



AGA KHAN DEVELOPMENT NETWORK

20 | FCT Fundação
anos para a Ciência
e a Tecnologia

1ST CALL FOR JOINT PROJECT PROPOSALS

KNOWLEDGE FOR DEVELOPMENT INITIATIVE

*A Partnership between
FCT & AKDN to foster research
and knowledge for the welfare
of people in Africa.*

Protocol for Cooperation in Science & Technology between the Ministry of Science, Technology and Higher Education and the Ismaili Imam

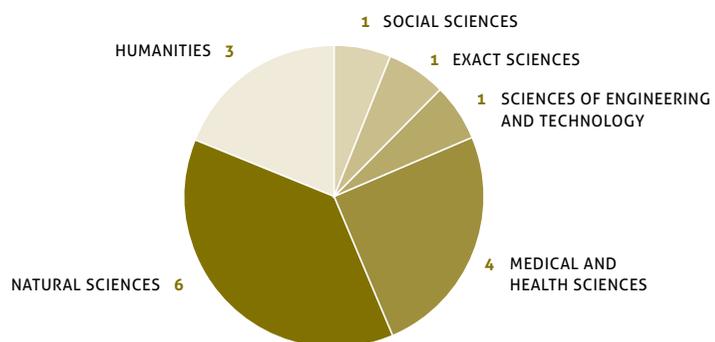
Within the framework of the Protocol for Cooperation in Science and Technology between the Portuguese Ministry of Science, Technology and Higher Education and the Ismaili Imam, signed on 12 May 2016, the Fundação para a Ciência e a Tecnologia (FCT) and the Aga Khan Development Network (AKDN) launched a call for joint scientific and technological research projects. The call aims to foster the welfare of people and to build scientific, technical, social science & humanities research towards advances in Quality of Life (QOL) in Portuguese-speaking African Countries (PALOP) and elsewhere in Africa.

The present call was oriented exclusively to existing initiatives and on-going collaborations between academic and scientific institutions in PALOP and Portuguese research and academic institutions, in order to help develop and expand existing initiatives that may consolidate research capacity in those African countries.

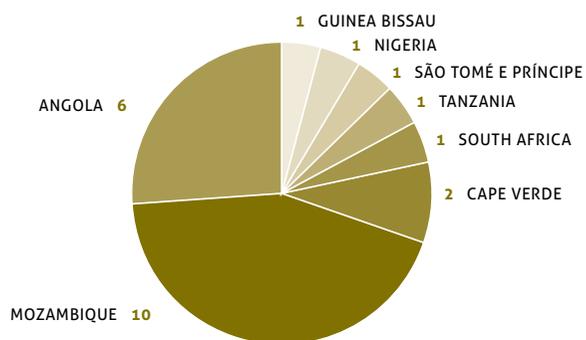
A total of 78 applications were submitted. After evaluation by an international jury, 16 projects were recommended for funding, representing an investment of 4.6 million euros, provided by FCT and AKDN.



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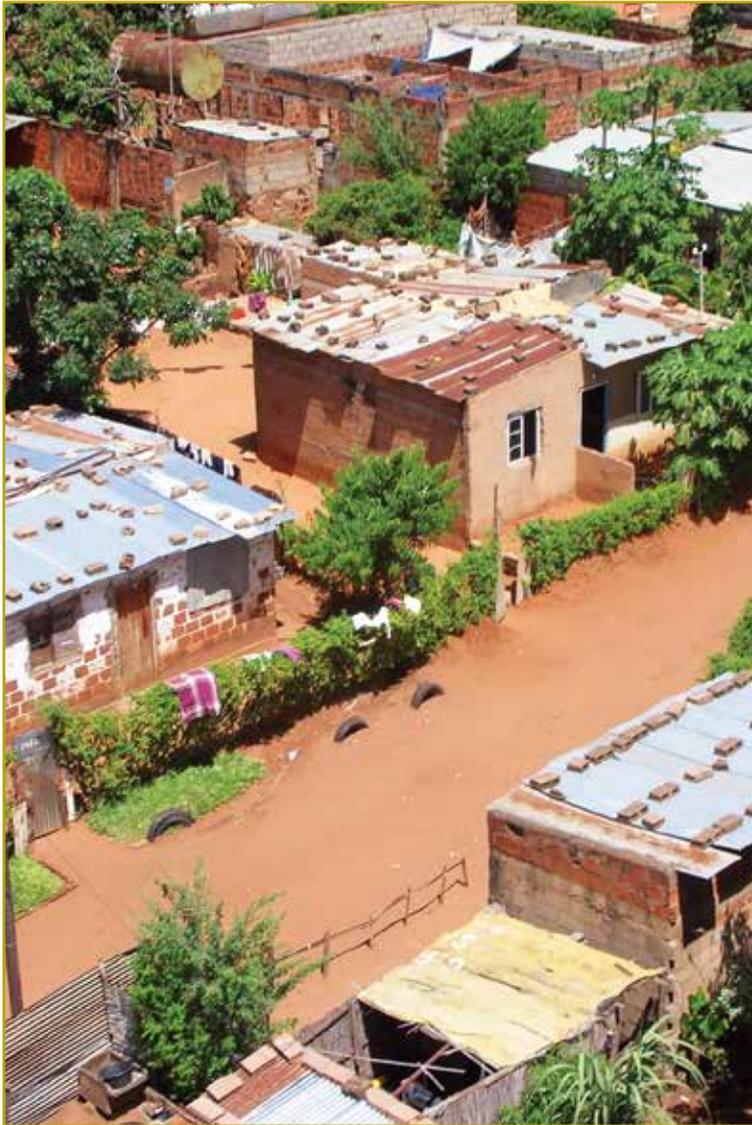
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The implementation of these projects will be accompanied by an External Scientific Review Panel, chaired by Professor António Rendas from the Universidade Nova de Lisboa. The panel will ensure the monitoring of the projects, in order to guarantee the achievement of the proposed scientific results, as well as the desired impact on Quality of Life of the African countries involved.

The 2nd joint call, for new initiatives and projects, is scheduled for 2018.

Joint Project Proposals



Africa Habitat

From the sustainability of habitat to the quality of inhabit in the urban margins of Luanda and Maputo

PROJECT COORDINATOR

Isabel Raposo

PROPOSER INSTITUTION

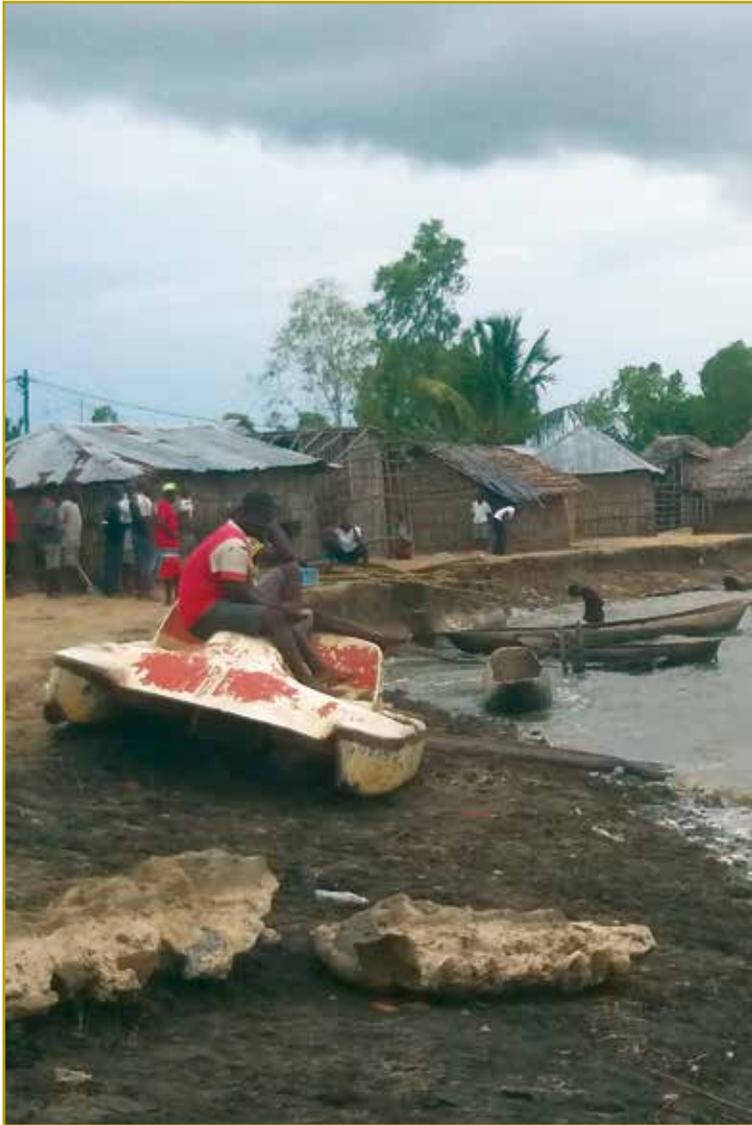
Faculdade de Arquitectura da Universidade de Lisboa

PROJECT PARTNER INSTITUTIONS

Faculdade de Arquitectura da Universidade de Lisboa	Portugal
Centro de Estudos sobre África, Ásia e América Latina, ISEG-UL	Portugal
Instituto Superior Técnico da Universidade de Lisboa	Portugal
Dep. de Arquitectura da Fac. de Engenharia da Univ. Agostinho Neto	Angola
Fac. de Arquitectura e Planeamento Físico da Univ. Eduardo Mondlane	Mozambique
Agência Piaget para o Desenvolvimento (representation in Angola)	Portugal/Angola
Kaya Clinic	Mozambique

ABSTRACT

The project will focus on the forms of socio-urbanistic and housing intervention that contribute to the improvement of the quality of inhabit and of the sustainability of habitat in the urban margins of the African cities of Lusotopia, where the majority of the low-income groups live. The main objective is to identify, evaluate, promote and disseminate the principles underlying these interventions. In the current context of accelerated urbanisation, globalisation and growing socio-spatial inequalities, inscribed in the neoliberal paradigm, it is urgent to reflect on the impact of such interventions, on the construction of a more inclusive habitat and on what to do and how to reinforce them. The project intends to: (1) distinguish these interventions, attending to the diversity of situations of housing precariousness, to the type of intervention paradigms, processes and design and their virtues and limits to improve inhabit and habitat; (2) evaluate the impact of the best interventions on the construction of the Right to City in the urban margins; (3) contribute to the improvement and operationalisation of such interventions, outline and disseminate their principles, process and project methodologies and building techniques; (4) strengthen university capacity to research, train and do extension work, increasing the academic role on those issues and territories; and (5) reinforce networks of action-research on the same issues in a close relation between universities and civil society. Luanda and Maputo, with similar structural constraints, are taken as case studies.



BIOFISH-QoL

Integrative approach for enhance quality of live in fishing communities of the 'Bons Sinais' estuary (Mozambique)

PROJECT COORDINATOR

Francisco Leitão

PROPOSER INSTITUTION

Centro de Ciências do Mar do Algarve

PROJECT PARTNER INSTITUTIONS

Centro de Ciências do Mar do Algarve

Portugal

Universidade de Aveiro

Portugal

Escola Superior de Ciências Costeiras e Marinhas,

Mozambique

Univ. Eduardo Mondlane

Instituto Nacional de Investigação Pesqueira

Mozambique

ABSTRACT

The Bons Sinais (BS) estuary sustains an important artisanal fishery (targeting fish and invertebrates) providing an important source of animal protein, employment, revenue etc. to many fishing villages. This collaborative project aims to enhance the knowledge in biology, ecology and socio-economic aspects of fisheries: an integrative approach for improved fisheries management and live quality is development. The project incorporates the following main objectives: Environmental description of the area, inventory of fishery diversity, the study of key-species' biology, population dynamics and recruitment of species with socio-economic interest, fishing pressure risk assessment, socioeconomic importance of the fishing activity, capacity building and definition of management strategies for regional subsistence/artisanal fisheries. A Socio-economic characterization of fishing communities and assessment of the value-chain of exploited fisheries resources will be done, e.g. level of dependence of fishing villages on fisheries. Capacity building will be done through workshops and seminars. These will be organized to do Environmental education oriented to community leaders, artisanal/subsistence fishing, and students. It is expected that the project will achieve the following results: a list of fishery species exploited including fish, crabs, gastropods, shrimps, bivalves and other invertebrates; list of gears used by the artisanal fishery activity, map showing main fishing locations; a description of the biology and ecology of species with economic interest. Moreover, environmental and socioeconomic assessments will be used to provide guidelines for sustainable fisheries in an area where no regulation exists. Therefore, applied technical-scientific knowledge can be converted to provide guidelines for improved quality of life.



COBIO-NET

Coastal biodiversity and food security in peri-urban Sub-Saharan Africa: assessment, capacity building and regional networking in contrasting Indian and Atlantic Oceans

PROJECT COORDINATOR

José Pavão Mendes de Paula

PROPOSER INSTITUTION

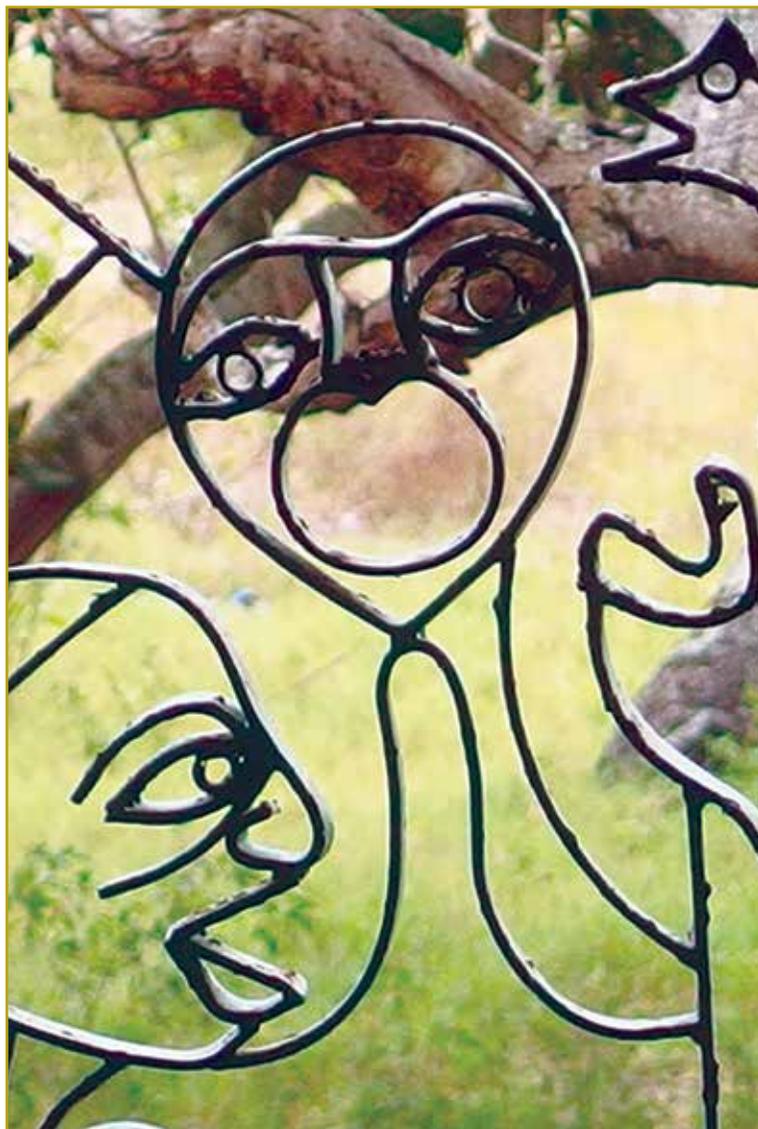
Faculdade de Ciências da Universidade de Lisboa

PROJECT PARTNER INSTITUTIONS

Faculdade de Ciências da Universidade de Lisboa	Portugal
Universidade de Lisboa – Museu Nacional de História Natural e da Ciência	Portugal
Universidade Eduardo Mondlane	Mozambique
Museu de História Natural de Maputo	Mozambique
Government of Príncipe Autonomous Region - Príncipe Island, UNESCO Biosphere Reserve	São Tomé e Príncipe
Fundação Príncipe Trust	São Tomé e Príncipe
Western Indian Ocean Marine Science Association	Tanzania

ABSTRACT

The COBIO-NET project is dedicated to study coastal marine biodiversity and its contribution to food security in peri-urban areas, where intensity of exploitation and degradation pressures on natural systems and impacts coastal human well-being. It aims to contribute to the stability of food sources and sustainable development of coastal areas. It further envisages raising public awareness by wide dissemination of results, increasing local capacities and promoting networking at different levels. It targets the adjacent marine environments of Maputo in Mozambique and Santo António do Príncipe in São Tomé & Príncipe, strategically chosen for providing comparisons between Indian and Atlantic Oceans, and increasing transnational and regional collaborations. For meeting the project objectives four work tasks are included: (1) biodiversity evaluation and its contribution to food security, by monitoring ecosystems and resources, and acting on degraded habitat rehabilitation; (2) biodiversity repositories and online accessible databases, integrating existing and newly generated natural history collections and their wide accessibility; (3) dissemination and public awareness, through the production of dissemination materials and promotion of events, as well as engaging the coastal communities dependent on coastal resources; and (4) capacity building and networking, by organizing workshops and short courses, establishing linkages to activities at national and regional levels, and assessing legal and governance frameworks.



CulturesPast&Present

Memories, cultures and identities: how the past weights on the present-day intercultural relations in Mozambique and Portugal?

PROJECT COORDINATOR

Moisés de Lemos Martins

PROPOSER INSTITUTION

Universidade do Minho

PROJECT PARTNER INSTITUTIONS

Universidade do Minho

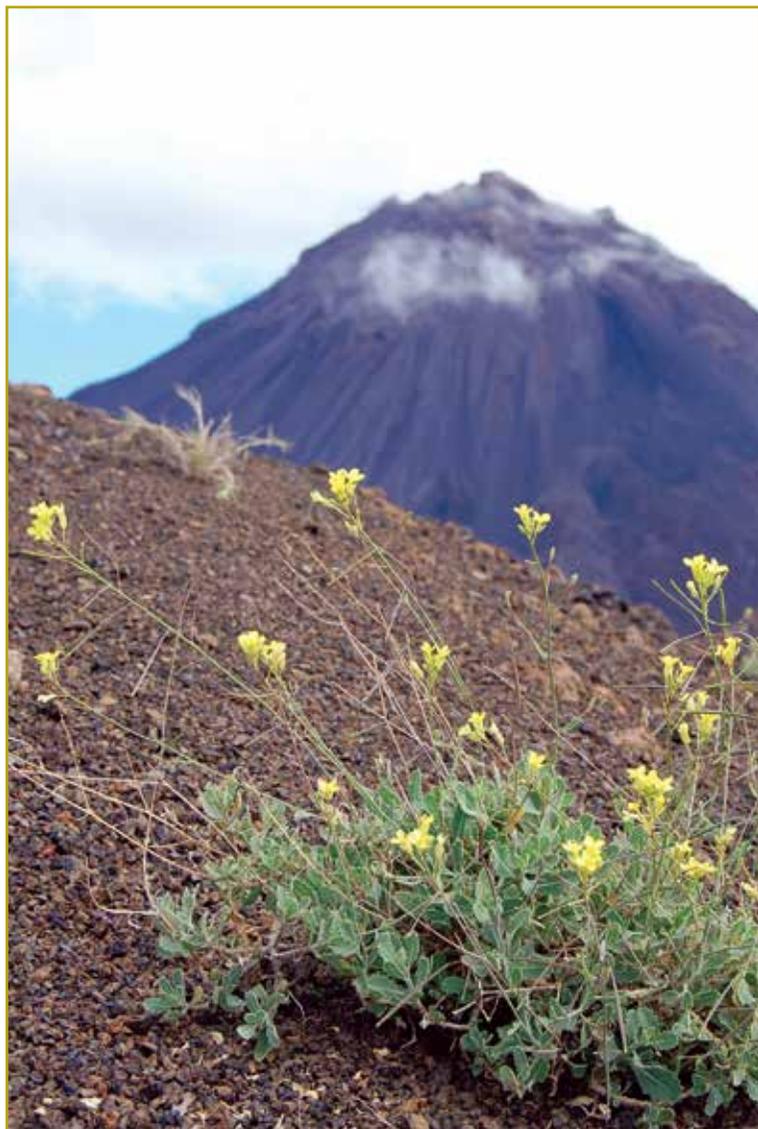
Universidade Eduardo Mondlane

Portugal

Mozambique

ABSTRACT

This project involves Mozambique and Portugal in the collection, production and dissemination of historical, artistic and educational narratives and investigate the way that young people (re)construct and interpret them. Analysing the role of cultural, artistic and educational objects - such as museum's collections, history textbooks and cinema - is key to understand how cultural memories are (re)produced. Through the use of new technologies - as places of emancipation and (re)construction of a cultural memory that encompasses these countries internal diversity - we will focus on the creation of digital platforms and in the dissemination of cultural and educational narratives that reveal plural counter-hegemonic visions about the past. The project's main objective is to analyse the processes through which certain narratives are created and spread in the society, as well as the reception of these materials, exploring how young people interpret and (re)construct narratives from the past. This project also seeks to contribute to the preservation and dissemination of cultural, educational and artistic content in Mozambique and Portugal, which can foster greater mutual knowledge and understanding. Empirical studies will be conducted in both countries, mobilising prior research networks.



CVAgrobiodiversity

Climatic changes and plant genetic resources: the overlooked potential of Cabo Verde's endemic flora

PROJECT COORDINATOR

Maria Manuel Cordeiro Salgueiro Romeiras

PROPONENT INSTITUTION

Instituto Superior de Agronomia, Universidade de Lisboa

PROJECT PARTNER INSTITUTIONS

Instituto Superior de Agronomia, Universidade de Lisboa	Portugal
Universidade dos Açores	Portugal
Faculdade de Ciências, Universidade de Lisboa	Portugal
Escola Superior de Ciências Agrárias e Ambientais, Univ. Cabo Verde	Cabo Verde
Instituto Nacional de Investigação e Desenvolvimento Agrário	Cabo Verde
Direção Nacional do Ambiente de Cabo Verde	Cabo Verde

ABSTRACT

Africa's food security will be under threat due to adverse constraints of climate changes on agricultural systems. Crop Wild Relatives (CWR) represents a large pool of genetic diversity required in breeding programs to increase the adaptive capacity of agricultural systems. The main goal of this project is to identify the unexplored CWR taxa of Cabo Verde, to increase the sustainable use of biodiversity in improving food security. We will review the current state of knowledge in agricultural biodiversity, providing new data on plant genetic resources to supplement the breeding pool of abiotic stress tolerance. Specifically, we will produce an inventory of the Cabo Verde CWR that will provide data for developing a "National Strategy for Plant Genetic Resources" to be implemented by the local institutions. Also, we will integrate ecological (e.g. species distribution models) and molecular tools (e.g. genetic diversity, genomics) to: infer species distribution scenarios under climatic variations; determine potential areas of CWR occurrence, for their conservation; and identify genes linked to abiotic stress useful in breeding programs to increase crop productivity. The team long-term collaboration will enhance institutional capacities through knowledge share and collaborative work, key factors to achieve the proposed goals. This project ensures Science promotion; knowledge increase in biodiversity preservation and gene discovery, providing well prepared scientists. It catalyses international cooperation among Portuguese-Speaking Countries.



CVHIVCo

Epidemiology, drug resistance and pathogenesis of HIV in Cape Verde: the Cape Verde HIV Cohort

PROJECT COORDINATOR

Nuno Taveira

PROPOSER INSTITUTION

Egas Moniz

PROJECT PARTNER INSTITUTIONS

Egas Moniz- Cooperativa de Ensino CRL	Portugal
Programa de Luta contra as Doenças de Transmissão Sexual, incluindo VIH/Sida (PLDTS)	Cape Verde
National Institute of Allergy and Infectious Diseases, NIH	U.S.A.

ABSTRACT

HIV-1 affects a significant number of individuals in Cape Verde and even though antiretroviral treatment is available for all patients in need, drug resistance has increased to alarming rates in recent years. Resistance testing is required to help select effective second-line ART regimens and prevent further transmission of drug resistant isolates. On the other hand, virtually nothing is known about the acute phase of HIV-2 infection and how it sets the stage for the attenuated course of infection that is typical of this virus. HIV-2 represented 12% of new infections in 2015 in Cape Verde making this country an ideal place to study the acute phase of HIV-2 infection. In this context, the overall objectives of this project are to obtain a detailed understanding of the HIV epidemiology, drug resistance and pathogenesis in Cape Verde. Specific objectives are: 1) to determine the rates of primary and secondary drug resistance in HIV-1 and HIV-2-infected patients; 2) to characterize the neutralizing antibody response in HIV-2-infected patients during acute infection and its impact in virus evolution and disease progression; and 3) to study the contribution of host restriction factors SAMHD1 and tetherin in the control of HIV-2 replication and disease progression. In task 1 the HIV Cape Verde Cohort will be established. This will be a prospective cohort of 225 HIV-1-infected (110 drug-naïve and 115 failing ART therapy) and 75 HIV-2-infected individuals enrolled and followed at the Hospitals and Health Centers in São Vicente and Praia over a three-year period. Socio-demographic, clinical and laboratory data will be collected at study entry and every 6 months thereafter. Understanding the epidemic behaviour, drug resistance profiles and pathogenesis of HIV-1 and HIV-2 in Cape Verde will contribute to design and implement better strategies to prevent and control HIV infection in this country.



DOPPLER

DevelOpment of PaloP knowLEdge in Radioastronomy

PROJECT COORDINATOR

Valério A. R. M. Ribeiro

PROponent INSTITUTION

Universidade de Aveiro

PROJECT PARTNER INSTITUTIONS

Universidade de Aveiro

Portugal

Universidade Eduardo Mondlane

Mozambique

Instituto de Telecomunicações

Portugal

Faculdade de Ciências da Universidade do Porto

Portugal

Universidade de Coimbra

Portugal

Osuwela

Mozambique

ABSTRACT

The International Astronomical Union through its strategic plan "Astronomy for Development" actively promotes the use of astronomy as a tool for development by mobilizing the human and financial resources to connect science with economic growth and cultural change in society. This became particularly relevant for Africa because, in 2012, an international panel of astronomers awarded the bulk of the Square Kilometre Array (SKA) project in Southern Africa. The SKA will be a network of telescopes with its core in South Africa and stretching along other African Partner countries (including Mozambique). The benefits for Mozambique from its participation in SKA will be plentiful, with contributions to telecommunications, space sciences, land management, computing and big data, truly driving change and impact on the economic activity. Portugal has recently applied to become an SKA Organisation member with funding awarded through a research infrastructure - ENGAGE SKA. Universidade Eduardo Mondlane in Mozambique will receive from SKA SA two new teaching radio telescopes that will allow different groups of students, from physicists to engineers, to train and develop much needed skills. DOPPLER builds on the expertise of Portuguese institutions involved in ENGAGE SKA, and on the pivotal role of UEM to timely address a strategic plan and to build capacity for SKA in Mozambique. DOPPLER includes initiatives to further ongoing endeavours, in particular in advanced training on areas of biodiversity, food security, and resource management.

LuandaWaterFront

Luanda Bay Ecological Assessment: A waterfront based approach to reduce environmental risks and increase quality of life

PROJECT COORDINATOR

Maria Alexandra Anica Teodósio

PROPOSER INSTITUTION

Centro de Ciências do Mar do Algarve

PROJECT PARTNER INSTITUTIONS

Centro de Ciências do Mar do Algarve

Portugal

Universidade do Algarve

Portugal

Instituto Nacional de Investigação Pesqueira

Angola

Universidade Agostinho Neto

Angola

ABSTRACT

Luanda Bay (LB) is the second largest coastal bay in Angola, located in front of Luanda city, and protected by an island. LB is a rich ecosystem that provides a wide diversity of services. Due to its relevance, multiple pressures on surroundings areas are threatening the ecosystem. Solid waste and untreated domestic effluents are released daily into the Bay, hampering the practice of nautical sports, and the subsistence of fishing and leisure activities. The government recently approved a program to rehabilitate the marginal area of LB. The prediction of the environmental responses to rehabilitation actions, and the mitigation of current threats to LB, requires the analysis of water and sediment quality and evaluation of trophic dynamics, including potential toxic species (e.g., HABs). This project will provide biodiversity databases and a deeper understanding of the determinants underlying poor water quality, specifically toxigenic species presence, in LB, in comparison to a reference site, Mussulo bay. An ecosystem-based approach, crucial for planning the future development of LB, is based on two main principles: maintaining and improving the ecosystem health, and balancing derived society values. In order to achieve these objectives, an Ecological Risk Assessment (ERA) will be developed for LB to identify priority issues and management actions. This exercise will involve relevant local and management institutions to facilitate a participatory approach so that society becomes an integral part of the project facilitated by the Collaborative Research Center in Marine Sciences “CCEMAR” that will be established. The sustainable development of the sea is a major goal of Blue Economy and Blue Society, integrating marine resources and the mitigation of environmental risks for increasing the QoL.

Maf_TB

Understanding host-pathogen interactions in tuberculosis: lessons from *Mycobacterium africanum*

PROJECT COORDINATOR

Margarida Saraiva

PROPOSER INSTITUTION

Instituto de Biologia Molecular e Celular - IBMC

PROJECT PARTNER INSTITUTIONS

Instituto de Biologia Molecular e Celular - IBMC

Portugal

Projecto Saúde de Bandim

Guinea-Bissau

Laboratório Nacional de Saúde Pública

Guinea-Bissau

Aarhus University

Denmark

ABSTRACT

Tuberculosis (TB) remains a serious public health problem, with 1.8 million deaths and over 10 million new cases in 2015. In Guinea-Bissau an estimated incidence rate of 373/100 000 inhabitants was reported in 2015. Although the *Mycobacterium tuberculosis* complex (MTBC) is considered genetically monomorphic, intrapathogen diversity not only exists, but also impacts on the clinical manifestation of disease, the host immune response and the acquisition of drug resistance. Therefore, the genetic diversity within MTBC is important both for a better understanding of the TB epidemiology, and for the comprehension of the immune response to the pathogen. This project aims at describing the genetic diversity of circulating MTBC in Bissau and how it relates to drug resistance profiles in the Hospital Raoul Follereau (HRF), the national TB hospital in Bissau, and surrounding health centres. This will provide important tools to potentially improve protection in infections with *Mycobacterium tuberculosis* (Mtb). *Mycobacterium africanum* (Maf) was shown to be more likely to cause TB in immune suppressed individuals and to associate with lower progression to disease in exposed contacts, despite a similar rate of transmission. These reports imply differences in virulence, being Maf attenuated when compared to Mtb. Additionally, while Mtb is widely spread in the world, Maf is restricted to specific regions in Africa, where it causes up to half of all TB cases. A study showed that Ghanaian TB patients infected with Maf were more likely to belong to the Ewe ethnic group, compared to patients carrying other MTBC bacteria, thus suggesting that a host-pathogen mutual adaptation has occurred. Therefore, a detailed understanding of the mechanisms and immune responses triggered by Maf provides an excellent platform for the study of host-pathogen interactions and its link to TB pathogenesis. Thus, the study of the host-Maf interactions, connected to clinical research, may provide a model for the study of slower TB progression, with translational implications for Mtb-caused TB.



MalAngo

Malaria drug resistance: treatment alternatives and optimization – a project strengthening a national reference centre for anti-malarial clinical trials and capacity building in Angola.

PROJECT COORDINATOR

José Pedro Gil

PROPOSER INSTITUTION

Fundação Calouste Gulbenkian

PROJECT PARTNER INSTITUTIONS

Fundação Calouste Gulbenkian

Portugal

CISA- Centro de investigação em Saúde de Angola

Angola

Instituto de Medicina Molecular (iMM)

Portugal

ABSTRACT

Malaria is the largest child killing disease in Africa. In Angola it represents a foremost public health challenge including a considerable impact in child development. Artemisinin combination therapy (ACT) is the global approach for malaria treatment. The efficacy of the ACT Artemether-lumefantrine (AL) is central for the Angolan National Malaria Control Program. Efficacy trials conducted in the Zaire region, bordering the Bengo Province, have shown AL efficacies significantly below the WHO ACT watermark. It is unclear how ACT pharmacodynamics is affected by the patient iron status. In addition to proposing AP as an ACT option, the project will contribute with novel information aiming to support treatment optimization through nutrition, focused on iron supplementation.



NutriMo

Development of handmade diets for tilapia nutrition in community based aquaculture in Mozambique

PROJECT COORDINATOR

Amadeu Mortágua Velho da Maia Soares

PROPOSER INSTITUTION

Universidade de Aveiro

PROJECT PARTNER INSTITUTIONS

Universidade de Aveiro

Universidade do Lúrio

Direção Provincial do Mar, Águas Interiores e Pescas
(DPMAIP)

Portugal

Mozambique

Mozambique

ABSTRACT

Freshwater fish farming in Cabo Delgado emerged in the 2000s, with the development of tilapia fish production. However, this activity has never been sustainable due to the lack of quality juveniles, technology transfer, adequate feed, and technical capacity to transfer technology. The inexistence of fish feed factories in several geographic locations implicate fish feed importation and storage, aggravating production costs, and therefore economical sustainability of this activity. Community based aquaculture can assume a fundamental role in the production of food in undeveloped countries, especially in villages far from large urban centers, where the production of animal protein for human consumption is scarce, leading to the emergence of nutrition problems that affect mainly growing children. The development of manufactured fish feed, for use in community tilapia aquaculture, may represent a giant step in the development of this activity. In addition, if improvements are made in the breeding process, as well as in the training of human resources, we can contribute substantially to the sustainable development of this activity in African countries, specifically in Mozambique. This project aims to develop manufactured diets for tilapia nutrition in community based aquaculture in Mozambique. It is divided in 7 tasks: 1) Identification of raw ingredients with potential for fish feeds; 2) Nutritional and biochemical characterization of selected local ingredients for fish feeds; 3) Broodstock selection and juvenile production; 4) Development of feed formulae for handmade feeds; 5) Experimental community based tilapia aquaculture testing developed feed formulae; 6) transference of technology; and 7) Disseminations of results. The project will be developed in the village of Magogo, where despite agriculture being the predominant activity, there are some tanks for the production of endemic Mozambican tilapia (*Oreochromis mossambicus*). We aim to contribute for the capacity building of project partner human resources, at the clerical and scientific levels, including young Mozambican scientists, to implement a pilot community based aquaculture, reproducible in other villages, contributing to the improvement of the quality of life of the inhabitants of villages far from big urban centers, through their capacitation to produce their own food in a sustainable way.



PaleoMoz

Creating the first generation of paleontologists in Mozambique: paleontology as a gateway to science

PROJECT COORDINATOR

Ricardo Miguel Nóbrega Araújo

PROPOSER INSTITUTION

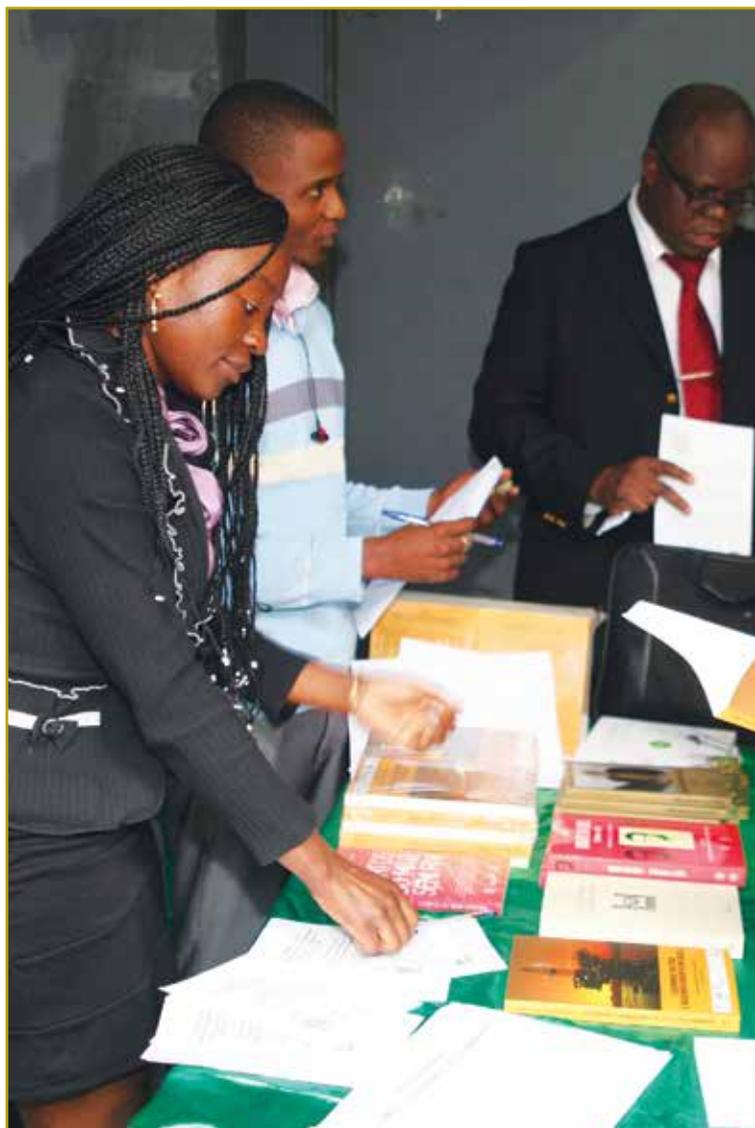
Instituto Superior Técnico

PROJECT PARTNER INSTITUTIONS

Instituto Superior Técnico	Portugal
Museu Nacional de Geologia	Mozambique
Direcção Provincial dos Recursos Minerais e Energia do Niassa	Mozambique
Universidade Eduardo Mondlane	Mozambique
Universidade Pedagógica da Beira	Mozambique
Field Museum Chicago	U.S.A.
Virginia Tech	U.S.A.
University of the Witwatersrand	South Africa
Boise State University	U.S.A.
Museu da Lourinhã	Portugal

ABSTRACT

Biodiversity is critical for ecosystems and thus for provisioning the ecosystem services on which the ever-growing human population depends upon. Recent global change driven by human activity has caused the degradation of ecosystems, with a significant reduction in biodiversity. Economic and public health costs associated with biodiversity loss can be substantial, particularly in developing countries. It is therefore essential to forecast the impact of human-driven environmental changes on biodiversity. Paleontology data describing how species responded to past climate changes provide crucial information for predicting how anthropogenic climate change may affect biodiversity. For instance, during the Permian- Triassic mass extinction (PTME), around 251 million years (My) ago, about 95% of species were lost due to a dramatic rise in the global temperature. Studies describing the paleobiodiversity before and after the PTME are therefore valuable for estimating the effects of human-driven climate change on biodiversity. We have previously explored a sedimentary sequence extending from the Permian (~290My) to the Jurassic (~190My) on the northern Mozambican province of Niassa. These sediments contain a rare and virtually unexplored fossil record of the pre- and post-PTME biodiversity. Our Portuguese-Mozambican collaboration (www.palniassa.net) gave important insights into our understanding of pre-PTME terrestrial vertebrate diversity and evolution, and also provided research training to several Mozambican students. This multidisciplinary collaboration will allow us to expand our research objectives and study post-PTME vertebrate but also plant paleobiodiversity. This research will produce significant paleobiodiversity data describing how species respond to and recover from global environmental crisis, including climate change.



P-DEIAM Pluralism: Democratisation and Electoral Integrity in Angola and Mozambique

PROJECT COORDINATOR

Nuno Vidal

PROPOSER INSTITUTION

Centre for International Studies - CEI-ISCTE-IUL

PROJECT PARTNER INSTITUTIONS

Centro de Estudos Internacionais - CEI-ISCTE-IUL	Portugal
Universidade Católica de Angola - UCAN	Angola
Universidade Eduardo Mondlane - UEM	Mozambique
Fundação Open Society - Angola	Angola
Associação Chá de Caxinde - ACC	Portugal
Associação Angolana para Educação de Adultos - AAEA	Angola

ABSTRACT

This project assesses the impact of electoral integrity on pluralism and democratisation in Angola and Mozambique, comparing both cases through the analysis of specific electoral processes: the Mozambique 2018 municipal election; the Mozambique 2019 general election; the Angola 2020 municipal elections. We test the assumption that the impact of electoral integrity on pluralism and democratization on those two countries depends on the balance of forces between two opposing forces: 1) attempts by the neo-patrimonial regimes in place and its governments to distort electoral integrity as a strategy to maintain its political hegemony; 2) actions taken by other society sectors and actors (e.g. individual citizens, civil society organisations, media, churches, political parties, unions and international partners) trying to get the government to abide by the law on electoral integrity to take the most out of the opportunity created by electoral processes for pluralism. Within our broader project on democratization and development processes in Southern Africa (since 2004) we now want to focus on a more technically and conceptually deeper comparison of electoral integrity and pluralism in two Southern African countries - Angola and Mozambique, through those mentioned forthcoming electoral processes. These countries are particularly fit for comparative studies. They do present several similarities in terms of political historical path, but they also show different outcomes in terms of pluralism and democratization. Angola has been usually presented as a case of innocuous electoral ritualistic disguising the distortion of electoral integrity, authoritarianism and lack of effective pluralism and democratization, while Mozambique had so far been presented as a case where the transition had been peaceful, electoral integrity has been contested but not abrogated and meaning, at least, some effective pluralism and democratization when compared to Angola. The similarities in terms of the political path of former Socialist single-parties and transitions and the dissimilarities in terms of pluralism outcome do represent an excellent opportunity for comparison in terms of the effects of electoral integrity on the democratization of so-called neo-patrimonial regimes, characterized by their pursuit for hegemony.

PV4SUSTAINABILITY

Photovoltaic System for Sustainable Irrigation of Family Agricultural Production Units and Training of Young People and Women in Boane District, Maputo Province

PROJECT COORDINATOR

Carlos Alberto Caridade Monteiro e Couto

PROPOSER INSTITUTION

Universidade do Minho

PROJECT PARTNER INSTITUTIONS

Universidade do Minho
Universidade Pedagógica

Portugal
Mozambique

ABSTRACT

Most of the Mozambican population lives in rural areas (68.2%) far from the main roads. About 80% of the Mozambican population lives primarily by agricultural practice, which is a major eradication strategy of absolute poverty in the country, where a significant part of the population has no access to drinking water for human consumption or irrigation, and significant part of children suffer from malnutrition problem. Furthermore, the energy required by the population has a high cost, considering energy as the key element for continuous and stable production. This project has the fundamental objective to promote scientific innovation, technology transfer, sustainable development and entrepreneurship, through family agriculture irrigation systems in the Boane District, Maputo Province, driven by alternative energy sources for electricity generation. The expected results, among others, are the following: (a) A Scientific Innovation Center, for technology transfer and entrepreneurship in sustainable farming techniques, nutrition supply, maintenance and repair of solar systems for local resolution of local problems; (b) A water pumping station operated by PV system for irrigation of family farming unit; (c) Stimulating the continued production of food by family agriculture; (d) Improving the living conditions of the families involved in the project through the dissemination of the proposed technology; (e) Existence of different groups of human capacity (600 people per year along 3 years) in the Boane District, with training in sustainable farming techniques, nutrition supply, maintenance and repair of PV systems for local resolution of problems.

SCAFfoldChild

Sickle Cell Anemia and Fetal Hemoglobin. Genetic modifiers in an Angolan Children Cohort.

PROJECT COORDINATOR

Miguel Brito

PROPOSER INSTITUTION

Instituto Politécnico de Lisboa / Escola Superior de Tecnologia da Saúde de Lisboa (IPL/ESTESL)

PROJECT PARTNER INSTITUTIONS

Instituto Politécnico de Lisboa / Escola Superior de Tecnologia da Saúde de Lisboa (IPL/ESTESL)	Portugal
Centro de Investigação em Saúde de Angola (CISA)	Angola
Hospital Geral do Bengo (HGB)	Angola
Faculdade de Medicina da Universidade Agostinho Neto (FMUAN)	Angola
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ABSTRACT

Sickle-cell disease (SCD) is an hereditary disease with a prevalence of 1.5% in Angola. In 2006, the World Health Organization (WHO) identified SCD as a significant public health problem in Africa that may contribute to up to 16% of under-5 mortality. In 2014, CISA, with the collaboration of FCG (an AKDN partner) and ESTESL started a research project in order to perform neonatal and children screening and started a cohort of SCD patients in Hospital Geral do Bengo. The clinical manifestations of SCD are very heterogeneous and the concentration of residual fetal haemoglobin (HbF) seems to be the most important modifying factors. Genetic determinants of HbF, where associated with at least five loci. Genetic variability in these loci seems to be responsible for the disease variability, and for the treatment response with Hydroxyurea (HU). Patients response to HU is highly variable, and approximately 25% of patients with SCD do not respond to HU. The aim of this study is to use Next Generation Sequencing (NGS) to identify genetic predictors of HbF response to HU in Angolan children with SCD. The study will be performed with the CISAs pediatric cohort of SCD. A total of 5 loci will be screened for variants that could be associated with HU induced HbF levels. The secondary aims of this project include: 1- the study the impact of genetic modifiers on clinical SCD phenotypes in this cohort. 2- Establishing a process for the use of HU in pediatric SCD patients in Bengo, Angola, 3- Support the cohort of SCD children, created in the Hospital Geral do Bengo, namely in supporting the clinicians, the laboratory and the acquisition of pharmaceuticals for free distribution. The present proposal can greatly contribute to the continuation of this research collaboration, and give financial and scientific support to the cohort of SCD children at the Bengo General Hospital, Angola. This project could act as a scaffold for the healthy development of SCD children.



SUGGEST-AFRICA SupportinG GEOsciences To develop Africa

PROJECT COORDINATOR

Rui Manuel da Silva Fernandes

PROPOSER INSTITUTION

Universidade da Beira Interior

PROJECT PARTNER INSTITUTIONS

Universidade da Beira Interior	Portugal
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Instituto Geográfico e Cadastral e Angola (IGCA)	Angola
Office of the Surveyor General of Federation (OSGoF)	Nigeria
Instituto Nacional de Minas (INAMI)	Mozambique
Instituto Nacional de Meteorologia (INAM)	Mozambique
Instituto Nacional de Meteorologia e Geofísica	Angola
Universidade Eduardo Mondlane (UEM)	Mozambique

ABSTRACT

Natural disasters such as floods, tropical storms or earthquakes threaten the livelihood of many African populations. Climate change is another potential source of disruption, through sea level rise that can affect the population of low coastal areas, or through an increment of tropical storms. To mitigate the effects of these natural and anthropogenic phenomena, it is critical to understand their causes, a task that requires accurate data. However, a reliable observing infrastructure is still lacking in most of Africa, where such networks are few and under-equipped. The SUGGEST-AFRICA project will focus on the improvement of existing geo-observing networks in Africa, with particular focus on: (a) geodetic networks implemented in collaboration with local partners in Mozambique, Angola, and Nigeria, including stations installed in the framework of some Pan-African projects; (b) meteorological sensors, preferably collocated with the Global Navigation Satellite System (GNSS) stations; (c) seismographic sensors, collocated with the GNSS stations. The data acquired by these networks, complemented by three field campaigns (Mozambique, Angola, and Nigeria) dedicated to sea level monitoring, will support the research component of SUGGEST-AFRICA, focused on: a) Improvement of the geoid model in Mozambique, Nigeria, and Angola. The accurate definition of the geoid is essential to delimitate the potential flooding areas due to storms and sea level rise, namely in river deltas and other lowlands. b) Analysis of short- and long-term variations of precipitable water vapor (PWV) estimates using GNSS and meteorological observations, particularly for extreme events (cyclones and large storms). c) Improvement of the characterization of the seismicity and seismic hazard in Mozambique, where the southward propagation of the East African Rift causes recur-

rent destructive earthquakes such as the M7 Machaze earthquake of 2006. Capacity building will be an essential component of the SUGGEST-AFRICA project, to ensure the continuity of the data acquisition beyond the duration of the project, in order to capture secular variations of the observables. Local staff must be trained to maintain the equipment and to interpret the measurements. The goal is to contribute for the long-term sustainability of the African research infrastructures.

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