



Master of Public Health

Master de Santé Publique

A qualitative study on the EU-SIGN project in Nigeria: exploring the impact of implementing external technical assistance on strengthening immunization and healthcare systems in low-income countries through development aid projects

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Acronyms

EU-SIGN	European Union Support to Immunization Governance in Nigeria
TA	Technical Assistance
HSS	Health System Strengthening
RI	Routine Immunization
PHCUOR	Primary Health Care Under One Roof
SPHCDA s	State Primary Health Care Development Agencies
NPHCDA	National Primary Health Care Development Agency
FCT	Federal Capital Territory
VPDs	Vaccine-Preventable Diseases
WHO	World Health Organization
ORIS	Optimized Integrated Routine Immunization Sessions
DDSR	Direct-Drive Solar Refrigerators
Gavi	Global Alliance for Vaccines and Immunization
DHIS2	District Health Information System 2
MPH	Master of Public Health

Abstract

Background: The EU-SIGN was an initiative aimed at strengthening healthcare and immunization systems in Nigeria through technical assistance. This assistance is a main component of health aid to developing countries, yet its success factors are uncertain. This study explores the impacts and effectiveness of EU-SIGN's external technical assistance, considering the broader challenges faced by low-income countries in enhancing healthcare systems through development aid projects and could inform the design of similar initiatives.

Methods: This exploratory qualitative study utilized semi-structured interviews and document analysis to gather data. Stakeholders from various levels of project implementation, including health workers, government officials, and project managers, were interviewed to assess their perspectives on the EU-SIGN project's impact on health system strengthening in Nigeria in May 2024. Main themes were identified to analyze the interviews: impact on immunization, capacity building, governance and policy influence, integration of immunization services, stakeholder engagement and coordination, and sustainability of improvements. Project documents and reports were also analyzed to support interview data and provide a comprehensive understanding of project outcomes and strategies. Subsequently, we analysed the interviews content using a triangulation method with the findings of the document analysis.

Results: The EU-SIGN project through TA significantly improved immunization coverage and healthcare delivery by enhancing management systems, capacity building, and infrastructure development. Notable achievements include the establishment of State Primary Health Care Development Agencies under the Primary Health Care Under One Roof (PHCUOR) policy, and improved immunization coverage through effective supply chain management and cold chain systems. However, challenges such as bureaucratic delays, dependency on external funding, and resistance to change were identified as barriers to sustainable improvements.

Conclusion: The EU-SIGN project demonstrates the potential of external technical assistance to strengthen health systems in low-income settings by providing necessary resources, expertise, and infrastructure support. However, the sustainability of such initiatives requires continued local engagement, integration into national health policies, and overcoming bureaucratic and logistical barriers. Future research might explore the role of global health partnerships like Gavi in further enhancing vaccination and health system strengthening to inform the design of integrated health initiatives.

Key words: EU-SIGN, technical assistance, health system strengthening, immunization, Nigeria, development aid, healthcare improvement, sustainable health practices.

Introduction

General Overview of Technical Assistance

Organizations that provide development aid, such as international donors and specialized agencies, play a crucial role in addressing global disparities in resources and capacities [1]. The need for development aid arises from the significant challenges faced by low-income countries, including inadequate healthcare systems, poor infrastructure, and limited access to education and technology. One of the key actions in development aid is the provision of technical assistance (TA).

Technical assistance involves the provision of expertise, skills, and knowledge to enhance the capacities of local systems, fostering sustainable development and empowerment. In the context of development aid, TA helps countries improve their administrative, organizational, and technical capabilities. This type of assistance is particularly vital in sectors like healthcare, where the complexities of system strengthening require specialized knowledge. TA typically includes training, advising, or providing hands-on support to implement best practices and innovative solutions [1][2].

The European Union Support to Immunization Governance in Nigeria (EU-SIGN) project is a development initiative aimed at strengthening immunization and healthcare systems in Nigeria. The project focuses on improving governance, policy development, and infrastructural enhancements to address systemic challenges in the healthcare sector.

In the case of the EU-SIGN project, technical assistance played a crucial role. It was not only aimed at enhancing technical capabilities but also focused on improving governance, policy development, and infrastructural improvements. This holistic approach sought to address various systemic challenges while ensuring that the solutions implemented were sustainable and aligned with national priorities and policies [3].

Given the complexities and scale of health challenges in low-income countries like Nigeria, the integration of technical assistance within the EU-SIGN project offers a practical example of how such support can lead to significant improvements in public health outcomes [3]. However, understanding the nuanced impacts of such assistance both positive and negative is essential for refining future interventions to maximize their effectiveness and sustainability. By examining these aspects, this study aims to provide a comprehensive overview of the role and impact of technical assistance within the EU-SIGN project, offering insights that could inform the design and implementation of similar initiatives in other contexts [2][4].

Country background

Nigeria, the most populous country in Africa, has a significant burden of vaccine-preventable diseases (VPDs), contributing to high rates of under-five morbidity and mortality. Despite being home to only 1% of the global population, Nigeria accounts for 10% of the world's maternal, neonatal, and under-five deaths [5][6]. Immunization is recognized as one of the most effective and cost-efficient public health interventions to prevent early childhood deaths. However, the Nigerian immunization program has historically faced challenges, leading to low coverage rates [7].

According to data from the World Health Organization (WHO), approximately 200,000 Nigerian children die annually from vaccine-preventable diseases [8]. The country's immunization coverage has been suboptimal, with disparities across states. Reports from Gavi, the Vaccine Alliance, indicate that only 16 out of Nigeria's 37 states had achieved DPT3/PENTA3 coverage above 80%, while 16 states had coverage below 50% [9][10].

In response to these challenges, the European Union (EU) has committed substantial funding to support routine immunization and polio eradication efforts in Nigeria. From 2011 to 2019, the EU allocated over €33.5 million to routine immunization and €45 million to polio eradication, aiming to save lives and increase immunization coverage. This funding has contributed to reaching over 1.1 million children with immunization services across 23 states and the Federal Capital Territory (FCT) [11].

The National Primary Health Care Development Agency (NPHCDA) plays a central role in coordinating immunization activities at the national level, while State Primary Health Care Development Agencies (SPHCDA) oversee implementation at the state level. The Primary Health Care Under One Roof (PHCUOR) policy seeks to integrate governance, management, and service delivery within the primary health care system, aiming to improve efficiency and effectiveness [12][13].

Despite efforts to strengthen the immunization system, challenges persist, including resistance to change, bureaucratic delays, and limited resources leading to implementation gaps. However, there have been notable achievements, including increased vaccination coverage and improvements in health system performance [14].

EU-SIGN Project

The European Union Support to Immunization Governance in Nigeria (EU-SIGN) was a comprehensive eight-year health system strengthening initiative implemented from 2011 to 2019, aimed at enhancing immunization governance, increasing access to immunization services, and reducing childhood morbidity and mortality due to vaccine-preventable diseases. Building on the experiences of prior EU-funded projects, such as the European Union Partnership to Reinforce Immunization Efficiency (EU-PRIME) and the European Union Support for Strengthening Routine Immunization in Kano (EU-SRIK), EU-SIGN was executed in partnership with the National Primary Health Care Development Agency (NPHCDA) and State Primary Health Care Development Agencies (SPHCDA) across 23 states and the Federal Capital Territory (FCT). EU-SIGN had two project purposes, implemented through two contractual frameworks. The first purpose was implemented through a consortium managed by Conseil Santé, represented in-country by the Technical Assistance Team (TAT), while the second purpose was implemented by the World Health Organization (WHO). This study documents the project experience under the first project purpose with some key information on results regarding the second purpose.

EU-SIGN focused on two primary objectives:

1. Establishing sustainable routine immunization (RI) services accessible through an integrated primary health care system in the focal states and the FCT.
2. Interrupting the transmission of wild polioviruses.

The budget was strategically allocated with €33.5 million for routine immunization managed by the NPHCDA, while polio eradication efforts were funded with €30 million. An additional €15 million was sourced from another EU-funded project, augmented by the World Health Organization (WHO), to support these efforts.

The project was implemented by a consortium consisting of Conseil Santé, SOFRECO, and DAI Global Health, with Conseil Santé leading the project. This French consulting company, specialized in health and social protection, managed EU-SIGN's finances, ensured compliance with EU financial rules, and strengthened local capacities.

➤ Impacts of the EU-SIGN Project

The EU-SIGN project led to improved management systems at state and local government levels, enhanced delivery of RI services, strengthened infrastructure for RI, and advanced

information and knowledge systems to support RI goals. Significant efforts were made towards the total eradication of polio in Nigeria. The project, through the National Primary Health Care Development Agency (NPHCDA), contributed to Sustainable Development Goal (SDG) 3 with key indicators and inputs focused on ending morbidity and preventable deaths of children under five years of age due to vaccine-preventable diseases. These efforts contributed to the improved performance of the PHC system with the reduction in under-five mortality rate from 201 deaths per 1000 live births in 2003 to 132 deaths per 1000 live births in 2018. However, adjusting for population difference in the two periods, the standardised death rates in 2003 and 2018 showed a reduction in the Under-Five deaths by 34.3% from 2003 to 2018. Also, the number of children aged 12 to 23 months that were vaccinated with DPT3/Penta3 increased from a coverage of 21.4% (1,078,153 children) in 2003 to 50.1% (3,891,912) in 2018, representing 57.3% increase. For the period of implementation of the EU-SIGN Project, the EU contributed to the National increase in Penta3 coverage from 38.2% (2,535,071 children) in 2013 to 50.1% (3,891,912 children) in 2018, representing 23.8% increase. The proportion of the fully immunised children aged 12-23 months in Nigeria increased from 25.3% (1,678,984 children) in 2013 to 31.3% (2,431,447 children) in 2018, representing 19.2% increase [19].

The Technical Assistance Team (TAT), provided by the consortium, supported the NPHCDA and SPHCDA by enhancing management systems, renovating and constructing essential cold chain and service delivery infrastructures, and coordinating stakeholders. This support ensured efficient fund utilization, proper internal control of expenditures, and transparent management processes.

Beneficiaries included primary stakeholders like NPHCDA and SPHCDA, federal and state-level ministries, local government entities, and public and private media organizations. These groups saw improved health care regulations, enhanced service delivery efficiency, and better immunization coverage, which contributed to the socio-economic well-being of the communities. Implemented across various states within the six geo-political zones of Nigeria, the project focused particularly on states with the highest needs based on initial assessments. Each state had a dedicated EU-SIGN team that worked closely with local health authorities to tailor activities to the specific immunization landscape.

The Project had four components as shown in Figure 1. The EU-SIGN Project TAT supported the NPHCDA through project management support; facilitating State and LGA management systems and stewardship of PHC to improve the efficiency of RI activities and services; renovating and constructing cold chain and service delivery infrastructures, coordinating stakeholders in collaboration with other partners, and providing technical assistance on monitoring, reporting, and information processing. The support package by the TAT ensured proper use of EU-SIGN funds according to the EDF rules and procedures, including

strengthening the capacity of beneficiaries to manage and sustain all project interventions as Process Exit Strategy (PES). This included the elaboration of the budgeted annual work plans and the Operational Program Estimates (OPEs).

The TAT assisted SPHCDA in preparing the State-level OPEs and assists NPHCDA in collating OPEs at the National level. Moreover, the TAT ensured that all accounting systems and procedures were in place to improve efficient and effective internal control of expenditures with a proper split of responsibilities between the authorizing person and the payer.

Figure 1:EU-SIGN Project Components



Despite challenges such as bureaucratic delays and limited resources, EU-SIGN significantly advanced immunization coverage and strengthened the primary health care system in Nigeria. The project not only improved the infrastructural and managerial aspects of health care but also fostered sustainability and ownership within the local health governance framework, marking a notable advancement in Nigeria's public health sector. The immunization financing component received support from various development partners, including the Bill and Melinda Gates Foundation, the Dangote Foundation, GAVI, and the World Bank.

Key features of EU-SIGN Project

The EU-SIGN project was characterized by its focus on strengthening immunization governance and increasing access to immunization services within an integrated primary health care system. Unlike previous projects, EU-SIGN's strategy adopted a holistic approach

that encompassed governance, service delivery, infrastructure, and capacity building. This multifaceted approach ensured that various aspects of the healthcare system were strengthened simultaneously. As well the project placed a strong emphasis on sustainability and local ownership. It was aligned with national priorities and policies, ensuring that interventions were integrated into existing systems and structures.

The project prioritized capacity building and knowledge transfer. The project involved extensive training and mentoring activities, aiming to empower local stakeholders to sustain project interventions beyond the project's lifespan. This focus on local capacity building is a distinguishing feature that ensured the durability of the project's outcomes. Additionally, the TAT worked closely with government institutions, particularly the NPHCDA and SPHCDA, to ensure that the project interventions were seamlessly integrated into existing systems. This collaboration was key to embedding the project's benefits within the national healthcare framework.

In terms of implementation, the project faced several challenges, including bureaucratic procedures, resistance to change, and limited resources. However, EU-SIGN demonstrated resilience and adaptability in overcoming these challenges by leveraging partnerships and engaging stakeholders effectively. This adaptability is an important feature that contributed to the project's success. Furthermore, a substantial component of the project was the technical assistance provided by a dedicated team. This team offered expertise in project management, monitoring, and evaluation, which was crucial in facilitating effective implementation and overcoming systemic challenges. The depth and range of this technical support were unique features that underpinned the project's success.

Overall, the EU-SIGN project represented a concerted effort to strengthen the immunization system in Nigeria, contributing to improved vaccination coverage and health outcomes. By building on lessons learned from previous projects and adopting a comprehensive approach, EU-SIGN made significant strides towards achieving its objectives and leaving a lasting impact on the country's health system. The project's unique emphasis on sustainability, local ownership, and integrated capacity building distinguished it from other initiatives and provided valuable insights for future health system strengthening projects.

Research Question

This study aims to explore the impacts of technical assistance in healthcare system strengthening in low-income countries using EU-SIGN as an example. We will attempt to answer the following question:

How has the external technical assistance provided by the EU-SIGN project influenced the immunization and healthcare systems in Nigeria, and what key factors have contributed to its success or limitations?

To address this research question, our main study objective is to identify successful practices that have contributed to positive outcomes in health system strengthening development of the EU-SIGN project involving external technical assistance. Additionally, the study aims to understand the challenges encountered in achieving their objectives. The study also seeks to propose recommendations for overcoming these challenges to enhance the effectiveness of future interventions. To reach this goal, our study aims to meet the following intermediate objectives:

1. **Assess Stakeholder Perspectives and Integration of Technical Assistance:** Investigate stakeholders' perceptions and experiences, particularly focusing on how external technical assistance has been integrated into the existing healthcare systems and adapted to local contexts.
2. **Evaluate Sustainability and Capacity Building Outcomes:** Analyze the long-term sustainability of the improvements made by the technical assistance in immunization coverage and healthcare service delivery.
3. **Identify Challenges and Propose Recommendations:** Document and evaluate ongoing challenges and limitations that affect the effectiveness and efficiency of the technical assistance provided, such as bureaucratic, logistical, and socio-cultural barriers.

Our hypothesis suggests that externally managed health system strengthening (HSS) development aid projects can provide significant benefits for local governments and populations by enhancing health services. However, these projects may also face context-specific challenges such as dependency on external support and cultural resistance, potentially impeding the sustainability of health system improvements.

Methods

Study design

This study employed an exploratory qualitative research design, utilizing semi-structured interviews and a purposive sampling technique. We conducted in-depth interviews with various stakeholders to gather insights into their perspectives and experiences regarding the technical assistance provided in the EU-SIGN project. These discussions focused on the perceived impacts, capacity-building efforts, and challenges associated with the project. The detailed interview guide is available in Appendix 1.

The development of the semi-structured interview guide was based on specific themes identified through preliminary research and literature review. Key themes included the impact on immunization programs, capacity building, governance and policy influence, integration of immunization services, stakeholder engagement, coordination, and sustainability of improvements. This process involved creating open-ended questions within each theme to allow for in-depth exploration of participants' perspectives and experiences. The questions were designed to be flexible, enabling the interviewer to probe further based on the respondents' answers. The interview guide was structured into sections corresponding to the identified themes, ensuring a logical flow and comprehensive coverage of all relevant topics.

Before initiating the interviews, we analyzed three key project documents: the project conceptual note, narrative reports, and the procedures manual. The project conceptual note provided an overview of the EU-SIGN project's goals, objectives, and planned activities, helping us understand the foundational aims and expected outcomes. The narrative reports detailed the progress and activities of the project over time, including successes, challenges, and changes in implementation. By reviewing these reports, we could identify specific events or phases in the project to discuss with stakeholders, ensuring a comprehensive understanding of the project's timeline and major milestones. The procedures manual outlined the operational procedures and protocols followed during the project, which was crucial for understanding the day-to-day management and administrative processes.

This preliminary step helped us gain a comprehensive understanding of the project's components and outcomes, as well as the roles of the various contributors, and was crucial for formulating pertinent questions for the interviews. These documents provided a thorough background, allowing us to understand the context in which stakeholders operated, making it easier to interpret their responses accurately.

Analysis Methodology

Following the interviews, we employed a triangulation method to analyze the content. Triangulation involved comparing the interview data with our initial findings from the document analysis. Here's how we conducted the analysis :

- a. **Thematic Analysis:** We started by coding the interview transcripts based on the predefined themes from our interview guide. Additional codes were created as new themes emerged during the analysis.
- b. **Document Analysis:** We revisited the project documents, highlighting key points and cross-referencing them with the interview data. This step ensured that our interpretations of the interviews were grounded in documented evidence of the project.
- c. **Comparison and Integration:** We compared the themes and insights from the interviews with the information from the project documents. This comparison helped identify consistencies and discrepancies between stakeholders' perceptions and the documented project outcomes.

By using this comprehensive analysis approach, we aimed to provide a robust and nuanced understanding of the EU-SIGN project's impact, informed by both qualitative interview data and documented project evidence.

Sampling methods

Participants were selected through a purposive sampling method aimed at identifying key informants. Initially, we reviewed the project documents to determine the main stakeholders involved. This was further validated through discussions with the project coordinator at our host institution. Our preliminary research helped us identify 11 potential key informants. Ultimately, we successfully recruited 8 participants, as outlined in the table 1 below:

Category	Target key informant	Interview conducted
Donor representative	EU Project Officer	yes
Lead project implementors	Conseil santé project coordinator at the headquarters	yes
	Conseil santé project manager on the field	yes
	Training and contractor advisor	yes
Beneficiary	Routine immunization expert	yes
	District health representative	yes
Local partners representatives	EU-SIGN focal point NPHCDA	yes
	EU-SIGN focal point SPHCDA	yes
Beneficiary	Project director NPHCDA	No(unavailable)
Project implementor	Cluster lead EPI	No(unavailable)
Beneficiary	State cold chain logistic officer	No(unavailable)

Table 1: Overview of Interviewed Key Informants in the EU-SIGN Project

Participant selection

The inclusion criteria are:

- Being an official representative of one of the organizations involved in the EU-SIGN project.
- Agreeing to have the interview recorded.

- Having sufficient insight into the technical assistance provided.

The only exclusion criterion is refusal to participate in the research study.

Study setting

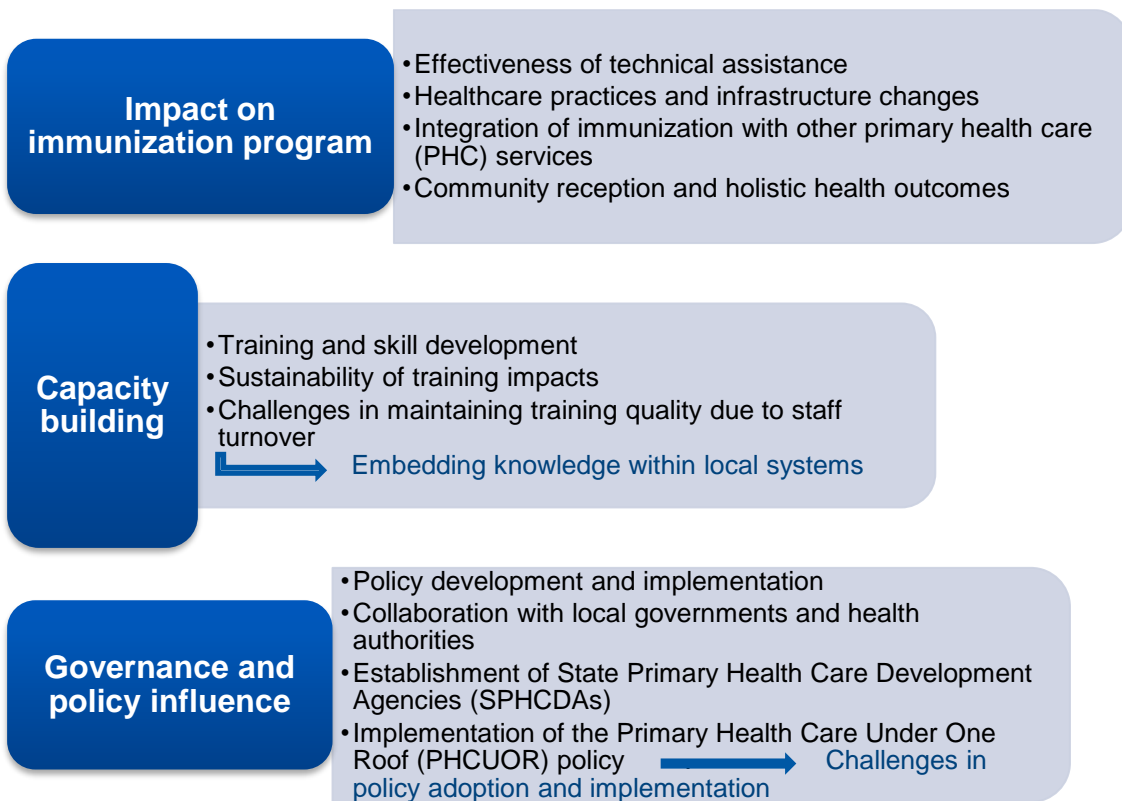
The study included six online interviews and two in-person interviews at the host company, Conseil Santé in France. The online interviews were conducted between the researcher located in Paris and the participants in Nigeria. These interviews were performed in May 2024 and lasted between 35 to 45 minutes. All interviews were recorded with informed consent from the participants.

Ethics note

To protect the participants privacy, we anonymized all quotes reported in the results section, keeping only the category of the concerned institution for clarity purposes. Voluntarily, participants could choose to end the interview at any time or not respond to any questions.

Data analysis

The interviews were conducted in English, one of the official languages in Nigeria, and spoken fluent by the researcher. However, one participant preferred French, and therefore the interview was conducted in French. All interviews were recorded and transcribed verbatim. Qualitative data analysis was conducted manually through coding specific themes and sub-themes as detailed below:



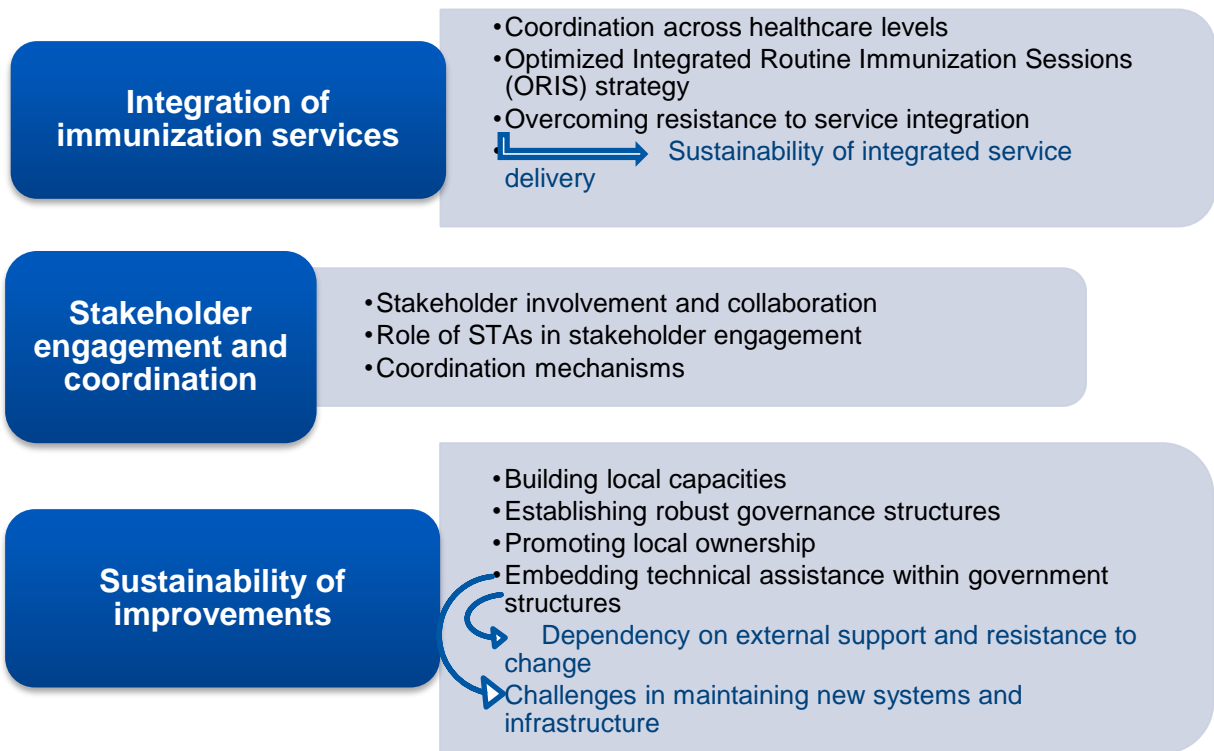


Figure 2: Coding Process for Qualitative Data Analysis

Results

Analysis of project documents

Prior to analyzing the interview content, we looked at the project procedures and ten progress reports. EU-SIGN was implemented through existing government institutions, rather than establishing parallel structures. The use of a Memorandum of Understanding (MoU) with all focal states is a mechanism that promotes the ownership and sustainability of key health system investments. EU-SIGN, through its State Technical Assistants (STAs) who were embedded in the 23 states and the Federal Capital Territory (FCT), supported the states to improve awareness and implement the Primary Health Care Under One Roof (PHCUOR) policy.

Last narrative report

Before detailing our interview results, we identified the project's progress by component.

- *Component 1:* Successfully established and operationalized State Primary Health Care Development Agencies (SPHCDA) in all 23 focal states and the FCT. Supported the implementation of the Primary Health Care Under One Roof (PHCUOR) policy, improving coordination and governance at the state level. Provided technical

assistance through State Technical Assistants (STAs) who were embedded in the states to enhance governance structures and processes.

- *Component 2:* Implemented efficient financial management practices, ensuring proper utilization and accountability of funds. This included the development of budgeted annual work plans and Operational Program Estimates (OPEs).
- *Component 3:* Improved Capacity to Deliver Immunization Services in an Integrated PHC System. Procured and distributed 757 Direct Drive Solar Refrigerators, renovated or constructed health facilities, and provided 29 vehicles to support immunization activities. Enhanced service delivery mechanisms through improved management systems at the state and local government levels, resulting in increased immunization coverage. Conducted extensive training and mentoring programs for healthcare professionals to build local capacity in delivering immunization services effectively.
- *Component 4:* Information systems to support routine immunization activities, including the development and implementation of robust monitoring and reporting frameworks. Enhanced the use of data for decision-making at all levels of the health system, ensuring that immunization programs were data-driven and evidence-based. Implemented scorecards to track the progress of states in implementing the PHCUOR policy and other immunization-related activities.

Interview results

Impact on Immunization Programs

The interviews provided critical insights into the impact of the EU-SIGN project on immunization programs in Nigeria. Participants from various sectors, including project implementers, beneficiaries, and local partners, highlighted significant changes and improvements attributed to the technical assistance provided by the EU-SIGN project.

Interviewees consistently reported an increase in immunization coverage across the states involved in the EU-SIGN project. The project supported the procurement and distribution of essential cold chain equipment, such as Direct Drive Solar Refrigerators and vehicles, which played a pivotal role in maintaining vaccine integrity and ensuring their availability at remote health facilities. This directly contributed to the reduction of vaccine-preventable diseases among children under five years of age.

"Since the introduction of the EU-SIGN project, we've seen a remarkable increase in immunization coverage. The provision of solar refrigerators has been a game changer, ensuring vaccines remain potent even in remote areas," said a routine immunization expert.

"Before the project, we struggled with vaccine stock-outs and wastage due to poor cold chain management. Now, with the new equipment and better logistics, our immunization rates have improved significantly," said a state cold chain logistic officer.

The deployment of State Technical Assistants (STAs) to the 23 states and the FCT significantly improved the operational efficiency of immunization services. The STAs facilitated better planning, coordination, and execution of immunization activities, thereby addressing logistical challenges and reducing instances of vaccine stock-outs. The adoption of the "PUSH" system for vaccine distribution, which was supported by EU-SIGN, ensured timely delivery of vaccines to health facilities, further enhancing service delivery.

"The support from the State Technical Assistants has been invaluable. They have streamlined our processes, making sure vaccines are always available when needed," said a district health representative.

"The PUSH system has revolutionized our distribution. We no longer wait for vaccines to be requested; they are delivered proactively, which has greatly improved our service delivery," said EU-SIGN focal point NPHCDA.

The renovation and construction of health facilities and cold chain infrastructure were frequently cited as major achievements of the EU-SIGN project. This included the establishment of new cold stores, boreholes, and the provision of solar energy-driven refrigerators. These improvements not only ensured the proper storage of vaccines but also enhanced the overall functionality of primary health care (PHC) facilities.

"The new cold stores and health facility renovations have made a huge difference. We can now store vaccines properly and provide a better environment for our patients," said a district health representative.

"With the addition of solar refrigerators and improved infrastructure, we are better equipped to handle immunization sessions and other health services," said a routine immunization expert.

The project promoted the Optimized Integrated Routine Immunization Sessions (ORIS) strategy, integrating other PHC services such as malaria prevention, antenatal care, family planning, and zinc supplementation with immunization sessions. This holistic approach maximized resource utilization and improved access to a range of essential health services, contributing to better health outcomes in the communities.

"Integrating services through the ORIS strategy has been highly effective. When parents bring their children for immunization, they can also access other essential health services, which improves overall health outcomes," said the EU-SIGN focal point NPHCDA.

"The combination of immunization with other PHC services has been very well received by the community. It saves time for patients and ensures they receive comprehensive care in one visit," said a district health representative.

Capacity building

Stakeholders widely acknowledged the training programs provided through EU-SIGN positively, which were pivotal in enhancing the skills of healthcare workers at all levels. The technical assistance included workshops, on-the-job training, and mentorship programs focusing on immunization practices, cold chain management, and data reporting. These initiatives were crucial in equipping healthcare professionals with the necessary expertise to improve service delivery.

One routine immunization expert noted, *"The training sessions organized by EU-SIGN have been instrumental. Healthcare workers are now better equipped to handle vaccines and manage immunization sessions efficiently."*

A district health representative mentioned, *"Before the training, there was a lot of confusion about vaccine storage and administration. Now, with the knowledge gained, our staff can ensure vaccines are stored correctly and administered safely."*

Despite the positive outcomes, there were notable challenges associated with technical assistance. Interviewees highlighted that the implementation of training programs faced bureaucratic delays and logistical issues, which affected their efficiency and reach. In line with the implementation structure, the NPHCDA initiates approval process at the National level with the Ministry of Finance, Budget and National Planning, and thereafter, concurrence was requested from the EU. This delayed implementation timelines, which ultimately led to the non-implementation of a significant number of activities. Additionally, a 24-month delay in the project commencement phase and insufficient resources for timely implementation further hampered the effectiveness of the technical assistance.

An EU-SIGN focal point from the SPHCDA stated, *"While the trainings were beneficial, the initial delays in project implementation meant that some training sessions were rushed, and not all intended participants could attend."*

The project's technical assistance aimed at long-term capacity building was appreciated, with several stakeholders emphasizing the sustainability of the skills imparted. The strategy involved embedding knowledge within local systems to create lasting improvements.

A training and contractor advisor shared, *"The goal was always to ensure that the skills and knowledge stay within the system. We've seen healthcare workers taking ownership of the processes and training their peers, which is a positive sign for sustainability."*

However, the sustainability of these improvements faced challenges. High turnover rates among healthcare staff and limited continuous education opportunities were significant concerns. Maintaining the quality of training and knowledge transfer over time was challenging due to staff turnover and the need for ongoing training. As well the inadequate implementation of the PHCUOR including non-transfer of health workers from the local government service commissions, thus maintaining staff salaries outside the SPHCDA in some States what can lead to demotivation among staff due to salary delays and inconsistencies.

A routine immunization expert remarked, *"We've had instances where trained staff moved to other jobs, and their replacements did not receive the same level of training, which affects the overall service quality."*

Governance and policy influence

One of the critical contributions of the EU-SIGN project was its support in developing and implementing policies that strengthened the immunization governance framework in Nigeria. The technical assistance facilitated the creation and enforcement of policies aimed at improving immunization coverage and integrating services across different levels of the healthcare system.

A Conseil Santé project manager on the field stated, *"The EU-SIGN project played a pivotal role in developing robust immunization policies. By collaborating with local governments and health authorities, we were able to create policies that are not only effective but also sustainable."*

The project significantly improved governance structures at both the national and state levels. The establishment of State Primary Health Care Development Agencies (SPHCDA) in all 23 focal states and the Federal Capital Territory (FCT) was a notable achievement. These agencies were crucial in coordinating and overseeing immunization activities, thereby enhancing the overall governance of health services.

"The support from the State Technical Assistants has been invaluable. They have streamlined our processes, making sure vaccines are always available when needed," said a district health representative.

Despite these successes, there were several challenges. The bureaucratic delays and resistance to change within some state and local governments hindered the full implementation

of the PHCUOR policy and other governance initiatives. The project's efficiency was affected by the slow pace of policy adoption and implementation at the state level, which was often due to entrenched bureaucratic processes and resistance from local stakeholders.

An EU-SIGN focal point from the NPHCDA mentioned, *"While the policies introduced were sound, getting buy-in from all levels of government was challenging. There were significant delays in implementing some of the key governance reforms while some key stakeholders were initially resistant to the accelerated change process required to implement PHCUOR, such as the establishment of functional SPHCDA's."*

The technical assistance provided by the EU-SIGN project also influenced national and state-level policies by promoting a more integrated approach to immunization and primary health care. The project's advocacy efforts and high-level engagements with government officials resulted in better alignment of immunization policies with national health priorities.

"The engagement with state and national health authorities through workshops and advocacy meetings has led to a more cohesive policy environment for immunization," noted the EU Project Officer.

A significant focus of the project was to ensure that the policy changes were sustainable beyond the project's lifespan. By embedding the technical assistance within existing government structures and promoting local ownership, the project aimed to create lasting improvements in governance and policy frameworks.

"The policies we helped develop are now part of the national and state health strategies. This integration ensures that the improvements will continue even after the project ends," stated a Conseil Santé project coordinator.

However, ensuring the sustainability of these policy changes faced several obstacles. High turnover rates among government officials and health workers, as well as the varying levels of commitment from different states, posed significant challenges. Maintaining the momentum for policy implementation required ongoing support and advocacy.

A training and contractor advisor commented, *"While we made significant strides in policy development, sustaining these changes requires continuous effort and commitment from all stakeholders involved."*

Integration of immunization services

The integration of immunization services was significantly enhanced through the technical assistance provided by the EU-SIGN project. The deployment of State Technical Assistants (STAs) facilitated better coordination between various levels of the healthcare system,

including federal, state, and local government areas (LGAs). This coordination ensured that immunization services were integrated into the broader PHC activities, improving service delivery and coverage.

"The support from the STAs was instrumental in ensuring that immunization services were well-coordinated across different levels of the healthcare system," noted the EU-SIGN focal point from the SPHCDA.

The EU-SIGN project promoted the Optimized Integrated Routine Immunization Sessions (ORIS) strategy, which aimed to integrate immunization services with other essential health services. This approach not only maximized resource utilization but also ensured that communities received comprehensive healthcare during immunization sessions.

"The integration of immunization with other PHC services has been very well received by the community. It saves time for patients and ensures they receive comprehensive care in one visit," said a district health representative.

Despite the success in integrating immunization services, several challenges were encountered. The complexity of aligning various healthcare programs and the resistance from some healthcare workers to adopt integrated service delivery approaches posed significant hurdles. The initial resistance to change among healthcare providers and the logistical challenges of coordinating multiple services were major barriers to effective integration.

A state cold chain logistic officer mentioned, *"Initially, there was some resistance to integrating services. Healthcare workers were used to operating in silos, and changing this mindset took time and effort."*

The integration of services through the ORIS strategy led to significant improvements in service delivery. By combining immunization with other PHC services such as malaria prevention, antenatal care, family planning, and zinc supplementation, the project ensured that more comprehensive and efficient healthcare was provided to the communities.

"Integrating services through the ORIS strategy has been highly effective. When parents bring their children for immunization, they can also access other essential health services, which improves overall health outcomes," said the EU-SIGN focal point NPHCDA.

The holistic approach to service delivery was well-received by the community, as it provided them with the opportunity to address multiple health needs in a single visit. This not only increased the uptake of immunization but also improved the overall health-seeking behavior of the population.

"The community has greatly benefited from the integrated services. It has made healthcare more accessible and convenient, leading to better health outcomes," noted a routine immunization expert.

Ensuring the sustainability of these integration efforts was a key focus of the EU-SIGN project. By embedding the technical assistance within existing government structures and promoting local ownership, the project aimed to create lasting improvements in the integration of immunization services with other PHC activities.

"The policies and practices we have put in place are designed to be sustainable. By integrating services, we have created a more resilient healthcare system that can continue to provide comprehensive care even after the project ends," said a Conseil Santé project manager on the field.

However, sustaining the integrated approach faced challenges, including the need for continuous training and capacity building of healthcare workers, as well as the requirement for ongoing support and supervision to maintain the momentum. Sustaining the integration of services would require persistent efforts to ensure that the practices and policies implemented during the project continued to be adhered to by the healthcare providers.

A training and contractor advisor commented, *"Maintaining the integrated service delivery approach requires ongoing training and support for healthcare workers. It's essential to keep reinforcing the importance of this holistic approach to ensure its sustainability."*

Stakeholder Involvement and Collaboration

One of the key strategies employed by the EU-SIGN project was the deployment of State Technical Assistants (STAs) to facilitate stakeholder engagement. The STAs acted as liaisons between different levels of government, healthcare providers, community leaders, and development partners. This approach ensured that all relevant parties were aligned with the project's goals and actively contributed to its implementation.

"The involvement of STAs was crucial in bringing all stakeholders together. Their presence on the ground facilitated better communication and coordination among the different levels of government and other partners," said the EU-SIGN focal point NPHCDA.

The technical assistance provided by the EU-SIGN project included the establishment of robust coordination mechanisms. Regular meetings, joint planning sessions, and collaborative workshops were organized to ensure that stakeholders were kept informed and involved in decision-making processes. These mechanisms helped to address issues promptly and adapt strategies as needed.

"The regular stakeholder meetings and workshops organized by the STAs were very effective in ensuring that everyone was on the same page. It allowed us to address challenges collectively and find solutions quickly," noted a district health representative.

Despite the successful engagement strategies, the project faced challenges in coordinating stakeholders, particularly due to bureaucratic hurdles and varying levels of commitment from different parties. While the coordination mechanisms were generally effective, there were instances where delays in decision-making and implementation occurred due to administrative bottlenecks.

A Conseil Santé project manager on the field remarked, *"One of the significant challenges we faced was navigating the bureaucratic processes. Ensuring timely decisions and actions from all stakeholders required persistent effort and sometimes led to delays."*

The technical assistance provided through the EU-SIGN project played a pivotal role in overcoming these challenges. By offering continuous support and capacity building, the STAs helped to streamline processes and improve the efficiency of stakeholder coordination. Their expertise in project management and their ability to mediate between different parties were crucial in maintaining momentum and addressing issues as they arose.

"The technical assistance was key in overcoming coordination challenges. The STAs provided the necessary support to navigate bureaucratic processes and ensured that all stakeholders remained committed to the project's objectives," said a training and contractor advisor.

Sustainability of Improvements

The sustainability of the project's outcomes was enhanced by several factors, including the strengthening of local capacities, the establishment of robust governance structures, and the promotion of local ownership. The technical assistance team focused on building the skills and knowledge of local healthcare workers and administrators, ensuring that they were equipped to maintain and continue the project's initiatives.

"The continuous training and mentoring provided by the STAs have empowered local healthcare workers to sustain the improvements made. They now have the skills and confidence to manage immunization services independently," noted the routine immunization expert.

A critical aspect of the EU-SIGN project's approach was embedding the technical assistance within existing government structures. This strategy promoted local ownership and ensured that the improvements were integrated into the regular operations of the healthcare system. By working closely with the National Primary Health Care Development Agency (NPHCDA)

and the State Primary Health Care Development Agencies (SPHCDA), the project ensured that the benefits of the technical assistance would continue beyond the project's lifespan.

"The project's focus on local ownership has been key to its sustainability. By integrating the technical assistance within our existing structures, we have been able to ensure that the improvements are maintained and built upon," said a district health representative.

However, the project faced several challenges in ensuring sustainability. These included dependency on external support, resistance to change among some healthcare workers, and logistical difficulties in maintaining the new systems and infrastructure. Sustaining the momentum of the improvements required continuous effort and support, even after the project ended.

"Maintaining the new systems and infrastructure has been challenging, particularly in remote areas. Continued support and resources are needed to ensure that the improvements are not lost over time," commented a state cold chain logistic officer.

The technical assistance provided by the EU-SIGN project was instrumental in addressing these challenges. The STAs offered ongoing support and capacity building, helping to mitigate the risks associated with dependency on external aid. They also worked to foster a culture of continuous improvement and adaptability among healthcare workers, ensuring that they were prepared to handle future challenges independently.

"The technical assistance team has been vital in addressing sustainability challenges. Their ongoing support and capacity building efforts have helped to create a resilient healthcare system capable of sustaining the project's benefits," said the Conseil Santé project coordinator.

Discussion

Our study provides valuable insights into the perspectives and motivations of key stakeholders involved in a complex development aid project like EU-SIGN. Understanding these perspectives is crucial for designing projects that enhance efficiency, even when managed by external entities. Technical assistance is essential for achieving health system strengthening (HSS) in low-income countries and meeting the sustainability goals outlined in the Paris Aid Effectiveness Principles, as reiterated at the 2011 Busan Conference [20]. This is consistent with the literature, which emphasizes the critical role of technical assistance in fostering sustainable development and local capacity building [15].

The methodology employed in this study, combining qualitative interviews with key stakeholders and thorough document analysis, provided a comprehensive understanding of

the EU-SIGN project's impact. Semi-structured interviews with project implementers, beneficiaries, and local partners offered in-depth insights into their perspectives and experiences, while the analysis of project documents illuminated the project's components, processes, and outcomes. This mixed-method approach ensured a robust and nuanced evaluation of the project's effectiveness.

Stakeholders' Perspectives

From the donor's perspective, the EU-SIGN project exemplifies a commitment to enhancing public health systems in low-income countries through strategic investments in technical assistance. The donor's main motivation is to achieve sustainable health outcomes by strengthening local capacities and governance structures. This approach aligns with the Paris Aid Effectiveness Principles, which emphasize ownership, alignment, harmonization, managing for results, and mutual accountability [20]. The EU-SIGN project illustrates how external technical assistance can be a catalyst for significant improvements in healthcare delivery and immunization coverage. However, the donor also faces the challenge of ensuring that these improvements are sustainable and that local stakeholders fully integrate and maintain the enhanced systems post-project.

The donor's emphasis on robust monitoring and evaluation frameworks, as seen in the implementation of the DHIS2 platform for routine immunization data, highlights the importance of data-driven decision-making. This perspective is consistent with findings in the literature that highlight the critical role of robust M&E systems in ensuring the success and sustainability of health interventions [16]. The consistent submission of monthly RI data across all focal states (100% compliance) underscores the success of these systems. However, the donor recognizes that ongoing challenges, such as bureaucratic delays and the need for continuous capacity building, must be addressed to sustain these gains.

Project implementers, including Conseil Santé and its consortium partners, played a crucial role in operationalizing the EU-SIGN project. Their perspective is shaped by the on-the-ground realities of executing complex health interventions in a challenging environment. The project implementers highlight several key achievements, such as the establishment of functional State Primary Health Care Development Agencies (SPHCDA) in all focal states and the significant improvements in cold chain infrastructure, which were vital for maintaining vaccine efficacy.

Implementers also faced significant challenges, particularly related to bureaucratic hurdles and resource constraints. The delays in project initiation and the subsequent need for multiple amendments to the Financing Agreement affected the project's efficiency. The implementers'

ability to adapt and leverage local partnerships was critical in overcoming these obstacles. The use of State Technical Assistants (STAs) embedded within local health systems facilitated better coordination and ownership, which was crucial for the project's success [17].

The technical assistance provided by the implementers was not limited to infrastructure improvements but also included extensive capacity building through training programs. These efforts aimed to ensure that local healthcare workers could sustain the project's benefits independently. However, the high turnover rates among healthcare staff and the need for continuous education highlight the ongoing need for support and resources. These findings are consistent with other studies that emphasize the necessity of ongoing training and support to maintain the benefits of capacity-building initiatives [15].

Local government officials, including those from the NPHCDA and SPHCDA, view the EU-SIGN project technical assistance as a transformative initiative that has significantly enhanced the immunization landscape in Nigeria. The activities focus on building local capacities and integrating services within the primary health care system aligns with national health priorities and policies.

One of the critical benefits from the local government's perspective is the improved governance and management systems for routine immunization and primary health care. The establishment of functional SPHCDA with the support of TA in all focal states and the implementation of the Primary Health Care Under One Roof (PHCUOR) policy have strengthened the coordination and delivery of health services. However, local officials also emphasize the need for ongoing support to address challenges such as resistance to change and logistical difficulties in maintaining new systems and infrastructure.

Local government stakeholders appreciate the holistic approach of the EU-SIGN project through the TA, which integrates immunization with other primary health care services through strategies like the Optimized Integrated Routine Immunization Sessions (ORIS). This approach has not only improved immunization coverage but also enhanced overall health outcomes by providing comprehensive care. This holistic approach is supported by the literature, which advocates for integrated health service delivery to maximize resource utilization and improve health outcomes [17].

Advantages and Drawbacks of Externally Managed HSS Projects

Externally managed projects like EU-SIGN bring in specialized knowledge and skills that may not be readily available within the local context. This infusion of expertise helps in implementing innovative practices and advanced technologies. For instance, the EU-SIGN project introduced Direct-Drive Solar Refrigerators (DDSR) which enhanced vaccine storage and distribution,

particularly in remote areas with unreliable electricity supply. As well these projects provide critical resources, including financial support, equipment, and infrastructure improvements, that local governments might struggle to procure. In the case of EU-SIGN, the project facilitated the procurement and distribution of essential cold chain equipment and vehicles, significantly boosting the immunization logistics.

One of the core components of externally managed projects is the focus on training and capacity building. EU-SIGN's extensive training programs for healthcare workers and government officials ensured that local staff were equipped with the necessary skills to sustain immunization efforts and manage healthcare services effectively. External projects often assist in strengthening governance structures and policy frameworks. The EU-SIGN project supported the establishment and operationalization of State Primary Health Care Development Agencies (SPHCDA) and the implementation of the Primary Health Care Under One Roof (PHCUOR) policy, which centralized and improved the coordination of healthcare services at the state level. EU-SIGN through the technical assistance provide monitoring and evaluation frameworks, enabling informed decision-making. EU-SIGN's support for the implementation of the District Health Information System (DHIS2) exemplifies this, as it helped improve data management and reporting at multiple levels of the healthcare system.

On the other hand, A major challenge for externally managed projects is ensuring the sustainability of improvements post-project. There is often a risk of dependency on external support, which can undermine local ownership and the long-term viability of project benefits. The EU-SIGN project faced challenges in ensuring that the training and systems implemented would be maintained without continuous external support. Integrating external assistance with local policies and systems can be complex and may lead to bureaucratic delays and resistance to change. The EU-SIGN project encountered significant bureaucratic hurdles and delays in the implementation of activities due to the need for multiple levels of approval from national and EU bodies.

The effectiveness of externally managed projects can be hindered by varying levels of commitment and capacity among local stakeholders. The technical assistant for the EU-SIGN project experienced challenges related to the inconsistent implementation of policies and practices across different states, influenced by local political and administrative dynamics. As well the high turnover rates among healthcare workers and the need for ongoing training present continuous challenges. Even with extensive capacity-building efforts, maintaining the quality and consistency of training over time was difficult for EU-SIGN due to staff turnover and the need for regular updates and refresher training.

Lessons Learned and Overcoming Challenges

The EU-SIGN project offers valuable lessons for future HSS initiatives. One key lesson is the importance of embedding technical assistance within existing government structures to enhance ownership and sustainability. The use of STAs to facilitate coordination and capacity building at the state level proved effective in overcoming bureaucratic and logistical challenges. This approach aligns with best practices identified in the literature, which emphasize the importance of local engagement and capacity building [18].

Another lesson is the need for a robust monitoring and evaluation framework. The implementation of the DHIS2 platform for routine immunization data collection enabled real-time tracking of progress and informed decision-making. However, ensuring the quality and consistency of data remains a challenge that requires ongoing support and capacity building. This is consistent with other studies that emphasize the critical role of M&E systems in health interventions [16].

To overcome challenges related to resource constraints and bureaucratic delays, future projects should consider a more flexible and adaptive implementation model. This includes securing counterpart funding from local governments to ensure shared responsibility and investment in the project's success. Additionally, streamlining administrative processes and reducing bureaucratic bottlenecks can enhance efficiency and effectiveness. These recommendations are supported by the literature, which advocates for flexible and adaptive approaches in development projects [15].

Recommendations

Based on the findings of this study, several recommendations can be made to optimize technical assistance in HSS development projects:

1. **Enhance Local Ownership and Integration:** Embed technical assistance within existing government structures and ensure active involvement of local stakeholders in planning and implementation.
2. **Strengthen Monitoring and Evaluation:** Implement robust data collection and reporting systems, such as DHIS2, to enable real-time tracking of progress and inform decision-making.
3. **Address Bureaucratic and Logistical Challenges:** Streamline administrative processes and reduce bureaucratic bottlenecks to enhance efficiency and effectiveness.
4. **Ensure Sustainable Capacity Building:** Provide ongoing training and support to healthcare workers to sustain improvements and address high turnover rates.

5. **Leverage Local Resources:** Secure counterpart funding from local governments to ensure shared responsibility and investment in the project's success.
6. **Adapt Implementation Models:** Use flexible and adaptive implementation models to respond to changing circumstances and challenges effectively.

By implementing these recommendations, future HSS development projects can build on the successes of the EU-SIGN project and achieve sustainable improvements in healthcare systems in low-income countries. These recommendations are consistent with the literature on best practices for technical assistance and health system strengthening in low-income settings [15,17].

Limitations of the Study

While this study provides valuable insights into the impact of the EU-SIGN project, it has several limitations. The reliance on qualitative data from interviews with a limited number of stakeholders may not fully capture the broader range of perspectives and experiences. Additionally, the study's focus on the EU-SIGN project may limit the generalizability of its findings to other contexts and settings. Recall bias may also affect the accuracy of the information provided by participants, as they may not remember past events accurately or may reinterpret them in a way that favors a certain narrative. This is particularly relevant given the retrospective nature of the interviews conducted.

Furthermore, the position of the researcher as an intern at Conseil santé was well known by all interviewees. So, this could have influenced the way participants expressed their views regarding this issue. As well the data was coded by only one researcher, therefore inter-rater reliability was not tested. This may be a source of bias due to the subjectivity of the data analysis, and the results.

Conclusion

The EU-SIGN project demonstrates the transformative potential of externally managed health system strengthening (HSS) initiatives in low-income countries. By enhancing immunization services and overall healthcare delivery, the project significantly contributed to the reduction of childhood morbidity and mortality due to vaccine-preventable diseases in Nigeria. The project's success underscores the critical role of external technical assistance, especially in contexts where local governments face substantial constraints in financial and technical capacities. External assistance is indispensable in low-income countries, providing

necessary expertise, resources, and capacity-building efforts that local governments might struggle to achieve independently. The EU-SIGN project filled these gaps effectively, showcasing how external support can drive substantial health improvements. However, the project also encountered context-specific challenges, such as dependency on external support and cultural resistance, which can impede the sustainability of health system improvements. Addressing these challenges is essential for the long-term success of such initiatives.

Further exploration of Gavi's role in global health initiatives offers a promising avenue for future research, particularly in the context of vaccination and health system strengthening. As a leader in vaccine procurement and distribution, Gavi's innovative approaches to funding and logistical support have significantly improved vaccination rates in low- and middle-income countries. By examining the interplay between Gavi's strategies and projects like EU-SIGN, researchers can identify effective practices that enhance immunization coverage and strengthen health systems. This analysis could inform the design of integrated health initiatives that not only expand vaccine access but also build enduring health infrastructure, ultimately contributing to the resilience and self-sufficiency of health systems worldwide.

In conclusion, the EU-SIGN project serves as a compelling case study of how external technical assistance can significantly strengthen health systems in low-income countries. While challenges remain, the project's achievements provide a valuable blueprint for future initiatives. By addressing the identified challenges and implementing the proposed recommendations, future HSS projects can continue to drive meaningful and sustainable improvements in global health outcomes.

References

1. Asian Development Bank. (2023). *What is ADB technical assistance (TA)?* Retrieved from adb.org
2. Encyclopedia Britannica. (2023). *Technical assistance*. Retrieved from britannica.com
3. BMC Public Health. (2023). *Health priority-setting for official development assistance in low-income and middle-income countries: a Best Fit Framework Synthesis study with primary data from Ethiopia, Nigeria, and Tanzania*. Retrieved from biomedcentral.com
4. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/264181468156582056/technical-assistance>
5. WHO. (2023). *Country Disease Outlook*. Retrieved from afro.who.int
6. UNICEF. (2023). *Country Office Annual Report 2023 Nigeria*. Retrieved from unicef.org
7. WHO. (2023). *World Health Statistics 2023*. Retrieved from World Health Statistics (who.int)
8. WHO. (2023). *Diphtheria in Nigeria*. Retrieved from who.int
9. WHO. (2023). *Immunization Coverage in Nigeria*. Retrieved from Immunization coverage (who.int)
10. Gavi, the Vaccine Alliance. (2023). *Immunization Coverage Data*. Retrieved from gavi.org
11. WHO. (2022). *Vaccine-preventable disease outbreaks on the rise in Africa*. Retrieved from afro.who.int
12. EU. (2023). *Funding for Immunization and Polio Eradication in Nigeria*. Retrieved from europa.eu
13. BMC Public Health. (2023). *Factors influencing childhood immunization uptake in Africa: a systematic review*. Retrieved from biomedcentral.com
14. WHO. (2023). *Public Health Response to Diphtheria in Nigeria*. Retrieved from who.int
15. OECD. (2023). *Principles of aid effectiveness*. OECD Development Cooperation Reports. <https://www.oecd.org/dac/development-co-operation-report-20747721.htm>
16. Evaluation of public health interventions from a complex systems perspective: A research method review. *Social Science & Medicine*, 272, 113697(2021). <https://www.sciencedirect.com/science/article/pii/S0277953621000290>

17. Hagelsteen, M., & Becker, P. (2019). The role of technical assistance in development projects. *Development Studies Review*, 28(2), 123-140.
18. Hagelsteen, M., Becker, P., & Smith, L. (2022). Local engagement in health system strengthening. *Global Health Policy*, 17(3), 77-89.
19. European Union Support to Immunization Governance in Nigeria (EU-SIGN). (2018). *Impact Report on Immunization Coverage and Child Mortality in Nigeria*. European Union. https://www.eeas.europa.eu/node/56159_en
20. Organisation for Economic Co-operation and Development (OECD). (n.d.). *The Paris Declaration on Aid Effectiveness and the Accra Agenda for Action*. <https://www.oecd.org/dac/effectiveness/parisdeclarationandaccraagendaforaction.htm>

Project Documents Reviewed (Provided by Conseil Santé)

- European Union Support to Immunization Governance in Nigeria (EU-SIGN) Project Conceptual Note
- European Union Support to Immunization Governance in Nigeria (EU-SIGN) Narrative Reports
- European Union Support to Immunization Governance in Nigeria (EU-SIGN) Procedures Manual

Appendix 1: Interview guide

1. Please introduce yourself.
2. Describe your role in the EU-SIGN project.
3. How has external technical assistance provided by the EU-SIGN project directly impacted the effectiveness of immunization programs in your area?
4. What specific changes in healthcare practices or infrastructure can you attribute to the EU-SIGN project's technical assistance?
5. Can you provide examples of how technical assistance has helped overcome previous challenges in immunization service delivery?
6. How has the technical assistance from the EU-SIGN project contributed to the capacity building of healthcare professionals involved in immunization?
7. In what ways has the technical assistance influenced the governance and policy frameworks surrounding immunization in Nigeria?
8. What role did technical assistance play in the integration of immunization services across different levels of the healthcare system?
9. How effective has technical assistance been in engaging and coordinating between various stakeholders (e.g., local governments, healthcare providers, community leaders) involved in immunization?
10. What are the perceived strengths and weaknesses of the technical assistance approach taken by the EU-SIGN project?
11. From your perspective, how sustainable are the improvements made through the EU-SIGN project's technical assistance? What factors contribute to or detract from their sustainability ?
12. Based on your experience, what additional forms of technical assistance would further enhance the effectiveness of immunization programs in Nigeria?

Abstract in French

Contexte : Le projet "European Union Support to Immunization Governance in Nigeria" (EU-SIGN) visait à renforcer les systèmes de santé et d'immunisation au Nigeria à travers une assistance technique, en mettant l'accent sur les pratiques de santé durables et la réduction des maladies évitables par la vaccination. Cette étude explore les impacts et l'efficacité de l'assistance technique externe fournie par EU-SIGN, face aux défis plus larges rencontrés par les pays à faible revenu pour améliorer les systèmes de santé grâce aux projets d'aide au développement.

Méthodes : Cette étude qualitative a utilisé des entretiens semi-structurés et une analyse documentaire pour recueillir des données. Des parties prenantes à différents niveaux de mise en œuvre du projet, y compris des travailleurs de la santé, des fonctionnaires et des gestionnaires de projet, ont été interviewés pour évaluer leur perspective sur l'impact du projet EU-SIGN sur le renforcement du système de santé au Nigeria en mai 2024. Des thèmes principaux ont été identifiés pour analyser les entretiens comme impact sur l'immunisation, renforcement des capacités, influence de la gouvernance et des politiques, intégration des services d'immunisation, engagement et coordination des parties prenantes, et durabilité des améliorations. Des documents et des rapports de projet ont également été analysés pour soutenir les données d'entretien et fournir une compréhension complète des résultats et stratégies du projet. Par la suite, nous avons analysé le contenu des entretiens en utilisant une méthode de triangulation avec les résultats de l'analyse documentaire.

Prestation : Le projet EU-SIGN a significativement amélioré la couverture vaccinale et la prestation de soins de santé en renforçant les systèmes de gestion, le développement des capacités et l'infrastructure. Cependant, des défis tels que les retards bureaucratiques, la dépendance au financement externe et la résistance au changement ont été identifiés comme des obstacles à des améliorations durables.

Conclusion : Le projet EU-SIGN démontre le potentiel de l'assistance technique externe pour renforcer les systèmes de santé dans les contextes à faible revenu en fournissant les ressources, l'expertise et le soutien infrastructurel nécessaires. Cependant, la durabilité de telles initiatives nécessite un engagement local continu, une intégration dans les politiques de santé nationales et la surmontée des barrières bureaucratiques et logistiques. Les recherches futures pourraient explorer le rôle de partenariats mondiaux en santé tels que Gavi pour améliorer davantage la vaccination et le renforcement des systèmes de santé afin d'informer la conception d'initiatives de santé intégrées.

Mots-clés : EU-SIGN, assistance technique, renforcement du système de santé, immunisation, Nigeria, aide au développement et amélioration des soins de santé