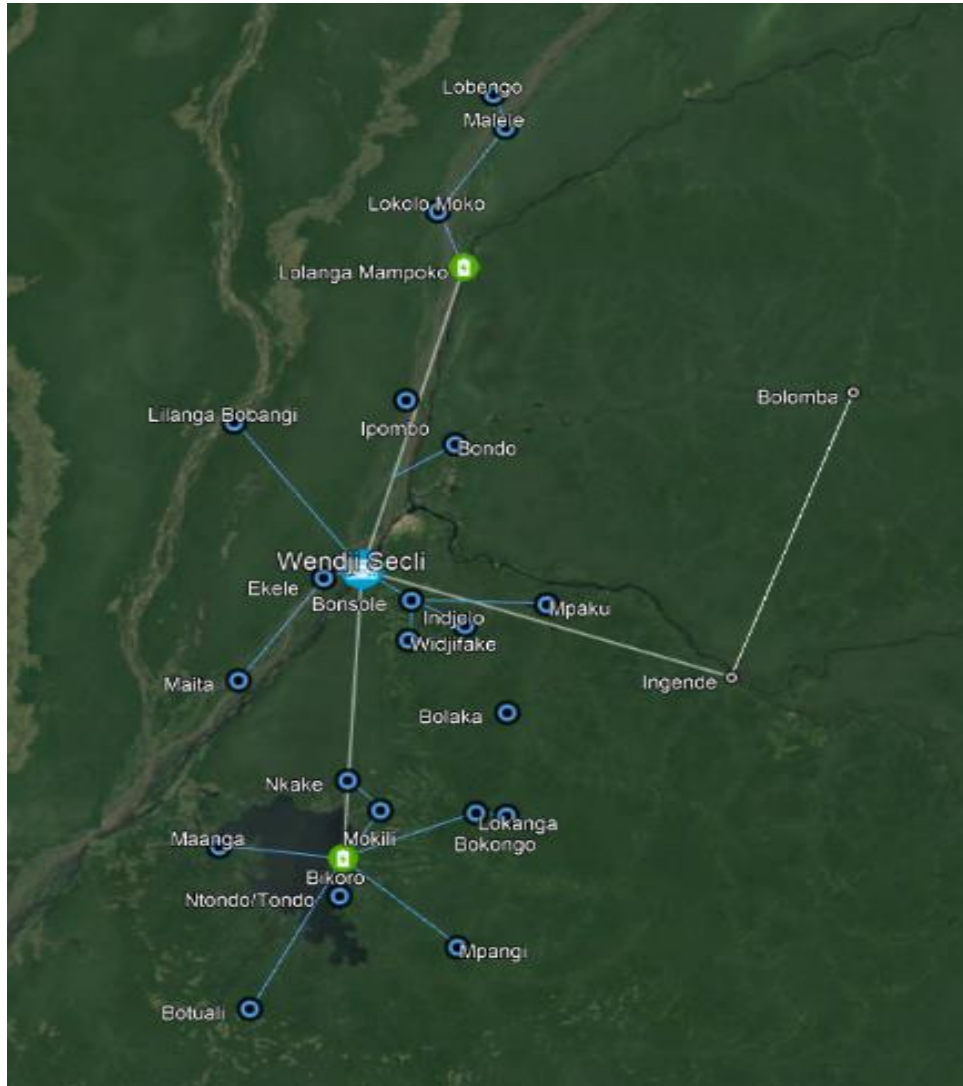
- Health care providers

40 hard-to-reach health facilities (24 drone-landing sites + 16 satellite sites):

- Health care providers

Drone network: 37,445 km square

Drones network transportation



- Flights of 15 min to 1 hour in one direction (110-115 km/hour)
- **Routine** delivery of vaccines and other products
- **On-demand** delivery of vaccines (for sites with a non functioning refrigerator)

Drone network: 37,445 km square

Tracking of ZD and under-vaccinated children

- Drone Working Group meeting : Triangulation of logistic and service delivery data, identification of missed communities (ZD and under-vaccinated children) & development of remediation plan
- Supervision of drone sites drones : Mapping of ZD and Under-vaccinated children and recovery plan involving community health workers
- Timely sharing of logistic and service delivery data to guide decision



Continuity of vaccination session in health facilities with non-functional refrigerators

- On-demand delivery of vaccine by vaccination session in order to reach isolated communities with ZD and under-vaccinated children
- CS Ekele and Bondo were able to maintain vaccination sessions despite frequent breakdowns of their refrigerators TCW 40SDD
- Health area of Maanga could organize yellow fever campaigns in its islands using drones





Vaccination of ZD and under-vaccinated children

- Offers more time to health care providers to organize vaccination session (Fixed-post sites, outreach, re-catchment vaccination session)

« I used to go at Ingende by bicycle at 74km from here to pick up vaccines and come back very exhausted. This caused uncertainty for planning for our fixed-post and outreach vaccination session. Now that we are supplied by drones, we can respect the planning of vaccination sessions and there are no more stockouts »

- On-demand delivery by drone: prevent from stockout in case of over-consumption during vaccination of identified ZD and under-immunized children.

Appui de la Nouvelle Génération de la Chaine d'approvisionnement (NGCA) sur l'identification et l'atteinte de Zeros doses et Sous vaccinés

- 42 Missions of direct distribution of vaccines and other vaccines inputs in the NGCA provinces
- 1208 “Aires de santé” with vaccine storage sites were targeted
- Average vaccine availability rate was 84% in 2022 in the NGCA provinces
- Direct distribution offers substantial advantages : Coaching of health care providers of “AS” on the improvement of the quality of the service delivery and EPI logistic
- On-the-field support of 458 health care providers by the distribution teams (EPI antenna and VillageReach teams) and 2500 health care providers by provincial-level teams of NGCA provinces
- NGCA provinces have been among the top 5 on the global score of Mashako Plan as a results of drastic increase in the availability rate of vaccines and the number of vaccination session (85% on average).



Phase 2 Equateur drone program: Results

30 Dec 2020 – 31 Dec 2022

4,408 flights in 344 days

1,683 product deliveries both ways

1,966 flight hours

198,158 km flown (2-6 drones)



40 health facilities

supplied with immunization products
via 24 drone-landing sites



1,661 kg (volume 6,791 L) delivered

vaccines + lab samples, reports + medicines, PPE



112,995 people directly benefiting from products flown by drone

- . 62,567 children < 1 year
- . 21,699 pregnant women
- . 28,711 people of all ages
- . 18 CHWs



295,143 doses de vaccins*



363 lab samples

79 test results (5 positive)

309 reports + 8 product order forms
15,328 vaccination cards + 100 tally sheets

485 PPE for COVID-19
14 blisters + 16 vials of medicines
102 collection kits for lab samples + 23 other products



* Autres produits transportés par route

Good practices for reaching ZD children in NGCA provinces

Leveraging formative supervision coupled with direct distribution of vaccines in AS with storage sites to identify and vaccinate ZD and under-immunized children:

How we do it:

- Analysis of the data from the vaccination register with the head nurse and other health care providers at the health facility
- Analysis of the delivery register of the AS and data triangulation with the vaccination register
- Documentation of ZD and under-vaccinated children using the Identification sheet specifically developed for the task
- Remediation plan co-created with CHWs and Health Committee president invited during the formative supervision and direct distribution activities.

ZONE DE SANTE DE...
AIRE DE SANTE DE...
FICHE D'IDENTIFICATION DES ZEROS DOSES ET ENFANTS SOUS VACCINES

N°	MOIS / Année	Nom & Post nom	Date de naissance	âge	Adresse	Raison de la non vaccination
1	SEPTEMBRE	KABANDA - JULIEN	02/07/2022	6 mois	Luwala	Voyage
2	NOVEMBRE	KALANDA - JEANETTE	06/08/2022	4 mois	BUSANGA	Absence
3	NOVEMBRE	KIBALA - JOSEPH	17/01/2022	4 mois	BUSANGA	Absence
4	NOVEMBRE	MUPAPA - MUBUBU	16/01/2022	4 mois	IBANSI	HOSPITALISATION
5	NOVEMBRE	KIHATA - SARA	23/01/2022	4 mois	IBANSI	Absence
6	NOVEMBRE	KAHUMBA - ERNES	15/01/2022	5 mois	IBANSI	Absence
7	NOVEMBRE	MUZI - JEAN T	14/01/2022	3 1/2 mois	IBANSI	Voyage au pays
8	NOVEMBRE	MUZINGA - LIL	14/01/2022	3 1/2 mois	IBANSI	Voyage au village
9	NOVEMBRE	MABANDA - MUSIKA	01/01/2022	2 1/2 mois	IBANSI	Absence
10	NOVEMBRE	MKABE - JURY	13/01/2022	2 1/2 mois	Luwala	Absence
11	NOVEMBRE	TUTU - GERARD	01/01/2022	3 1/2 mois	Luwala	Kilanda
12	NOVEMBRE	KIFANDA - ISRAEL	11/01/2022	3 1/2 mois	Makumba	Absence
13	NOVEMBRE	MUKA - SILVIE	01/01/2022	2 mois	IBANSI	Absence - Voyage
14	NOVEMBRE	OSTHANGA - NITO	07/01/2022	2 mois	BUSANGA	HOSPITALISATION
15	NOVEMBRE	MATITI - BUREAS	01/01/2022	3 mois	IBANSI	Voyage
16	NOVEMBRE	MATSHI - JURET	12/01/2022	3 mois	IBANSI	Voyage
17	NOVEMBRE	MUNENGA - KAS	16/01/2022	3 mois	Kisalamakanga	Absence
18	NOVEMBRE	MUKUNGU - LEROI	01/01/2022	3 mois	Mendou	Absence

Fait à... le 30/01/2023

Nom et signature du Recos/Precoresa: NSAKUNGU - KASAY

Nom et signature de l'IT: MUZINGA - LIL

ZONE DE SANTE DE...
AIRE DE SANTE DE...
PLAN DE RECUPERATION DES ZEROS DOSES ET ENFANTS SOUS VACCINES

N°	Nom & Post nom	Antigènes	Adresse	Lieu de la séance de vaccination	Date de la séance de vaccination	Observation
1	KABANDA - JULIEN	Penta 3	Luwala	P.S. Luwala	01/02/2023	
2	KALANDA - JEANETTE	Penta 3	BUSANGA	C.M. AMOUR du PCH/HAU/IBANSI	10/02/2023	
3	KIBALA - JOSEPH	Penta 3	BUSANGA	C.M. AMOUR du PCH/HAU/IBANSI	10/02/2023	
4	MUPAPA - MUBUBU	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
5	KIHATA - SARA	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
6	KAHUMBA - ERNES	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
7	MUZI - JEAN T	Penta 3	KIMBANGA	C.M. LA GRACE	09/02/2023	
8	MUZINGA - LIL	Penta 3	KIMBANGA	C.M. LA GRACE	09/02/2023	
9	MKABE - JURY	Penta 3	Luwala	C.S. MALUNGA	11/02/2023	
10	TUTU - GERARD	Penta 3	Luwala	P.S. Luwala	01/02/2023	
11	MKABE - ISRAEL	Penta 3	MALUNGA	C.S. MALUNGA	01/02/2023	
12	MUKA - SILVIE	Penta 3	KALANDA	C.M. LA GRACE	01/02/2023	
13	OSTHANGA - NITO	Penta 3	KIMBANGA	C.M. LA GRACE	01/02/2023	
14	MATITI - BUREAS	Penta 3	BUSANGA	C.M. AP BUSANGA	10/02/2023	
15	MATSHI - JURET	Penta 3	IBANSI	C.S. MALUNGA	01/02/2023	
16	MUNENGA - KAS	Penta 3	Kisalamakanga	C.S. MALUNGA	01/02/2023	
17	MUKUNGU - LEROI	Penta 3	Kisalamakanga	C.S. MALUNGA	01/02/2023	

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Good practices for reaching ZD children in NGCA provinces

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4	NOVEMBRE	MUPAPA - MUBUBU	16/08/2022	4 mois	IBANSI 1	HOSPITALISATION
5	NOVEMBRE	KIHOTA - SARA	23/05/2022	4 mois	IBANSI 2	absence
6	NOVEMBRE	KUMBO - ERNES	11/01/2022	5 mois	IBANSI 2	absence
7	NOVEMBRE	MUZI - JEAN	11/06/2022	3 1/2 mois	IBANSI 1	voyage à l'étranger
8	NOVEMBRE	MUZINGA - LIL	10/09/2022	3 1/2 mois	IBANSI 1	voyage au village
9	NOVEMBRE	MUBANDA - MUSIKA	01/01/2022	2 1/2 mois	IBANSI 1	absence
10	NOVEMBRE	MUKOJE - JURY	10/11/2022	2 1/2 mois	Luwala	absence
11	NOVEMBRE	TUTU - CARINE	01/09/2022	3 1/2 mois	Luwala	KALANDA
12	NOVEMBRE	KIFANDA - ISRAEL	11/01/2022	3 1/2 mois	MALUNGA	absence
13	NOVEMBRE	MUKA - SYLVIE	05/11/2022	2 mois	IBANSI 1	absence - voyage
14	NOVEMBRE	OSTHIANGA - MUYU	07/11/2022	2 mois	BUSANGA 2	absence - voyage
15	NOVEMBRE	MATITI - BORGAS	11/11/2022	3 mois	IBANSI 1	HOSPITALISATION
16	NOVEMBRE	MATSHI - JURE	11/11/2022	3 mois	IBANSI 1	voyage
17	NOVEMBRE	MINKANGA - KAS	16/11/2022	3 mois	Kisalamakanga	absence
18	NOVEMBRE	MUKUNGU - LERO	21/11/2022	3 mois	Manduku	absence

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3	KIBANDA - JOSEPH	Penta 3	BUSANGA	C.M. AMOUR du PROCHAIN (BSE)	10/02/2023	
4	MUPAPA - MUBUBU	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
5	KIHOTA - SARA	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
6	KUMBO - ERNES	Penta 3	Kimbanga IBANSI	H.S. Kimbanga	20/02/2023	
7	MUZI - JEAN	Penta 3	KIMBANGA	C.M. LAGRACE	09/02/2023	
8	MUZINGA - LIL	Penta 3	KIMBANGA	C.M. LAGRACE	09/02/2023	
9	MUBANDA - MUSIKA	Penta 3	Luwala	P.S. Luwala	11/11/2023	
10	MUKOJE - JURY	Penta 3	Luwala	P.S. Luwala	21/02/2023	
11	TUTU - CARINE	Penta 3	MALUNGA	C.S. MALUNGA	21/02/2023	
12	KIFANDA - ISRAEL	Penta 3	MALUNGA	C.M. LAGRACE	07/02/2023	
13	MUKA - SYLVIE	Penta 3	BUSANGA 2	C.M. AP BUSANGA 2	10/02/2023	
14	OSTHIANGA - MUYU	Penta 3	KIMBANGA	C.M. LAGRACE	10/02/2023	
15	MATITI - BORGAS	Penta 3	BUSANGA 2	C.M. AP BUSANGA 2	10/02/2023	
16	MATSHI - JURE	Penta 3	IBANSI	C.S. MALUNGA	21/02/2023	
17	MINKANGA - KAS	Penta 3	Kisalamakanga	C.S. MALUNGA	21/02/2023	
18	MUKUNGU - LERO	Penta 3	Kisalamakanga	C.S. MALUNGA	21/02/2023	

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	Number of ZD identified	Number of ZD vaccinated	%
Sankuru (16ZS)	4110	2656	64.4
Kwilu (24ZS)	6519	4338	66.5
Maindombe (14ZS)	7267	3085	42.5



Merci

Immunization supply chains contribution to coverage, Equity and Zero dose In Nigeria

Pharm. Hauwa Tense-*Director Logistics and
Health Commodities, NPHCDA Nigeria.*

Dr. Ahmad Isah Muhammad-*Health Specialist,
UNICEF CO, Nigeria.*



Outline

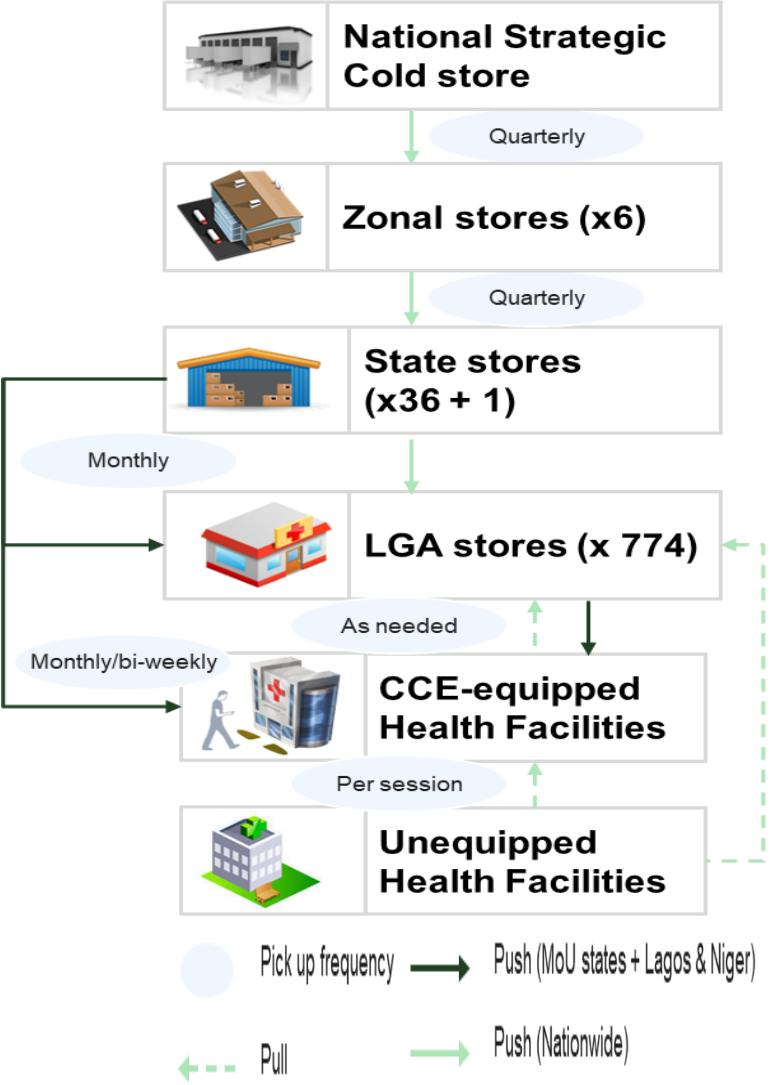
- Nigeria Country iSC Profile and indicators
- Zero Dose Targeted Areas System Design Analyses in favor of coverage equity and ZD reduction
- Stock Management
- Cold Chain Expansion and ward CCE saturation



Nigeria has a 5-tier immunisation supply chain Level



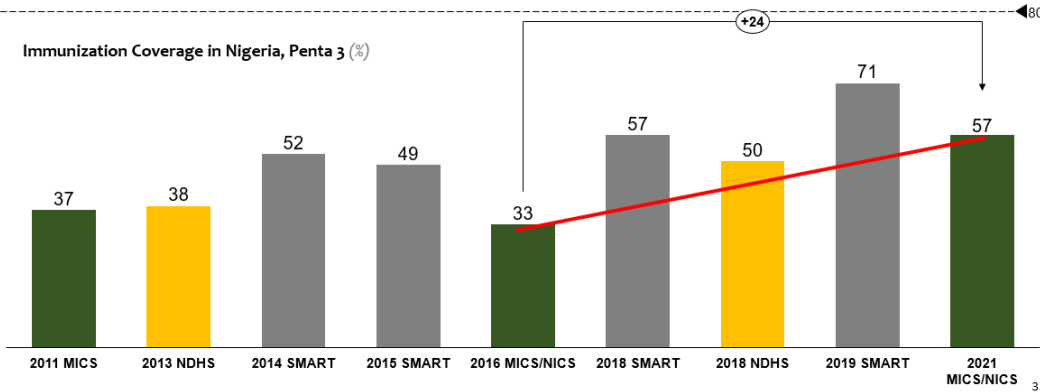
Figure1: Location of National and Zonal stores



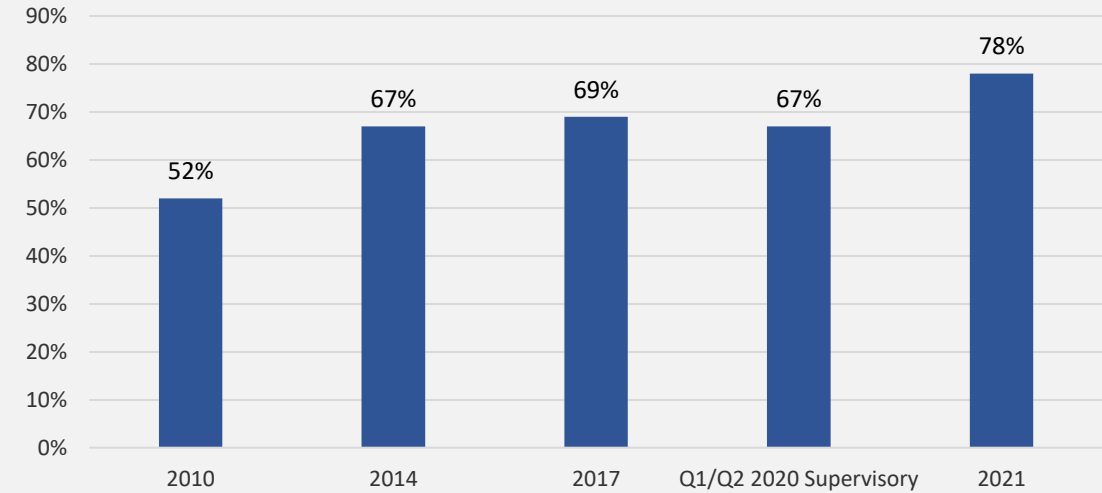
Nigeria has improved in both EVMA scores and Systems Indicators in 2021/2022

Nigeria's immunization coverage has been poor and fluctuating significantly over the last decade, however significant improvement has occurred from 2016 to 2021

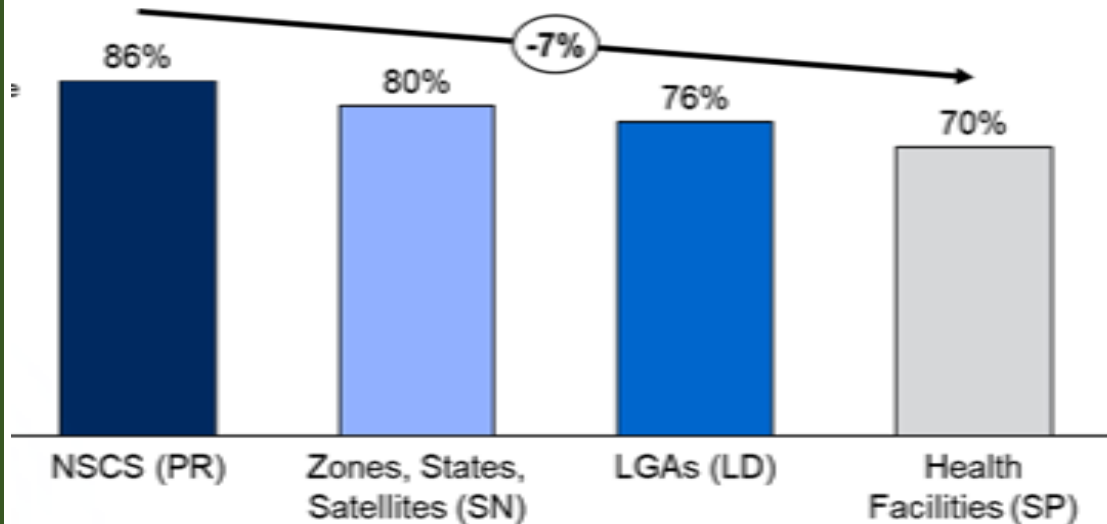
Immunization Coverage in Nigeria, Penta 3 (%)



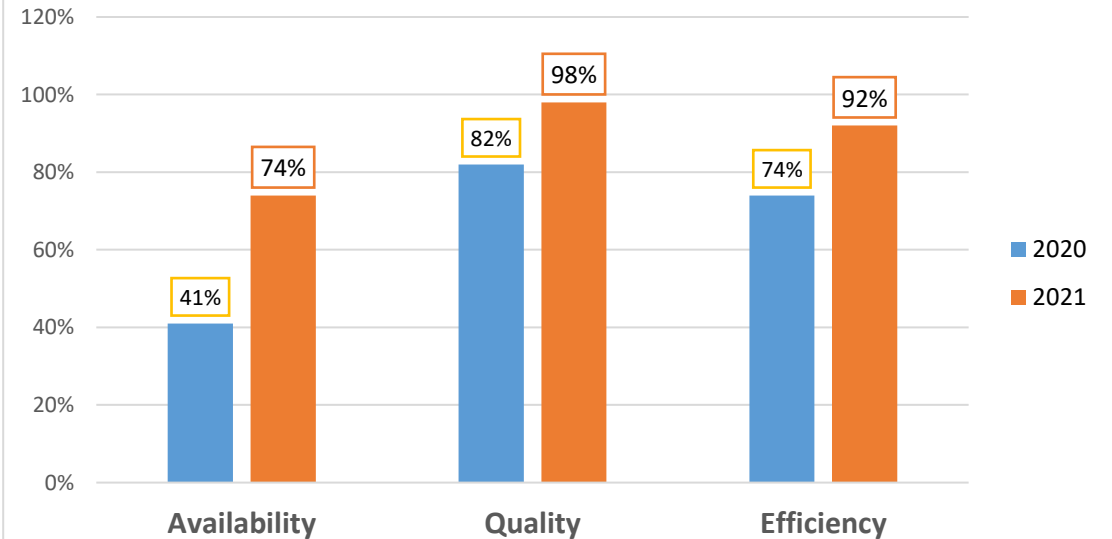
EVMA Scores 2010-2021



Scores by supply chain levels



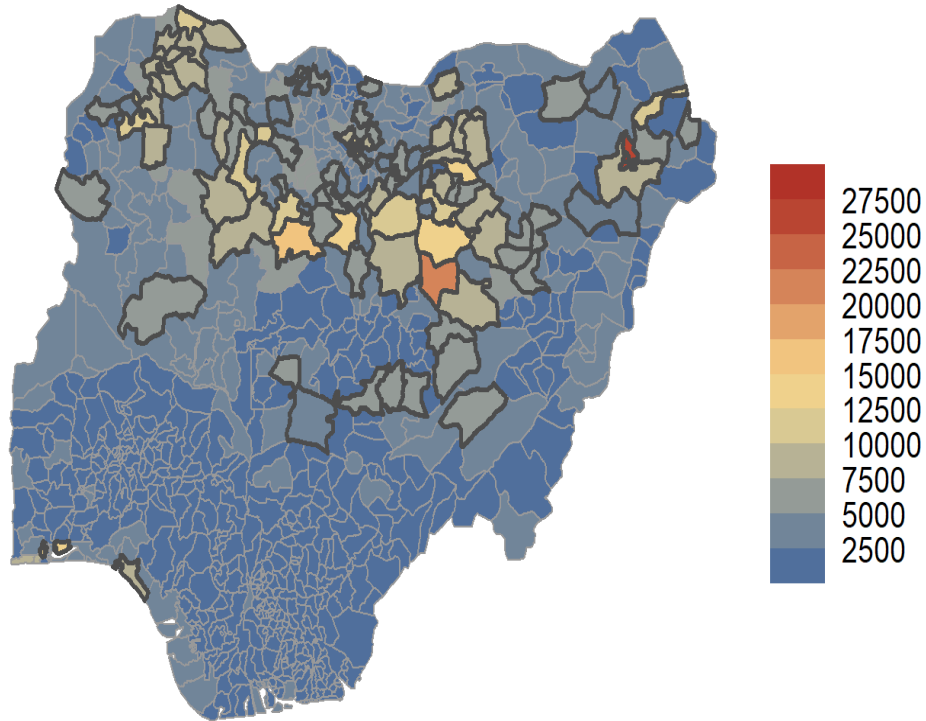
Immunization Supply Chain System Indicators



• Nigeria is targeting 100 LGAs for ZD reduction

Targeting 100 LGAs - Combined NPSIA (Top 50%)

Zero dose in 2021



Source: MICS/NICS 2021 & Combined NPSIA data.
Targeted districts highlighted in black.

National ZD would be reduced by 30% in this pathway.

18 states targeted (# districts targeted within each state):

Kano (15), Bauchi (13), Sokoto (13), Kaduna (10), Borno (8), Katsina (8), Jigawa (6), Zamfara (6), Gombe (4), Plateau (4), Kebbi (3), Lagos (2), Nasarawa (2), Yobe (2), Fct (1), Niger (1), Ondo (1), Taraba (1)

Criteria

- Unimmunized with Penta 1
- Unimmunized with Penta 3
- Unimmunized with MCV1
- cVPV2 Outbreak
- cVPV2 Breakthrough
- Measles Outbreak
- LQAS Failure

Pathway details

In non-targeted areas, past trends are assumed to continue through 2025. In targeted LGAs, it is assumed that 70% will reduce zero-dose by 15% in 2023, 75% will reduce zero-dose by 15% in 2024, and 80% will reduce zero-dose by 15% in 2025.

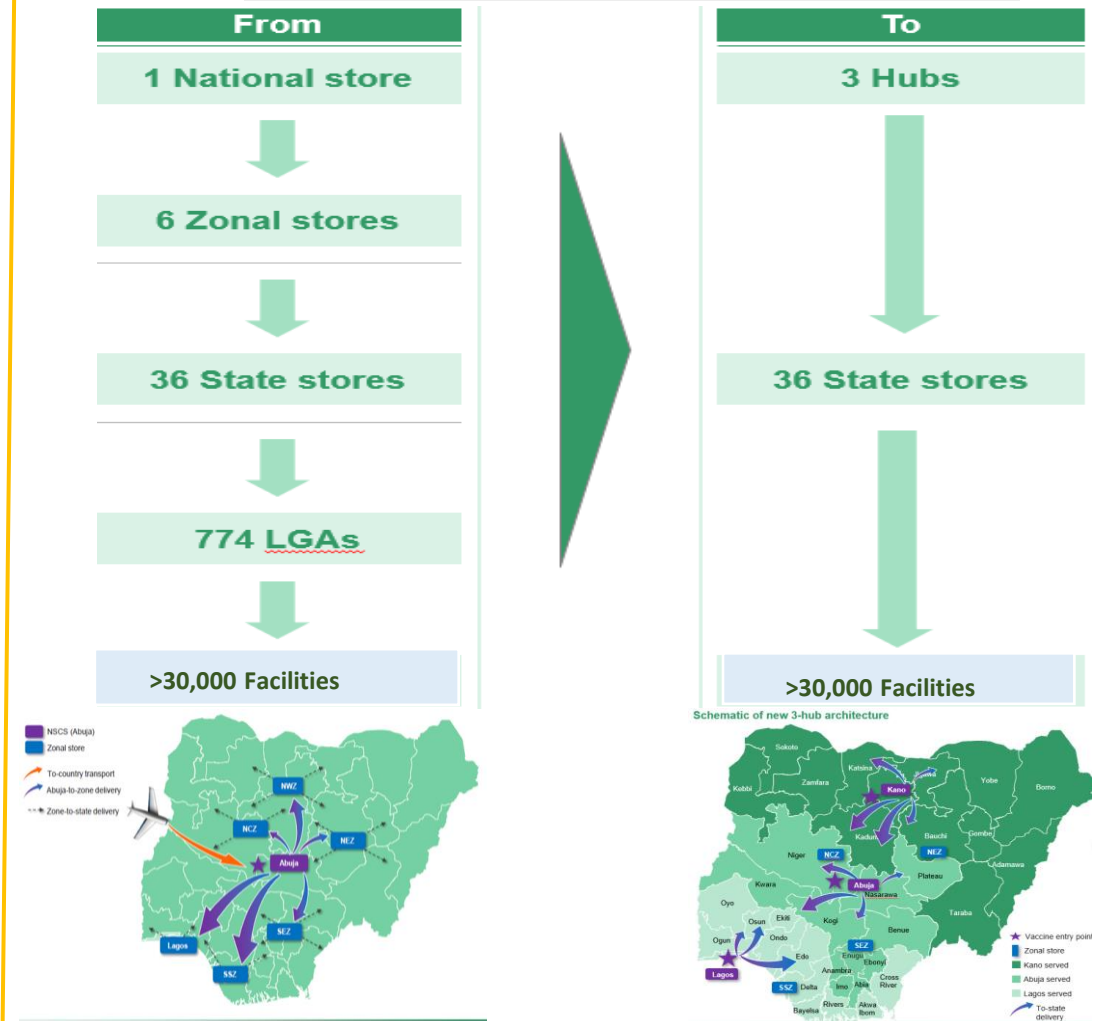
System Design and Last Mile Vaccine Delivery



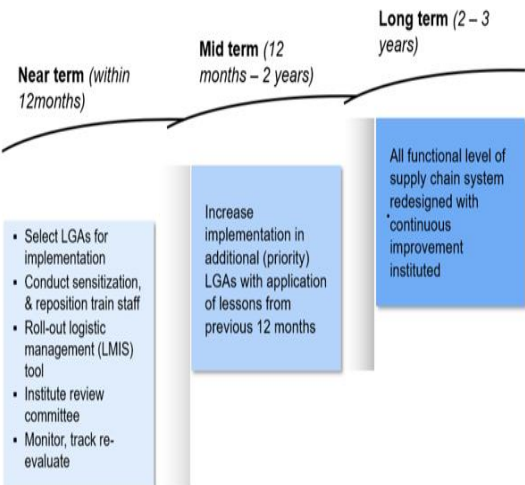
The challenges of inadequate storage space at national level and inefficient distribution at the last mile are being addressed through structural and process redesign

- Outsourced distribution of vaccines and devices from National Strategic Cold Store (NSCS) to 6 zonal cold stores and 36+1 state
- Direct vaccine delivery using either outsourced or insourced models, from state/state-satellite cold stores to equipped apex facilities, in 8 states
- Finalized immunization supply chain system design analysis in 10 states (Gombe, Taraba, Jigawa, Katsina, Niger, Bayelsa, Kano, Kebbi, Lagos, Zamfara). Implementation plan being developed.
- Planning to commence the implementation of DRIVE initiative to ensure availability of vaccines at the last mile
- Ensuring vaccine availability in security compromised areas (e.g. Borno, Yobe)
 - Collaboration with the military.
 - Use of Arktek devices
 - Use of indigo
- Use of Drones to deliver health products including vaccines in selected areas with security challenges and difficult terrain in Kaduna state.

Infrastructural redesign: 3 Hubs

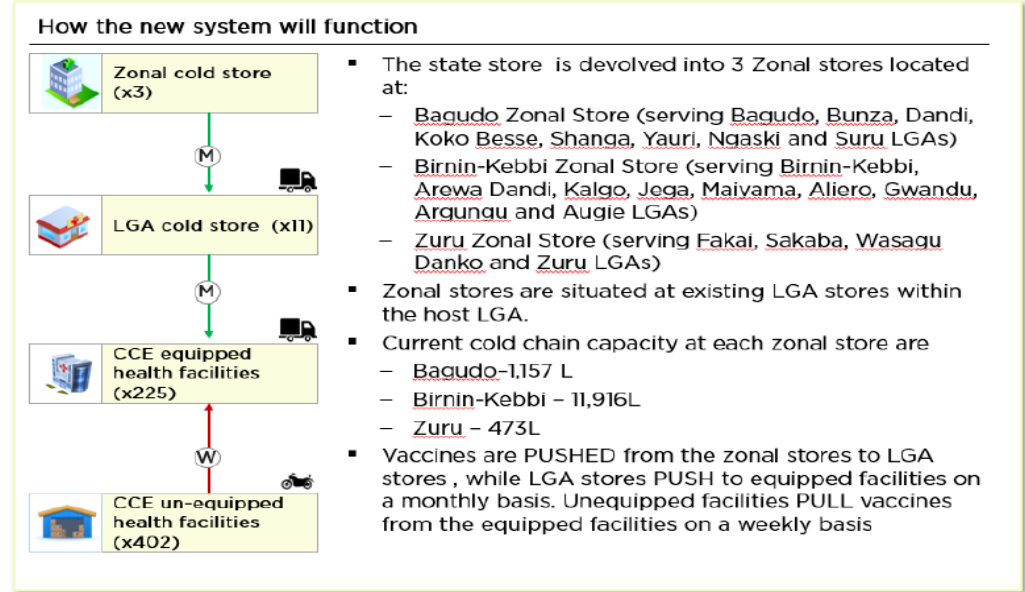


System Design analysis in 10 Nigeria's states to improve sufficiency of vaccines at service points and increase efficiency of the system

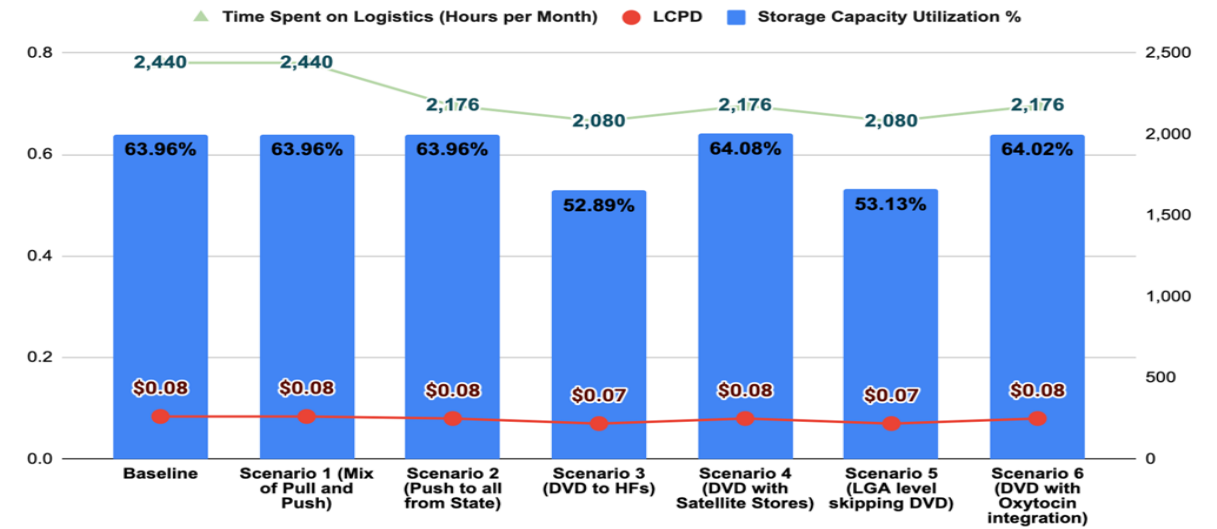


ITEM	DESCRIPTION	RESPONSIBLE	ACCOUNTABLE	INITIAL	PLANNED	START	END	STATUS
Equipment								
11	Logistics planning meeting	State Health	State Health					
12	Meeting with state management team	State Health	State Health					
13	Sensitization meeting with State COO, LGA COO, AHP CO	State Health	State Health					
14	Inventory of AHP or vaccine management	State Health	State Health					
Verification & Field Site Selection								
21	Field site selection	State Health	State Health					
22	Integration Meeting	LGA COO	State Health					
23	Verify vaccine health facilities per wards	LGA COO	State Health					
24	Review storage capacity	State Health	State Health					
Plan								
31	State Health Distribution	State Health	State Health					
32	Stock Reporting	State Health	State Health					
34	State Health Distribution	State Health	State Health					
38	Monitoring and Evaluation of Field Sites	State Health	State Health					
41	Supervision & Evaluation of Field Sites	State Health	State Health					
Implement								
41	Health Facility Verification & Reporting to State	State Health	State Health					
42	Implementation and distribution of equipment to AHP	State Health	State Health					
43	Push to cascade health facilities	State Health	State Health					
44	Verification of integration in health facilities	State Health	State Health					
45	Distribution of vaccine health facilities to health facilities	State Health	State Health					
46	Monitoring and Evaluation of Field Sites	State Health	State Health					
47	Supervision & Evaluation of Field Sites	State Health	State Health					
48	Decision to State CO or State Health	State Health	State Health					

SCENARIO 2: ZONAL STORES PUSHING MONTHLY TO LGAS, LGAS PUSH TO EQUIPPED FACILITIES Summary of scenario functionality and assumptions



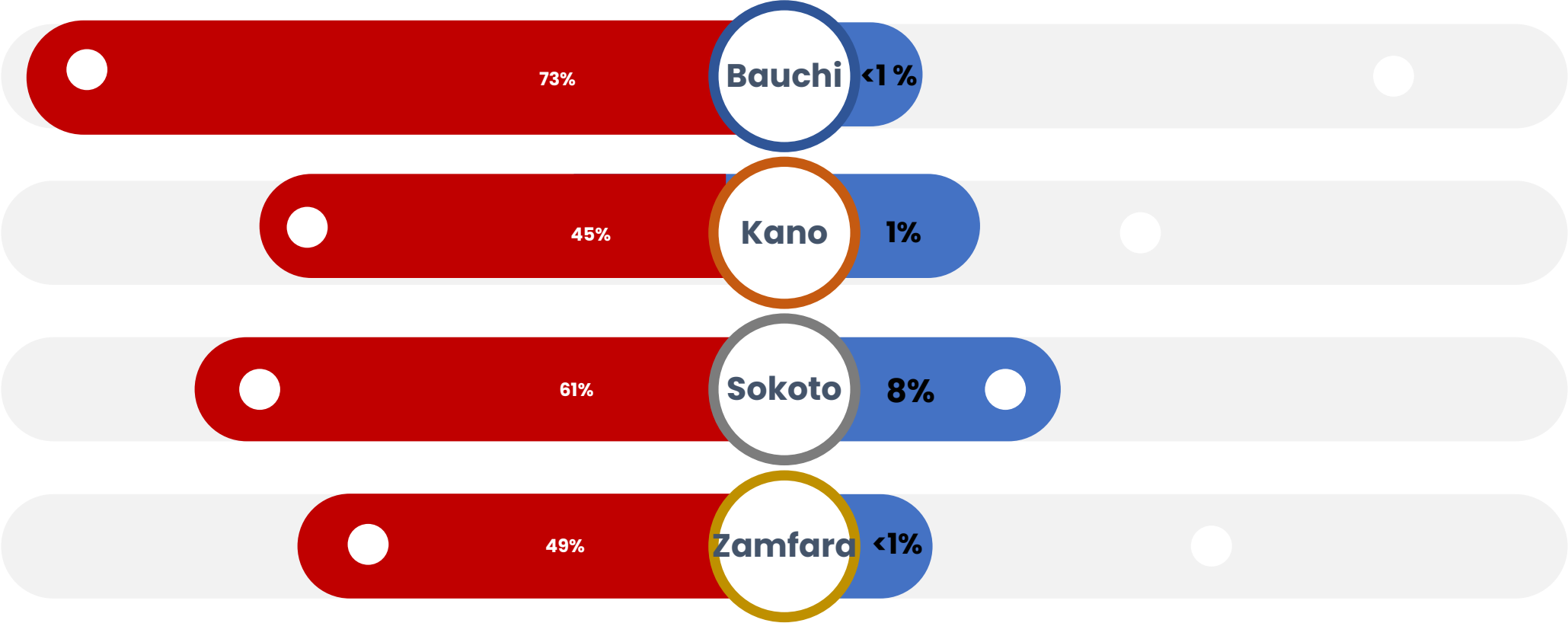
Jigawa State iSC System Design Analysis Summary



Learning from the experience of last mile delivery in 4 states

Stock out rate Before last mile delivery

Stock out after last mile delivery



● Before DVD

● Before DVD

Pre-Commercial Indigo System Deployment in Borno State

- The Pre-commercial Indigo was initially deployed to support interventions such as **Reach Every Settlement (RES), Reach Inaccessible Children (RIC), and Routine Immunization Program (Fixed session, outreach session and mobile Hard to reach and Nomadic to demonstrate the potential impact of extended outreach solutions**
- Indigo deployment now targets Zero-Dose settlements within 8 Zero dose prioritized LGAs with an initial 25 Health Facilities.



- Borno State and New Horizons signed an **Indigo deployment MOU** effective November 2019 through December 2022 which was extended in January 2023 to June 2023.

- **Indigo capabilities are uniquely suited for challenging conditions in Borno such as:**

- Challenging ice logistics and minimal ice infrastructure
- High security risk: multiple days of cold-hold performance would reduce required travel-&-exposures for vaccination teams

Performance Indicator	Without Indigo (2020)	With Indigo (2021)	With Indigo (Jan - Oct 2022)	Change 2020 Vs 2021
# of cold days/health facility/month	8 days	28 days	28 days	+20 days
Annual Travel Costs	USD \$16,253.94	USD \$6,410.97	USD	-61%
Total # of children vaccinated	31,131	67,502	54,598	+117%
Average # of vaccine collection trips per month	16	6	6	-78%

Comparative data for 2020 and 2021 was used to evaluate changes in vaccination capacity and related costs for delivery.

Use of Drones: Kaduna state delivers over 370,000 doses of vaccines to poor terrain and security compromised areas as of January 2023

Number of deliveries
13,508

RI Vaccines delivered
224,778

Covid-19 Vaccines Delivered
154,305



Spot map showing location of deliveries. Credit, KDHSMA






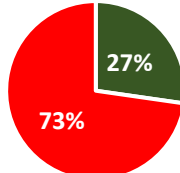
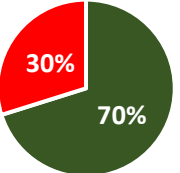
Photo credit: Reuters and sunnews online

- Kaduna state commenced delivery of health products using drones in August 2022.
- All LGAs are being planned, but currently selected settlements in 12 LGAs are being served from Pambegua distribution center while other 2 centers are being constructed
- Delivery locations have been selected based on terrain and security challenges as these are critical barriers to coverage and equity of health services including immunization (Zero dose).

Stock Management to ensure
Improved Coverage, Equity and ZD
Reduction (VMS Support)



Nigeria has deployed Open LMIS with LGA level utilization of up to 70%

Cold Store	Performance	Utilised	Non-Utilised	Comments	
National Strategic Cold Store		1	0	States with 100% Utilization from Go-Live	
Zonal Cold Store		6	0	Nasarawa	Ekiti
State Cold Store		37	0	Plateau	Abia
				Adamawa	Edo
				Gombe	
Satellite Cold Store 27%		6	16	<ul style="list-style-type: none"> NW - 10 NE - 6 	
LGA Cold Store 70%		543	231	<ul style="list-style-type: none"> NW - 45 NC - 33 NE - 20 	<ul style="list-style-type: none"> SW - 45 SS - 44 SE - 44

Thrive 360 progress in Nigeria

Not yet

Done/in progress

VMSs Recruited



VSLs/VMS monthly stock reporting for thrive 360



NLWG engagement on Thrive 360 use



In country engagement with HISP to align on Thrive 360 linkage with DHIS2 (Work planning)



Achieving thrive 360, open LMIS on DHIS2 for effective data for decision making



Establishment of national and subnational control towers and build subnational capacities for effective utilization



- NLWG oriented on thrive 360 predictive analytics
- VMS monthly reports feeding into thrive 360
- In-country discussion with HISP to align on thrive 360 linkage with DHIS2 and fast track open LMIS-DHIS2 integration

Thrive 360

RI Vaccines Stock and Consumption

Total Number of countries reported in 2022 63

Number of countries reported this month 1

Number of GAVI-Supported countries reported 1

UNICEF Region: All

Level: Select all, District, National, Regional

Strategy: Select all, Campaign, COVID-19

WHO Region: All

Disclaimer
Considering the reporting timelines, the data is not live and should not be interpreted as such. Global partners utilizing the data are reminded that the data has already passed through the regional offices of WHO and UNICEF and discussions have taken place with countries on stock

Overstocks (>9 months)
2

Adequate (2-9 months)
5

Understock (0.1 - 2 months)
1

Stockouts (Zero Stock)
(Blank)

Overall Stock Situation

Category	Percentage
Adequate (2-9)	45.5%
Overstock (>9)	27.3%
Understock (0.1-2)	27.3%

NIGERIA

Regions shown: Kano, Kaduna, Maiduguri, Ilorin, Abuja, Makurdi, Ibadan, Ogbomosho, Enugu, Ikeja, Porto-Novo, Warri, Port Harcourt, Aba, Malabo, Yaoundé.

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov

Click on month above to display data

Stock adequacy by month

Country	BCG	Penta	bOPV	IPV	TT/Td	MCV/MR/MMR	PCV	Rota	YF	HepB	MenA
Nigeria	3.4	13.4	4.1	16.9	0.9	16.9	2.5	0.6	6.6	0.1	7.5

STOCK REPORTING IN 100 TARGETED ZERO DOSE LGA

774
LGAs

LGAs reporting on LMIS

70%



774
LGAs

LGAs commenced reporting for Thrive 360

45%



100
LGAs

ZD LGAs reporting on LMIS

51%



100
LGAs

ZD LGA commenced reporting in January 2023 for Thrive 360

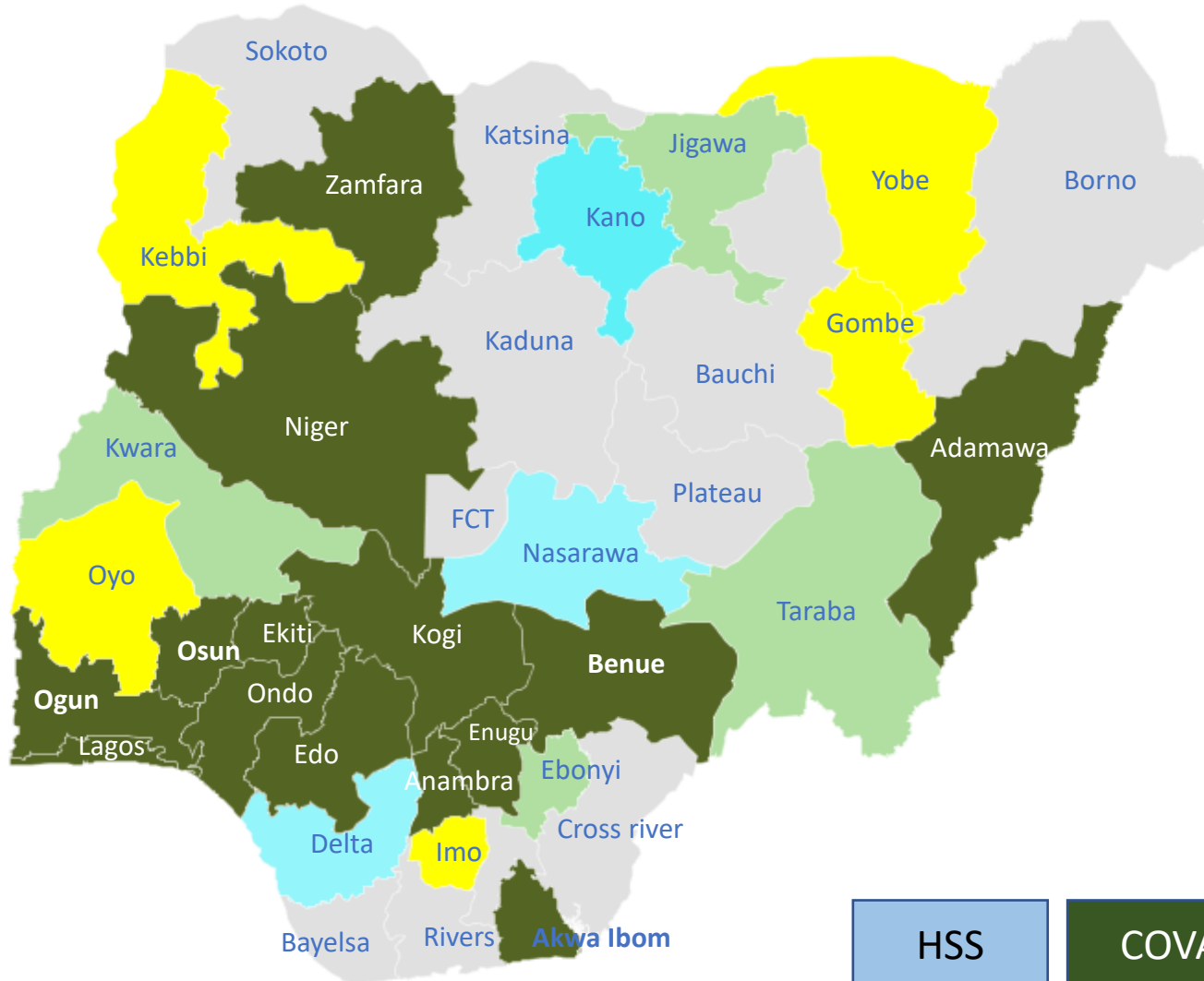
36%



Cold Chain Expansion for Equity and Coverage



Cold Chain Expansion at National, Zonal and State levels

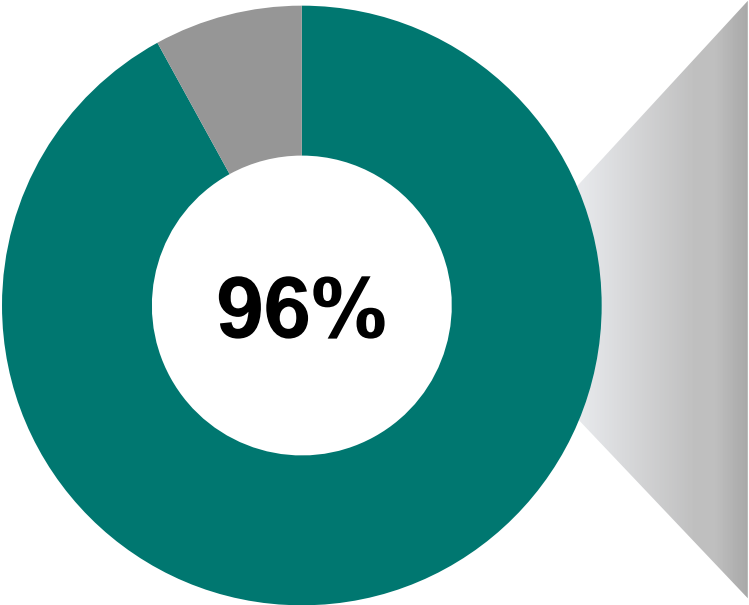


About 32 WICRs and 6 WIFRs have been deployed to zones and states based on gap analyses

- Deployment of WICR equipment to the National Strategic Cold Store, 6 Zonal Stores and 23 States Cold Stores
 - 4 WICRs procured through HSS project were installed in Q1 2022
 - 14 WICRs procured through COVAX installed in between Q3 and Q4 2022
 - 14 WICR installed in all the 6 Zonal stores as follows (NWZ-4, SWZ-2, SEZ-2, NCZ-2, NEZ-2, SSZ-2)
 - 6 WIFRs procured through GoJ installed in Q3 2022 in Taraba, Kano, Lago, Nasarawa, Delta and Ogun
 - *WICR procured through ECHO project will be installed by Q1 2023 in Imo, Kebbi, Gombe, Oyo and Yobe

Nigeria's current SDD saturation is at 96% with 9182 of the 9565 wards in the country achieving the main objective of at least 1 SDD per ward to ensure coverage and equity in vaccine availability

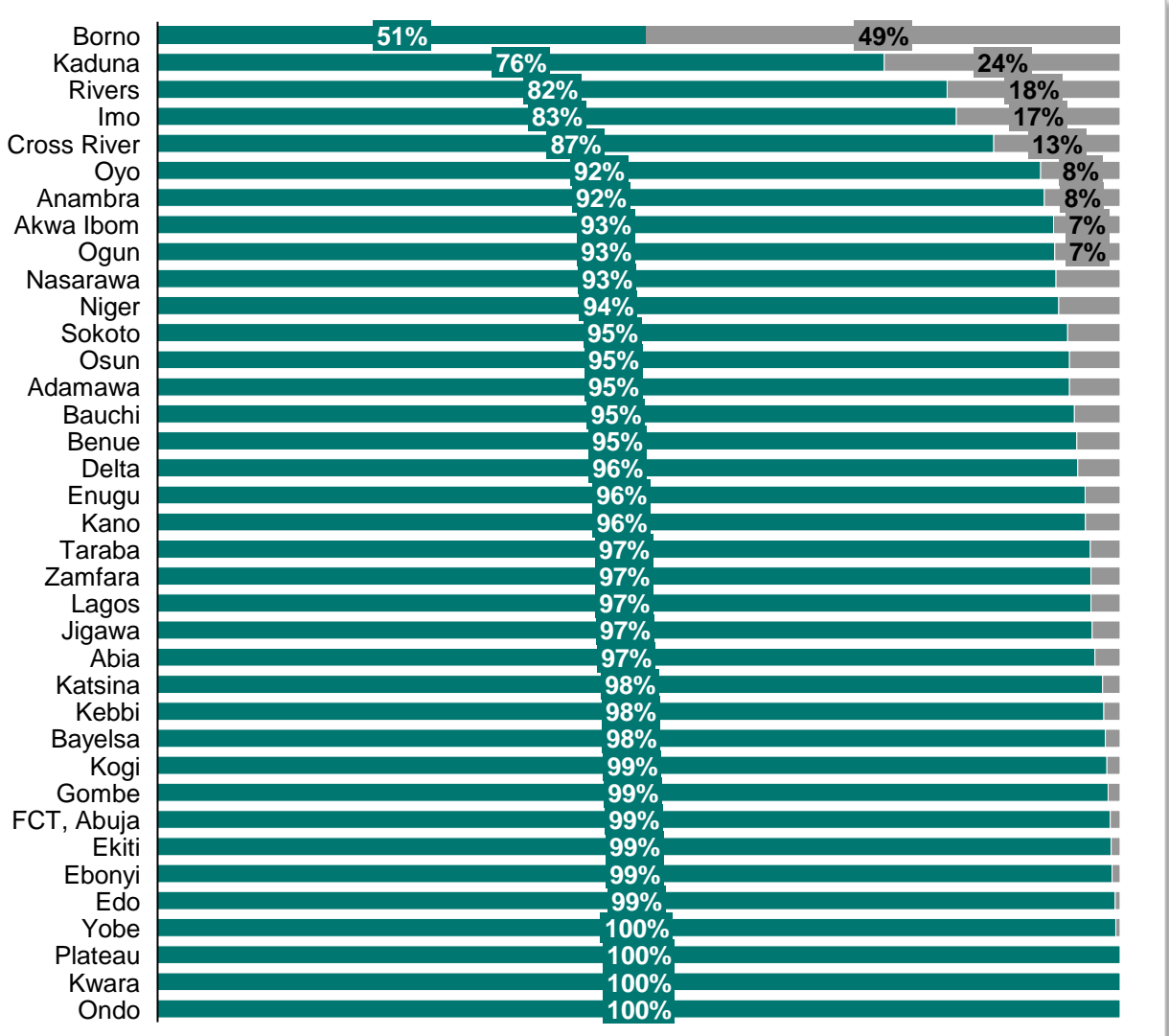
Proportion of CCE ward saturation in the country (%)



■ Wards with CCE
 ■ Wards without CCE

- The country has obtained CCEs through the CCEOP project, donations from the Government of Japan and ECHO project
- Although 437 wards with unequipped CCEs across the country, 0.5% (47) sites do not have a functional government health facility and 2% (170) sites are currently inaccessible due to security compromise.
- However, the CCEOP shortfall is being bridged with the procurement of 205 CCEs, through GoJ CCE support and 57 CCEs procured through ECHO grant through UNICEF.
- All unequipped secure wards with health facilities are prioritized in ongoing CCE installations in the country

Proportion of CCE ward saturation aggregated by state (%)



Way forward

- Institute monitoring mechanism for tracking progress in ZD reduction following the implementation of key activities
- Fast track the implementation of 3-hub project to ensure sufficiency of storage capacity at national level.
- Scale up last mile delivery in targeted LGAs using DRIVE initiative
- Improve stock reporting in ZD LGAs and fast track LMIS/Thrive 360 interoperation with DHIS2
- Scale up innovative strategies of vaccine deliveries in HTR, security compromised using Drones, long range fast CCEs
- Sustain the gains of CCE ward saturation and ensure continuous maintenance and replacement

Immunization supply chains contribution to coverage, Equity and Zero dose In Pakistan

Dr Zafar Iqbal Channa- *Director Technical,
Federal Directorate of Immunization, Pakistan.*

Naeem Asghar- *Immunization Specialist, UNICEF
Pakistan.*



CCEOP Deployment (2023-2025) through GAVI FPP Window

Country Team Pakistan

CCE Key Drivers

- Equitable Distribution of CCE based on gap analysis and requirement of provinces to increase EPI service points in Public and Private Sector to reach zero dose children
- Standardization of equipment in the country
 - For ease of maintenance/management
 - Limiting CCE selection to only 2 manufacturers
 - Warranty provided by equipment manufacturers
 - ✓ B/Medical (SDDs -10yrs, ILR – 5 years)
- Other Country preference

Total CCE Distribution

Provinces	Haier		B/Medical		Total
	ILR	SDD	ILR	SDD	
AJK	169	6	4	121	300
Balochistan	0	12	54	487	553
Islamabad	11	-	2	-	13
GB	133	46	40	25	244
KPK	109	197	134	151	591
Punjab	1,065	109	259	1	1,434
Sindh	176	586	3	528	1,293
Total	1,663	956	496	1,313	4,428

Note:

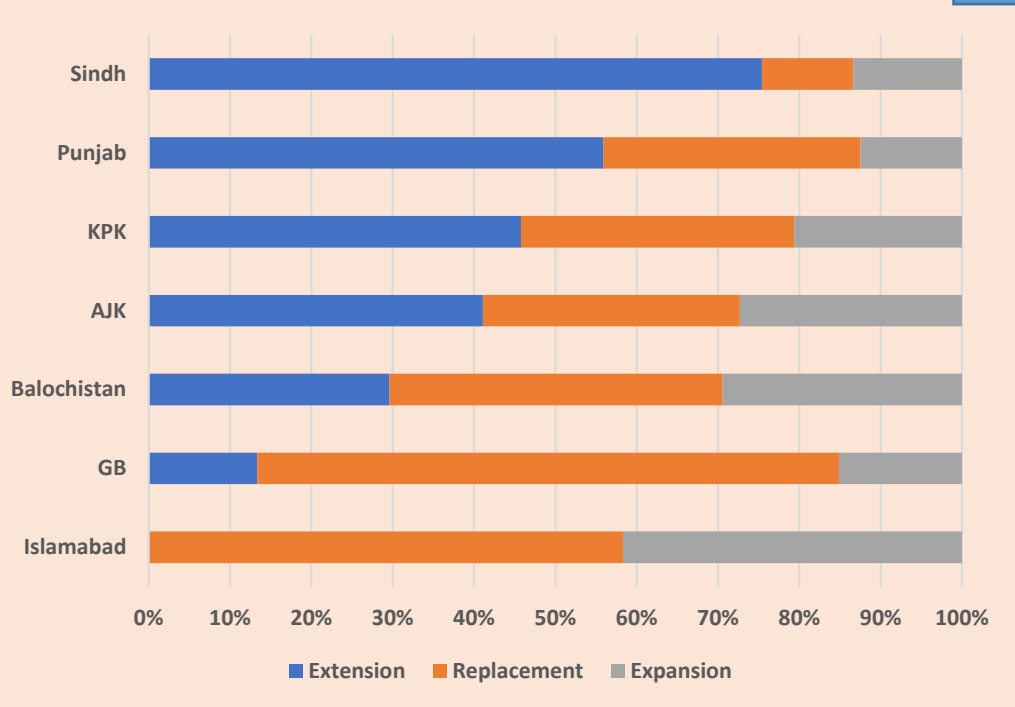
Hours of electricity availability is what determined the type of CCE, SDD or ILR)

B/Medical = 1,809 (41%)

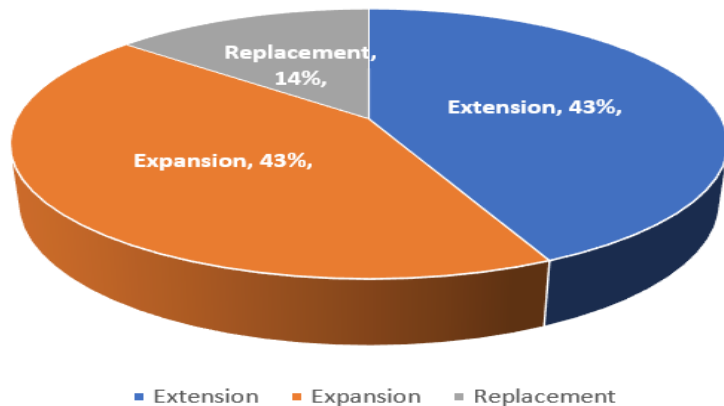
Haier = 2,619 (59%)

CCE Deployment

Proportion of Type of Deployment by Province



Types of Deployment



Provinces	Haier		B/Medical		Total
	ILR	SDD	ILR	SDD	
AJK	169	6	4	121	300
Balochistan	0	12	54	487	553
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- **Extension** = New facilities planned by provinces in the next year & beyond
- **Replacement** = 1. Obsolete CCE (F & NF) in inventory
2. Identified gaps in locations that are replaced with combo ILR/SDDs to make up for freezing for Polio
- **Expansion** = Existing private/govt new facilities that would require CCE & facilities that require additional CCE

CCE Prioritization to Address Zero Dose

The intervention is divided into Expansion (45%), Extension (43%) and replacement (14%).

- Expansion and Extension (86%) would be addressing the zero dose reduction directly & indirectly.
- Planned construction of about 1,200 facilities in underserved population
- Over 1,400 private facilities to be equipped through extension of CCE
- **59% (2,600) of total CCE** would directly be targeting the reduction of zero dose

Province	# of location	Expansion	Extension	Replacement	Total
AJK	299	95	130	75	300
Balochistan	541	240	154	159	553
Capital Territory	13	7	1	5	13
Gilgit-Baltistan	243	165	31	48	244
KPK	577	400	142	49	591
Punjab	1403	549	720	165	1434
Sindh	1219	434	731	128	1293
Total	4,295	1,890	1,909	629	4,428
Proportion		43%	43%	14%	100%

Pakistan EPI Supply Chain Design Project Overview



A high-performing supply chain is needed to ensure life-saving vaccines reach all Pakistani children

- Pakistan procures PKR 16.6B (\$151M) in vaccines annually
- Changes to the supply chain design can help increase:
 - Efficiency
 - Potency
 - Availability
 - Equity
- System design is one of five focus areas to help Pakistan reach 80% Effective Vaccine Management score by 2024 (from 74% in 2019)
- A strong immunization supply chain can be used – over time – to support the delivery of other health products in hard-to-reach areas, and enable universal health coverage

Modelling is helping to determine the impact of potential changes



Risk

- # of handling points
- Distance products travel in-country
 - Total
 - Inbound resupply to district store
 - Ave distance to EPI center



Cost

- Logistics costs, including:
 - Transportation costs
 - Fixed/operating costs
 - Inventory value



Storage






- Utilization (%) of storage capacity of:
 - Cold storage (2-8 degrees)
 - Freezers
 - Dry storage



Equity

- Metrics compared at district level:
 - Liters of CCE per FIC
 - Inbound resupply distance of vaccines to district store
 - Average resupply distance of vaccines to EPI Centers

Recommendations to positively impact the EPI supply chain

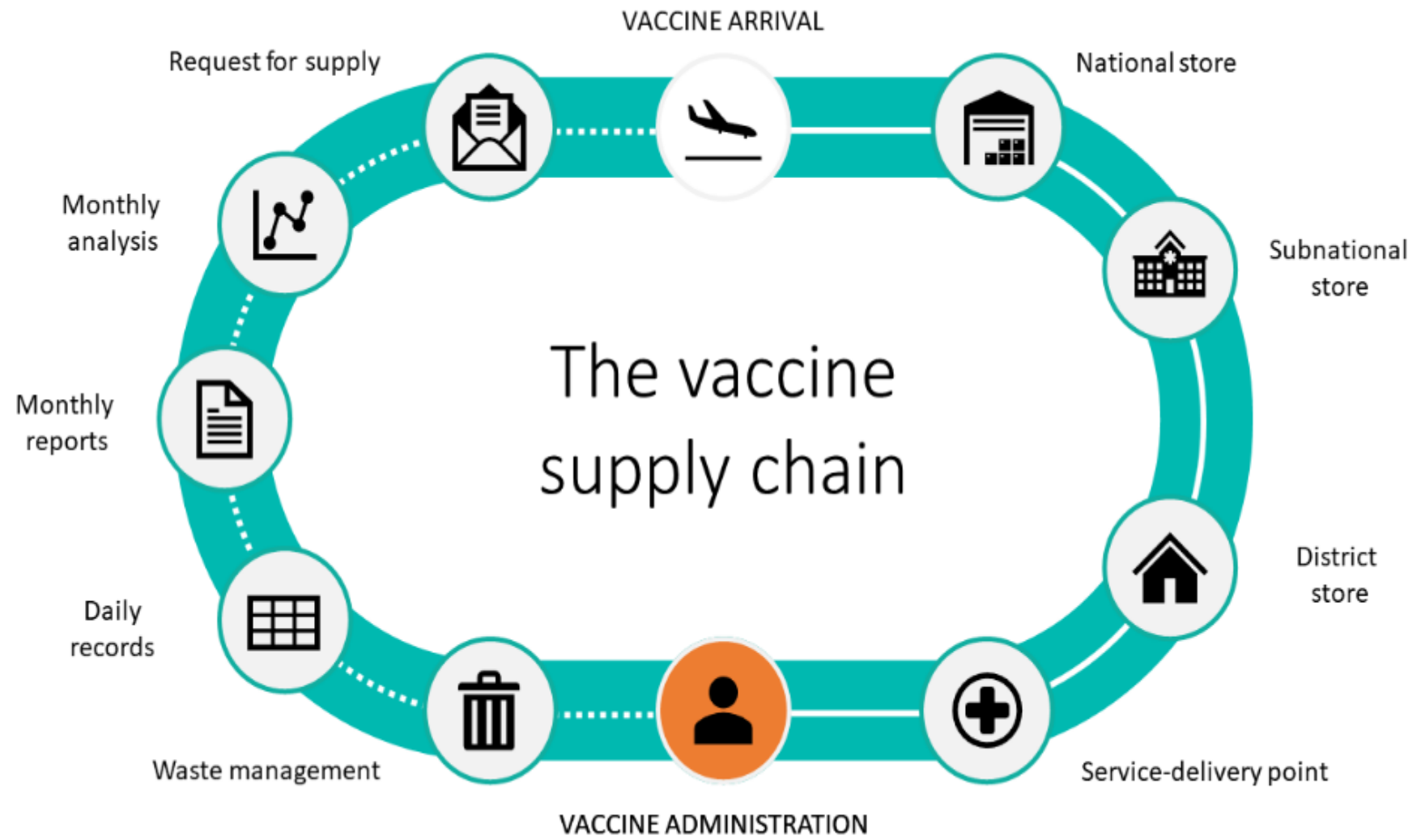
		Summary	Recommendation
Change Point of Entry		Consider the impact of multiple entry points vs. single entry point (Federal EPI) for vaccines and dry goods.	There are opportunities to reduce in-country distance and handling points, reducing risk during in-country transit and preserving potency as vaccine moves to lower levels of the supply chain.
Optimise Regional Warehouses		Optimize costs and site capacity for warehouses, including delivery frequency and buffer stock	Changes to reduce risk and improve equity; for example converting current provincial store in Sindh to a Karachi division store given the volume (30% of province) and current capacity challenges. Also ensuring sufficient storage for population.
Cross Admin Boundaries		Supply chains follow government administrative structures, which may not always be the most effective or efficient way to deliver vaccines	Potential cost savings, reduction in risk and equity improvements exist when deliveries can cross provincial boundaries, for instance Sindh can make deliveries to nearby divisions in Balochistan.
Implement Direct Delivery to Sub-Provincial Levels		Direct delivery from provincial to sub-provincial warehouse or SDPs	Delivering to lower levels of the supply chain by consolidating shipments can increase data visibility, decrease logistics costs and save time that could be spent on immunization activities. Benefits are modelled specifically for GB and KP but could be considered by all provinces.
Use Equity Lens for New CCE Investments		Three supply chain equity metrics from the modelling outputs were examined to provide insights on supply chain inequities between districts	Further investigate the linkages between district-level supply chain equity metrics and immunization coverage rates and socioeconomic indicators to ensure new CCE equipment and vehicles are added first in places of highest inequity.

Implementation Status

- **Change in Point of Entry and Optimization of Regional Warehouse**
 - Construction of 3 warehouses for dry logistics in Karachi, Lahore and Lasbella (Balochistan) is in progress
 - All Dry logistics for Sindh, Punjab and Balochistan will be directly transported to these warehouses instead of coming to Islamabad and then again transportation to these provinces: Timeline December 2023
 - Provincial and District stores have been equipped with 91 WICRs at 89 sites to direct the vaccine shipment directly to provincial stores in Karachi and Lahore and to district stores from Islamabad Timeline is June 2024.

Stock Management

Supply Cycle for the stock management



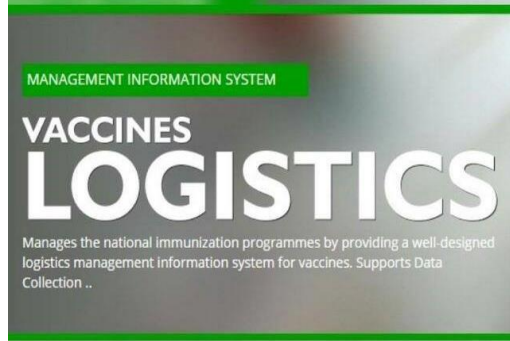
Vaccine Logistics Management Information System (<http://v.lmis.gov.pk>)

Vaccine information system, provides complete data about EPI vaccine, devices and Cold chain equipment's supply chain system

Inventory Management : Records vaccine, devices and devices supply chain from receiving at Federal EPI to EPI centers and show analytical reports, graphs, maps and dashboards

- **Vaccine Consumption:** Records vaccine and devices consumption at EPI centers. Show coverage based on each vaccine dose and calculate automatic vaccine wastage (Open and Closed Vial Wastages)
- **Cold Chan Inventory:** Acts as cold chain inventory register and records working status

vLMIS reporting



Nationwide Standardized Reporting Mechanism



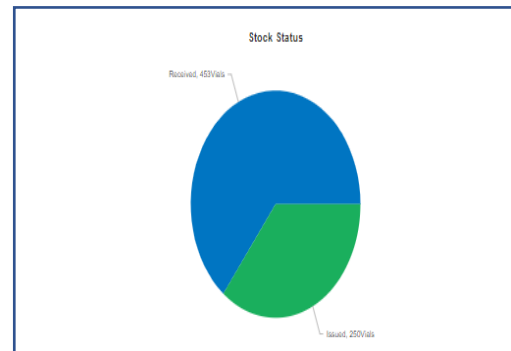
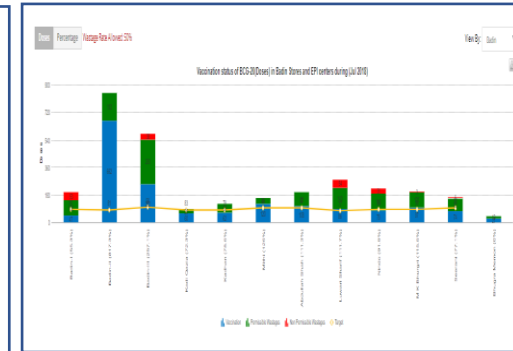
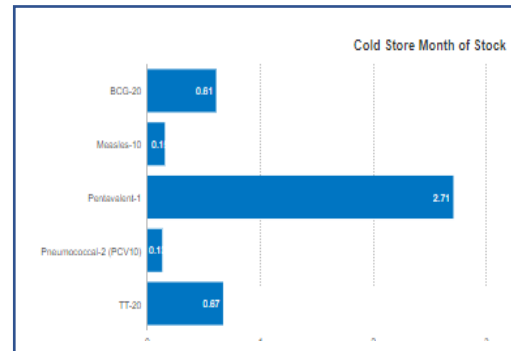
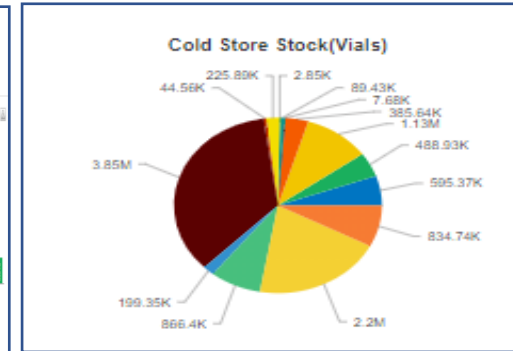
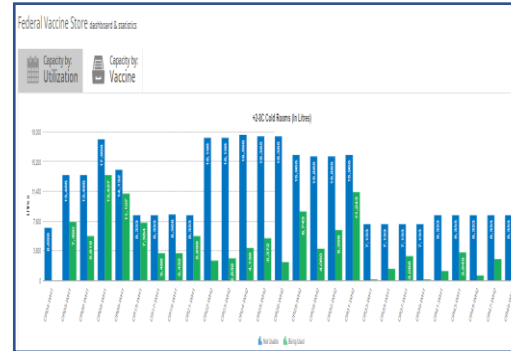
Sustainability



Improved Governance & Accountability

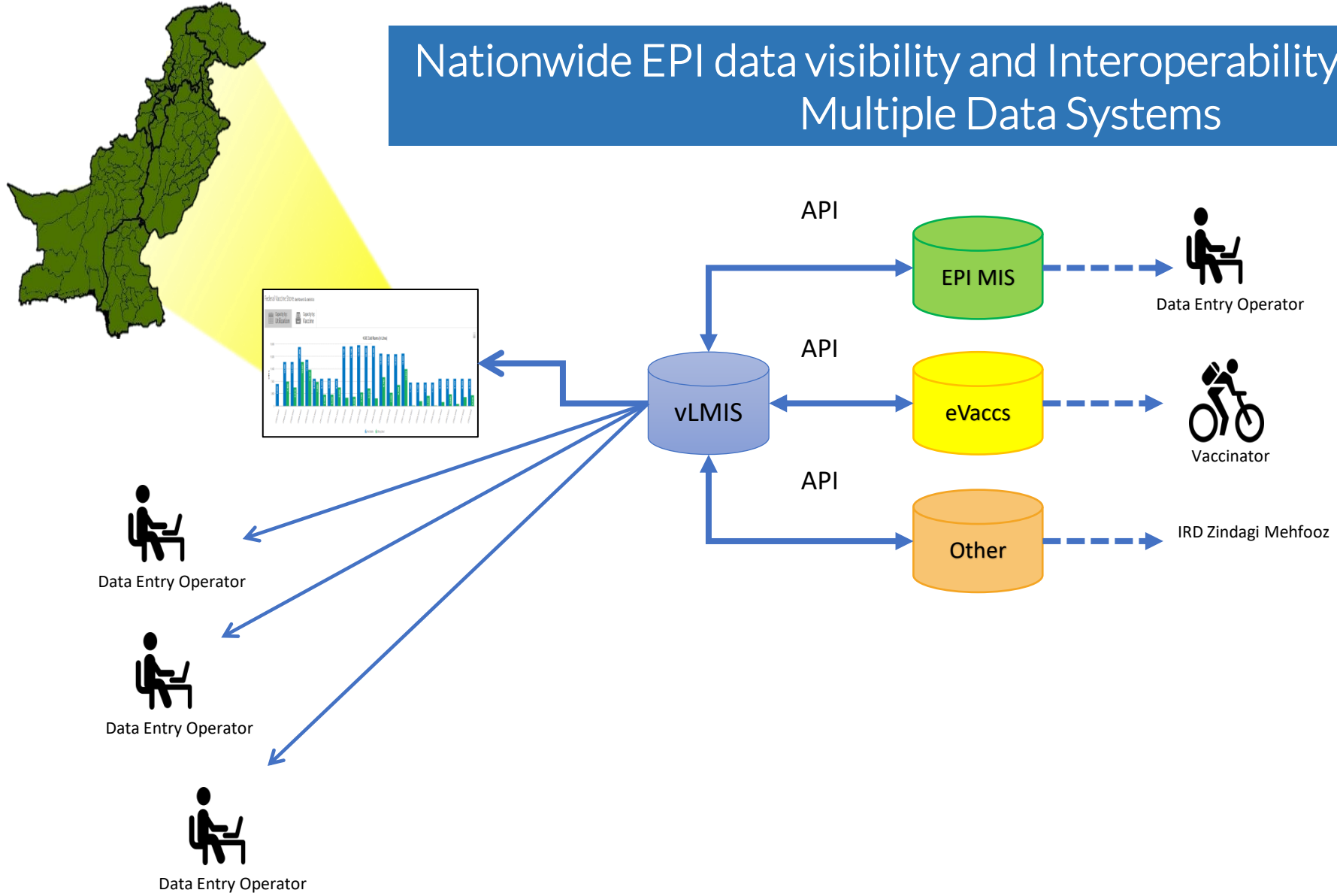


Transparency



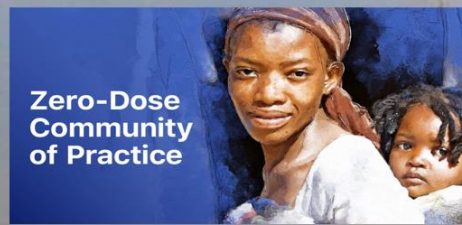
Vaccines	OB	Receive	Issue	CB	
bOPV (Campaign)		178	0	0	178
bOPV (PTR)		0	0	0	0
bOPV (Routine)		392	1,049	900	541
IPV-5 (Campaign)		33	0	0	33
IPV		228	524	360	392
rOPV (Campaign)		0	0	0	0

Nationwide EPI data visibility and Interoperability/integration of Multiple Data Systems



Thanks

How Immunization Supply Chains (iSC) contribute to reaching zero-dose communities



The Supply Chain and Zero Dose COP webinar series

Webinar 1: Supply chain guidance and strategies to reach under-served zero-dose communities

9 February, 1.00-2.30 pm UTC

Webinar 2: Immunization Supply Chain (iSC) interventions: lessons and best practices for reaching under-served zero-dose communities

16 February, 1.00-2.30 pm UTC

Webinar 3: Integrated supply chain approaches to reach under-served zero-dose communities with vaccination and PHC services

23 February, 1.00-2.30 pm UTC