ANNUAL REPORT 2020

SPIDER

SPIDER annual report 2020

Contents

Introduction

The year 2020 will be remembered for how Covid-19 completely changed life for many people with far reaching socioeconomic consequences. For SPIDER, Covid-19 made our vision of an interconnected world where digital solutions enable everyone to have their needs met and their voices heard, more relevant than ever before. Internet connectivity and remote access to services and information became the bedrock of the pandemic response. Yet for millions in our partner countries, the resulting restrictions on human interactions meant that access to services and information as well as livelihoods was completely cut off.

Whereas at SPIDER we were able to adapt and shift our activities into the virtual space, we knew that the intended beneficiaries of our projects did not have that option. We therefore kept our focus on supporting projects that used digitalization as a means for ensuring access to services and information for those least connected. SPIDER remained focused on narrowing the digital divide as other actors responded directly to the biomedical aspects of the pandemic. We foresee the digital divide gap getting wider post the pandemic, yet the current pandemic has shown that system preparedness for disasters or pandemics requires continued investment in connecting the unconnected.

We supported remote teaching and learning, telehealth services and free open and accessible digital information. We also supported projects that directly addressed the effects of Covid-19 pandemic as well. For example, we supported projects targeting widows in Kigali and indigenous women group in Bolivia to develop e-commerce skills to enable them to generate income otherwise lost due to Covid-19 pandemic restrictions. We worked with partners in Bolivia, Tanzania and Uganda to build capacity of teachers, pupils and parents to use digital solutions for teaching and learning. In Liberia, we supported the development of Open Data Platform for transparency on the country´s Covid-19 pandemic funding. In Mekong region, we supported the use of open data to enhance budget transparency and accountability, tackle climate change and mapped the impact of Covid-19 on labour market for women as well as indigenous people's living conditions.

We also supported our bi-lateral university partners to strengthen their Information systems and remote learning capacities to meet increased demand for remote teaching and learning. Together with our partners PTS, Ericsson, Telia and regional telecommunications regulatory organisations in sub-Saharan Africa (CRASA, WATRA and EACO), we continued to support our partner national telecommunications regulatory authorities to create a responsive environment for the pandemic situation but also lay strong regulatory environment that will enable economic recovery after the pandemic.

It was also in 2020, that SPIDER in partnership with Federal and State Ministries of Health and other multilateral partnerships such as UNICEF and WHO, embarked on health systems strengthening in Somalia. Particularly fitting during a global pandemic, but this also emphasized the importance of this initiative.

We would like to sincerely thank everyone who made SPIDER's work possible in 2020 including our partners, SPIDER board members, Stockholm University, SPIDER staff and Sida.

We hope you enjoy reading the report.

Executive Summary

Where we worked

We worked in countries in Africa, South America and south East Asia as shown in the map below.

Map 1 Countries where SPIDER worked in 2020

What we did

We continued the pursuit of our vision of an interconnected world where digital solutions enable everyone to have their needs met and their voices heard. The pandemic highlighted the need for intensified efforts towards universal connectivity. The pandemic showed how societies could easily be cut off and left behind due to inadequate access to ICTs. Basic human rights such as education, health, security were all threatened for millions for most part of 2020. Covid-19 showed the need for supportive policies, beyond physical infrastructures as well as skills to use digital solutions– issues at the heart of SPIDER's work.

SPIDER supported projects that applied context relevant digital solutions to improve people's opportunities. We built both human and infrastructural capacity to enable the deployment of digital technologies to maximise their transformative benefits. We used research to provide the evidence needed to ensure context relevance and user involvement. Through our networks, we disseminated relevant knowledge and lessons learnt from different SPIDER programmes.

Impact

Contribution to SDGs

Figur 1 SDGs SPIDER's work contributed to in 2020

All SPIDER programmes contributed to improved access to ICT by building individual and institutional capacity while also supporting strengthening the physical infrastructures. Our work with universities for example focused in improving information management systems and connectivity. Our collaborations with telecommunications regulators in Sub-Saharan Africa focused on creating a conducive telecommunication environment that supports all other actors working to increase use of open, safe and free information and communication technology (ICT)

Each of our programmes built ICT capacity in beneficiaries. This makes them competitive in the employment market thereby contributing to improved conditions for productive employment and decent work.

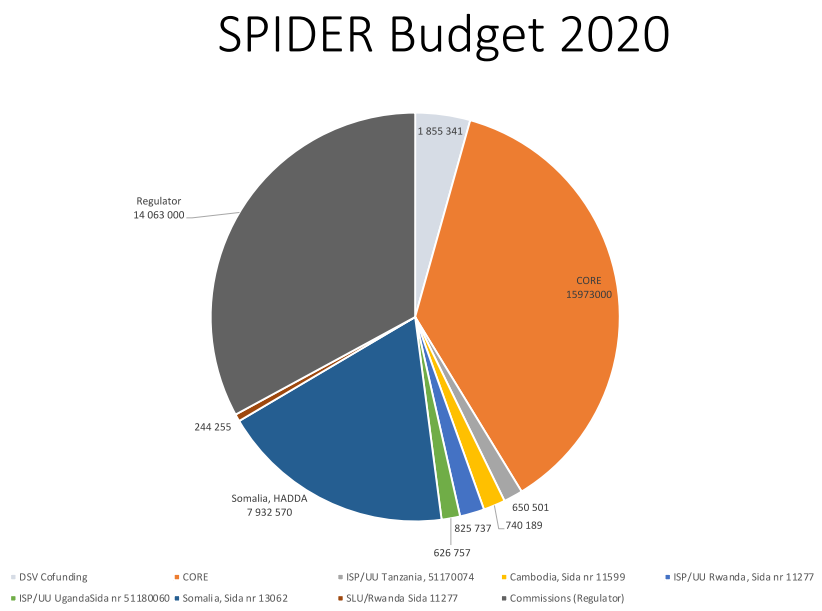
A significant number of the implementing and project beneficiaries were women and young people. For the female learners who accessed education because of the interventions supported by SPIDER in 2020, their future chances in education and employment were impacted in ways that can only be measured in the years to come. Our collaboration with Zambia Telecommunication Authority (ZICTA) led to extensive research by ZICTA on gender and inclusion- in collaboration with UNICEF. The result of the work was clear plans on how to increase women and girls access to safer ICT.

The projects in Nakivale and Nyarugusu refuges settlements in Uganda and Tanzania respectively supported education of refugee pupils. These projects therefore built an educational foundation for these pupils, giving them a chance to learn and pursue meaningful careers in the future. The projects therefor contributed to their future capacity to become productive members of society. In fact, some of the teachers used in the projects were refugees themselves.

SPIDER's transparency and accountability programme provides access to information that increases transparency. Access to public data through open data platforms empowered citizens to remain informed on what the local government was doing and gave them evidence with which to hold duty bearers accountable. In Liberia for example, we supported the creation of open data on Covid-19 pandemic budget management. The Open Development Cambodia platform provides a lot of information that advocates, journalists and citizens can use to hold duty bearers accountable.

Economy

The following pie chart illustrates the level of investment that went into our 2020 activities



Figur 2 SPIDER Income budget distribution for SPIDER in 2020

How Covid-19 affected SPIDER and our partners

Covid-19 affected everyone so our annual report for 2020 will start with the pandemic and its impact. The pandemic has shown clearly that ICTs are indispensable to keep society running. With restrictions closing down parts of or entire societies, the possibility to move online for work, school or access to other services became vital. It also showed the huge difference in ICT access, making the gap between those who have and those who have not grown wider, and whose jobs could move online or not.

SPIDER's response was to keep doing the work we had set out to do with our partners. Projects needed to revise how to work to ensure the health and safety of everyone involved. Most projects suffered delays for various reasons related to the pandemic or measures to combat it. In addition to the adjustments necessary to safeguard the health of beneficiaries, partners adjusted their work in response to Covid-19 as outlined below by programmes.

Transparency and Accountability

Activities were mostly moved online because of the pandemic. Partners worked both on gathering and presenting information directly related to Covid-19: what is known about the disease, how to protect yourself and others, where to be tested or get treatment and so on; and on information about how Covid-19 affects society, for example on the labour market, gender equality or education. Some partners also worked on making Covid-19 budgets publicly accessible as part of the response to the pandemic.

Education and learning

Advocating for the use of ICT in education has most likely never been easier than in 2020. Lockdowns closed schools, and those not equipped to use ICTs for teaching and learning were unable to offer or access education completely. SPIDER's education projects already address this gap with a

combination of creating digital learning materials and by building capacity among teachers to use ICTs for teaching. The demand for these interventions became acute in 2020.

Our research has shown that digital education is complicated with many contextual factors that must be addressed beyond virtual teachers. Evaluation of the 2020 projects during the pandemic show similar findings. SPIDER will use these insights to address contextual barriers such as parental ICT skills to improve how projects use ICT as an effective tool for learning.

Health and Wellbeing

Our partners had their busiest period ever in 2020. All sectors of society are affected by Covid-19, but the health sector had to care for the individuals infected by the virus, work to prevent further infection and protect public health – on top of all other health needs.

Fully aware that other health needs were overshadowed by Covid-19, SPIDER retained a focus on health system strengthening projects that we initiated before the pandemic. The need for teleconsultations and digital access to services became quite relevant during the restrictions experienced in most partner countries in 2020. Project partners therefore shifted all activities they could carry out online and postponed what they could not implement virtually.

The HADDA programme experienced similar challenges. Despite travel restrictions, meetings and plans with the Federal and State Ministries of Health and other relevant stakeholders continued. The programme still has experienced significant delays because of an unprecedented workload for all health care workers involved.

Research

Due to restrictions of movement and gathering in partner countries, most research activities were carried out remotely. Our research partners were able to adapt to mixed approaches to cope with local restrictions for example reduced contacts and less participant groups whenever possible, in settings where limited gatherings were permitted.

ICT Regulation – Policy and Practice programme

Under normal circumstances, the programme has three key phases that involve face-to-face interactions when most knowledge exchange takes place. The participants travel to Sweden for 2.5 weeks, followed by a regional phase in a selected country in Africa for a follow-up 4 months later; finally, the programme team make evaluation trips to countries involved in that round after it ends. These vital phases were moved online in response to the pandemic. Digitalising the Sweden and the Regional phase made them longer, from 2 to 3.5 weeks. Some of the participants also faced challenges with poor connectivity. Participant numbers were reduced to enable adequate interaction and support. The programme team revised and adapted the programme during the year to ensure best possible learning through virtual format.

The programme had a planned research component to be carried out by external evaluators. The number of countries selected for evaluation was subsequently reduced due to Covid-19 restrictions and was carried out entirely online.

On a positive note, the fact that the Sweden phase of the programme shifted to online format actually enabled the inclusion of the alumni network members in the final group session of the participants. SPIDER formed a network of previous participants in the programme hence the virtual format made it possible to invite the alumni into a joint session of current participants since it was all done through zoom. In this case, the pandemic enabled inclusion of alumni in programme activities.

The pandemic also allowed the programme to diversify how it connects and interacts with the participants. For example, more follow up meetings before and between the phases.

Bi-lateral programmes

The pandemic affected planned activities such as study visits and trainings for all bi-lateral programme partners. Some of the activities that could be held online were done virtually, while others were postponed.

On the other hand, Covid-19 has also shown our partner universities that the ICT infrastructure is a backbone for teaching and learning especially during challenging times. There was a positive effect on some university management's engagement and support to SPIDER's sub-programme at such local universities. SPIDER and DSV also engaged in additional activities to support some bi-lateral partners in setting up and running online courses.

In spite of the above Covid-19 challenges, our partners managed to implement a number of projects. The next section highlights the projects per programme and the corresponding results

Transparency and Accountability

Key numbers:

Budget 1.7 million

Open data platforms: 6

Users: 681 000

Views: 609 517

Downloads: 2211

Duty bearer response rate*: 90%

*= on district budget platforms

Where?

Cambodia, Myanmar and the Mekong region. The programme expanded to Liberia with an open call for project proposals in 2020.

Partnerships

SPIDER continued the partnerships with the same partners we have worked with since 2016. The partnerships were complimented with good working relationship between SPIDER partners and relevant authorities in the country. The relationship with local authorities if vital for access to reliable public data. Many times the work to making data more accessible was also beneficial to local authorities.

Myanmar partner, Phandeeyar, made election data public before and during the election that took place in November. This included information on the polling stations, candidates and how to vote in adherence to restrictions because of the Covid-19 pandemic. They also held innovation challenges to engage the tech community of Myanmar in making solutions to challenges related to the Covid-19 pandemic.

Open Development Cambodia collaborated with district governments to increase district level budget transparency. ODC also worked intensely to gather data about Covid-19 in Cambodia and the Covid-19 dashboard is one of the most exhaustive open data resources on the disease in the region.

East West Management Institute (EWMI) and Open Development Mekong partners also collected data on the impact of Covid-19 in relation to labour markets, gender equality and indigenous peoples' situation.

Results

Effective approaches to the use of ICT

The Mekong region partners use the same platform infrastructure to publish open data and data driven stories. Open Development Cambodia (ODC) was the first published and hosts the largest amount of information.

In Cambodia, ODC's project to increase local level budget transparency combined the platform with community engagement activities to sensitize citizens across various media. In 2020, most planned physical meetings had to be cancelled in favour of digital ones.

In Myanmar, Phandeeyar launched the Doh Phandee platform that aimed to gather the tech community to work together on solutions to problems citizens of Myanmar are facing.

Increased capacity among local NGOs and grassroots to effectively leverage ICT

Partnerships in the transparency and accountability programme are anchored in the local communities. This is vital for a project to be successful and sustainable, and has the added benefit of increasing the capacity to use ICTs among local organisations.

The models used by partners increase the capacity of both the organisations implementing the project and the organisations and individuals benefitting from the project. The open data community in the Mekong area has grown, and with it both a willingness to make open data more easily accessible by local authorities, and an understanding of how to use the open data to get reliable information both as a citizen and the media for more reliable reporting.

Access to education, health care and government information

Access to government information is at the heart of the transparency and accountability programme. In 2020, SPIDER partners responded to the great need for information related to the Covid-19 pandemic and used their skills and solutions to make this information available and accessible

In Myanmar, 2020 was an election year and Phandeeyar's initial project focused on sharing information about to the election – how to register, where to vote, information about candidates as well as on how to vote safely given the Covid-19 restrictions.

Results follow-up

Research showed that there is both a strong demand for data and willingness to participate in Data challenges. It also indicated that efforts to inspire women in technology to engage in Open Data were well received and provided suggestions on how to continue developing the Open Data Community.

It provided input to ODCs district level budget project, mapping existing support systems for district level budgets and the knowledge among citizens. The findings showed the need for capacity building among citizens to understand the roles of duty bearers and district budgeting, and provided data to use for further development of the solution and supporting channels to reach more beneficiaries.

Extensive research was carried out among indigenous communities in the Mekong region to understand the best approach to indigenous data sovereignty and how public services could be tailored to support indigenous people's information needs.

The research found that Covid-19 made these communities retreat deeper into the forest to safeguard themselves. They limited contact with outsiders, such as the Burmese boats that were denied docking opportunities by the Moken people. This isolation was useful in keeping the infection rates low, but it did have an impact on their economy.

Findings also showed that the reach of welfare services was limited especially because beneficiaries are required to have some online registration to gain access to public services. The communities have limited access to the Internet, some groups have no citizenship they can lay claim to, and more than half of them are illiterate. Additional characteristics such as being nomadic makes access to various benefits difficult. The results provide the evidence required to campaign and develop the awareness government agencies need to reach indigenous groups in the region, as well as the need for hybrid solutions considering the barriers to access by the communities

Links to examples from partners

Education and Covid-19 in the Mekong region

COVID-19: A Magnifying Glass for the Mekong Region's Data Ecosystem – this blogpost has been translated into Iranian by an external organization Open and Shut.

What next?

The open call for proposals in Liberia gave SPIDER 10 application out of which four were considered. Two organisations were invited to write a full proposal. The selected organisation begun working on their solution late 2020 with plans to launch it in 2021.

On the morning of 1st February, Myanmar's military overturned the election and seized power in Myanmar. The conflict has escalated to Internet shutdowns, government surveillance and violence against protesters. SPIDER will the situation closely and evaluate how we can support our Transparency and Accountability partners to work safely under the current circumstances.

Education and Learning

Key numbers:

Budget 1.5 million

Schools: 57

Teachers: 525

Learners: 10 880

Where?

Bolivia – in El Alto/La Paz region and Potosí, Uganda Nakivale and Tanzania Nyaragusu

Partnerships

SPIDER has worked with Civil Society organisations (CSOs) and universities. Fundacíon La Paz has been a SPIDER partner since 2012. University of Dodoma, Mbarara University of Science and Technology and World Vision Bolivia since 2017.

Bolivian CSO partners focus on capacity building to use ICT in teaching and learning. The initial target group was teachers in primary and secondary schools, but the scope has expanded to include teacher college students, parents and pupils in some training modules.

University partners collaborated in refugee settlements, both with capacity building of teachers and producing learning materials for online and in person lessons for primary and secondary schools.

Results

Effective approaches to the use of ICT

Existing solutions

Projects were mainly based on existing solutions that were within reach for most beneficiaries. This was realised through a combination of trainings ranging from how to use these technologies for those completely unfamiliar to how to create digital lessons and learning materials and how to hold online classes for remote learning.

Combination of technologies

Partners used a combination of technologies for learning – computers were combined with smartphones, tablets, radio, printed materials and toll-free numbers to call a teacher when pupils

had questions. The learning content was also a combination of educational videos, recorded lessons, and interactive lessons. Many of these resources were made available to pupils in a way that does not require connection to the Internet

Increased capacity among local NGOs and grassroots to effectively leverage ICT

World Vision - primary-level teachers from 6 schools received online training

Fundación La Paz – 42 primary schools involved both teachers, pupils and parents to teach them how to use online learning tools essential to continue school work when schools closed because of the pandemic.

The training/coaching of teachers in Nakivale refugee settlement improved their skills in remote teaching and allowed them to advance their work beyond their school, resulting in earning extra income opportunities.

Early grade teachers were engaged in the first training in Nyarugusu Refugee settlement, Tanzania, learning how to use ICTs for teaching.

Access to education

Trainings in Bolivia ensured that both teachers, parents and pupils know how to use online learning tools essential to continue schoolwork when schools closed because of the pandemic.

Materials produced in collaboration between Mbarara University of Science and Technology and teachers in the Nakivale refugee settlement gave pupils both access to improved lessons and the ability to continue learning remotely when schools were closed because of Covid-19 restrictions.

Videos, pedagogical games and other digital lessons in local languages were made for pupils in the Nyarugusu refugee settlement. Many of the videos include sign language to make them accessible for pupils with hearing impairments. The e-learning platform used in the project has been upgraded to include accessibility features to improve learning for persons with disabilities.

Results follow-up

The research findings informed the projects. For example, trainings for parents and pupils were added to Fundacíon La Paz's project based on findings showing that parental attitude is key to ensure an enabling learning environment. Research findings also informed the design of materials for learners in Nakivale refugee settlement adding more options for how to access lessons and the ability to contact teachers to ask questions.

In 2020, results follow up in Bolivia found that in the capital region 80% of teachers and 93% of the pupils surveyed have access to the Internet. The Potosí region where World Vision work sadly saw a decrease in access to ICTs and the Internet during the Covid-19 period.

The follow up on the project in Nakivale looked at which remote learning options and the timing for lessons were preferred by pupils and their parents. It also researched income levels and found most parents were willing to contribute financially to ensure education for their children. Findings regarding what ICTs are available and who has control of it is essential information for the implementers to understand potential barriers for pupils to access digital lessons.

Research in Tanzania investigated literacy and numeracy skills among pupils, concluded that parental support is important for all learners but paramount for disabled learners. Research also found that there is a great need for teacher capacity building to enable the use of ICTs when teaching.

Links to examples from partners

Tujifunze (let us learn) channel on YouTube

Fundacion La Paz's interviews with teachers, parents and pupils who have done trainings

Mbarara University of Science and Technology-remote open learning

What next?

As the result to the project activities FLP signed an agreement with the Teacher Training college of La Paz to formalize eLearning training model for students of these institutions.

Health and Wellbeing

Key numbers

Budget: MSEK 1,700,000

Number of healthcare facilities supported: 267

Other healthcare workers trained 353

Number of teleconsultations: 411, 177

Where:

Uganda – Arua (plus Mayuge and Mbarara) districts.

Rwanda – Nationwide

Tanzania – Dar es Salam and the surroundings

Partnerships

Partners

All activities under health programme were implemented through existing partnerships that SPIDER has worked with since 2018. They are a private telehealth provider, a private/charitable health care provided with added focus on people with disabilities and a public specialised cancer unit under the Ministry of Health.

Projects built health care worker capacity for telehealth solutions – in Rwanda this concerned virtual services to increase health care access and offer a smooth transition and referral between telecare and physical services, in Uganda usage of mobile colposcopes to bring cervical cancer screening to remote areas, increase access to specialist care and speed up referrals if further treatment is needed. In Tanzania, health care workers were trained in using the developments made to improve the Health Management Information System (HMIS).

Projects also improved data quality and health care management enhancing HMIS. In Tanzania, this provided required information to develop and improve CCBRT's fistula audio content to be made accessible via a freely available national mobile Infoline.

Results of the partnerships

Partnership with UCI has led to additional support by Makerere University to co-fund the scale up of the service to another satellite clinic in Mbarara in Western Uganda, with an added research component to develop Artificial Intelligence (AI) algorithm for future image analysis.

The partnership has also expanded to include Butabika Mental Health Referral Hospital in Uganda and RISE – Research Institute of Sweden in a joint project proposal to develop Digital Mental health support service in Uganda.

Results

Effective approaches to the use of ICT

Effective approach to use of technology includes considerations for user- needs and contexts and supporting technology that is relevant to the challenges to be solved. The programme supported a number of technological solutions that were arrived at in consultation with local partners and deemed appropriate for the intended beneficiaries' needs.

The use of mobile colposcope (Gynocular) met the need for portable, battery operated cheaper technology instead of the more expensive traditional colposcope, which cannot be used without direct mains power and requires specialist skills to use. With basic training, nurses were able to use Gynocular and a standard smartphone for screening and image sharing for consultation.

Application of telehealth solved the problem of distance service users having to travel, the costs incurred to access healthcare, and the resources required carrying out field visits by clinical staff.

Some form of a centralised Health Management Information Systems (HMIS) to facilitate knowledge sharing between different health care professionals and service users underpinned all projects.

Increased capacity among local partners to effectively leverage ICT

During this reporting period, we supported partners to apply ICT solutions to strengthen health system and improve health services delivery.

In Uganda, the cervical cancer-screening project included training of clinicians, nurses and gynaecologists to use Gynocular to capture, share and interpret images. Although the project was severely delayed, it is on track to achieve its objectives in 2021.

In Rwanda, more healthcare workers (both formal and informal) were trained to support service users to seek both virtual and physical health services as and when they needed to. The project improved the health systems capacity to provide healthcare for more people using limited available resources. The project also trained other stakeholders in Rwanda healthcare such as medical insurance agents from National health insurance scheme (Rwanda Social Security Board – RSSB) staff to support users to pay for the services they required whether through physical or telehealth option.

A total of 74 RSSB staff were trained. Further 264 HCAs were trained to support access to virtual healthcare services and 15 District mangers to coordinate the work of the HCAs.

In Tanzania, the partner trained clinical and non-clinical staff on data usage and management to use the integrated HMIS in their fistula work. The hospitals data capacity was also improved through relevant updates to the existing HMIS to facilitate evidence-based decision-making.

Access to health care

The projects contributed to health systems capacity to provide care to more people.

In Rwanda, 411,177 teleconsultations were completed during the project period. Although not attributable solely to the project, the support significantly increased the capacity of Babyl to scale up their geographical reach, which involved 263 health facilities across 15 districts (administrative regions of Rwanda).

In Uganda, scale up spread the service to from one to four satellite clinics within one year with a combination of funding from SPIDER, UCI and Makerere University. As reported in the example provided below, use of mobile colposcope increased user confidence in the screening services hence willingness of many women to access the service. The use of Gynocular as opposed to standard VIA (visual inspection of the cervix with acetic acid) increased trust in the service, which will be useful for improving screening uptake. Moving screening services closer to the users contributed to the important public health goal of early screening to prevent cancer-related morbidity and mortality.

In Tanzania, implementing a robust Health Management Information System to inform care decisions and consolidate patient data improved service delivery and access to fistula care.

Links to example from programme partners

UCI video, cervical cancer screening

The Square Rwanda on Digital health with Babyl guesting

Results follow-up

Results follow up supported projects by providing baselines and exploring the perspectives of health care workers and beneficiaries using digital health services.

Research supported the project implementers by exploring the perspectives of health care agents, district managers of health care services and in Babyl's case also beneficiaries. It provided baselines and follow up on CCBRT's data quality and HMIS usage.

Research reported that most beneficiaries heard about Babyl's services for their first time during visits to seek medical services at the health centre. Many health care seekers would benefit from mixed awareness methods to receive information on digital health services.

Research findings also showed that the use of electronic records in the Tanzanian health care sector is mainly for data collection, management and analysis. This has kept many HMIS separate since operations and processes at hospitals, clinics and drug dispensaries are not integrated to function as a unified system. A national e-health strategy focused on strengthening the integration of electronic HMIS with other existing systems had been created but systems were still fragmented.

Lessons learned

Babyl has invested in creating awareness through media such as radio and TV. However, research reported that most beneficiaries heard about Babyl services for their first time during visits to seek medical services at the health centre. Many health care seekers would benefit from mixed awareness methods to receive information about digital health services. One of the effective channels is the community gathering also known as *umuganda* in Rwanda.

Improving data quality in the electronic health management information systems required digital resources and following the correct practices for data input and management. The practices require skills, and more training is needed to improve data quality further.

What next?

In Rwanda, SPIDER will be supporting Babyl in 2021 to use the same telehealth service to provide Covid-19 screening and care services to rural populations as part of government's Covid-19 response.

In Uganda, UCI will partner with Makerere University to develop AI for use image translation in order to make the screening process more efficient. UCI will also add another satellite clinic in Jinja in May 2021. The medium term goal is to have all UCI satellite clinics equipped to use Gynocular for cervical

cancer screening and then work towards including other sexual and reproductive health facilities across the country into the programme.

Health Alliance for Digital Development and Action (HADDA)

Key numbers

Budget: 7MSEK

Health facilities assessed:

- 160 health facilities
- 57 district and regional health offices
- Urban (77%)
- Rural (19%)
- IDP camps (3%)

Introduction

The focus of the HADDA programme is to strengthen Somalia's health system through digtilisation and integration of the health management information systems (HMIS). This will increase knowledge sharing and enhance capacity of health workers and policy makers to plan, manage and provide quality, accessible and equitable healthcare.

The scope of HADDA is initially planned to connect the entire care pathway of up to 100 maternal and child health facilities. Final selection of clinics will be carried out in consultation with the relevant Ministries of Health.

Where

Galmudug state, Puntland state and Banaadir region – Somalia

Partnerships

For this phase of the project (2019 – 2020), SPIDER worked with:

- the Federal Ministry of Health
- State ministries of Health Galmudug, and Puntland
- KasmoDev the local implementing partner

Results of the partnership:

To ensure that the HADDA project aligned with the National Health Agenda of the Somali government and the priorities for a strengthened HMIS as well as coordinating with other initiatives supporting the health information system, a technical coordination committee (TCC) was established. As there was no prior formal coordination mechanism for HMIS, the TCC became a platform that brought together the regional and federal MoH to ensure consensus in decision and coordination of the HADDA programme by respective MoH.

Collaboration with and between KasmoDev and SIDRA has been successful. In addition, SPIDER's coordination through these local partners has also been important for the community ownership. Both partners understand the Somali context, are familiar with digital development and health systems strengthening and have the necessary broad network to connect the many actors in Somalia.

Challenges and how they were overcome

The greatest challenge was the delay of the project activities due to the ongoing COVID-19 pandemic. To an extent, the political context in the country also created some delays. These factors caused delays in coordination and partner responses to key communication and approval requests.

Despite the major global disruption due to the pandemic, progress was made largely due to local presence of the partner organisations who are based in the country, and faced limited impact of travel restrictions. The project thus progressed, albeit with some delays. The local partners also supported continuous negotiations with both federal and state governments involved. Together with the local partners, SPIDER cultivated a close alliance with all the key actors, thereby reducing the major risks posed to the project due to political instability.

Results

Effective approaches to the use of ICT

One of the major barriers to a well-functioning HMIS in Somalia are the existence of many stand-alone systems that are not interoperable. This adds a burden to an already fragile health system. HADDA project aims to integrate these vertical systems into a unified platform. An integrated HMIS will help to consolidate resources and provide timely health data for decision-making.

Increased capacity among local partners

During this early stage of the project, there was limited human and infrastructure capacity building. However, the technical audit and the needs assessment have provided a broad range of capacity building needs that will be implemented in the second phase of the project.

Training of enumerators: Coordination with the Ministries of Health at all levels resulted in greater support and buy in. For instance, sourcing enumerators from within the ministry with previous experience in data collection using digital platforms and wealth of understanding of the health system did not only contribute to the success of the data collection exercise but also enhanced capacity of the ministry of health to undertake similar exercises in the future.

Access to health care and information for decision-making

This first phase did not involve any access to services, hence no data to report here.

What next?

The HMIS assessment reports will be the basis for developing an implementation framework and guide the next phase of HMIS installation and capacity building. However, one of the key findings from the reports is the absence of an HMIS policy. Such policy document is important for guiding the integration process, and ensuring interoperability, quality, security and sustainability of a central system. Therefore, HADDA will through the Federal and State MoH and other key actors support the establishment of HMIS policy. In parallel, through stakeholder consultations meetings, develop and design an interoperable health information system, which is suitable for the Somali context.

Results follow up

Partner: SIDRA Research Institute.

Key numbers

- 139 health facilities sampled for the study
- 137 informants across the health sector, including decision makers and health care workers were consulted

How research has informed the project

During the initial phase carried out in 2020, baseline study was carried out to:

- Map the existing health information systems and projects in Somalia
- Comprehensively asses the needs for health information systems in Somalia's health sector using the selected regions outlined above as case studies

The mapping gave an overview of the organizational capacity to collect and process health data through paper based and digital Health Information Management Systems (HMIS) at all levels of the health system (primary health unit, referral units and hospitals as well as governmental offices and ministries at regional and federal level). The knowledge gained from the baseline study will be used to inform the implementation phase on how to design and prioritise activities.

The research will be necessary during the implementation phase to follow how the different levels interact with each other to ensure correct data collection and entry into the digital system. The research will also follow-up on the implementation of the current needs assessment findings to ensure compliance with the recommendations necessary for an effective HMIS.

Results follow up findings

The results highlighted here are preliminary because the baseline study findings were still under review by various stakeholders in the project at the time of writing this report.

The study gives important insights into the value of standardized indicators and access to technical support. Recommendations are given regarding capacity building and the integration between different HMIS that currently co-exist in Somalia. The research call for data protection and security once the use of a digital HMIS is implemented at a larger scale.

According to SIDRA, the research exercise strengthened collaboration between the different Ministries of Health. It has also provided better understanding of the interactions and interdependencies between various digital and non-digital components of the existing HMIS and the importance of better engagement and coordination among key stakeholders in the health sector.

Challenges and how they were overcome

Travel restrictions occurred both due to Covid-19 and to insecure road conditions caused by social unrest and bad weather. Important key informants at ministries and regional planning offices were busy and difficult to book for interviews. This caused some delay both in travelling and in booking interviews.

The challenges were overcome by observing public safety and health guidelines as well as working online. A Technical Collaboration Committee was established to facilitate the work, and additional staff for data collection were dedicated during a shorter period. The project was extended by one month to ensure key informant interviews could be included despite delays.

Lessons learned

The collaboration between international organizations as well as different Somali ministries will need more attention and time than first anticipated because consensus takes a long time to develop especially during limited physical meetings.

Cross cutting

ICT for socioeconomic empowerment projects, Bolivia (El Alto) and Rwanda (Kigali)

Key numbers

Budget: SEK 500,000

Background

As a response to the economic hardships that vulnerable faced when they could not engage in their usual economic activities due to Covid-19 pandemic SPIDER decided to support three projects that focus on direct economic empowerment of beneficiaries. Instead of implied socioeconomic benefits such as increased employability, we wanted to develop a project that directly contributed monetary income opportunities for the beneficiaries.

The intention was to support small organisations whose work does not usually focus on digital solutions to encourage them to use ICT in their work. SPIDER was to pair such organisations with a local technical organisation that would ultimately support the development of an appropriate solution. Like all other SPIDER projects, these were to be supported by independent local researchers who follow the project and provide evidence-based information to inform and improve the project.

SPIDER held two open calls. First call was for potential implementing partner to submit an idea/ a problem that was evaluated to ensure a fit with SPIDER focus areas. The second call was directed to technical organisations to team up with selected implementing partners to develop a technological solution desired by the community organisation. When all parties agreed to the solution, SPIDER then funded the tech organisation to support the implementing partner.

The initial intention was to fund three projects: in Asia (Cambodia or Myanmar), South America (Bolivia or Colombia) and East Africa (Uganda or Rwanda). In the end, SPIDER did not get strong applicants from Cambodia and ended up with one project in Rwanda and one in Bolivia.

Partnerships

The projects were implemented by completely new partners who were recruited through open calls in July 2020. The planned pairing described above only happened in Rwanda and not Bolivia.

In Rwanda, the implementing partner was *Rwanda Youth Voices for Change* (RYVC). RYVC is a community based and non-profit organisation that promotes better living standards of marginalized populations. RYVC was paired with *Glossy Projects Limited* as the technical partner to develop a digital market portal for RYVC.

In Bolivia SPIDER worked with *Comunidad Andina Suma Satawi* – CASSA. CASSA is a non-profit social and productive development organisation that works with marginalised groups at risk of exclusion from social, cultural and economic rights, especially indigenous women. Due to language limitiations, CASSA facilitated the recruitment of a technical organisation.

Challenges and how they were overcome

Pairing two organisations that have never worked together through open calls was a very labour-intensive process. It involved vetting two organisations and then matching them up with a hope that they agree to work together. It succeeded in Rwanda but we learnt of the need to dedicate a lot more time in future, if we are to repeat the process.

Given the Covid-19 induced delays to activities and interactions, both projects took longer time to initiate. The project in Bolivia was completely stalled for about a month when the entire women group involved in the project fell ill.

Results follow-up

The Bolivian research partner is Fundacion Machaqa Amawta. They initiated working relationship with CASSA, and prepared research tools that would be used in 2021. In addition, they translated the consent forms from Stockholm University/SPIDER to Spanish allowing the beneficiaries from whom visual and textual life stories would be recorded to understand what they were consenting to. Baseline data begun late December 2020 to gain in-depth understanding of the Aymara women's journey to becoming weavers, and what the digital solution would mean for their social economic progress.

In Rwanda the research partner Kigali Research Advisory and Assistance Group (KRAAG), initiated a relationship with Glossy Projects (the technical partner) and RYVC (the implementing partner). They prepared the research tool and shared it for approval with RYVC and Glossy in late December. The consent form from Stockholm University/SPIDER was also shared with KRAAG, in preparation for the commencement of fieldwork.

What next?

Both projects are ongoing and SPIDER will review the set up to learn lessons for the next phase of the specific projects and from the process to inform future similar initiatives. Both solutions will be launched in 2021.

Networks

ICT4D Cambodia Network

The ICT4D Network Cambodia project was designed with the purpose to support the network members and the government in the COVID-19 response strategy. Through meetings and platform mapping, the members shared their expertise, lessons learned and challenges to be disseminated to the relevant stakeholders to consolidate and promote ICT in Cambodia. The project addresses the identified challenges to forge sustainable collaborations and improve awareness and understanding of relevant stakeholders to incorporate ICT solutions to their activities. With the help of social media platforms, project's data is mapped and disseminated to promote the activities of the network. Specifically, disseminate digital information, education and communication material about ICT tools and techniques through the network's website and social media platform.

To support the ministry of education response to COVID-19, a survey was carried out among students and teachers/lecturers from lower and upper schools and, universities. The ICT4D Network team are about to conduct a comprehensive evaluation of the Network to strengthen the direction and facilitate the lead of the network.

Ipid - The International Network for Post Graduate Students in the Area of ICT4D (IPID)

Key numbers:

Budget: 200 000 SEK
Chapters: 3
Membership: 1032

Partnerships:

Since the creation of chapters in 2019, SPIDER works with the following partners to run the affairs of different chapters

- University of South Africa (UNISA), South Africa – Southern Africa
- Makerere University, Uganda – East Africa chapter

- University College of Technology Sarawak, Malaysia – Asia chapter

Results

The Ipid network developed a new website to enable interactions that are more efficient and knowledge sharing among members. The network activities also increased since each chapter organised its own locally relevant activities as outlined below.

Ipid Asia Chapter

The chapter organised the following activities

- Online Seminar on Disinformation, Artificial Intelligence, Crowdsourcing and Social Computing
- Online School for Researchers in ICT4D

Ipid Southern Africa Chapter

The chapter organised two events

- A virtual masters and doctoral (M&D) symposium
- A physical postgraduate symposium at the Southern African Institute for Computer Scientists and Information Technologists (SAICSIT) conference at the Cape Peninsula University of Technology (CPUT).

Ipid Eastern Africa Chapter

- This chapter was inaugurated on 1st October 2020. By the end of December 2020, the chapter had organised two research mentorship seminars for the members. The chapter was part of the organising committee for M4D2021 – the 7th International Conference on Mobile Communication Technology for Development.

Research programme

Interventions, or social gaps identified by SPIDER project partners, are based on contextual knowledge from previous project engagements with the communities, or from national documents identifying various needs or gaps. SPIDER's research programme is crucial for taking this information further through iterative interactions with the project beneficiaries to understand their social realities as well as their needs. Our research partners, who are from the same contexts, work collaboratively with SPIDER project implementation partners, but maintain the critical distance required for objective analyses.

Data for evidence and democratic engagement with communities is at the heart of SPIDER's projects. The data from the research programme goes beyond supporting an initiative, before, during and after the project life cycle. This data in line with the SPIDER result chain sets out to understand the impact of ICT in bridging socioeconomic gaps. Results from projects are also analyzed to establish the extent to which lives have been improved, and the sustainability of the outcomes.

SPIDER's research programme team, works closely with research partners in supporting them with methods in the field, in documenting and disseminating the results.

The impact of SPIDER's research programme continues beyond SPIDER support, for example:

- Provides data and evidence that supports and contributes to scalability and sustainability of projects. For example Fundacíon La Paz, UNAD, InSTEDD, ODC projects all have had national reach with support of respective government ministries

- Continued use of the research findings in improving the lives of beneficiaries, such as the market analysis done by Sangwa Job Ltd in Rwanda to provide market information for the farmers.
- Research recommendations such as the risk assessment tool developed for East West Management Institute that are being applied beyond SPIDER funding support. This tool is still being used by all countries in the Mekong Region, to assess the reach and challenges of open data initiatives.
- SPIDER's result chain is supported and verified by the research programme that supports implementation, and over and above, this succeeds in connecting research to practice.

Equals-EU

EQUALS-EU (Appraising gender equity in social and digital innovation in 20 EU countries)

The EQUALS Global Partnership for Gender Equality in the Digital Age was launched in 2016 by the International Telecommunication Union and four founding partners – GSMA, the International Trade Centre, the United Nations University and UN Women. Today it includes nearly 100 partners (governmental and international institutions, civil society organisations, academic institutions and community groups) from around the globe dedicated to closing the gender digital divide.

SPIDER is a member to the EQUALS-EU regional partnership through Stockholm University. SPIDER's work stream in the project is to understand the extent of engagement with gender in innovation processes and products in 20 countries in the Union and 2 associate countries. This activity entails a baseline survey, which will result in a country specific compendium of gender equity in social and digital innovations ecosystems. The ensuing work streams will depend on the data gathered through the SPIDER work stream. The programme is set to commence January 2021. During 2020, SPIDER has started the process of applying for ethics approval and all the documentation that accompanies this process such as informed consent for participating organisations. SPIDER has begun work on the questionnaire, which will be piloted in spring 2021.

GeDIA

SPIDER was invited to be a part of the **Gender-Just Digital Innovation in Africa** GeDIA network because of a connection made through the SPIDER research bulletin. The network is looking at the gender dynamics of the digital landscape, whether that is gender parity in STEM subjects or how privacy is described and designed in the African context and developing some research around these topics. The first phase of the network formation is funded by the UK Research council under the global challenges research funds, has three focal areas of work.

In very broad strokes, GeDIA is looking at digital and how digital is inclusive. GeDIA includes diverse network of academics, in Africa, and UK, Malala Fund, SPIDER, women's groups of coders, and it is an eclectic group, with interest in pragmatically looking at women's rights in the emergent digital landscape. SPIDER, Malala Fund, Asikana, and Oxfam, as part of the first focal area, look at digital and advocacy. How is digital used to raise up people's voices; where are the risks to that; where is data being used in inclusive or less inclusive ways; how do we cut through some of the hyped online movements such as #metoo, to really look at the impact of digital for gender equity? 2020 was an intense and exciting year for GeDIA. Funding applications to further the next phase of the network activities are ongoing.

There is indisputable evidence that women across the global are positioned as mostly users and not makers of digital technologies and solutions. That women continue to consume rather than form part

of the innovative teams creating digital solutions is being challenged by various initiatives such as GeDIA network. The GeDIA network is in response to this global trend of moving women from the margins of technical innovations to central roles of contributing to their own digital futures in Africa. A gender-just digital future in Africa, will frame women as change-makers actively working with their male allies in shaping more gender-just digital futures.

Capacity building

Bi-lateral programmes

Cambodia

Royal University of Phnom Penh (RUPP)

Sub-programme title: Establishing ICT infrastructure for RUPP

Key numbers

Budget: 895 268 SEK

Partnerships

This collaboration started in 2017. Apart from RUPP and SPIDER, other units at DSV and Stockholm University are also involved as well as KTH and ISP.

Results

Effective approaches to the use of ICT

An audit of the infrastructure needs at RUPP resulted in an implementation plan. In addition, RUPP requested expertise in Wireless infrastructure, which led to the procurement of expertise from KTH. Wireless installation planning is ongoing in tandem with the basic infrastructure required to connect the university.

Despite the limited infrastructure at RUPP, the transition to virtual meetings was smooth throughout the year. The knowledge exchange sessions with a Stockholm University procurement expert will be realised online. Similarly, the wireless infrastructure support will also continue online until travel restrictions ease.

Increased capacity among local partner(s)

RUPP partners were supported in reporting and the use of RBM as a tool for results follow up. The infrastructure capacity building also contributed to overall RUPP capacity enhancement.

Access to education

The move to virtual platforms during the pandemic has increased and improved virtual teaching and research practices thereby enabling continued access to education for students and sustained employment for lecturers during the pandemic.

What next?

RUPP will implement the implementation plan drawn up from the technical audit in the previous phase. SPIDER will support RUPP to develop and strengthen procurement processes so that the procurement for IT equipment will yield the expected results. The collaboration will be sustained through virtual interactions until travel restrictions ease.

An expert on Wi-Fi infrastructure will be added to the programme in 2021.

Rwanda

University of Rwanda (UR)

Programme name: University of Rwanda-Sweden Programme for Research, Higher Education and Institutional Advancement

Sub-programme name: University of Rwanda ICT infrastructure and Business Solutions

Key numbers

Budget: 864 356 SEK (July 2020 to June 2021)

- 1 ICT Master plan reviewed
- 2 ICT policies reviewed
- 1 ICT strategy reviewed
- 10 E-learning tutorials compiled for teacher education

Partnerships

The partnership started in 2018.

Other partners in the sub-programme: Stockholm University Department of Computer and Systems Sciences (DSV) and ISP.

Results of the partnership:

SPIDER coordinate efforts between ICT unit at UR and DSV IT department to enable continuation of learning at the onset Covid-19 pandemic. This was not part of the planned activities but rather emergency support to facilitate distance learning in response to national Covid-19 restrictions.

Challenges and their solutions

The entire Rwandan part of the bi-lateral programme was frozen for most of the year pending investigations by Sida.

Results

Effective approaches to the use of ICT

E-learning tutorials were used to provide self-training to teachers in need of e-learning resources in order to build the capacity to continue teaching during Covid-19 restrictions.

The sub-programme adapted virtual platforms for the planned activities such as annual planning, annual review and other meetings that were planned for in person interactions.

Increased capacity among local partner(s)

E-learning training materials were made available to all teachers at university of Rwanda, which was useful in increasing their capacity to carry out virtual teaching.

The university of Rwanda ICT master plan, policies and strategy were reviewed to inform the improvement of procedures, standards and delivery of services that will improve the university's capacity to offer quality teaching, learning and research services.

Access to education

SPIDER and DSV supported UR to adapt courses to go online at the beginning of the pandemic. This ensured continued access to education when restrictions closed campus.

What next?

In the next 4 years, SPIDER and DSV will continue to support university of Rwanda to:

- Set up and upgrade the ICT infrastructure facilities and services.
- Develop efficient ICT governance strategies, policies and procedures.
- Upgrade IT systems to provide conducive teaching, learning and research environment.
- Build staff capacity for academic, administrative and technical staff in various specialities including Artificial Intelligence (AI) and Cloud computing.

Tanzania

Tanzania Commission for Science and Technology (COSTECH)

Key numbers

Budget: 700 000 SEK (June 2020 to June 2021)

- 6 R&D repositories connected to COSTECH repository
- 74 researchers and journalists trained in science communication

Partnerships

The partnership between SPIDER and COSTECH started in 2015.

Other Partners: Communications unit of Stockholm University Library and Department of Computer and Systems Science (DSV), Swedish Research Council (VR) and International Science Programme (ISP), Uppsala University.

Results of the partnership:

The visit from COSTECH to Stockholm in 2019 resulted in the development of a communication strategy in 2020. This is a huge milestone for the research communication subprogram. The partnership has also encouraged the development of a bi-lingual website, which is still ongoing.

Challenges and their solutions

High staff turnover at COSTECH has meant that SPIDER continuously rebuilding relationships with new project partners which causes significant delays in planning and implementation of activities.

Results

Effective approaches to the use of ICT

Knowledge studio at COSTECH has been refurbished and is used to produce and broadcast documentaries, TV and radio news programmes.

A research repository platform has been developed and connected to six research and development institutions across the country. Repositories at other partner institutions are under development.

COSTECH website has been restructured and is being maintained by regular editing and uploading new content. The use of social media such as Twitter and YouTube have been intensified to contribute to wider distribution of Science and Technology Institutions' news.

Annual planning and review meetings have always been physical since the start of the collaboration. Covid-19 restrictions meant that these meetings could only take place virtually. The effect was increased participation by all partners because everyone could join these meetings without concerns about travel costs and time.

Increased capacity among local partner(s)

The connection between Tanzanian institutions is an efficient way for researchers and research groups to access relevant data and collaborate to build a stronger research environment at different

institutions across the country. Through increased capacity to host quality seminars, broadcast, digital repositories and on-line material, COSTECH is able to build capacity of other Science and Technology Institutions across Tanzania.

Access to training

COSTECH provided training on science communication to both scientists and journalists. During 2020, 45 persons, of which 38 were journalists, were trained on communicating science.

What next?

During 2021, COSTECH will continue to upgrade the institutional research portal, digital library facilities including databases, upgrade their website in both English and Swahili, establish research data platforms for data sharing, and address Intellectual Property Rights (IPR) capacity.

The ambition with the continued partnership with COSTECH is to build stronger relationships and collaboration with other Tanzanian research institutions such as UDSM and MUHAS, as well as other regional but also with regional research institutions such as Makerere University and University of Rwanda, which are also SPIDER partners.

Given the improved capacity at COSTECH through this partnership, it has the capacity to play a central role in supporting other local institutions in areas such as digital platforms, repositories and connections between institutions' libraries.

Muhimbili University of Health and Allied Sciences (MUHAS)

Sub Programme title: Building a stronger MUHAS in supporting research and innovation

Key numbers

Budget: (2020 budget) 700 000 (estimated to 50% of 19/20 and 20/21 budgets respectively)

Infrastructure capacity: 12 new wireless access points were installed.

Distance learning:

- The number of Moodle platform users increased from 100 to over 500
- 20 zoom accounts were procured

Access:

- 300 staff and 4,500 students utilized e-resources.

Partnerships.

Ongoing partnership since 2015.

Other Partners: Stockholm University Library, Department of Computer and Systems Sciences (DSV), KTH and ISP, Uppsala University.

Results of the partnership: An increased focus by MUHAS on central services of IT and library for the benefit of the research departments. Development of MUHAS IT service catalogue, an inventory of the systems, which is being actively used for decisions about upgrading, licences, etc. The service catalogue is accessible via MUHAS intranet.

Results

Effective approaches to the use of ICT

The intranet system was improved, including SARIS student registration system, Moodle and websites. Twelve new wireless access points and fibre converters were procured and installed to improve connectivity, which have improved overall accessibility.

The library CCTV system was maintained and upgraded, but still requires more cameras to ensure effective library coverage.

DSV procured services of a specialist who worked with the integration of six management systems into SSO (Single Sign On authentication). This work is ongoing.

Increased capacity among local partner(s)

The awareness of and the use of intranet systems increased through different training activities. The engagement for digital services among staff and students increased during the year.

Research Support Services contributed to awareness raising about equipment and software for people with physical disabilities.

Access to digital research resources

- Moodle platform users increased from 100 to over 500.
- The library increased their subscription of e-journals and 27 academic databases, which were accessed by an increasing number of researchers.
- Library installed software and equipment for people with physical disabilities.

Impact stories

Since the program started in 2015, we noted a strengthened central IT and library management and increased recognition from the departments. The Swedish partnership has contributed to a considerable increase in access and utilization of the centralized IT and library services. Although these services need to be managed at a central level, their impacts need to be assessed at the research departments, e.g. as increased publications and citations, facilitated administration, or improved student records.

What next?

Next steps are to continue developing digital systems for research support, including antiplagiarism software, e-learning systems and digital security, and to continue to strengthen ICT and library services as a common interest. In the concept note for the next phase, DSV insists on improved resource allocation for the central IT and Library departments if MUHAS is to become a leading medical research institution.

University of Dar es Salam (UDSM)

Directorate of Research

Sub programme tittle: Strengthening Research Management at the University of Dar es Salaam.

Key numbers

Budget: 890 000 SEK (June 2020 to June 2021)

3 Remote Input Modules were developed and integrated in-house.

Partnerships

This is another SPIDER partnership since 2015.

Other Partners: Stockholm University Library, Department of Computer and Systems Sciences (DSV), DiVA research portal consortium (based at Uppsala University), SwePub national research database and LIBRIS national search service for research and other publications (both based at National Library of Sweden). Like the other bilateral partnerships, ISP coordinates this partnership.

Results of the partnership:

The Library department at UDSM has held discussions with SPIDER about potential collaboration. The Library Department is a separate sub-program, which currently has no Swedish partnership. Given their central role in supporting research at UDSM, the envisaged collaboration between the subprograms and the involvement with DSV as a Swedish partner to support digital library solutions is an important step forward.

Results

Effective approaches to the use of ICT

The development of a Research Information Management System was finalised and the integration of four modules started. This was a major achievement for the programme.

Adaptation to virtual meetings and interactions led to engagement of more partners in annual planning and review meetings than would otherwise be the case during physical meetings. More partners from UDSM took part in these meetings and in training that were directed more specifically towards different staff members.

Increased capacity among local partner(s)

Training and workshops by experts in digital solutions regarding research information management systems, including a visit to DSV by seven staff members from UDSM have led to the integration of four platforms in a common Research Information Management System. The knowledge gained from the exchange-benchmarking visit to DSV by the seven UDSM staff was crucial. This integration of the platform will greatly improve the capacity of the university to support high quality research.

Access to education, health care and government information

Solutions developed within the programme supported UDSM when remote teaching became necessary because of the Covid-19 pandemic.

What next?

DSV is exploring virtual ways to work with UDSM and Makerere who require the same technical solutions. This will lead to more persons being reached through the same training arrangement, and will increase regional research collaboration in East Africa since these are leading universities in the region.

UDSM aims to develop single sign-on procedure as a next step to the integration work done.

The Library department, currently not involved in the ongoing collaboration has identified various needs for future collaboration such as open access, research impact assessment and digital archiving of historical material. SPIDER will continue the dialogue with the library.

DSV will also support in IPR training, which is another focus area for UDSM during 2021.

During development, it was realised that partners at UDSM needed further training in Single Sign On (SSO), which was critical for the integration process. This will be implemented in 2021.

Uganda

Makerere University, Uganda

Sub-programme: Integrating ICT based Support in research, teaching and innovations

Key numbers

Budget: 342 518SEK

- 189 IT personnel trained at Makerere and her partner universities (such as Mbarara University of Science and technology, Gulu university, Busitema university)
- Private computing Cloud installed.
- Wireless connectivity installed across the university.

Partnerships

An existing partnership since 2015. Involves SPIDER, DSV and Central SU IT units, other senior researchers at DSV.

Other Partners: Karolinska Institutet and University of Eduardo Mondlane, in Mozambique.

Results of the partnership: DSV and Karolinska Institutet, working within health and digitalisation have extended this partnership with the bilateral sub-programme. Applications for funding with Makerere partners were submitted to the *COVID-19 Global South Artificial Intelligence and Data Innovation Program* funded IDRC and Sida.

Results

Effective approaches to the use of ICT

Wireless installation across campus has improved inclusion through installing Wi-Fi access points close to female students' residences. This initiative was informed by a study that reported the need for inclusive infrastructure that considers physical access challenges that female users experience when they have to share same access points with males

Increased capacity among local partner(s)

Continued support from the IT units at Stockholm University, and from senior researchers at DSV who have provided training in areas such as data security.

Improved access to information

The Makerere electronic document system and assets management system have both improved information accessibility across the university. The latter helps with inventory on record on vital management processes such as when equipment upgrades and replacements are needed.

What next?

With one year left of the bilateral cooperation, capacity building in the virtualization processes with the Data Centre will continue through SU support. The two masters' students at DSV are in the final stages of their thesis writing, and are on track to finish by June 2021. The gender and ICT assessment report will be edited and published with support from SPIDER and DSV.

ICT Regulation – Policy and Practice

Key numbers

Budget: SEK 7 700 000

No of participants: 87 (22 women)

No of experts used: 41 (9 women)

No of change initiatives: 32

Rounds: 2019A, 2019B, 2020A, 2020B

Background

This International Training Programme builds capacity of ICT regulators and their organisations in sub-Saharan Africa. Participants are trained by Swedish experts hand-picked to suit the needs for each programme round and experts from regional regulatory bodies, who also support programme participants in their work on a change initiative that is the cornerstone of programme activities. These change initiatives are selected in dialogue by Senior Management of the National Regulatory Authorities (NRAs) to ensure they are in line with priorities and needs of the organisations. These often build on change initiatives from earlier programme rounds. Participants are nominated by their National Regulatory Authorities (NRAs). Rounds are designed to encourage participant networking, and an alumni network started in 2020 to give further opportunities to connect.

Partnerships:

The programme is delivered in partnership with The Swedish Post and Telecom Authority (PTS) and NRAs in participating partner countries. For 2020 partnerships, the countries are listed below. Other Swedish partners include Ericsson, Telia and STOKAB Stockholm. We also partner with three regional telecommunications regulatory bodies; East African Communications Organisation (EACO), Communications Regulators' Association of Southern Africa (CRASA) and West Africa Telecommunications Regulators Assembly (WATRA).

2020 countries

Benin, Burkina Faso, Burundi, Côte d'Ivoire, DR Congo, Guinea, Kenya, Lesotho, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zimbabwe.

Results of the partnerships:

The partnership with NCC Nigeria has evolved into a bilateral collaboration involving tailored annual workshops for NCC staff. This model allows NCC to build capacity of larger staff numbers than would otherwise be possible.

SPIDER and PTS initiated the process of supporting Regional Organisations EACO CRASA and WATRA to organise thematic events for national regulatory authorities to strengthen regional collaboration and tackle key issues across the regions. The first of these events, to be held in 2021, will focus on 5G and Internet of Things.

Partnership with RURA (Rwanda) has evolved into a new collaboration with the City of Kigali in a new programme (Smart City initiative) funded by Swedish Institute as reported elsewhere in this report.

Challenges and their solutions

The programme was compelled to undergo a number of adaptations in 2020. As outlined above, Covid-19 restrictions necessitated the shift to virtual training and evaluation phases of the programme. Consequently, the number of participants and national regulatory authorities in each round were reduced to enable quality support and discussions with each team as they work on their change initiatives.

To provide more time for discussions and interaction in programme modules such as Project Management and Gender Equality, the main teaching sessions were pre-recorded and shortened. This freed more time for high quality interactive and lengthy discussions.

Effective approaches to the use of ICT

ICT regulation is the cornerstone of any effective digitalisation and effective use of ICT in a country context. The change initiatives supported by the programme in 2020 (see list below) will all pave way to effective digital transformation of the national or regional ICT ecosystems.

Increased capacity among local partners

The programme increases general regulatory knowledge for all participants through lectures and seminars given by experts from regulatory authorities and the telecommunication industry. In addition to this, they are trained in project management and gender equality and inclusion in relation to ICT regulation and have sessions tailored to meet the capacity needs to implement their change initiative. Change initiatives also improve organisational capacity to create a more favourable regulatory environment. The programme provides a platform for NRAs to collaborate with each other and the regional regulatory bodies.

Access to education, health care and government information

Good ICT regulation provide the basis for accessible ICTs in several manners – from affordability to mandate accessibility for persons with disabilities. As seen in the table below, several change initiatives active in 2020 were devoted to service delivery and customer rights, to increase competition and make services better and more affordable. Other initiatives seek to improve the information available. These initiatives address citizens to increase awareness on cyber fraud or online harassment, or businesses by mapping underground infrastructure to avoid cable cuts.

List of programme countries and change initiatives

National Regulatory Authority (NRA)	**Change Initiative**
ARCEP Benin	Setting up policy and charging control for OTT services
ARCEP Burkina Faso	Public consultation of quality of experience (QoE) for the improvement of quality of service (QoS) in telecommunications networks in Burkina Faso
ARCT Burundi	Regulatory Framework for Combating against theft of ICT terminals, the Importation, Supply and Use of Counterfeit/Substandard Terminals in Burundi Cost modelling and pricing regulation
ARTCI Côte d'Ivoire	A functional cost model for infrastructure sharing in Côte d'Ivoire Consumer protection: Procurement of services for people with disabilities
ARPTC DR Congo	A Framework for the Adoption of Universal Services Policy in the DRC
ARPT Guinea	Regulatory Approach Adaptation to New Services
CA Kenya	Spectrum transfer guidelines for Kenya Development of a modern frequency spectrum management and pricing framework
LCA Lesotho	Review of Competition Management Regime (RCMR) Review of LCA Quality of Service
LTA Liberia	Quality of Service Development of Equipment Type Approval Regulations Implementation of the .lr ccTLD management framework (Consultation, Adoption of Administrative Regulations and Re-delegation)
MACRA Malawi	Accounts Separation for Dominant Market Players
AMRTP Mali	Portability of numbers in Mali
ARECOM Mozambique	Universal Access 2.0

	The Telecommunications Data Protection and Privacy Regulation
ARCEP Niger	Accessing the best strategy for rural broadband access in Niger
NCC Nigeria	Development of a Regulatory Framework for Digital Service Providers (DSPs) Cross-Border Frequency coordination within the African Region
RURA Rwanda	Regulatory framework for consumer protection in digital era
ICASA South Africa	Facilitating the accessibility of Information and Communication Technologies (ICT) services by consumers in rural areas
TCRA Tanzania	Developing strategies for Implementation of ICT/Telecoms Infrastructure in Dodoma City Development of Radio Frequency Spectrum Strategy Management of Optical Fibre Cable Digging
UCC Uganda	Development of a framework for Valuation and Pricing of Spectrum Resources Framework for monitoring and reporting broadband service coverage in Uganda
Zambia (ZICTA)	E-Waste Management - Measurement of life cycle of devices Collaboration between key stakeholders to promote effective and efficient regulation in the ICT Sector
POTRAZ Zimbabwe	Online licence application platform Regulatory tools/practices to deal with Emerging Online and platform – based business models

Results follow-up

In 20202 SPIDER initiated a research component for the ITP programme. The aim was to follow up on the results of the programme and provide feedback on the various approaches used in the programme for possible improvements. The research was composed of two parts; one carried out internally at SPIDER, and the other part carried by an external evaluator. SPIDER procured the services of Knowledge Consult Limited based in Kampala Uganda for the external evaluation based on the OECD DAC Framework.

How research has informed the programme

The internal research has provided the programme with complete overview of statistics for the programme. Change initiatives, participants and experts with insights into key areas such as what parts of the programme were the most helpful, internal and external challenges and suggestions for improvement. Some of which are already being considered for implementation. The external research organisation will report in 2021.

Results follow up findings

The core components of the programme: change initiatives approach, continuous support by the programme team, telecommunications expert sessions, project management and gender inclusion were hugely appreciated by all participants. The findings indicate a desire for a more thorough preparation in the first phase of the programme and a request for more support during implementation between the Sweden phase, the regional follow up and the final reporting of the program.

Lessons learned and adjustments made to the programme

A combination of the digitalisation of the programme to adjust to the COVID 19 pandemic and the appreciation of the project management part of the programme led to an addition of a project management module to the Regional phase. The suggestions to have extensive dialogue to fine-tune the Change Initiative projects before the Sweden phase are underway.

Alumni Network (Regulator programme)

The contact and networking between national regulators established during the Sweden phase and Regional phase is one of the key aims of the regulator programme that builds towards a greater interconnection and collaboration between regulators on the continent. The Alumni network, established in 2020 aims to sustain this collaboration to provide a forum for knowledge exchange for the regulators.

In June 2020, the programme launched a LinkedIn group. The alumni network members were involved in three events: Ericsson's COVID 19 and mobile broadband development virtual webinar and two 'way forward' sessions where 2020 programme participants discussed their change initiatives. The LinkedIn group has been complemented with a quarterly newsletter.