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# Impact Report 2017

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## Mission Statement

eHA's mission is to build stronger health systems through the design and implementation of data-driven solutions that respond to local needs and provide underserved communities with the tools to lead healthier lives.



Based in Africa, eHA establishes new standards in health delivery and emergency response through the integration of information, technology, and logistics.

"I never knew [eHA] had this great team of staff with diverse mindsets that can quickly bring themselves down to the level of informants' understanding."

— Dr. Saliu Abdullahi, AVADAR Project Coordinator, WHO Nigeria

Impact and Quality  
Innovative Problem Solving  
Passion  
Honesty  
Growth and Learning  
Ownership



## eHA's Impact in 2017

Over 9 million antigens

delivered to more than 600 facilities in northern Nigeria

78,000 children

vaccinated against Polio during Reach Inaccessible Children campaigns

38,870 health facilities

in West Africa incorporated into Health Facility Registries

228,661 vaccines

administered — recorded in Sierra Leone using VaxTrac

1,126,778 stock counts

at health facilities, using eHA's Logistics Management software

5000+ end users in 7 countries

trained to identify and report Acute Flaccid Paralysis

2,002,911 bags of food

commodities received by WFP warehouses in Nigeria for distribution to vulnerable communities

Expanded the coverage of Nigeria's geodatabase, mapping over

53,000 settlement names, 105,000 km of road, and 131,867 points of interest across 36 states

43,590 children

children in Sierra Leone registered in a national routine immunization system

Commenced mapping activities in 3 countries

of the Lake Chad Basin (Chad, Cameroon, and Niger).

Over 8,670 settlements and 4,922 points of interest mapped



## eHA's Technical Pillars

eHA believes that stronger systems are best achieved through systems-level, integrated approaches. In 2017 our projects cross-cut the following technical pillars:



### HEALTH DELIVERY SYSTEMS

We develop people-centric and data-driven, technological solutions to improve health delivery systems for vulnerable communities.



### PUBLIC HEALTH EMERGENCY MANAGEMENT SYSTEMS

We provide infrastructure and human capacity support to improve governments' abilities to detect, investigate, and respond to public health threats, including the most remote areas.



### DISEASE SURVEILLANCE SYSTEMS

We provide the technological tools and operational support to collect and analyze data. Our teams contribute to the detection and ultimate prevention of disease outbreaks throughout West Africa.



### LABORATORY & DIAGNOSTIC SYSTEMS

We work to build and deploy reporting tools and technologies needed to collect and disseminate lab data.



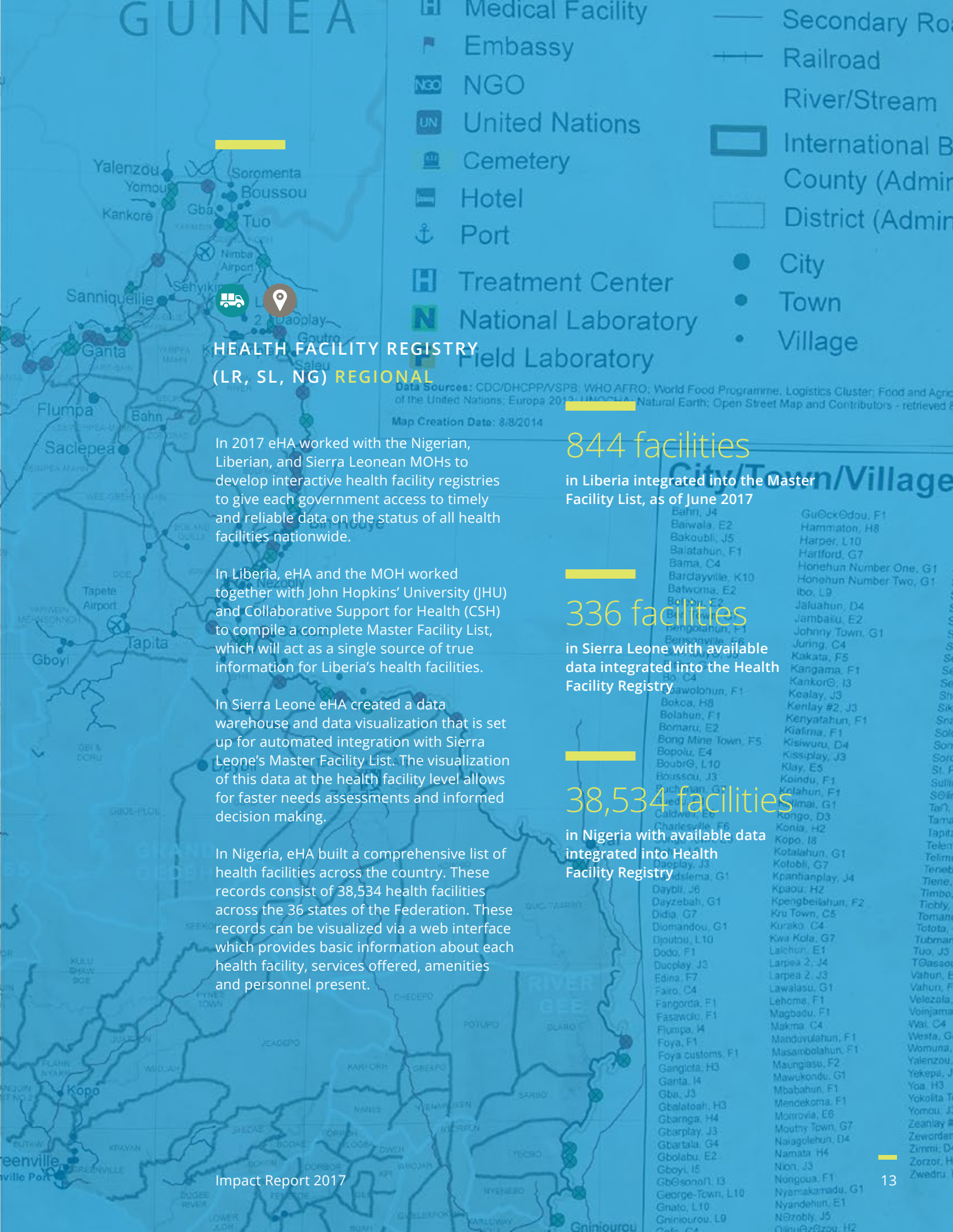
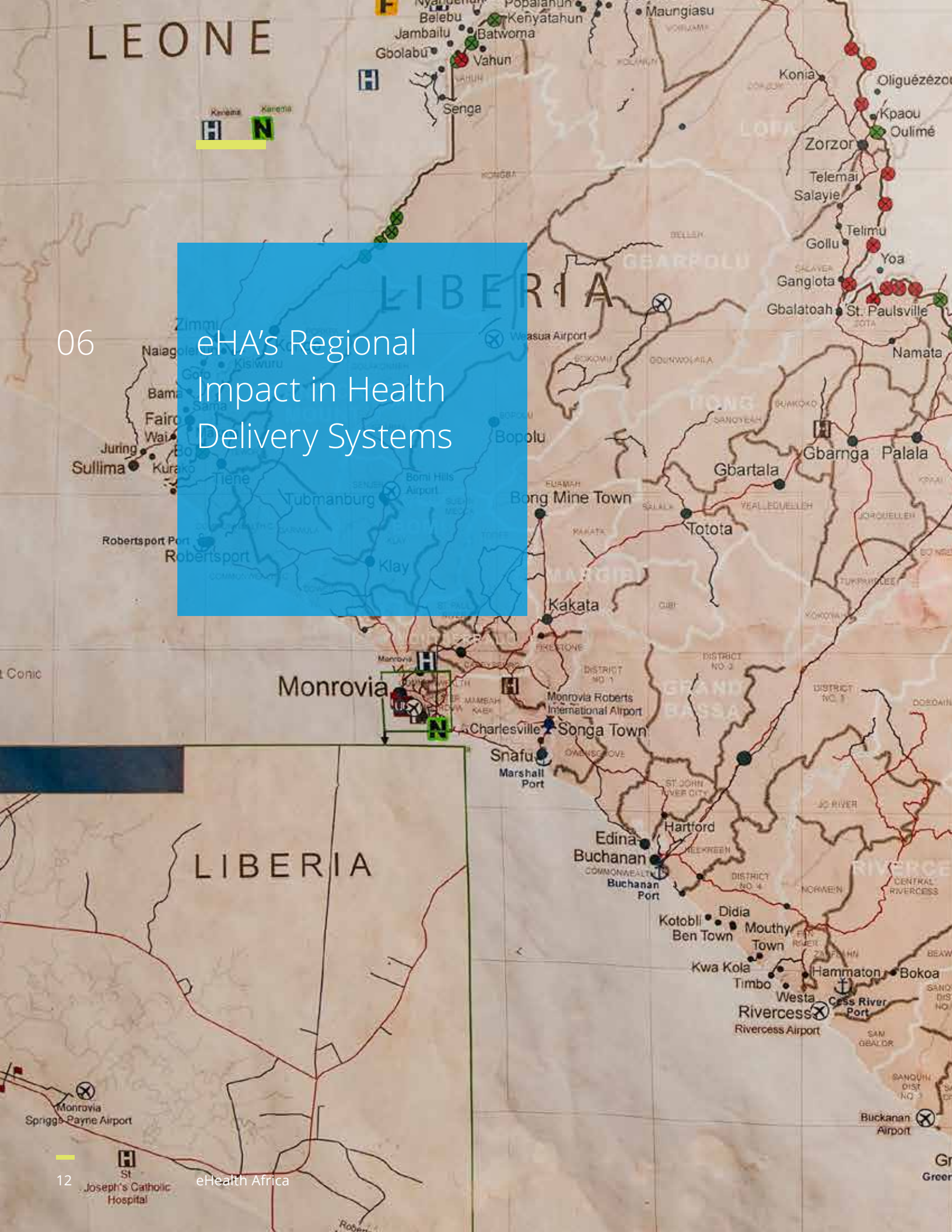
### NUTRITION & FOOD SECURITY SYSTEMS

We provide data-driven, technological approaches to improving the quality and availability of nutritious food products throughout West Africa.





# eHA's Regional Impact in Health Delivery Systems



## HEALTH FACILITY REGISTRY (LR, SL, NG) REGIONAL

In 2017 eHA worked with the Nigerian, Liberian, and Sierra Leonean MOHs to develop interactive health facility registries to give each government access to timely and reliable data on the status of all health facilities nationwide.

In Liberia, eHA and the MOH worked together with John Hopkins' University (JHU) and Collaborative Support for Health (CSH) to compile a complete Master Facility List, which will act as a single source of true information for Liberia's health facilities.

In Sierra Leone eHA created a data warehouse and data visualization that is set up for automated integration with Sierra Leone's Master Facility List. The visualization of this data at the health facility level allows for faster needs assessments and informed decision making.

In Nigeria, eHA built a comprehensive list of health facilities across the country. These records consist of 38,534 health facilities across the 36 states of the Federation. These records can be visualized via a web interface which provides basic information about each health facility, services offered, amenities and personnel present.

844 facilities

in Liberia integrated into the Master Facility List, as of June 2017

336 facilities

in Sierra Leone with available data integrated into the Health Facility Registry

38,534 facilities

in Nigeria with available data integrated into Health Facility Registry

### City/Town/Village

- Bahn, J4
- Baiwala, E2
- Bakoubli, J5
- Balatahun, F1
- Bama, C4
- Bardayville, K10
- Batwoma, E2
- Bong, E2
- Bonglahun, F1
- Bensonville, F6
- Bongor, C4
- Bawolohun, F1
- Bokoa, H8
- Bolahun, F1
- Bomaru, E2
- Bong Mine Town, F5
- Bopolu, E4
- Boubou, L10
- Boussou, J3
- Buchanan, G1
- Buedu, E6
- Charlesville, F6
- Daybi, J6
- Dayzebah, G1
- Didia, G7
- Diomandou, G1
- Djoutou, L10
- Dodo, F1
- Ducplay, J3
- Edina, F7
- Fairo, C4
- Fangorda, F1
- Fasawolu, F1
- Flumpa, I4
- Foya, F1
- Foya customs, F1
- Gangiota, H3
- Ganta, I4
- Gba, J3
- Gbalatoah, H3
- Gbarnga, H4
- Gbarplay, J3
- Gbartala, G4
- Gbolabu, E2
- Gboyi, I5
- Gbozonon, I3
- George-Town, L10
- Gnato, L10
- Gniourou, L9
- Gnifa, C4
- GuOckOdou, F1
- Hammaton, H8
- Harper, L10
- Hartford, G7
- Honehun Number One, G1
- Honehun Number Two, G1
- Ibo, L9
- Jaluahun, D4
- Jambaku, E2
- Johnny Town, G1
- Juring, C4
- Kakata, F5
- Kangama, F1
- KankorG, I3
- Kealay, J3
- Kenlay #2, J3
- Kenyatahun, F1
- Kialima, F1
- Kisiwuru, D4
- Kissiplay, J3
- Klay, E5
- Koindu, F1
- Kolahun, F1
- Konima, G1
- Kongo, D3
- Konia, H2
- Kopo, I8
- Kotalahun, G1
- Kotobli, G7
- Kpantianplay, J4
- Kpaou, H2
- Kpengbeilahun, F2
- Kru Town, C5
- Kurako, C4
- Kwa Kola, G7
- Lalehun, E1
- Larpea 2, J4
- Larpea 2, J3
- Lawalasu, G1
- Lehoma, F1
- Magbadu, F1
- Makma, C4
- Manduvulahun, F1
- Masambolahun, F1
- Maungiasu, F2
- Mawukundu, G1
- Mbabahun, F1
- Mendekoma, F1
- Monrovia, E6
- Mouthy Town, G7
- Naiagolehun, D4
- Namata, H4
- Nion, J3
- Nongoua, F1
- Nyamakamadou, G1
- Nyandahun, E1
- Nzoboly, J5
- OlinuGzOzou, H2



## eHA's Impact in Health Delivery Systems in Sierra Leone



### COMMUNITY HEALTH OFFICER - MANAGEMENT & LEADERSHIP TRAINING PROGRAM SIERRA LEONE

Recognizing the need to strengthen the capacity of Sierra Leone's MoHS at the community level by providing leadership and management training to Community Health Officers (CHOs), eHA and Emory University delivered a five-month Leadership and Management training program in 2017. CHOs working in Sierra Leone's peripheral health units, under the Directorate of Primary Health, were trained through a series of four one-week workshops and field assignments.

## 70 CHOs

trained in Management and Leadership in 2017, and able to conduct Health Facility Readiness Assessments

## 20% increase in knowledge

from pre-test (56%) to post-test (76%) after second cohort in 2017

## 21.8% increase in knowledge

from pre-test (59.1%) to post-test (80.9%) after third cohort in 2017



## eHA's Impact in Health Delivery Systems in Nigeria



### VACCINE DIRECT DELIVERY (VDD) NIGERIA

In order to improve health commodity transportation in Nigeria and to reduce late deliveries, inefficient routing, and high stock out rates, eHA launched its Vaccine Direct Delivery project. eHA designed a logistics tool, including a mobile app for offline data collection and a web dashboard for analysis and planning, to provide vaccine delivery services to health facilities.

VDD empowers deliverers to review schedules, record delivered items, review packing lists, and record the number of immunizations delivered. This tool promotes consistent sufficiency of health commodities and provides real-time stock data management.

Stock outs reduced from

65% to 8%

in Bauchi state through VDD program



### KANO CONNECT NIGERIA

To enable the Kano State government to collect, track, and act on health performance indicators, eHA developed the Kano Connect platform to equip health care workers with mobile phones loaded with Open Data Kit (ODK) which make it easy for users to submit data via questionnaires.

In 2017 the Kano State Primary Health Care (PHC) Management Board continued to use Kano Connect as its official mHealth and communications platform. Kano Connect guarantees accessibility for PHC workers, resulting in prompt and quality reporting, improved visibility, and effective accountability. As a result of this platform, Routine Immunization Supportive Supervision (RISS) reporting has risen to 100% at the state, LGA, and health facility level.

Stock outs reduced from

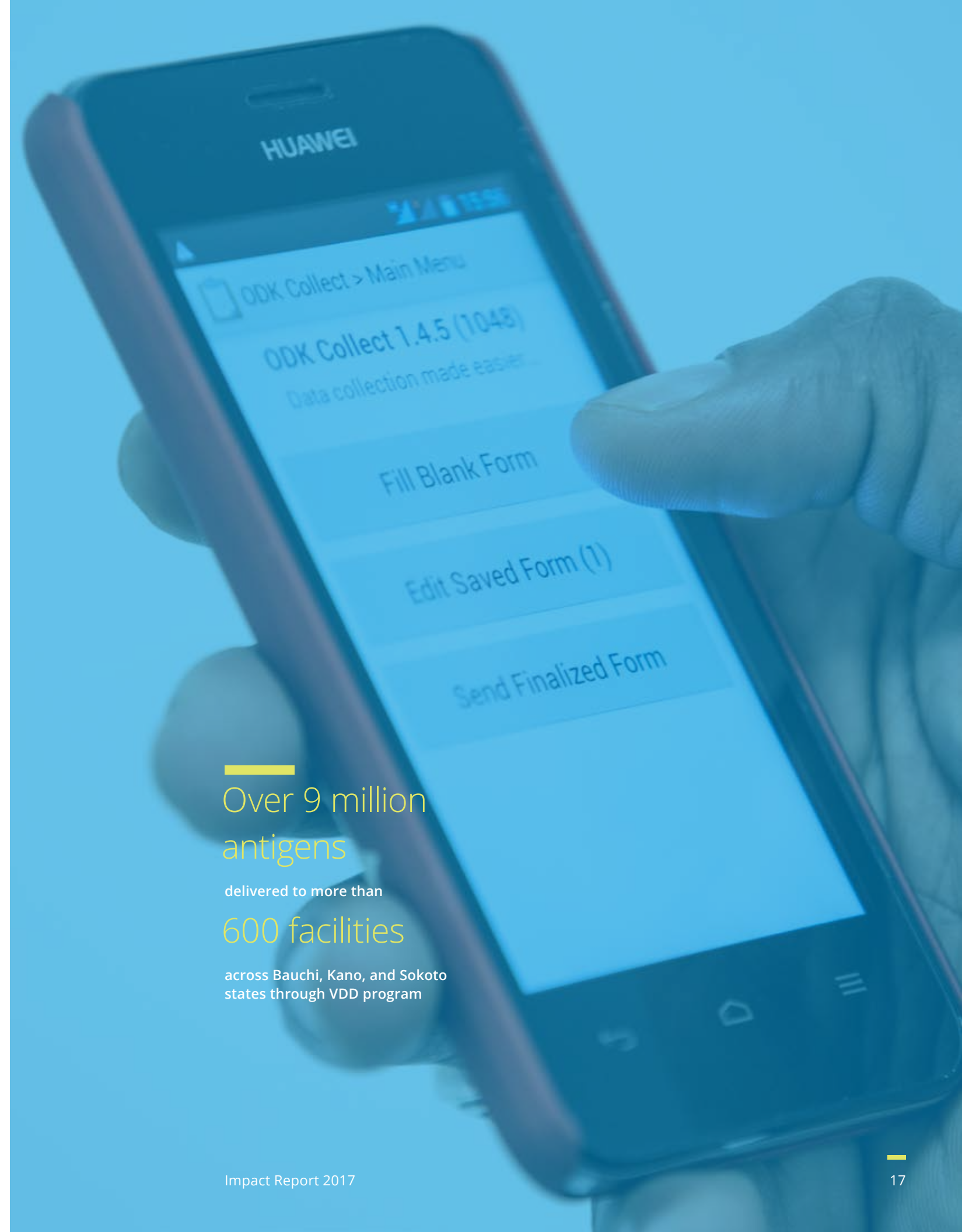
90% to 3%

in Kano state in 2017 through VDD program

Stock outs reduced from

61% to 9%

in Sokoto state in 2017 through VDD program



Over 9 million antigens

delivered to more than

600 facilities

across Bauchi, Kano, and Sokoto states through VDD program





5

districts successfully tracked in 2017

09

## eHA's Regional Impact: Polio Emergency Management Systems

In 2017 eHA continued to work with its partners to end polio transmission in Africa, and to ensure any new cases will be identified and reported in real-time. Through our Polio Emergency Management program, eHA is working with the Nigerian government to better track polio vaccines and to ensure 100% vaccination coverage. eHA has also contributed to the strengthening of polio surveillance regionally, improving networks in countries throughout West and Central Africa.

Turn around time to obtain coverage report and analysis from field teams reduced from

one day to 30 minutes



### POLIO VACCINATOR TRACKING SYSTEM NIGERIA

In 2017 eHA continued working with the Nigerian government and development partners to improve polio vaccination coverage throughout the country. Through the Vaccinator Tracking System (VTS), eHA established a polio geodatabase, which syncs with the VTS database to provide updated settlement information to guide vaccination campaigns. Using field laptops, vaccinators are able to receive microplan maps for campaigns, and to track and report vaccination activities throughout the day. As a result, the government is better able to ensure that all communities and households have vaccinated their children against polio.

In 2017, eHA also worked to adapt the tracking system to other clients, making it available to SightSavers for their field tracking system. SightSavers uses this system to track field drug administrators providing Neglected Tropical Diseases (NTD) services. Furthermore, eHA and WHO AFRO worked together to migrate the tracking system to a centralized database, making it accessible to all AFRO countries and implementing partners

80% of settlements

correctly classified based on algorithm in 2017





## GEOSPATIAL REFERENCE INFORMATION DATABASE (GRID) NIGERIA

eHA recognizes that the vast number of the most vulnerable human settlements in Africa remain unmapped. In the case of a public health emergency, knowing where people live, the best ways to reach them, and the locations of basic necessities such as hospitals are of paramount importance.

## 57,556 points of interest

mapped in Ebonyi state GRID  
mapping in 2017

In Nigeria, eHA's polio eradication initiative already enabled the mapping of 11 states in the northern part of the country. To expand this data and knowledge base, eHA's GRID project conducted comprehensive data collection and harmonization activities across the remaining 25 states, in addition to the Federal Capital Territory (FCT).

The GRID project is a multi-country, multi-donor initiative that aims to collect and store geospatial data in several African countries, including Nigeria. The goal is to generate integrated mapping of development needs throughout identified countries and across a variety of sectors.

In Nigeria, eHA aims to improve state resource planning, allocations, and intervention activities to reduce inequality in underserved communities, and to improve emergency preparedness and response to large scale epidemics.

"I am proud to state that the GRID project is a scientific and veritable platform for points of interest information capturing and management. It also parades an avalanche of opportunities for evidence-based planning, resource mapping, economic and technological empowerment for Nigerians for the speedy development of our nation."

— Dr. Henry Aloh, Former Commissioner  
for Health, Ebonyi State





## END GAME STRATEGY NIGERIA

To improve the quality of Immunization Plus Days (IPDs) and eradicate polio in Kano state, Nigeria, eHA partnered with the Kano State government, Kano Emirate Council, UNICEF, and WHO to ensure that all children missed during IPDs were tracked and vaccinated in order to minimize the potential resurgence of wild poliovirus in Kano State.

97% of missed children in Kano

received vaccinations in "mop-up" rounds between campaigns in 2017

94% decrease

in noncompliance cases from 2016 to 2017



## REACH INACCESSIBLE CHILDREN (RIC) NIGERIA

The aim of eHA's RIC project is to improve coverage of polio vaccine interventions and to immunize all children against polio. eHA provided mobile phones equipped to track polio interventions to ensure coverage, as well as data collection to map Borno and Yobe states and enable campaign microplanning. eHA furthermore trained the personnel executing the campaigns to use the Vaccine Tracking System (VTS) and ODK forms to track their vaccination coverage.

Valid ODK collection improved from 57% of settlements tracked in early 2017 to

92% of settlements tracked

at the end of 2017

78,000

vaccinated during RIC rounds in 2017

6

RIC rounds completed in 2017





5000+ end users

trained in 7 countries in 2017

8,994 suspected  
AFP cases

reported in 2017

7,770 suspected  
AFP cases

investigated by DSOs in 2017



### AUTO-VISUAL AFP DETECTION AND REPORTING (AVADAR) REGIONAL

539 true AFP cases

identified in 2017

7,177 out of 8,743  
technical issues

resolved in 2017

Following an outbreak of polio in Nigeria in 2016, eHA operationalized the use of a new AVADAR application to improve polio surveillance region-wide. AVADAR is designed to detect true cases of Acute Flaccid Paralysis (AFP), allowing local governments to identify and respond to potential cases of polio. Through this project eHA has extended existing polio surveillance networks beyond the health facility level, training reporters at the community level to provide data and equipping them to do so in real-time. AVADAR aims to identify all cases of polio using a system that targets any case of AFP as a potential case of polio.

In 2017 eHA expanded this project beyond Nigeria, launching in Sierra Leone, Liberia, Chad, DRC, Cameroon, and Niger, in collaboration with WHO and the MOH in each country.





## POLIO VACCINATION CAMPAIGN M&A SYSTEM NIGERIA

Recognizing the need to assess the performance of vaccination teams during house-to-house polio campaigns in Nigeria, eHA worked with the government to develop a robust and cost-effective USSD/SMS-based reporting application and a dashboard to visualize performance indicators. This monitoring and accountability system is used to assess the performance of vaccination teams and LGA Senior Supervisors during polio immunization campaigns. As a result, supervisors are better able to identify vaccination teams requiring corrective and follow-up actions in near real-time.

Over 1,400  
vaccination team  
reports

submitted by senior  
supervisors in 2017

26 mid-performing  
teams

identified across two polio  
campaigns for retraining and  
capacity building

132 supervisors  
trained

to identify vaccination teams  
requiring corrective actions





### IMMUNIZATION PLUS DAYS (IPDS) NIGERIA

Due to the Boko Haram insurgency in Borno, inaccessibility as a result of security threats poses a great risk to the global polio eradication efforts. The government of Nigeria, in collaboration with eHA, BMGF, WHO, CDC, UNICEF, and other partners, launched robust response strategies including IPD campaigns to reach children in inaccessible settlements with the polio vaccine.

In 2017 eHA deployed 25 consultants to specific LGAs to support campaign micro-planning, and to provide daily feedback during campaign days. As a result, vaccination coverage increased steadily by an average of 4% during each round of implementation.

7 rounds of IPD campaigns implemented in 2017

25 LGAs tracked across all campaign rounds in 2017



### REACH EVERY SETTLEMENT (RES) NIGERIA

The RES Initiative is a strategy that aims to improve routine house to house vaccination campaigns in partially accessible areas with support for the Civilian Joint Task Force (CJTF) and other security organizations.

The ultimate goal of the RES strategy is to ensure that all under 5 children in remote settlements are reached with the polio vaccine at least five times, with two week intervals. This project is part of eHA's objective to achieve total vaccination coverage of children in Borno and Yobe state against polio.

An average of 2,000 tracking phones deployed during each IPD round



Over 3,500 pieces of settlement data

collected during RES activities in 2017

Collection of valid ODK points in Borno increased from

from 58% at the beginning of 2017

to 93% at the end of the year

Over 99% valid ODK points

collected in Yobe in 2017



# 16

EOCs in Liberia supported in 2017

# 24/7

operationally available EOC in Sierra Leone which participated in the 2017 mudslide response

10

## eHA's Regional Impact in Public Health Emergency Management Systems



### EMERGENCY OPERATIONS CENTERS (EOCS) REGIONAL

eHA has built and equipped EOCs throughout West Africa, as part of our goal to strengthen our partner governments' capacities to respond to public health emergencies. EOCs provide the infrastructure needed to support country-level emergency preparedness and management functions to thwart potential public health emergencies.

In Liberia, eHA continued to provide operational support to EOCs in each county, in addition to the National EOC in Monrovia. In April 2017, in an effort to build the MOH's human capacity to identify and respond to emergencies, eHA and CDC also provided a nationwide training in Threat and Hazard Identification and Risk Assessment (THIRA).

In Sierra Leone eHA continued to provide human capacity building to staff at the MoHS, the Office of National Security, the District Health Management Teams, the Environmental Protection Agency, the Ministry of Agriculture, the WHO, etc. In 2017 eHA conducted two regional trainings in basic emergency management in Bo and Makeni districts, as well as a workshop on Emergency Risk Communication in Bo.

In Nigeria, eHA continued development of its EOC dashboard for the purpose of enabling better visualization and analysis of data related to public health threats. In 2017, eHA provided support that enabled the National EOC to upload 187 qualitative and 5 quantitative resources across eight datasets to a data portal in CKAN, and provided monitoring and tracking via Google analytics. eHA furthermore conducted trainings and two demo sessions for the EOC data team, instructing participants to use and maintain the data portal. As a result, Nigeria's emergency management personnel are empowered to make data-driven decisions related to potential disease outbreaks.





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## eHA's Impact in Public Health Emergency Management Systems in Sierra Leone



### SIERRA LEONE EBOLA DATABASE (SLED) **SIERRA LEONE**

In 2017 eHA worked with the MOH, CDC, CONCERN Worldwide, and several other partners to collect, collate, and store patient data recorded during the Ebola epidemic. eHA, in collaboration with CONCERN, designed a family reunification program, which reunites families with the graves of their loved ones lost to Ebola.

# 97%

of Ebola-related data collated into SLED in 2017

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### eHA's Impact in Disease Surveillance Systems in Sierra Leone



#### FIELD EPIDEMIOLOGY TRAINING PROGRAM (FETP) SIERRA LEONE

In order to increase the number of public health workers who are trained and practicing basic epidemiological principles of disease surveillance, eHA and the MoHS delivered 14-month training programs for key individuals involved in surveillance and data collection/analysis. Health worker participants spent three months in a frontline program and 11 months in an intermediate program, while additional government staff attended one or two week workshops to apply epidemiological skills to current job responsibilities.

#### 54 FETP residents

residents trained in management, health promotion, community engagement, and data-informed decision-making

#### 19

case/outbreak investigations conducted FETP trainees



#### FORMATIVE ASSESSMENT FOR MORTALITY SURVEILLANCE (FAMS) SIERRA LEONE

Investigating the low rates of community death reporting in Sierra Leone and aiming to provide viable solutions, eHA worked with the CHAMPS project and the MoHS to develop survey tools and research plans targeting specific communities in Kenema and the Western Area.

A mixed research approach, involving qualitative and quantitative processes, was successfully conducted in 2017 targeting specific communities across these two regions. Preliminary results will be disseminated to key stakeholders at all levels in 2018, with recommendations on strategies to improve death reporting and mortality surveillance in Sierra Leone.

#### 1,300 FAMS research participants in 2017



# 100%

of cases reported through 117 were successfully dispatched or referred to appropriate personnel.

"I'd like to thank eHealth Africa for their commitment to supporting the Ministry of Health and Sanitation priorities by leveraging the strategic partnerships, the technical expertise, logistics and an immense amount of determination needed to implement a real time, digitized and decentralized, nationwide alert system."

Madina Rahman, Deputy Minister of Health



## 117 CALL CENTERS SIERRA LEONE

In 2017 eHA provided the MoHS with ICT and software infrastructure to improve its 117 Alerts System, an early warning mortality and syndromic surveillance tool. This 24-hour call center operates with desk alerts across all of Sierra Leone's districts, pushing calls to the District Health Management Teams (DHMTs) in real-time. As a result, the MOH is receiving accessible and instantaneous data for informed and timely decision-making and emergency response.

Following Freetown's tragic mudslide in August 2017, eHA provided key software tools to facilitate the MoHS' ability to gather data and execute response plans. In the early moments of the mudslide, the MoHS was alerted to the severity and casualties via calls made to 117. The mechanism was utilized to track locations and coordinate burials. In addition, the lead natural disaster management office has agreed to integrate their emergency line with 117 for enhanced effectiveness of emergency tracking and response.

12,811 cases  
recorded in the 117 system  
in 2017

980  
emergency cases requiring  
ambulatory services reported  
through 117 in 2017

1,021  
community under 5 and maternal  
deaths reported through the 117  
alert system in 2017



An average of  
**11**  
calls were made per week  
in 2017, triggering SMS  
notifications from 117

Child deaths were reported,  
on average, within  
**2**  
days of the event  
in 2017



## CHILD HEALTH AND MORTALITY PREVENTION SURVEILLANCE (CHAMPS) SIERRA LEONE

In 2017 eHA partnered with Sierra Leone's MoHS and Focus 1000 to establish a disease surveillance site to help gather better data relating to the reasons children are getting sick and dying throughout the country.

Through the CHAMPS project eHA coordinated community engagement in the Bombali district to gather social behavioural information through formative research studies led by Focus 1000 on causes of death for children under 5. Furthermore, community members were recruited and trained by World Hope International to report deaths to the national mortality surveillance hotline, 117. Data was then pushed from 117 to the mortality surveillance team for further follow up in communities and health facilities.

The aim of the CHAMPS project is to reduce under five child mortality by informing the community, public health institutes, and donors on target areas for public health interventions.



## eHA's Impact in Disease Surveillance Systems in Liberia



### INTEROPERABILITY

#### LIBERIA

eHA is working to support the Liberian MOH's goal to achieve Health Information System Interoperability. In 2017 eHA equipped a Strategic Information and Analytics (SIA) Room at the MOH to collect, display, and analyze critical data regarding potential outbreaks.

eHA and the MOH also worked together to develop requirements for Health Information Systems Interoperability architecture, to enable data sharing and reporting across disparate subsystems within the Ministry. Once achieved, this architecture will allow subsystems to "talk" to each other, giving the MOH a much greater capacity to analyze and visualize information and make data-driven public health decisions. eHA and the MOH also reviewed existing health information data sources and created an interactive data catalog and systems context diagram. eHA conducted a Data Integration and Maintenance training for MOH staff to start building their capacity to maintain the data catalog and interoperability systems.

15 MOH staff

trained in Data Integration and Maintenance

33 data sources

reviewed and integrated into a data catalog





14

## eHA's Impact in Laboratory & Diagnostic Systems in Nigeria



### MENINGITIS PREPAREDNESS & PROVISION OF MOBILE LAB NIGERIA

In response to Nigeria's 2017 outbreak of cerebrospinal meningitis, eHA worked with the Sokoto government to build its capacity to diagnose and detect new cases of meningitis on site. Using a shipping container, eHA constructed a mobile laboratory to receive and test samples, to store and analyze patient data, and to improve the Sokoto government's ability to execute its outbreak response. As a result, affected regions were equipped with diagnostic capabilities to diagnose meningitis cases, consequently leading to proper treatment.

450 samples

processed from Sokoto, Zamfara, and Kebbi States in 2017 (approximately half of the tests conducted over the course of the outbreak)





## KANO PUBLIC HEALTH LAB NIGERIA

Recognizing the need to provide infrastructure for research projects in remote areas, eHA constructed a public health laboratory on our headquarter campus in Kano, Nigeria. Built out of shipping containers, this lab is designed to facilitate public health research activities conducted throughout northern Nigeria. Over the course of the year eHA provided the laboratory structure as well as the data and software systems, human resources, and operational expertise. Currently, eHA is partnering with UNMC and IFAIN to analyze the impact of introducing a new point of care for sickle cell disease testing, as well as to test sputum samples to diagnose the agent which causes pneumonia in children. In the long term, eHA intends this lab to be able to provide diagnostic services to enhance Nigeria's health care system, in addition to research support.

### 462 samples

collected and tested for sickle cell disease in 2017

### 146 samples

collected and tested for induced sputum in 2017



## eHA's Impact in Laboratory Diagnostic & Systems in Liberia



### LABORATORY SUPPORT LIBERIA

As part of our objective to improve laboratories and diagnostic systems throughout West Africa, eHA continues to provide operational support to four priority labs in Liberia - Bong, Tappita, Redemption, and the Liberian Institute of Biomedical Research (LIBR). While initially the lab reporting systems were designed specifically to capture Ebola data, in 2017 eHA supported the development of new diagnostic reporting systems. As a result, the labs can now produce data regarding additional infectious diseases affecting Liberians (including Tuberculosis, Measles, Yellow Fever, and Rubella).

In 2017 eHA also provided capacity building for Liberia's Lab Management staff, solidifying existing skill sets and expanding the number of qualified employees to manage the lab reporting systems. In November 2017 eHA provided a formal workshop for the Lab Management team, training participants in sample handling and processing, data entry and analytics, and lab security.

### 4 priority labs

supported in 2017

### 8 MOH staff

trained in Lab Management  
practices in 2017





## eHA's Impact in Nutrition and Food Security in Nigeria



### ORANGE FLESHED SWEET POTATO PROJECT (OFSP) NIGERIA

eHA recognizes that vitamin A deficiency is a leading cause of preventable blindness and death in children and pregnant women. Vitamin A supplementation has been reported to decrease morbidity and mortality in children by 23%; however, supplementation programs are unlikely to reach the poor and people in rural areas, leaving them vulnerable.

eHA partnered with International Potato Center (CIP) to introduce OFSP in Kano state. OFSP is a type of sweet potato which is rich in beta-carotene, a precursor for vitamin A. eHA promoted the production and utilization of OFSP in 5 LGAs in Kano State.

eHA also developed training guides on good agricultural practices and a recipe book of meals made with OFSP. This book has been translated into the local language.

## 5 LGAs

in Kano state producing OFSP



### WFP WAREHOUSE NIGERIA

In northeast Nigeria, ongoing conflict and high rates of poverty have resulted in a large population of displaced and food-insecure people. This issue is compounded by occasional floods and droughts, which adversely affects food production.

In 2017 eHA sourced and leased warehouses for WFP in Kano, Nigeria and upgraded the facilities to comply with international storage standards. eHA also managed the WFP Kano Hub Warehouse which receives and dispatches food commodities throughout northeastern Nigeria. Through this project, eHA and WFP worked to combat extreme food insecurity among displaced populations.

## 2,002,911

bags of food commodities received by Kano Hub in 2017

## 1,000 copies

of eHA's training guide printed and distributed





## Solutions & Services

### Activity 1: Developing a Case ID

Developing a Case ID is a critical step in the IDSR process. It involves creating a unique identifier for each case, which is used to track and report the case to the national level. This process is essential for ensuring the accuracy and reliability of the data used for surveillance and response.

Date	Area	Case ID
10/12/2017	Grand Cape Mount	0044
10/13/2017	Margibi	009
10/14/2017	Port Loko	002
10/15/2017	Port Loko	005
10/16/2017	Port Loko	011
10/17/2017	Port Loko	001



### ELECTRONIC INTEGRATED DISEASE SURVEILLANCE AND RESPONSE (EIDSR) REGIONAL

Since the Ebola outbreak in West Africa, eHA has been working with the MOHs in both Liberia and Sierra Leone to develop electronic systems to submit IDSR data in near-real time. In 2017 eHA piloted eIDSR systems in both countries.

In Liberia, eHA and the MOH, in partnership with CDC, USAID, WHO, UNICEF, JHU, ACCEL, Riders for Health, and IntraHealth, have been working to replace the current paper-based IDSR reports with a real-time electronic system. Through this innovative solution, when health facility workers submit case alerts via SMS, District Surveillance Officers (DSOs) are automatically notified and can enter their investigation results into the system.

## 78 Health Facilities

in Grand Cape Mount and Margibi reporting via eIDSR in 2017.

## 112 facilities

in Port Loko submitting regular electronic reports via eIDSR in 2017

The eIDSR system, which was piloted in two counties in 2017, builds the capacity of the MOH to identify potential outbreaks instantaneously, and to mobilize rapid response efforts. eHA also provided reporting using data visualization tools in DHIS2, allowing the MOH to conduct analysis of new case alerts in both counties.

In Sierra Leone, eHA's goal was to make the current aggregate system electronic to reduce errors, and to lessen the time required for the MOHs to receive data on a weekly basis. eHA developed a custom DHIS2 mobile app capable of aggregating weekly and monthly reporting forms.

eHA and the MOHs also utilized emergency IDSR Daily Disease Reports following Sierra Leone's mudslide in August 2017. Disease monitoring was provided in DHIS2 on a daily basis until November 2017.

**“Before eIDSR, primary health data was provided in written hard copy with all the disadvantages of damage during transmission and error during data input. eIDSR has improved the quality of health information.”**

— Dr. Tom Sesay, DMO Port Loko

## 94% data accuracy

in reports submitted via eIDSR, as compared to 82% accuracy in reports submitted by data staff at the district level





## VAXTRAC SIERRA LEONE

Recognizing the need to improve the coverage of routine immunizations in Sierra Leone, eHA deployed the VaxTrac mobile application, which registers and tracks child immunization, to all government health clinics in Western Area. This system allows health workers to track daily, weekly, and monthly immunization activities, to alert defaulters, detect invalid doses, and edit patient information.

“VaxTrac is an easy way of registering children for vaccination. It helps us determine next visit and has made it easier to trace defaulters.”

— Adama Koroma, EPI Focal Nurse,  
Macauley Street Government Hospital

115 MOH staff  
trained on VaxTrac in 2017



## LOGISTICS MANAGEMENT INFORMATION SYSTEM (LOMIS) NIGERIA

In an effort to help the Ministry of Health improve timely availability of life-saving vaccines and reduce stock outs in underserved communities, eHA developed an easy-to-use Software as a Service (SaaS) tool to collect, manage, and visualize data. As a result, health workers at facilities are able to report stock and inventory levels in real-time, and all stakeholders (from the facility level to the national level) have improved visibility over delivery status and details of vaccines and other essential health commodities.

43,590 children  
registered in 2017

228,661  
administered vaccines  
recorded in 2017

Over

# 6000

mobile phone and dashboard users trained in 2017

680,007 stockout  
alerts  
reported in 2017

1,126,778 stock  
counts  
in 2017

535 reporting  
facilities  
across all administrative levels  
of the state





## GEOGRAPHIC INFORMATION SYSTEMS (GIS) REGIONAL

eHA continues to boast the largest GIS team in West Africa. Recognizing the need for GIS data in order to reach all communities and settlements with health-related services and products, eHA's GIS support cross-cuts many of our projects and programs throughout the region. Some of our most notable accomplishments in 2017 include:

- Expanded the coverage of Nigeria's geodatabase, mapping over **53,000 settlement** names, **105,000 kilometers** of roads on openstreetmap, and **131,867 points of interest** including health facilities, markets, and schools across **36 states** in Nigeria
- Supported the development of an eHA Field Tracking System which was successfully deployed to support **two rounds** of WHO polio vaccination campaigns in **five districts** of the Extreme Nord Region of Cameroon
- Deployed a CKAN-powered data portal for the EOC data team to serve as a controlled data repository and means to visualize and share data. Uploaded **183 datasets** to the CKAN data portal in 2017
- Collaborated with University of California, Los Angeles (UCLA) to develop the Gather DRC mobile data collection app. Supported UCLA to conduct a microcensus in Kinshasa and Bandundu to generate population estimates for DRC
- Supported the implementation of evidence-based GIS Routine Immunization (RI) catchment mapping for **3 LGAs** in Bauchi and Sokoto States of Nigeria. As a result, eHA ensured that maps could be produced electronically to support RI, and that outreach settlements are clearly identified
- Extended GIS support for Vaccine Direct Delivery in Bauchi State, Nigeria from **11 LGAs** to **20 LGAs** in 2017
- Supported the reconciliation and validation of a master list of settlements for Borno State, Nigeria, to improve vaccination reach through mapping and microplanning support
- Commenced mapping activities in **three countries** of the Lake Chad Basin (Chad, Cameroon, and Niger). Over **8,670 settlements** and **4,922 points of interest** were mapped in 2017







## INFRASTRUCTURE SERVICES REGIONAL

eHA collaborated with partners to design, build, restore, and maintain diverse sites and facilities in complex global environments. Our accomplishments throughout the continent include the establishment of emergency operations centers, warehouses, and laboratory sites.

“Thanks to the hub in Kano, we were able to deliver food in only 19 days on average, as opposed to the three months usually needed under conventional procurement process.”

— Gerald Rebello, Head of Supply Chain, WFP

## 2 warehouses, 3,100 m<sup>2</sup>

each, in Nigeria to accelerate food assistance to over **one million people**

## 8 Polio EOCs in Nigeria

## 15 County EOCs in Liberia

## One National EOC

in Nigeria, Sierra Leone, and Liberia





## GERMANY OFFICE INTERNAL SERVICES

Our Germany-based staff work closely with colleagues across other countries of operation. Jointly, our global team strengthens health systems for underserved communities in hard-to-reach contexts through the design and deployment of context-specific software and data management solutions and products.

Our office in Berlin represents eHA in EU-wide professional networks for international development, global public health, and thought leadership in technology. The office serves as the primary contact for German and EU-based stakeholders across the private and public sectors, academia, and civil society who want to partner and collaborate with eHA.

eHA is both a resource for thought leadership and learns from established global public health entities and healthcare providers in the region. In 2017, eHA joined the German Healthcare Partnership, and was represented at the Women in Global Health Network launch in Berlin.



# About eHA

## OUR STORIES

Working as a project manager in our Nigeria office, **Mohammed Bello** loves working in a place where everyone shares the same vision and is dedicated to the same mission. He is passionate about improving people's lives, especially children in vulnerable communities who receive health services through our Reach Every Settlement and Reach Inaccessible Children projects.



**Sandra Obianwuzia**, a business analyst in our Nigeria office, is primarily responsible for identifying and analyzing stakeholder requirements and business objectives to build high impact solutions. Sandra appreciates that eHA provides an environment that allows creativity, and for everyone's voices to be heard.



A Germany-based software project manager, **Tero Kuitunen** spent much of 2017 working on the 117 Call Center project in Sierra Leone and launching eDSR in Liberia. He enjoys working with great colleagues from different cultures and country offices, and gaining new knowledge and experiences that broaden his horizon.



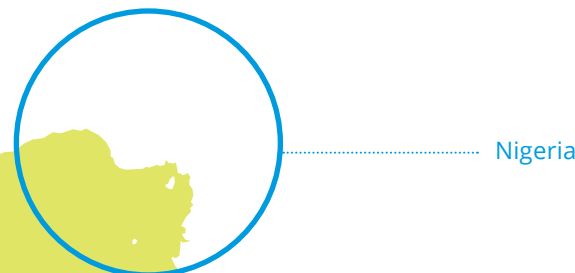
A district coordinator in eHA's Sierra Leone office, **Bashiru Kuyateh** is responsible for training and supporting nurses and clients to use eHA's software tools. Bashiru's favorite thing about working here is the frequent opportunities to learn new technologies and new ideas.



Sierra Leone



Liberia



Nigeria

**James T. Wilson** joined eHA's Liberia office in 2017 as a Technical Officer on the AVADAR team. He enjoys that his job involves frequent interaction with partners, community informants, and health workers, and the important role he is playing in the eradication of polio.



Based in our Liberia office, **Korzu Marwolo** has coordinated both Emergency Operations Center teams and AVADAR technical officers. She appreciates the opportunity to work towards appropriate preparedness and response capacity to address disease outbreaks and other public health threats.







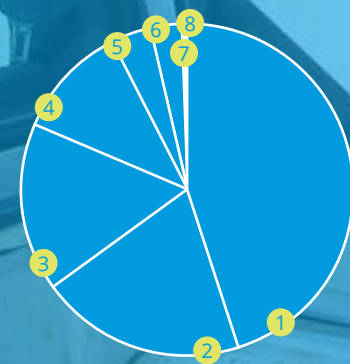
## DONORS AND PARTNERS

- Bayero University of Kano
- Bill and Melinda Gates Foundation
- Centers for Disease Control and Prevention
- CDC Foundation
- The Department for International Development (DFID)
- Dana Group (pharmaceutical manufacturer)
- Dangote Foundation
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Emory University
- The European Commission's Humanitarian Aid and Civil Protection Department (ECHO)
- German Healthcare Partnership
- GFA Consulting Group
- Intellectual Ventures/Global Good
- International Potato Center (CIP)
- Kano State Primary Healthcare Management Board
- Liberia Ministry of Health
- National Primary Health Care Development Agency
- National Union of Road Transport Workers (Nigeria)
- Nigeria Federal Ministry of Health
- Sierra Leone Ministry of Health and Sanitation
- Taisland Pharmaceuticals (distributor)
- University of California, Los Angeles
- University of Nebraska Medical Center
- World Health Organization (WHO)

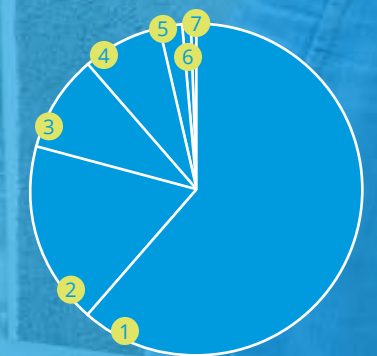


# Financial Information

Operating Revenue		USD
1	Private (Non-Govt) Grants & Contributions	\$12,593,556
2	Private (Non-Govt) Contracts	\$5,535,992
3	US Govt Grants & Contributions	\$4,584,354
4	Management Fee & Indirect Income	\$3,060,074
5	US Government Contracts	\$1,085,414
6	Other (Non-US) Govt Contracts	\$852,574
7	Miscellaneous Revenue	\$77,366
8	Other (Non-US) Govt Grants & Contributions	\$40,604
<b>Total Revenue</b>		<b>\$27, 829,934</b>



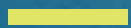
Nature of Programs		USD
1	Polio Eradication	\$17,091,005
2	Emergency Preparedness & Response	\$4,988,050
3	Health Delivery Systems	\$2,638,017
4	Integrated Disease Surveillance	\$2,113,525
5	Health Informatics	\$684,462
6	Other	\$225,231
7	Lab Systems Strengthening	\$89,644
8	Nutrition & Food Security	-
<b>Total Revenue</b>		<b>\$27, 829,934</b>











[www.ehealthafrica.org](http://www.ehealthafrica.org)