

# Working towards a strong research and knowledge system in Sierra Leone

Strengthening the foundation for research requires holistic approach

Sierra Leone has received considerable attention around the world in recent years due to the devastating effects of the Ebola virus outbreak. The temporary closure of universities and restrictions on movement of people halted much of the work of INASP's pilot project to strengthen the foundation to access and production of research. However, it also highlighted the vital need for access to high-quality research resources to help equip researchers and policymakers to tackle their countries' needs.

In 2013, INASP launched a three-year pilot project in Sierra Leone to improve access to, and awareness and use of, research literature. Access to online resources is vital in order to improve standards in higher education, to strengthen research and support development. Researchers depend on good access to information to do good research and keep up with the latest in their sector. Lecturers and students need access to ensure courses are relevant and up-to-date. Governments need evidence to support national policy making. Civil society and NGOs need research in order to design and implement good programmes.

When initially conceived, the project's aim was to increase awareness of the research information already available in Sierra Leone, and see whether



Hot, humid conditions in Freetown affect computer performance.

increasing awareness and the skills to access and use these resources could support Sierra Leone's efforts to strengthen its research system. In the initial phase of consultation and design with partners it became clear that need and demand were broader. Keen to take a more holistic approach, INASP incorporated experience and support from its

research-publishing as well as research-access teams.

## Background

INASP staff visited Sierra Leone in 2013 to begin the project planning process. They gained a first-hand understanding of the situation and met key people in the higher education and research system.

### Quick read

- Pilot project in Sierra Leone is building awareness of access to research information.
- Ebola outbreak delayed progress on face-to-face work but partners remained committed to the work and work on online learning increased.
- Face-to-face work in the country is restarting with journal editor training workshops and work to form an NREN.





They found that there were challenges of poor infrastructure in institutions: leaking roofs, unpaid bills, no internet connection and limited broadband infrastructure nationally. However they also found that there were people working in the sector with a high level of motivation and commitment to improve standards of education and research. These people and institutions were keen to work with INASP and it seemed the time was right to begin work in Sierra Leone.

## Phase one: building relationships – mobilization and collaboration for access

Noting the realities of the in-country challenges relating to infrastructure and connectivity, INASP staff, working with Research4Life, decided to begin the project through raising awareness of the online research materials already available through Research4Life, open access and INASP's own programme. INASP was delighted to be approached by Miriam Conteh-Morgan, a Sierra Leonean librarian, who was appointed by her institution, the University of Sierra Leone, as project lead. ICT Director, Thomas Songu, was appointed as lead by Njala University. These two representatives (see box: Dynamic partners) have been vital to the success of the project; their commitment, collaboration and work ethic have continued to drive activities forward. It has proved invaluable to have two team members representing different sections of information provision and different institutions. They have been able to bring a more holistic approach to planning and overcoming challenges, as well as combining their shared networks and having a vision to extend the project



Agriculture is a research priority - road between Freetown and Njala.

to other institutions.

The project plan was developed in consultation with Miriam, Thomas and their two universities; ensuring that plans were appropriate, inclusive, needs-focused and feasible.

We began in May 2014 by organizing a symposium for leaders in research and academia who discussed both the barriers and opportunities to supporting access to online research. This event provided a forum for consultation with in-country experts, as well as a chance to explain the project and get high-level buy-in. Priorities identified during the symposium aligned with the recommendations of Sierra Leone's

Government Agenda for Prosperity,<sup>1</sup> including the need for improvements to: ICT infrastructure, education quality and power supply. There was a clear commitment to supporting the improvement of essential infrastructure as well as to recognize and support the role of librarians.

Keen to ensure that we provided some practical support early on, the symposium was followed immediately by a workshop for library and IT staff to introduce some of the practical aspects of managing access to online resources. As a result of this workshop, the two groups formed a liaison committee with a view to founding a library consortium.

### Dynamic partners

Anne Powell observes that the success of this project has hinged upon the involvement of highly committed people; namely Miriam Conteh-Morgan and Thomas Songu. These project leads have continued to work tirelessly, despite the setbacks thrown up by the Ebola outbreak, to foster relationships, plan for the future and focus on their own professional development.

Miriam Conteh-Morgan from the Institute of Public Administration and Management is a Sierra Leone national. She lived in the US for many years, working at one of the country's largest universities, Ohio State. Through her work with the leading library consortium OhioLink, Miriam recognizes the value of library consortia and is excited at the prospect of being involved in founding one in Sierra Leone.

Thomas Songu, ICT Director at Njala University is also a Sierra Leone national. He spent many years working in the UK in his field and brings considerable experience of developing IT systems.





## Use of research: creating a skilled pool of researchers and journal editors

There is a relatively low level of research activity in Sierra Leone, particularly of that which reaches academic journals. However, there are pockets of activity producing quality research. This includes research about the agricultural sector, particularly led by the Sierra Leone Agricultural Research Institute.

The important research being done in Sierra Leone rarely becomes part of the global body of scientific



INASP's Jon Harle (right) in conversation with Njala University's then Vice Chancellor in computer lab.

knowledge because of a lack of skills for negotiating the complicated process of publishing. INASP has learned that, for impact, the

improvement of access needs to be accompanied by skills training for researchers and journal editors in writing, research communication and publishing. INASP has tools to address these issues, particularly the AuthorAID initiative. This helps researchers in developing countries to publish and communicate their work, often by offering online courses to researchers. In this case, in response to the poor access to internet around the country, INASP adapted its online courses to develop courses that could be downloaded and used offline, such as 'Planning and Communicating Research.' This proved to be especially relevant later during the Ebola outbreak where people needed to avoid travel or large gatherings, and institutions were closed. A researcher at Njala University applied for and won an AuthorAID grant to run a proposal writing course which resulted in the formation of eight thematic research groups.

## Research, development and outbreaks of disease

INASP works to support countries as they develop their research capacity to tackle development challenges. This is through building skills to manage infrastructure and training surrounding access to information, building on-the-ground research skills, and promoting the use of research in policy making. The case of the Ebola outbreak is a unique example of how access to, and use of, research can have a huge impact on development issues – in this case, health. Research into Ebola has helped those countries affected to bring the disease under control. They are better prepared to contain it again if it were to return. However, they may have been able to use research to avert such a crisis in the first place had there been better access to Ebola research earlier. The New York Times<sup>2</sup> reported in August 2015 that vital research published in the 1980s would have helped countries prepare for an epidemic but the countries concerned did not know it existed. The research, in fact, would have been available for free via Research4Life. As the Ebola outbreak reached its peak, some in the academic and scientific community were calling for open access to and sharing of research data on the disease and its treatments. In a Nature article,<sup>3</sup> published in February 2015, three scientists working on sequencing the Ebola genome called for guidelines on data sharing during epidemics. They described being overwhelmed by the response they had experienced from colleagues when requesting collaboration after publishing findings online. They received input from around the world. They refer to other outbreaks which may have been better contained had there been better sharing and access to information, for example during the outbreak of Middle East Respiratory Syndrome, when progress was hampered by confusion over intellectual Property. Some have benefitted from best practice. With Swine flu, a public repository was set up to share information and collaborate. More recently during current Zika virus labs are releasing real-time data.<sup>4</sup> However, the scientists describe response from the academic community generally as sporadic and too slow. One of the roles that INASP is taking in this project is that of building awareness of the research available, so that those who should use it can do so in order to tackle vital development challenges.

## Ebola puts the project on hold

An Ebola outbreak was confirmed in Sierra Leone in May 2014, just weeks after the project's first symposium. Restrictions were placed on travel, large gatherings, and education. In September 2014, in desperation,





Long distances between universities make collaboration important.

**INASP has learned that, for impact, the improvement of access needs to be accompanied by skills training for researchers and journal editors in writing, research communication and publishing.**

the government barred people from leaving their homes for three days in an attempt to contain the epidemic.

Schools and universities were closed for nearly nine months, and work on the INASP project necessarily paused while focus was on other things. Miriam and Thomas stayed in touch and INASP continued to support them and the project where possible. Thomas, with support from INASP associate Ravi Murugesan, uploaded large amounts of content onto Moodle and worked to develop Moodle courses that students could take part in remotely. The partners were determined to overcome the crisis and do what they could to support continued learning.

The outbreak highlighted to INASP the importance of developing our resources for distance learning and remote support – if staff, trainers and facilitators couldn't travel to the

country, and in-country participants could not come together safely, we could develop alternative solutions. The adaptation of the AuthorAID courses was a perfect example of this. Researchers were able to download a training component and then take that home to study when movement was restricted. Thomas and Miriam also looked at ways to support their students. Universities around the country developed resources to support students remotely and schools were broadcasting lessons on the radio. Miriam commented that people needed to focus on something positive like education in order to take their minds off events in the country.

Gradually, and after a sustained global effort, Ebola in west Africa was contained, and thoughts are turning to the rebuilding and revitalization of basic services and

### A connected information sector

Much of what INASP encourages in partners around the world is the creation of links with other actors in the sector. In the case of information access we know that librarians need to connect with ICT professionals. These are the people with the ability to improve infrastructure and ensure better broadband connectivity. Even if the library or library consortium has secured institutional, or national, access to a substantial variety of quality research, if it remains inaccessible to the end user - the student, researcher or lecturer - then it is rendered meaningless. INASP has learned from work in other countries that it can be difficult for different groups to come together and collaborate effectively. In Sierra Leone, the two groups of ICT professionals and librarians have been working together from the very beginning, and will form a consortium to support access to information consisting of representatives from both sides, joining their complementary skills and responsibilities and ensuring collaboration from the outset.





infrastructure as people focus on the way forward.

## Phase two: practical action and the way forward

The second phase of the project began in September 2015 and will run until March 2018. Three components of the national research system will be addressed: electronic resource access and use; campus networking; and improving the visibility of research through journal publishing. Despite the setbacks resulting in time lost, and the poor ICT infrastructure, those working on the project are optimistic for its success. The project leads are committed and active, the two institutions are collaborating well, both librarians and ICT staff are already represented in the library liaison committee, strong regional links have been forged with peers in Ghana and INASP publishers have extended free access to online literature available through our access programme to the country. We will explore the way forward below.

## Electronic resources access and use

### *Expansion to other institutions*

A strong national library consortium can support a country to provide access to resources. A consortium can be a central manager and support for those offering and managing information access at member institutions across the country. It can strengthen buying power, enabling institutions of all sizes and budgets to access information. Negotiating as a larger body can also be more effective than as a single institution. Members can share skills and knowledge and work together to create a stronger information provision service.

Having formed a liaison committee, the next step for USL and Njala was to engage with other institutions to take steps towards forming a library consortium. During March 2016 the committee has begun to initiate contact with academic leadership of several institutions to introduce the project. They will be looking to engage ICT and library staff from potential members in order to take a holistic approach to improving and managing access. This will develop during the coming months and years and it will be interesting to see how partnerships and cooperation strengthen the activities and what different stakeholders will contribute.

### *E-resource management and awareness raising*

Institutions and staff need to be able to manage their online resources effectively in order to offer a good service to researchers. They need to be able to select the most appropriate resources and then ensure that users are aware of what is available, and are able to access them easily and simply in order to make full use of that which they are providing.

A further training workshop on electronic resource management for librarians and a training workshop on search skills will be held for faculty staff, both in the first half of 2016. These workshops will use the training materials developed for the May 2014 events, which aimed to promote the availability of electronic resources (negotiated-for free access by INASP, open access or through Research4Life) in institutions across Sierra Leone.

### *Symposia for academic leadership*

These symposia will bring together senior faculty and library staff to discuss the project. They will build upon the Phase one symposium, looking in more detail at how activities can support research, teaching and learning in Sierra Leone.

They will introduce new institutions to the liaison committee and the benefits of a library consortium. Several half day symposia and training events will take place between March and May 2016 facilitated by the liaison committee.

## National ICT infrastructure and campus networking

The building of Sierra Leone's ICT infrastructure was hampered and delayed by the long civil war. Where there currently is internet connectivity, and when access becomes more widespread, institutions will need to keep up with the technology. They will need skilled engineers and ICT professionals to configure campus networks, and ensure campus-wide access. Institutions will need their own infrastructure in order to make use of that which is available externally.

### *National Research and Education Networks*

In November 2015, INASP supported Thomas Songu to participate in the UbuntuNet-Connect conference taking place in Mozambique. The UbuntuNet Alliance works in eastern and southern Africa aiming to secure

## Ebola in Sierra Leone: some statistics

**3955** people were killed by the disease

Schools and universities were closed for almost nine months

It contributed to **\$1.4 billion** in economic losses in 2015

**1/3** of the workforce report a lower revenue than prior to the outbreak

Urban employment rate dropped from **75% to 67%**

(Statistics from the World Bank and BBC)





affordable access to broadband and support National Research and Education Networks (NRENs) to develop efficient ICT systems. NRENs are not-for-profit, specialized internet service providers dedicated to supporting the needs of research and education communities within countries. They work closely with research centres and institutions to provide the most appropriate services. This conference gave Thomas the opportunity to meet with other NRENs supported by INASP – in Tanzania, Zambia and Uganda, and explore what might be possible in Sierra Leone.

This gave him the impetus to join the West and Central African NREN network, WACREN. Thomas plans to convene a committee to establish a Sierra Leone NREN in order to support institutions around the country. He has reported a great depth of learning and inspiration attributable to this trip.

To support this, Thomas (and, when formed, the committee) will arrange an event, with financial support from INASP, bringing together key stakeholders in Sierra Leone (including Vice Chancellors, Principals, senior academics, researchers, ICT professionals and campus engineers) and WACREN. The event will be a first step towards

mapping out the establishment of a Sierra Leone NREN and the potential for that to join WACREN.

Once the national infrastructure is in place for our partner universities, USL and Njala, to connect to high speed internet (hopefully within 2016) they plan to work with a Ghanaian expert to configure their networks. This will build the Sierra Leonean links with Ghana and within the region.

### Journal publishing, journal quality and visibility of research

#### *Journal editors*

As mentioned above, important research is being undertaken in Sierra Leone, but researchers often find no outlet for their work. The institutions wish to revive those journals that, due to the war and then the Ebola virus, have ceased to operate and need support to start publishing again. INASP hopes that, by supporting the building of skills and brokering relationships, Sierra Leonean journals can eventually be hosted on African Journals Online (AJOL) – an INASP founded project now independently and locally run. In collaboration with AJOL, a training workshop on journal publishing and journal quality took place in February 2016. INASP sponsored

eight editorial team members from Sierra Leonean journals, those both in operation and in the latter stages of development, to attend the AJOL workshop which took place in Accra, Ghana. Early

### Regional Networking: working with the Consortium for Academic and Research Libraries in Ghana, CARLIGH

INASP believes in the importance of regional networking, for mentoring, learning and the sharing of experiences and solutions to challenges. In the case of Sierra Leone, key players in the Ghanaian research and knowledge environment have been involved and supportive since early in the project. Ghana is seen by many in Sierra Leone as a model of infrastructure and development. Helena Asamoah-Hassan of the Consortium of Academic and Research Libraries of Ghana (CARLIGH) presented at the first symposium held in Sierra Leone in 2014. Her presence was particularly important as she was able to share some of the successes and difficulties that Ghana has dealt with while going through the same process as Sierra Leone is now beginning. The Ghanaian consortium and other representatives have been in touch with Miriam and Thomas and are acting as informal mentors in providing support. A participant from the 2016 event in Ghana reported, “Networking with colleagues in Ghana gave participants many insights into how the University of Sierra Leone can make progress in online publishing and expose its scholarly output to an international audience, as well as providing access to potential reviewers for academic publications of USL.”

**“Networking with colleagues in Ghana gave participants many insights into how the University of Sierra Leone can make progress in online publishing and expose its scholarly output to an international audience, as well as providing access to potential reviewers for academic publications of USL.”**





in the project, connections with Ghanaian institutions were made, and Ghanaian colleagues and practices have been both helpful and influential.

Many reports and grey literature produced in Sierra Leone risk being lost due to difficulties in publication and a lack of institutional or national repositories. This means important knowledge is not being shared, or used and could potentially be duplicated. This literature needs to be kept, and needs to be shared, either institutionally or nationally; even internationally.

The creation of a Sierra Leone platform using journals online software may be a way to increase the visibility of research coming out of Sierra Leone. INASP could sponsor a Ghanaian expert to assist in the development and configuration of such a system as well as facilitating a mentorship initiative to support ongoing work and development.

## Putting learning to use

As well as providing support to Sierra Leone, the project was also an opportunity for INASP to explore work in a new country,

and in particular a country where IT facilities and broadband infrastructure are limited. Since beginning work in Sierra Leone, and learning from our experience there, INASP has been investigating needs in other countries where ongoing or relatively recent conflicts have damaged infrastructure, strained resources and made day-to-day work much more challenging.

As a next step, in 2015 INASP commissioned country studies of the research and knowledge systems in Liberia, the Somali regions and South Sudan. Undertaken by local analysts, these have provided rich accounts of how research is done in the countries in question, how it connects to practice and policy, and the overall state of the system. To test the waters – and to get an initial reading of the suitability of online support – we also targeted researchers in each country when advertising our recent online course in research writing. As a next step, INASP decided to explore the research and knowledge system in Somalia (including the Somali regions of Somalia, Somaliland and Puntland) in more depth – beginning with a roundtable convened in March

2016, in collaboration with the Rift Valley Institute in Nairobi. As well as going deeper into a discussion of the research system in Somalia, this was an opportunity to make Somali institutions aware of the existing support they can access via INASP, and to connect them with some of INASP's existing partners in Kenya who have experienced – and tackled – many similar challenges in recent years, albeit without the additional problems of security. The initial analysis and a synthesis of discussions during the roundtable will be published soon, and INASP will continue to discuss future work with Somali partners. ●

## References

1. [www.undp.org/content/dam/sierraleone/docs/projectdocuments/povreduction/undp\\_sle\\_The%20Agenda%20for%20Prosperity%20.pdf](http://www.undp.org/content/dam/sierraleone/docs/projectdocuments/povreduction/undp_sle_The%20Agenda%20for%20Prosperity%20.pdf)
2. [www.nytimes.com/2015/04/08/opinion/yes-we-were-warned-about-ebola.html?\\_r=1](http://www.nytimes.com/2015/04/08/opinion/yes-we-were-warned-about-ebola.html?_r=1)
3. [www.nature.com/news/data-sharing-make-outbreak-research-open-access-1.16966](http://www.nature.com/news/data-sharing-make-outbreak-research-open-access-1.16966)
4. [www.nature.com/news/zika-researchers-release-real-time-data-on-viral-infection-study-in-monkeys-1.19438](http://www.nature.com/news/zika-researchers-release-real-time-data-on-viral-infection-study-in-monkeys-1.19438)

## Key points of learning

1. The initiative was an opportunity for INASP to explore the conditions within a country necessary for its work to strengthen the foundations for research to be effective. The approach taken in Sierra Leone and the lessons learnt will guide how INASP works in the future.
2. It is important to bring together ICT experts, researchers, higher education representatives and libraries from the beginning, and to develop a shared vision, rather than initially just working through the library and approaching other groups later.
3. The Ebola outbreak required the project to be paused. However the outbreak has highlighted the importance of investment in distance learning and processes whereby INASP can support projects remotely.
4. Of vital importance to the sustainability and success of a project like this is the identification and involvement of dynamic and committed people.

## INASP Team

**Anne Powell** Programme Manager, Information Access and Publisher Liaison

**Jon Harle** Senior Programme Manager, Research Access and Higher Education

