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1. INTRODUCTION

International funding for the health sector in low-and middle-income countries (LMICs) is stagnating, and more support is needed to facilitate the achievement of the health-related Sustainable Development Goals (SDGs) and universal health coverage (UHC). The international community recognises that the private sector too must play an active role in improving health in LMICs.

In 2017 at the World Economic Forum more than 20 biopharmaceutical companies working to advance action for Non-Communicable Diseases initiated the Access Accelerated Initiative to improve access to prevention and care for patients in LMICs in partnership with the public sector. The healthcare industry does not only provide their products but is also involved in projects to strengthen the healthcare systems in LMICs.

The German Development Cooperation at GIZ partnered with the private sector for projects in LMICs. However, within the public health sector, cooperation with the private sector is still limited and experiences with different cooperation and partnership models lack.

The regional project University and Hospital Partnerships in Africa (HKP) started in January 2019 with the support of the German Federal Ministry for Economic Cooperation and Development (BMZ) and ran until July 2022.

The HKP project objective:

"Tertiary and regional healthcare facilities in selected African countries use their university and hospital partnerships with German institutions focussing on eHealth to improve their services."

This objective was achieved with the following three outputs:

- 1) Within the framework of university and hospital partnerships, the conditions for adapted digital healthcare solutions in selected healthcare facilities in sub-Saharan Africa are improved.
- 2) Forms of private sector involvement in university and hospital partnerships are tested.
- 3) Access to expertise in the field of eHealth is improved for Healthcare and IT professionals.

THIS DOCUMENTATION DESCRIBES OUTPUT 2 AND THE RESULTS OF PRIVATE SECTOR INVOLVEMENT IN UNIVERSITY AND HOSPITAL PARTNERSHIPS.

2. PUBLIC-PRIVATE PARTNERSHIPS WITHIN THE HEALTHCARE SECTOR

HKP supported 16 partnership projects between German and African University Hospitals from January 2020 to July 2022 with a focus on eHealth and the aim to build capacity. The partnership projects worked in different health areas such as Antimicrobial Resistance, Tuberculosis, Mother- and Child Health, and Non-communicable diseases. The projects included capacity development measures in the form of experience sharing and knowledge exchange through professional dialogue, research and training.

The difference and advantage of the partnership projects supported by HKP compared to most international cooperation initiatives is the direct collaboration between medical professionals in partner countries. Problem analysis, concept development, planning and programming of activities are done jointly between African and German medical professionals. The projects are developed in line with national strategies and create a high degree of trust, acceptance and ownership.

The involvement of medical professionals and IT experts at project level, and the coordination with authorities at the national and international levels, helped to find feasible IT solutions for common medical and public health challenges in order to improve healthcare.

At the beginning of 2019, HKP reached out to attract companies in the healthcare sector to bring in additional expertise and funding into university and hospital partnership projects. HKP conducted a rigorous business partner screening with all companies that wanted to be involved. This included ethical and transparency screenings of the respective companies to ensure the highest degree of compliance to standards and criteria with respect to market competition, quality, and sustainability.



As a result of the screening process, 3 of the 16 partnership projects, which focussed on IT solutions at hospital or health district level, were established and implemented with the private sector between January 2020 and July 2022.

This paper focusses on the three partnership projects to document the experiences of the private companies, of the German and African hospital partners, and of GIZ. For this purpose, interviews with representatives from all parties were conducted to identify the expectations for collaboration. Additional information for this paper was gathered from project progress reports and discussions during workshops with the different partners. Factsheets summarising the three partnership projects are attached to this document.









3 public-private partnerships

3 companies: BioMérieux, Roche, **Siemens Healthineers**

4 countries: Ethiopia, Mali, Morocco, Nigeria

Duration: 2019 - 2021

ETHIOPIA

3. THE THREE PUBLIC-PRIVATE PARTNERSHIP PROJECTS OF THE UNIVERSITY AND HOSPITAL PARTNERSHIPS PROJECT

3.1 Preventing cervical cancer in rural Ethiopia with a community approach assisted by digital technology

The College of Medicine and Health Sciences of the University of Gondar (Ethiopia), the Department of Applied Tumour Biology of Heidelberg University Hospital (Germany) and Roche Molecular Systems (USA) focused on the prevention of cervical cancer. The aim of the project was to improve cervical cancer diagnostics through Human Papilloma Virus (HPV) self-sampling, followed by screening and triage of HPV positive cases.

In Ethiopia, cervical cancer ranks second among female cancers in both prevalence and mortality with millions of women at risk. The first National Cancer Control Strategy (2015) aims to achieve 80% screening coverage among women aged 30-49 using visual inspection with vinegar. However, so far, there is low screening coverage due to a lack of cervical cancer awareness, both among the general population and among peripheral healthcare workers. Ethiopia also encourages the adoption of innovative approaches such as HPV testing. HPV screening has proven to significantly raise screening awareness and uptake when applied at the community level, especially when offered through home-based self-sampling.

In this project, self-sampling screening campaigns have been conducted in four communities of the Dabat district. Women who have tested positive are examined at the local healthcare facility by trained nurses and gynaecologists. Those with suspect cervical lesions either receive treatment at the clinic in the community or will be referred to the Gynaecology Department at Gondar University. The project results contribute to the national and international discussion on the best testing, triage and treatment options for HPV-positive women.

Bringing digital innovation into community-based screenings in rural Ethiopia, the partnership introduced an innovative digital tool to safely save data of the participating women centrally and to connect data collectors at community level with lab technicians, clinic nurses, pathologists and gynaecologists, as well as epidemiologists and researchers. The project used an existing electronic data management system developed by the University of Heidelberg and based on an SAP® prototype that can be used offline with tablet devices.

The Digital Health Department of Gondar University revised the existing digital prototype, supervised the maintenance of the digital equipment and monitored and evaluated the screening processes.

The Public-Private Partnership (PPP) provided laboratory capacity through Roche Molecular Systems, with the commitment to help reach the WHO's obtainable goal of eliminating cervical cancer within the next few generations of women, and to help solve the barriers to screening access and care. Roche brings a well-studied, reliable and robust portfolio in cervical cancer screening testing into the study. These tests and the equipment for performing the tests are necessary to explore the feasibility and effectiveness of the approach. HPV testing of self-sampling devices was performed at the Ethiopian Public Health Institute (EPHI) laboratory using the Roche Cobas 4800 platform. It is a fully automatised high-efficiency HPV testing technology that reliably detects high-risk HPV in patie

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NIGERIA

3.2 Antimicrobial stewardship capacity building project in Nigeria

Resistance to antibiotics and other antimicrobials is an emerging public health challenge worldwide. Low- and middle-income countries (LMIC) like Nigeria are likely to be the worst hit by the declining effectiveness of antibiotics because of the high burden of infectious diseases, structural weaknesses in healthcare systems, and limited capacities for infection prevention, among other challenges.

Appropriate use of antibiotics is a major strategic objective set out by the WHO to address Antimicrobial Resistance (AMR). Hospital antimicrobial use has been implicated in the accelerating development of AMR worldwide. Lack of antimicrobial stewardship in both private and public sectors is a priority gap already identified in Nigeria.

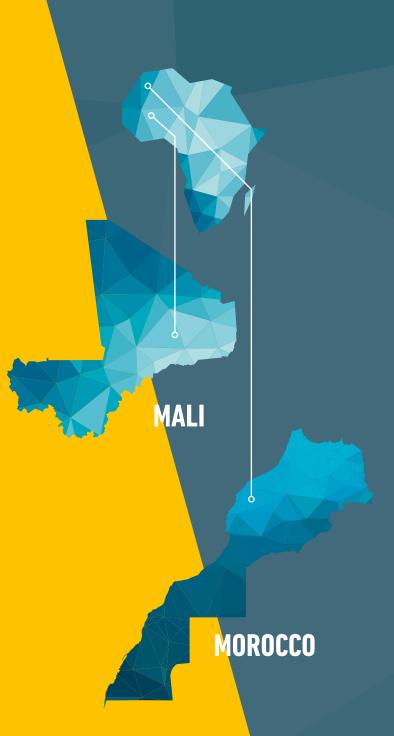
The Nigerian Center for Disease Control in Abuja (NCDC), the Robert Koch Institute Berlin (RKI) work closely in Nigeria to rationalise antibiotic use through an antimicrobial stewardship programme (ASP). In the partnership project, an ASP has been established in the two selected secondary care hospitals, Maitama and Bwari. Both NCDC and RKI belong to the WHO Global AMR Surveillance System Network. Research collaborations in the WHO AMR Collaborating Centres Network are encouraged to support bilateral exchange and promote improved data to combat AMR. Initially, a prevalence survey provided important information on the current situation related to AMR in the two selected healthcare facilities, followed by specific interventions and training and control AMR prevalence survey. These surveys have been conducted as part of an already existing national ASP. The existing training material from WHO was adapted to national and local needs. Using a train-the-trainers approach, the ASP team was enabled to commence a hospital-wide implementation of the principles, such as appropriate empiric antimicrobial prescribing, informed by local anti-microbial resistance patterns.

In addition, NCDC and RKI provided capacity building among the female workforce in eHealth, aiming at strengthening the capacity of the female workforce in eHealth by leveraging an existing e-learning platform from NCDC (https://elearning.ncdc.gov.ng/courses/infection-prevention-and-control-for-covid-19/).

A module was developed to serve as a platform for national AMR resources to improve AMR surveillance and antimicrobial steward-ship. Training material developed by the partnership project has been made accessible to a wider audience of healthcare professionals. Digitalised and aggregated routine AMR data from the laboratories was analysed and interpreted for local action. Also, digitalisation could help to incorporate the data into the existing national AMR surveillance in primary healthcare facilities in the long run.

The PPP between BioMérieux and NCDC focused on laboratory capacity building in order to make technological innovation in AMR diagnostics accessible to Nigeria's healthcare professionals. Building on a Memorandum of Collaboration Agreement between BioMérieux and NCDC on AMR, BioMérieux supported NCDC with automated blood culture systems installed in the two selected secondary hospitals in Maitama and Bwari for detection of the presence of microorganisms in blood and other sterile body fluids. The instruments helped to improve the laboratory workflow and to reduce time to positive detection of microorganism in the samples. Additionally, BioMérieux provided maintenance service for the installed equipment and training for laboratory staff on how to use the installed systems, including the processing, interpretation and reporting of the tests.

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3.3 i-STARC: a North-South-South capacity-building project

The global healthcare community has recognised that women's empowerment plays a key role in strengthening local healthcare behaviour and attaining well-being. Currently, the impact of gynae-cological cancers on morbidity and mortality in the sub-Saharan and Northern African regions represents a major global healthcare concern. Public healthcare measures, such as the establishment of cancer prevention and early detection programmes, treatment guidelines, and follow-up algorithms, are internationally available, but not standardised and adapted to these regions.

Cervical cancer is the most common form of cancer among women in Mali with an age-standardised incidence rate of 24.4 per 100 000 women and is the second most common female cancer in women aged 15 to 44 years. About 2,206 new cases of cervical cancer are diagnosed and registered annually in Mali, mainly at a late stage when treatment is difficult, and the survival rate is low. This is due to healthcare system gaps in prevention, early detection, and management. This is also the case for ovarian and other gynaecological cancers. Lack of access to up-to-date knowledge in cancer management for healthcare professionals is one of the major obstacles for high-quality cancer care in many sub-Saharan countries.

A partnership project between the Gabriel Touré Hospital of the University of Sciences, Technics and Technologies in Bamako, Mali, the Hassan II University Hospital in Casablanca, Morocco, and the Charité Universitätsmedizin, Germany, was established. The so-called i-STARC project (Digitally Supported Trans-African Quality Assurance and Capacity Building) focuses on capacity building and

strengthening. Training for prevention, early detection and treatment regimens are conducted and strategies in the field of women's cancers, particularly cervical and ovarian cancer, are adapted to existing national resources and healthcare systems. The project builds on an already well-established partnership between Charité Universitätsmedizin Berlin (Germany) and Hassan II University Hospital in Casablanca (Morocco) and extended to a first sub-Saharan partner in Bamako (Mali). The iSTARC project provides key medical knowledge by using digital tools for tumour boards and webinars and fosters training and networking through annual summer schools.

GIZ joined forces with Siemens Healthineers Morocco, which cofunded this partnership project to make technological innovation in cancer diagnostics and training accessible to Mali's healthcare professionals. Siemens' contribution to the project includes an adapted IT software for tumour boards and webinars. With this tool, the medical professionals in Mali can enter into regular communication with their Moroccan and German peers and discuss concrete cases and appropriate treatments. In addition, Siemens Healthcare SARL set up a training platform to support the continuous training and capacity building of the Malian experts. It targets all clinical personnel working on different levels of patient care: nurses and physicians performing screening, deciding on and conducting treatment, as well as laboratory personnel and scientists performing tests and running clinical trials.

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4. LEARNING EXPERIENCES RELATED TO EXPECTATIONS, CONTRIBUTION AND OUTCOME



4.1 General lessons learned

- All partners involved in HKP projects shared the aim of contributing to the improvement of healthcare systems in sub-Saharan Africa.
- They were ready to invest and provide specific input according to their individual knowledge, know-how, experience, and capabilities.
- They were all aware that the collaboration of science, academia, private sector, public healthcare institutions in Africa, Europe and worldwide brings added values to projects aiming at improving quality and access to crucial healthcare services. These added values relate to knowledge transfer, professional exchange of knowledge and experience, connectedness and future professional opportunities for all partners involved.
- The format of HKP would have the potential to create long-lasting and sustainable partnerships in the healthcare sector.
- The lifespan of such projects should be expanded to allow for closer working relationships and clearer perspectives for future common engagements in selected global healthcare fields.

4.2 Experience of the private sector

Expectation:

- Enable sub-Saharan Africa to use their newest high-quality products and widen the market for products offered by the private company. The health industry wants to be involved in strengthening the healthcare systems of LMICs. The involvement could happen through facilitating knowledge exchange, training, bringing external expertise to these countries and through the introduction of IT tools.
- Developing working relationships with actors and gaining knowledge of the situation on the ground in the African partner country.
- Contribute to existing partnerships to expand upon and facilitate
 the trust building process with African partners, which can
 further improve through a mediating role of GIZ and build the
 basis for a long lasting and sustainable engagement of the private sector.
- Using the opportunity of being part of the HKP partnership to identify new markets in African countries to introduce and sell the company's products.
- GIZ was seen as a key actor and important partner, who is open to work with the private sector and explores all opportunities.
- GIZ was expected to know well the political, social, legal and economic situation in the African countries, and offer detailed field experience.
- GIZ is directly connected to the governments. Using their close professional working relationships with African Governments, GIZ experts can inform, discuss, and promote the involvement of the private sector and support in fields like data security, regulatory processes and financing of medical services.
- GIZ would create communication channels and can open ways into more countries beyond the current partner country.

Contribution:

- Knowledge exchange and capacity strengthening.
- Support to research initiatives in cooperation with the university and hospital partners in Germany and in African countries.
- Technology transfer.

Outcome:

- Knowledge and experience gains for all partners. Better knowledge of relevant local systems and identification of needs for development and installation of state-of-the-art technologies in African partner countries.
- Contacts and direct communication with key actors and government officials at central and peripheral levels in the partner countries
- Increased network for future cooperation: contact with other relevant companies, with future cooperation initiatives and cooperation opportunities also in other African countries.
- Improvement of the quality of services through the use of IT solutions.
- The area of data security was well addressed.
- Facilitating and mediating role of GIZ streamlined the set-up process of the PPP and led to further engagements of all parties involved in the partnerships.





4.3 Experience of African partners

Expectation:

- Capacity development and Training of staff (health professionals, scientists and administrative staff).
- Sharing of specific knowledge.
- Strengthening of proposal development capacities.
- Getting the opportunity to participate and contribute to national and international conferences.
- Building professional and trustful relationships among international partner institutions and funding agencies.
- Getting new cooperation opportunities with international partners on other relevant topics.

Contribution:

- IT solutions.
- Knowledge, innovative expertise and training.
- Connection to national authorities and knowledge related to national regulations and regulatory processes.
- Facilitation of processes at national levels within a common project and extension to other African countries.

Outcome:

- Trusting working relationship through clearly defined and agreed partnerships with international partner institutions including private sector companies.
- Additional funding for specific relevant projects.
- Incorporation of project concept and strategy development and planning and programming techniques into own work processes.
- Professional exchange with international partners and network building.



4.4 Experiences of German partners

Expectation:

- Strengthening of existing partnerships with additional financing for operational research activities through public funds via BMZ/GIZ.
- New cooperation opportunities with the private sector and incorporation of new technologies into healthcare and research projects with African partners.
- Opportunity to build a strong and sustainable network of multidisciplinary specialists within the involved partner institutions.
- Financial support from the private sector would facilitate investment, for instance in laboratory equipment.
- The need of support from GIZ in the project management and coordination between all institutional partners was underlined as well as a clear division of tasks and technical and managerial responsibilities between the partners to achieve a common goal.

Contribution:

- Knowledge transfer, training and capacity building, professional exchange, eHealth formats, scientific knowledge and research capacity strengthening for African partner institutions.
- Support in finalising the concept and implementation of the project.
- Provision of experts within the institution and contacts with other interested partners.
- Support for the continuous mobilisation and engagement of stakeholders throughout the project by means of weekly exchanges.
- The development of a comprehensive set of training modules and the organisation of several training workshops, both online (through in-depth review of the document/content and provision of feedback) and on-site (through preparation of the training in local workshops and clarification of the role of local training facilitators).

Outcome:

- The participation of university hospitals led to reliable and relevant research results, which underlined the usefulness of the introduction of new diagnostic strategies, tests and treatment schemes.
- Relationships between German and African institutions have been fostered and are continuously maintained.
- The participation of the university partners has helped to increase diagnostic capacities by supporting the introduction of new tests and training of teams, and it contributed to an expansion of the institutional networks and exchange between staff from different countries
- Regular exchanges allowed for the identification of timely solutions to the challenges encountered, whether administrative, technical, or financial.
- Sharing and exchanging clinical and scientific knowledge beyond the project boundaries.
- Technical support by GIZ through discussions on sustainability and dissemination of results to the partner institutions.





4.5 Experience of HKP

Expectation:

- Providing substantial contribution to strengthening healthcare system processes in the partner countries.
- Establishing relevant cooperation with academia, science and healthcare institutions in Germany and in Africa.
- Widening the scope of technical approaches for futures healthcare sector-related projects in Africa.
- Creating relevant working relationships with key healthcare actors in Germany, Africa and worldwide.
- Contributing to enhancing the scope of GIZ healthcare-related interventions based on knowledge, experience and opportunities provided by the public and partner institutions involved in the HKP projects.

Contribution:

- Matchmaking between the public and private sector partners.
- Business Partner Screening
- Discussion of regulatory processes and data security.
- Knowledge of local, regional and international perspectives.
- Mediation between different partners.
- Support in the development of the projects, clarification of roles, communication, and monitoring and evaluation.
- Organisation of workshops and exchange formats
- Promotion of the PPP at BMZ and GIZ

Output:

- Analysis and screening of criteria of private sector cooperation for the institutional partnerships.
- Definition and setting of clear roles and responsibilities for each partner.
- Effective support to the partnerships in fine-tuning the project concept, the results-based monitoring and evaluation systems, and the reporting systems.
- Effective support to the partnerships in providing quality technical and financial reporting.
- Effective facilitation of the partnership-building processes, contributing to new promising institutional collaboration and partnerships between actors on the African continent, and between African and German actors.
- Contribution to sustainable implementation of projects.

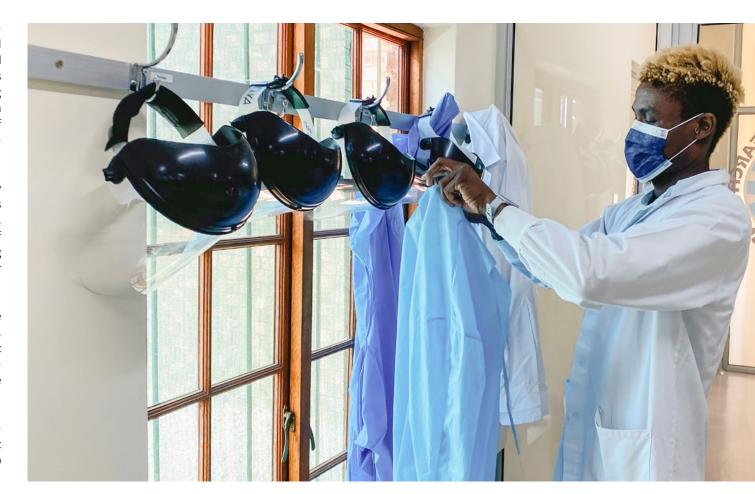
5. OUTLOOK

The lessons learned from these HKP projects show that the cooperation of public and private partners helps to produce relevant and sustainable project results. Connectedness between public and private partners across the African continent and worldwide offers concrete opportunities for future collaboration aiming at improving professional capacities and quality of healthcare systems. African and German partners emphasise the importance and the clear role of HKP in promoting international and, in some cases, long-lasting professional working relationships.

It was clear that public and private partners in Africa and Germany gained relevant knowledge and a vision for future common projects focussing on healthcare system strengthening through investment, introduction of new technologies, and capacity building. Sharing of professional experience and mutual visits of healthcare staff among the partner institutions has built mutual trust and the readiness for change.

For future projects, it is recommended to ensure enough time for the establishment and implementation of a PPP, because the goals, interests and roles of different partners need to be well defined at the beginning of the projects and then followed-up during the implementation process. Therefore, enough human resources need to be available among all partners.

The HKP initiative successfully promoted the engagement and instruments of the German Government and the German Development Cooperation at GIZ to collaborate with the private sector and to improve healthcare services in sub-Saharan Africa.





Implemented by



On behalf of



Imprint

Published by

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered offices Bonn und Eschborn, Germany Dag-Hammarskjöld-Weg 1-5 65760 Eschborn, Germany T +49 61 96 79-11 75 F +49 61 96 79-11 15 www.giz.de

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Layout

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Images: © GIZ/Mulugeta Gebredikan

On behalf of

German Federal Ministry for Economic Cooperation and Development (BMZ) Division 210

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