

Foreword

Welcome to the 4th edition of the PAERIP e-Newsletter!

Dear readers,

Time flies!

PAERIP is now half-way through its course of duration and we are very proud of the progress made towards achieving the objectives of this initiative.

I invite you to specifically go through the event report of the recent PAERIP workshop and expert review meeting held in Brussels on 15-16 May 2012, this way you can also judge for yourself if you think we are on the right track.

The strategic objective of PAERIP is raising the profile of research infrastructures to become an important pillar of Africa-EU cooperation on science and technology and therefore we have been highly encouraged by the positive recent developments in radio astronomy partnerships between African and Europe. For more information on this, click [here](#).

As always, we would be delighted to hear from you.

For now until the next edition of this newsletter, keep well and be in good health.

Enjoy your reading! Yours sincerely,

Takalani Nemaungani

Director Global Projects, DST, South Africa
& Project Coordinator, PAERIP

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PAERIP partnership



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PAERIP findings

Access to Research Infrastructures and mobility of people

By **Z El Sadr**

Ministry of Higher Education and Scientific Research (MHESR), Egypt

& **A P Botha**

TechnoScene (Pty) Ltd, South Africa

PAERIP ultimately deals with partnerships. Partnerships can only be built if there is joint needs or offerings and if the right level of access is available to RI. Different RI types may lead to dedicated access agreements. This point has been deliberated upon during the PAERIP consortium meeting and workshop in Brussels in May 2012. Access depends on knowledge of what is available. It is thus very pertinent and crucial not only to create an inventory of African/EU RI like the consortium has done (and which is available [here](#)), but also to address important issues associated with access to RIs.

The RI types referred to above include: centrally located RI; distributed RI; static and mobile observation sites; networks of data and sample repositories; and networks for the purpose of periodic multi-country surveys.

The issue of access to RI in both Africa and Europe is being addressed by developing an understanding of current access guidelines and use of facilities on both continents. The issue of access was highlighted as a crucial component in partnership formation at the PAERIP Brussels workshop discussions with a broad group of stakeholders from Europe and Africa, with one of the major recommendations being: "The best outcome to stimulate cooperation is to propose a dedicated kind of mobility to move people in both directions, not only scientists but also managers and engineers as well as promoting seamless access to RIs (both to data and physical buildings) from the construction phase onwards". It is not only access to researchers, but also to developers, managers and those responsible for operating a RI that must be considered.

A number of actions have been proposed to enhance and improve the access of RIs in both continents, the most important of which is raising the awareness on Information on African RI and increasing its visibility to Europe.

In addition, raising the awareness on the importance of R&D in Africa and the available supporting programmes will lead to larger demand for access to African and European RI from African researchers. It is also crucial to call for continental/regional coordination to facilitate RI partnership in both continents and to have a consistent framework, not only for researchers being mobile among RI, but also for the exchange of research samples, especially where these RI are well networked with e-infrastructure.

Other indirect issues contributing to the improvement of access of RI for scientists were also identified, such as simplification of visa issuing by governments to facilitate researcher mobility.

On another front a recommendation was made to explore existing initiatives supporting the access to RIs such as the Integrated Infrastructure Initiatives funded under the FP7. With the scarcity of resources and the financial crisis faced by some countries, affecting the world at large, it is very evident that the issue of RI partnerships and specifically improved access of scientists to RIs will be a crucial debate in the near future.



PAERIP findings

An inventory to support African-EU RI cooperation

By A P Botha, G von Gruenewaldt and T C Botha

TechnoScene (Pty) Ltd, South Africa

& N Houssos and C Paschou

National Documentation Centre (EKT), Greece

PAERIP developed an inventory of European (ESFRI and non-ESFRI) Research Infrastructures (RI) and pan-African RI that could potentially benefit from collaboration and forming of partnerships. The ESFRI platform was used as a reference in Europe as well as RI funded by FP7 that were presented at the International Conference on Research Infrastructures (ICRI) in March 2012 in Copenhagen, Denmark. To identify the pan-African RI that could potentially benefit from partnerships with European RI, the Africa Science and Technology Consolidated Plan of Action (CPA) that was adopted by the African Union and the New Partnership for Africa's Development (NEPAD) was used as a guideline on research priorities that would require significant access to RI. In addition to this, the Book of Lighthouse Projects agreed to between the European Commission and the African Union Commission was used to indicate common research interest. Areas outside ESFRI and the two African guiding policies were identified where they were very prominent and could contribute to forming partnerships between the two continents.

With this knowledge as a baseline, the two sets of RI were mapped against each other per focus area of Social Science and Humanities, Environmental Sciences, Energy, Biological and Medical Sciences, Materials and Analytical Facilities, Physical Sciences and Engineering and e-Infrastructures to show possible points of commonality. A database compliant with CERIF standards (entities, relationships, structure) was developed by EKT in Greece to house the inventory information. RI with a high potential for partnership formation based on their similarity or complementarity were selected, based on their development or operational status, to illustrate potential nucleation points for partnerships.

In a survey conducted among European RI coordinators, it was stated that one of the major reasons for not collaborating is lack of awareness of what exists in Africa.

The inventory now provides a tool to European RI to find African RI that could potentially collaborate with them and *vice versa*.

The PAERIP team developing the inventory has taken the liberty of linking database information of RI in Europe and Africa that are of a similar nature. That does not imply that they are collaborating already or will ever do, but creates an awareness of RI with common purpose or interest. It is up to users of the inventory now to advise PAERIP on the possibilities they see for collaboration or to bring to the attention of the consortium existing collaborations that have the team was not aware of. An example from the inventory of potential and existing collaboration between European and African RI in the Biological and Medical Sciences is given below.

Potential & Existing Collaborations

You can select a focus area from the drop down list and view the potential & existing collaborations between research infrastructures in Europe and Africa.



It is important to note that collaboration does not mean a partnership as such, but it is generally accepted where collaboration is possible, partnerships may evolve. The understanding of “partnership” at this stage is quite wide and can include an association between researchers at different RI; agreements between institutions hosting RI; bi-lateral or multi-lateral agreements; or official agreements that two or more RI follow a similar development path and complement each other in a true distributed fashion.

The inventory is an attempt to identify an initial set of RI in Europe and Africa that could potentially lead to partnerships. Users are invited to comment on the content, suggest additions or request removal from this inventory. The inventory is available on the PAERIP web site or can be accessed [here](#).

PAERIP findings

The economic and development impact of African-EU RI cooperation - Analysis

By P Gomez and K Krzastek

ISC Intelligence in Science, Belgium

The implementation of research facilities of Pan-European interest has led to increased attention to studies measuring the scientific, social and economic benefits deriving from these infrastructures. In this context, one of tasks of the PAERIP project was to undertake an analysis of the socio-economic impact of African-European research infrastructure cooperation.

The analysis of the infrastructure development impact was based on the case study addressing the South African Large Telescope (SALT), the largest single optical telescope in the southern hemisphere. The telescope was inaugurated at the South African Astronomical Observatory (SAAO) site in Sutherland on 11 November 2005 and was funded by a consortium of international partners comprising universities and institutes from Africa, New Zealand, Poland, UK, Germany and US.

In order to maximise benefits from the investment in the construction and operation of SALT, the SALT Collateral Benefits Programme (SCBP) was set up within the South African Astronomical Observatory (SAAO). As such, this programme, and the telescope itself, served as a case study when examining the impact assessment of SALT and astronomy for African socio-economic development.

The South African experience showed significant economic returns from the operation of SALT. The economic activity in the area has increased significantly (60% of contracts and tenders for the construction of SALT were awarded to South African industry as well as building infrastructure such as roads and buildings), almost 40 specialised jobs were directly created (software, electronic and mechanical engineering, electronic technicians, etc.) and due to a boost of tourism in the area approximately 80 jobs were indirectly created¹. Visits grew from a few hundred to over 13,000 people which contributed to a substantial increase of small business ranging from accommodation, restaurant, and other tourism related business².

¹ Govender, K., 2011, 'Astronomy for African development', International Astronomical Union

² Astronomy Working Group, 2011, 'Position Paper on a Decadal Strategy for Human Capacity Development in Astronomy and Astrophysics in South Africa'

SALT had also a significant social impact. It contributed to the training of students through creation of a graduate programme called "National Astrophysics and Space Science Programme" as well as training of scientists and technicians on how to use and operate SALT. In addition, SALT is well known by every pupil in the country and is part of the school curriculum at different levels and therefore it is used to teach concepts in mathematics, science and technology. It inspires young people and shows that there are great job opportunities in their own country in the fields of science, technology and engineering. This in turn prevents so-called brain drain and has a structuring effect on building the scientific community by promoting close cooperation between astronomers, researchers, students and engineers worldwide.

In conclusion, the study revealed that research infrastructures have the potential to impact greatly on society in many ways. SALT illustrates that tangible economic and social returns from the operation of research facility are possible, and that this model can readily and easily be adapted to any other RI around the world with the potential benefits similar to those presented in the study.

The case study should be viewed as the start of the research into the socio-economic impact of RIs. It will be shortly enhanced with analyses of other existing RIs that have established African-European cooperation. Additional information will also be obtained through qualitative survey on the socio-economic impact of the existing collaboration for both continents, addressed to RIs located in Europe and Africa.



Highlights

2nd PAERIP Workshop: event outputs

By K Krzastek & P Gomez

ISC Intelligence in Science, Belgium

The 2nd PAERIP seminar took place at the Renaissance Hotel in Brussels (Belgium) on May 16, 2012. Attended by over 60 European and African delegates from European Institutions, governments, research institutions, universities and the private sector, the seminar aimed at raising awareness of the PAERIP project objectives and activities, presenting findings of the PAERIP studies and analyses as well as focusing on exploring options for enhancing research infrastructure cooperation between Europe and Africa.

This event confirmed the significance of PAERIP as one of the first dedicated support actions for international research infrastructure cooperation with a specific geographic focus and the first FP7 project on RI coordinated from outside Europe.

The agenda consisted of:

1. **Presentation of the policy framework on EU-Africa S&T cooperation, with a particular focus on Horizon 2020, by PAERIP Project Officer from the European Commission**
2. **Presentations of PAERIP first year findings:**

- Inventory of European and Pan-African research infrastructures well suited for cooperation, based on a mapping of 64 European against 99 Pan-African projects, indicated overlap in interest or gaps where potential interest exists. These details were taken up in an interactive RI database, published on the PAERIP website, which is a dynamic tool that can be used by stakeholders and users to identify areas where cooperation could be further developed;

- Conclusions of the study on reciprocal access to Africa/Europe RIs showed that, in the majority of cases, access by individual scientists from Africa to European RIs faces several obstacles. Access is provided either by virtue of agreements between the RI management and the responsible funding agency/ministry of the home country of the researcher concerned (which has substantive cost implications) or through the national correspondent of regional/global networks affiliated

with the European RI. On the other hand, access European scientists to pan-African RIs is less complicated as in most instances the RI concerned has been established in collaboration with European scientists or received funding from European funding agencies;

- An analysis of the FP7 Capacities Programme's RI activities supporting African-European cooperation revealed that 29 African partners, representing 12 African countries, participated in 16 funded projects. The study also proposed a number of future interventions which could enhance our knowledge on the African participation, including consultation (survey) with project coordinators, project partners from Africa and national contact points responsible for research infrastructures, as well as comparing Africa results with that of other regions;

- An analysis of the socio-economic impact of African-European research infrastructure cooperation demonstrated that RIs have the potential to impact greatly on society in many ways and that tangible economic (increase economic activity, direct and indirect creation of jobs) and social returns (training of scientists, technicians and students; structuring effect on building the scientific community; impact on education) from the operation of the research facility are possible.

The event saw the participation of two high-level members of the European Parliament and guest speakers from the OECD and the Joint Research Centre.

Delegates also found the opportunity to meet key decision-makers from the region, and exchange experiences with international experts of great value and generally departed knowing that significant advances have been made since the launch of the PAERIP project.

The seminar was organised by ISC Intelligence in Science with the support of DST, Sigma Orionis and all PAERIP consortium members.



Expert in the Spotlight...

Prof. John Womersley



By Prof. John Womersley
Member, European Strategy Forum
on Research Infrastructures (ESFRI)
Executive Board

Q1. How well is the broad concept of research infrastructures entrenched in (European / global / African) science policy thinking?

I think we've seen a broad realisation that a strong science and technology base is key for any country trying to compete in the increasingly global knowledge economy. There is also a growing understanding that the major challenges we face as a global society, such as energy, climate change, health and security, cannot be solved without scientific and technical innovation. There are many components to maintaining and developing this research base - obviously it requires a sound education system, excellent universities - but also, crucially, it is essential that researchers have access to the highest quality facilities that they need to carry out their work. This is what we mean by "research infrastructures".

Q2. What are the crucial success factors for transcontinental RI sharing, for example, African researchers sharing European RI, or vice versa?

Transcontinental use of RIs is most obvious when the RI is unique, or almost unique, in the world. This is the case with CERN, for example, which is the only facility in the world capable of creating the high energy collisions needed to understand the universe one trillionth of a second after the big bang. It will also be the case with the Square Kilometre Array, the world's next generation radio telescope, which will be built in South Africa and Australia. The selection of these countries for the telescope site was based on the scientific requirements of the project, which needs to be located in remote desert areas far from population centres; it shows that transcontinental sharing of RIs is not a one way street, and in future European researchers will be travelling to Africa to work on SKA. However, there is also a strong role to be played in skills development and training. RIs in Europe offer capabilities which do not yet exist in many African countries - access to these facilities is critical in training the next generation of African scientists to be world-class researchers. Going beyond this, if mechanisms can be

found for continued use of the facilities from overseas, this may help to reduce the tendency for the best African researchers to feel they must leave home if they are to fully realise their scientific potential.

Q3. Should research infrastructure roadmaps be planned top down as national / regional exercises, or bottom up?

It is important that RI roadmaps take their ideas from the scientific communities that will make use of the facilities - the RI concepts must be scientifically driven and world class in quality. But the overall roadmapping exercise usually requires tensioning between different areas of scientific enquiry and different scales of project, which can only be done by taking a national or regional perspective.

Q4. How much does a shrinking, networked world affect the traditional view of national ownership of infrastructure?

As in some other areas, the nation-state is proving surprisingly durable in its role as owner of scientific infrastructure. While many big projects require international collaboration to build, it is hard for major infrastructure investments to get started without one (or a small number of) countries taking a lead. Almost all of the projects in the ESFRI roadmap, for example, have a lead nation as a sponsor, and those that do not can sometimes struggle. That said, we are seeing that almost all nationally owned research infrastructures are now aiming to attract an international user base, and indeed use their ability to do so as a measure of quality. What better indicator can there be of a "world-leading" research facility than its ability to attract the best scientists from all over the world?

Q5. What value might a visible African research infrastructure roadmap bring to ESFRI?

An African RI roadmap would be very useful - it would identify potential areas for collaboration between African and European nations in future RIs, it would identify areas of complementarity where we need to work together, and could make the case for some of the unique research opportunities that Africa can offer European scientists in areas such as astronomy, climate change, human health and agriculture.

Q6. How might African requirements for research infrastructures strengthen ESFRI roll-out?

Understanding how African researchers could benefit from, and contribute to, ESFRI's RI, and how ESFRI's facilities contribute in a broader global context, would be most valuable; it would help in developing ESFRI's plans in the context of the increasingly global science endeavour.

News & Events

PAERIP participation in ICRI 2012



This International Conference on Research Infrastructures held in Copenhagen, Denmark during March 2012 was attended by PAERIP representatives, Prof John Wood (Member of Advisory Committee), Mr Daan du Toit and Dr Anthon Botha. The event was attended by about 600 delegates, with the focus of the discussions being on global Research Infrastructure (RI). [More...](#)

PAERIP represented at the 'All African Globelics' Seminar



The Global Network for Economics of Learning, Innovation, and Competence Building Systems (Globelics) Seminar took place in Dar es Salaam (Tanzania) on March 22-23, 2012. During this meeting MOHEST presented the PAERIP project in the Session on "Research Infrastructures". Specifically, emphasis was laid on the potential role the various participants can contribute to the PAERIP project objectives and indeed their engagement as PAERIP Project stakeholders. [More...](#)

PAERIP participation in the ERF Workshop



The ERF workshop (May 31 - June 1, 2012) brought together experts from research infrastructures, science, policy makers and industry to discuss the many dimensions of socio-economic relevance of Research Infrastructures. PAERIP was represented by Ms Pilar Gomez and Ms Karolina Krzastek by ISC, who attended the event so as to reinforce knowledge on the socio-economic impact assessment and use this opportunity to network and raise the profile of PAERIP project and its activities. [More...](#)

Next PAERIP workshop (Oct. 17, 2012 – London, UK)



The event aims at presenting the results of its investigations into access by European and African researchers to each others research infrastructures, and into the opportunities for African-European cooperation in developing new research infrastructures. [More...](#)

4th PAERIP workshop and CAAST-Net stakeholder conference (Dec. 3-4, 2012 – Accra, Ghana)



The PAERIP and CAAST-Net projects are pleased to announce a joint Africa-Europe stakeholder conference on the roles played by research infrastructures in advancing and facilitating bi-regional cooperation in scientific and technological research and innovation, that will be organised on Dec. 3-4, 2012 in Accra, Ghana. [More...](#)



2012 Africa-EU Cooperation Forum on ICT



Organised by the EuroAfrica-P8 consortium in the framework of the Africa-EU Strategic Partnership (JAES) and hosted by the Government of Portugal through the Ministry of Education and Science (MEC), this year edition of the "Africa-EU Cooperation Forum on ICT" (an event designed to anyone with an interest in Euro-African collaborative project on ICT) will be held on November 28-29, 2012, at the Centro Cultural de Belém (CCB) in Lisbon, Portugal. [More...](#)

[More news/events...](#)

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